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1 INTRODUCTION

The 534 km² (including well-tie lines) Greater Bream 3D marine seismic survey was acquired in the Bass Strait between 22nd April and 13th July 2006 for Esso Australia Pty. Ltd. The survey area is located approximately 50 kilometres south of Lakes Entrance, Victoria, offshore Australia. The location of the survey is displayed in Figure 1.

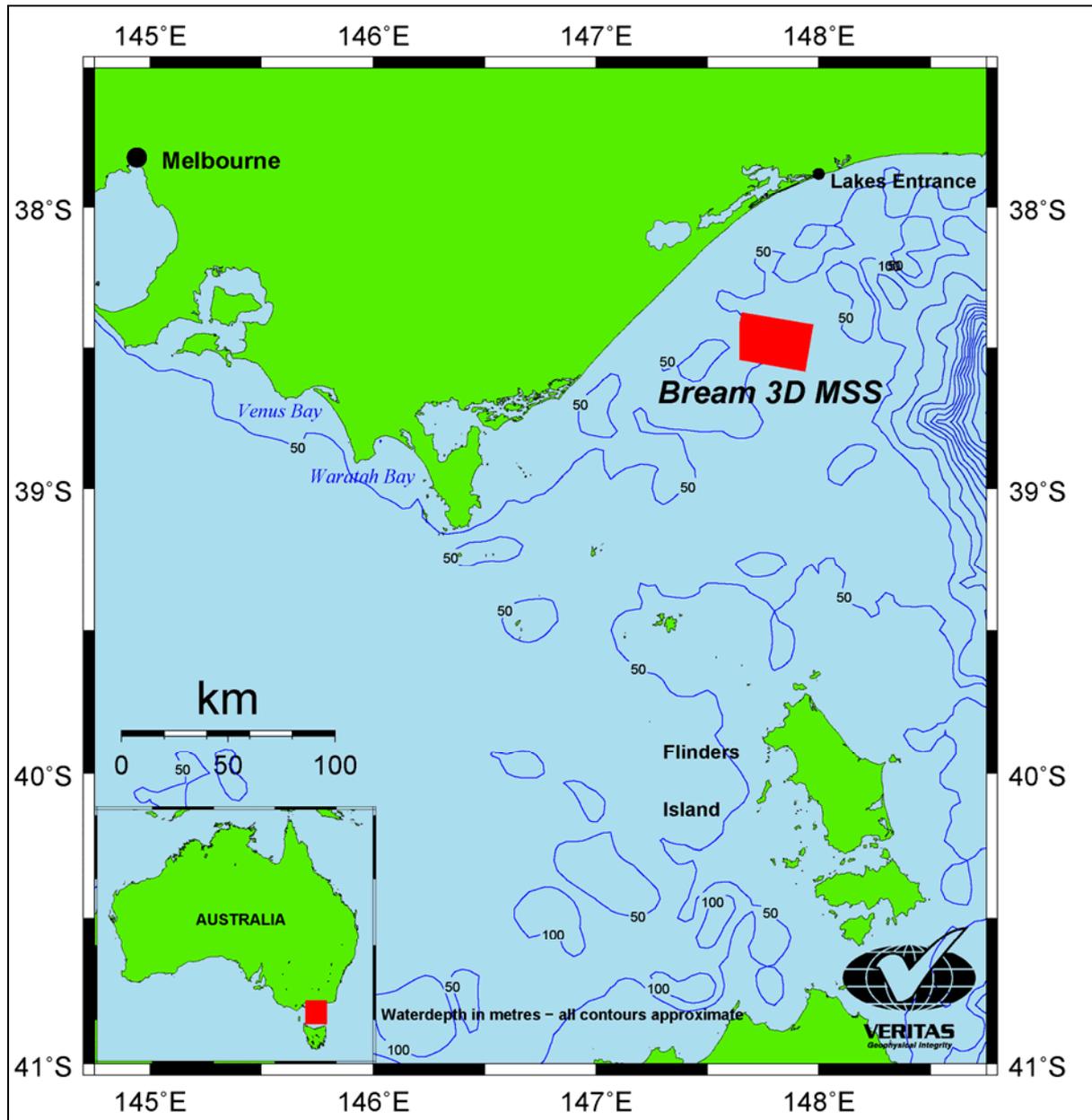


Figure 1: Location of survey

The objectives of the survey were three-fold:

- Improve definition of current reservoir (1600-2200 ms) and strata below 2200 ms
- Use as a baseline for a future 4D monitoring programme
- Confirm prospect to the north of existing Bream A and B producers

When acquisition was completed, the program comprised 32476.5 prime CMP-kms including run out shot points, 18147.9 infill CMP-kms, 124.5 reshoot CMP-kms and 1053.3 CMP-kms of 2D tie lines (charged at 16 CMPs). Over the 57 days production period, a daily average production of 908.8 CMP kilometres was achieved; equivalent to 56.8 sail-kms.

Upon completion, 29.3% of the total survey time¹ was spent in production or associated line-change chargeable time. The remaining 70.7% of the time was accounted for as various categories of mobilisation, regional (weather related) and technical downtime.

The dual source, eight-streamer configuration in use for this survey dictates an acquisition geometry that produces a 6.25x18.75 m bin grid, with 16 subsurface lines being acquired on each vessel pass.

1.1 SURVEY PARAMETERS

The main survey parameters are listed in the following table:

SURVEY DEFINITION

Client name	Esso Australia Pty. Ltd.
Survey name	2006 Greater Bream 3D MSS
Survey location	Gippsland Basin, Bass Strait, Australia
Veritas job number	20323
Shotpoint interval	18.75 m (37.5m per energy source)
Line orientation	10.5/190.5

¹ Inclusive of the undershoot vessel timing which included both mobilization and demobilization from Indonesia

STREAMER

Number of streamers	8
Streamer active length	4500 m
Streamer type	Thales Guardian Twinax Solid Streamer
Streamer separation	75 m +/- 7.5 m (overall 525 m +/- 18.75 m)
Number of groups per streamer	360
Group length	12.5 m
Streamer depth	7 m +/- 0.5 m
Inline offset	75 m
Depth controllers	DigiCOURSE Model 5011 spaced < 300 m

RECORDING PARAMETERS

Record length	6 seconds (6144 ms recorded)
Sampling rate	2 ms
Low cut filter	3(12) Hz (dB/oct)
High cut filter	206(276) Hz (dB/oct)
QC analysis display low-cut filter	5(18) Hz (dB/oct)
Recording format	SEGD-8036 (24-bit integer)
Recording media	3590 data cartridge
Fold of data	60
Auxiliary traces	12 (11 near-field + 1 combined near-field/time break)
Recording time delay	0

ENERGY SOURCE

Source type	Bolt 1500LL & Bolt 1900LLXT
Number of sources	2
Source array depth	6 m +/- 0.5 m
Source length	16.5 m (16.0 m on Pacific Sword during undershoot)
Gun synchronization	+/- 1.0 ms
Nominal air pressure	2000 psi (minimum 1900 psi)
Volume	4450 cu in
Undershoot vessel gun volume	4550 cu in single source.
Source centre-centre separation	37.5 m +/- 3.75 m
Sub-array separation	8 m +/- 1.5 m
Number of sub-arrays	3

NAVIGATION

Primary Navigation System	Veripos Ultra
Secondary Navigation System	Veripos Standard
Tertiary Navigation System	C-Nav
Steering Position Layback	CMP (inline midpoint between guns and first-group)
Run out shot points to achieve full-fold	120 (does NOT include the 5 shots for navigation processing)
Shooting Mode	Dual source flip-flop
Undershoot Shooting Mode	Single source (2 passes of each line required)
SOL run in	6750 m (1.5 x streamer length)
Offset zones	4 (bin scale MUST display actual hits per bin, not percentages)

POSITIONING PARAMETERS – ACQUISITION & PROCESSING

Acquisition Datum	WGS84
Spheroid	WGS84
Semi-Major Axis	6378137.000
Inverse Flattening	298.257223563
Projection	UTM
Zone	55S
Origin Latitude	0°00'00" N
Central Meridian	147°00'00 E
False Easting	500000
False Northing	10000000
Scale factor at Central Meridian	0.99960

2 FIELD OPERATIONS

This section provides a general overview of the significant operational aspects of the Greater Bream 3D marine seismic survey. Detailed information concerning specific survey lines and events is included in the Supporting Documents section of the CD-ROM.

2.1 GENERAL OVERVIEW

The accounting for the survey starts at 00:00 hours on 22nd April 2006.

The SR/V Veritas Viking II mobilised for the survey in the port of Fremantle, West Australia. Various calibrations and upgrades were carried during the port call and subsequent transit to the prospect area. On 28th April, the vessel arrived in the prospect and started to deploy the trailing gear. Incoming severe weather necessitated retrieving the partially deployed gear 3 days later; deployment was restarted on 5th May. On 11th May, the spread was deemed to be in a contractually acceptable condition to acquire the first line, G06A-1440P2-004 (sail sequences 1 and 2 were acquired as test lines, sequence 3 was determined to be DNP).

Phase 1 of the survey covered the definition of the undershoot area around existing production platforms Bream A and B. The undershoot vessel to be used was the Pacific Sword which began mobilization from Singapore on the 25th April and arrived on station on 12th May. By 19th May, seismic data coverage was sufficient around the platforms in order to commence the undershoot stage. Adverse weather, technical issues and the fact that the Pacific Sword employed only a single source caused the undershoot phase to take 12 days. The undershoot stage was completed by line G06A-1520U7 on 30th May, and the Pacific Sword departed from the prospect area. Demobilization for the Pacific Sword ended at 24:00 on the 11th June when she arrived back in Indonesia.

Phase 2 covered the acquisition of the conventional single vessel lines to the East of the Bream A platform, Phase 2 commenced with line G06A-1168P1-058 on 30th May 2006, and prime acquisition of this area was completed with line G06A-1312F5 on 18th June 2006.

Phase 3 consisted of the area to the West of the Bream A platform, and commenced with line G06A-1904F1-117 on 18th June 2006. Prime acquisition of Phase 3 was completed by line G06A-2208P1-179 on 02nd July 2006.

The survey was deemed complete after acquisition of sail line G06A-1104F2-198 on 06th July 2006 at 21:27 hours. Upon completion, the trailing gear was recovered and the vessel

steamed for the port of Fremantle. The time accounting for the Greater Bream 3D survey ends at 24:00 hours on 13th July 2006.

2.2 OPERATIONAL FACTORS

2.2.1 WEATHER

Weather and sea state were variable over the survey period. Periods of minimal swell and low winds were alternated with very rough sea state and high winds. Since data were only acquired during relatively calm periods, swell noise and other weather-induced degradation was kept to a minimum.

2.2.2 CURRENTS AND TIDES

Tidal heights in the prospect area are small, in the range of +/-0.7 metres from Mean Sea Level. Esso Australia supplied predicted tidal and current information prior to the survey start. By client request, the tidal information was not used to correct the recorded bathymetry data. It was used to apply static corrections to the seismic data (in the order of +/- 1.0 ms) during the onboard processing stages.

Currents in the area were strong during tidal springs (which happened during the undershoot stage). The supplied current information proved extremely useful in planning safe close passes to both platforms.

Feather angles during the survey were generally within the range of +/- 10°, and on occasion more than this. The feather was not consistent between adjacent lines and this is reflected in the high infill percentage upon completion.

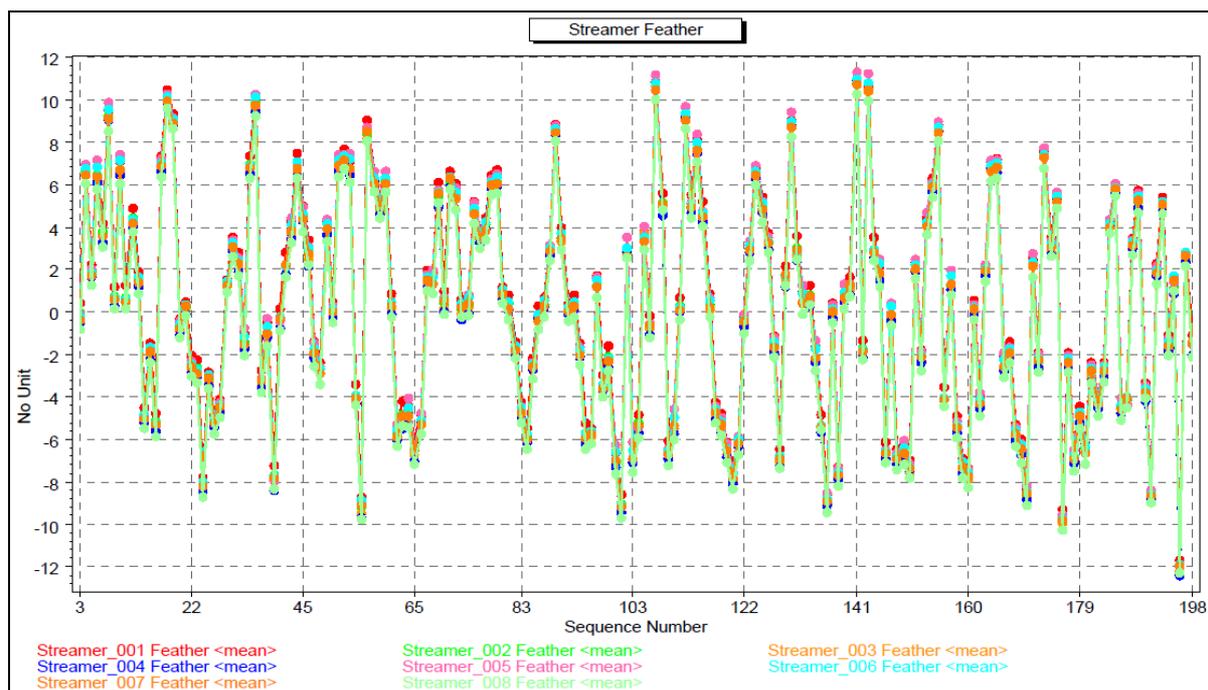


Figure 2: Average feather angles during survey displayed per sail sequence

2.2.3 OBSTRUCTIONS AND WATER DEPTH

Two fixed platforms – Bream A and the unmanned Bream B, approximately 6 km apart, were present in the prospect area and required undershooting. The M/V Pacific Sword was used as the source boat for the undershoot lines.

Water depths range between 40 to 60 metres inside the survey area. A bathymetry map (using data from the vessels echo sounder as supplied in the processed navigation data) is displayed in Figure 3.

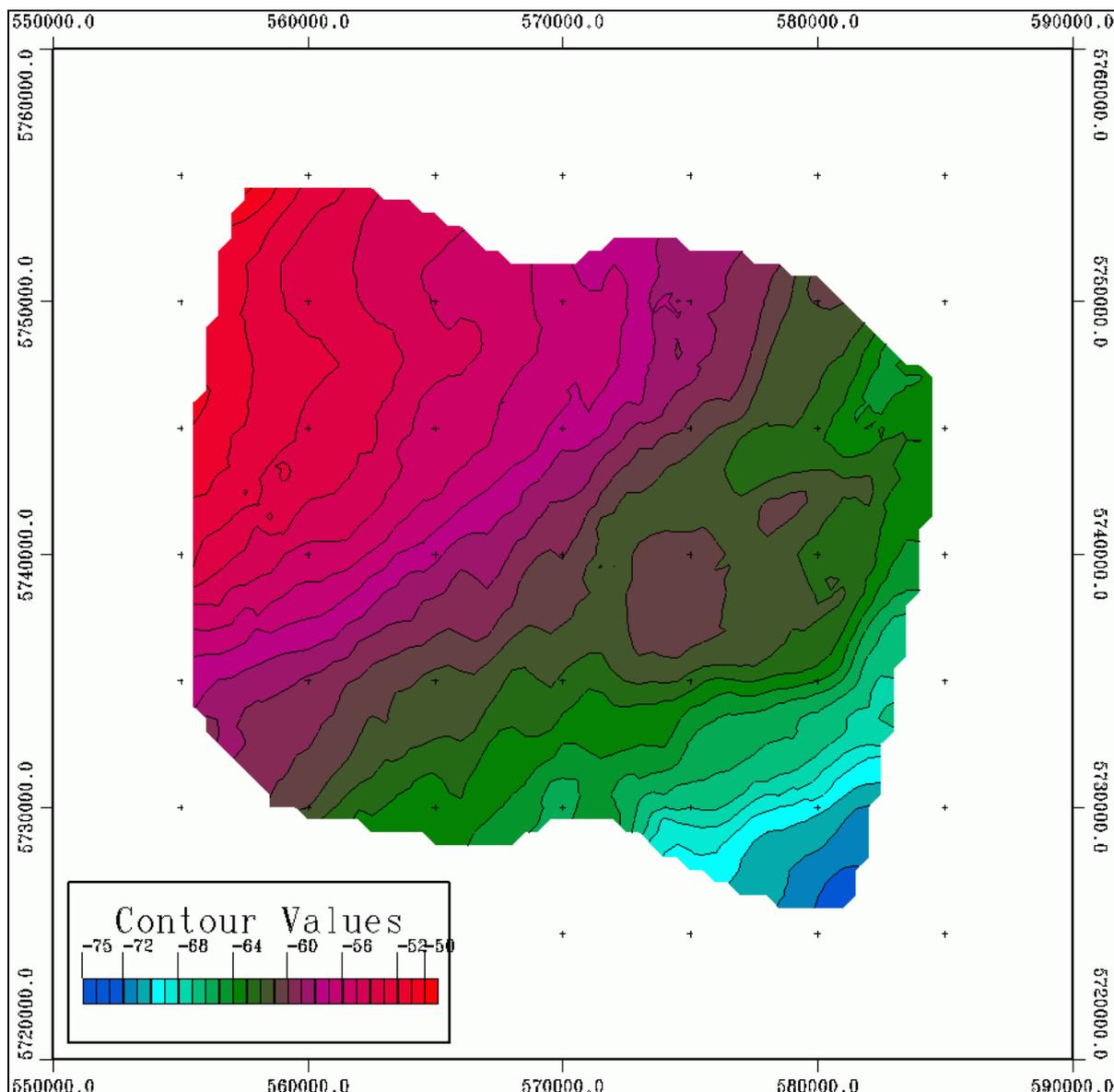


Figure 3: Bathymetry in the survey area

2.2.4 FISHING AND SHIPPING TRAFFIC

Professional fishing is an occasional activity around the prospect. Due to pre-survey planning and good communication between Esso, Veritas and the local fishermen, very few problems were encountered. The professional fishing activity increased towards the end of the survey, in-line with the established fishing seasons in the area. Whenever fishing activity was encountered, dialogue was initiated between the vessels and ensured a compromise acceptable to all parties was achieved.

During the survey, Veritas employed several chase boats to scout and patrol the area and act as a supply vessel. The main chase vessel – OMS Voyager – had a major malfunction in the early days of the survey and a replacement was found – Swissco.

Since the prospect area is well away from international shipping lanes, no commercial traffic was encountered. The occasional pleasure craft was encountered. Either the SR/V Veritas Viking II bridge personnel or the chase vessel requested they stay well clear of the operation. No incidents were experienced with shipping traffic.

2.2.5 SEISMIC INTERFERENCE & TIME-SHARING

No other seismic research was conducted near the prospect during the time of acquisition; hence, no seismic interference was present at any time.

Occasionally, low levels of noise from passing vessels were observed as well as side-swipe on undershoot and close passes to the platforms.

2.2.6 SURVEY LAYOUT

The survey was an irregular rectangular shape. The swaths with their acquisition directions are displayed in Figure 4. A post plot map of the acquisition is included in the CD-ROM and is shown in Figure 5. Table 1 shows the coordinates of the full-fold boundary in WGS-84 datum.

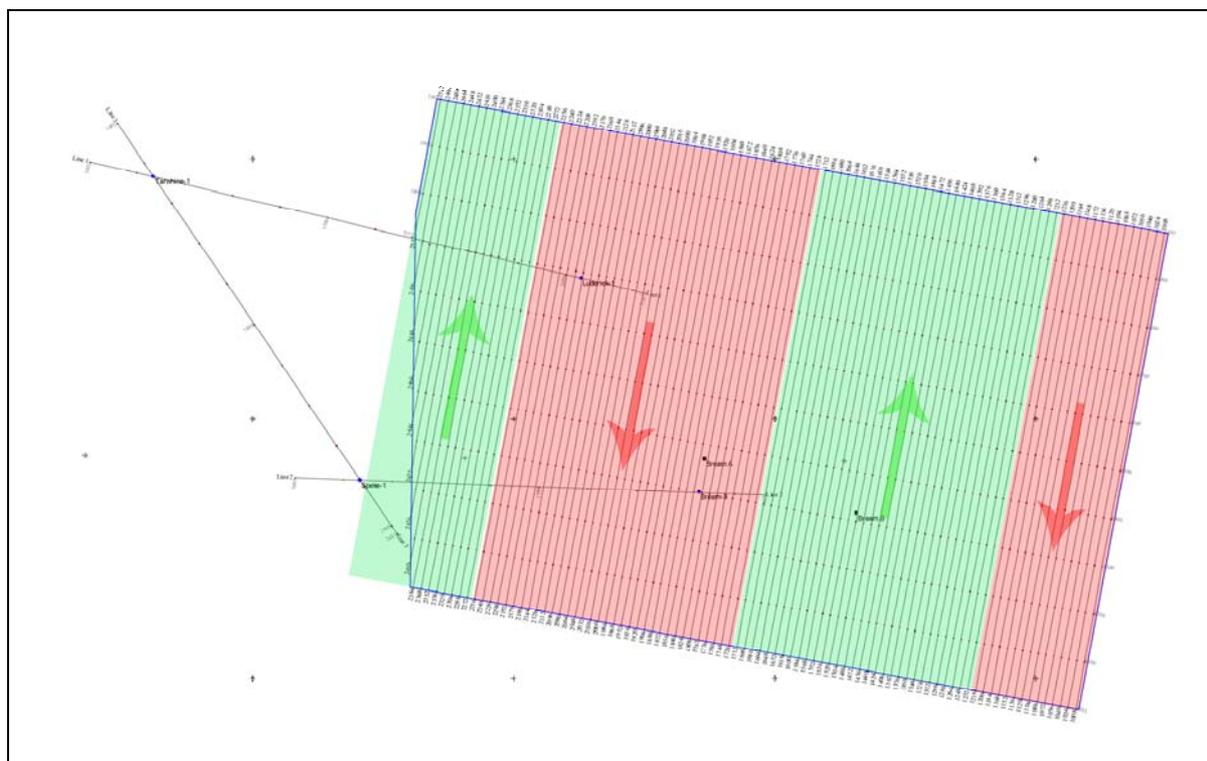


Figure 4: Greater Bream 3D survey map with acquisition swaths indicated

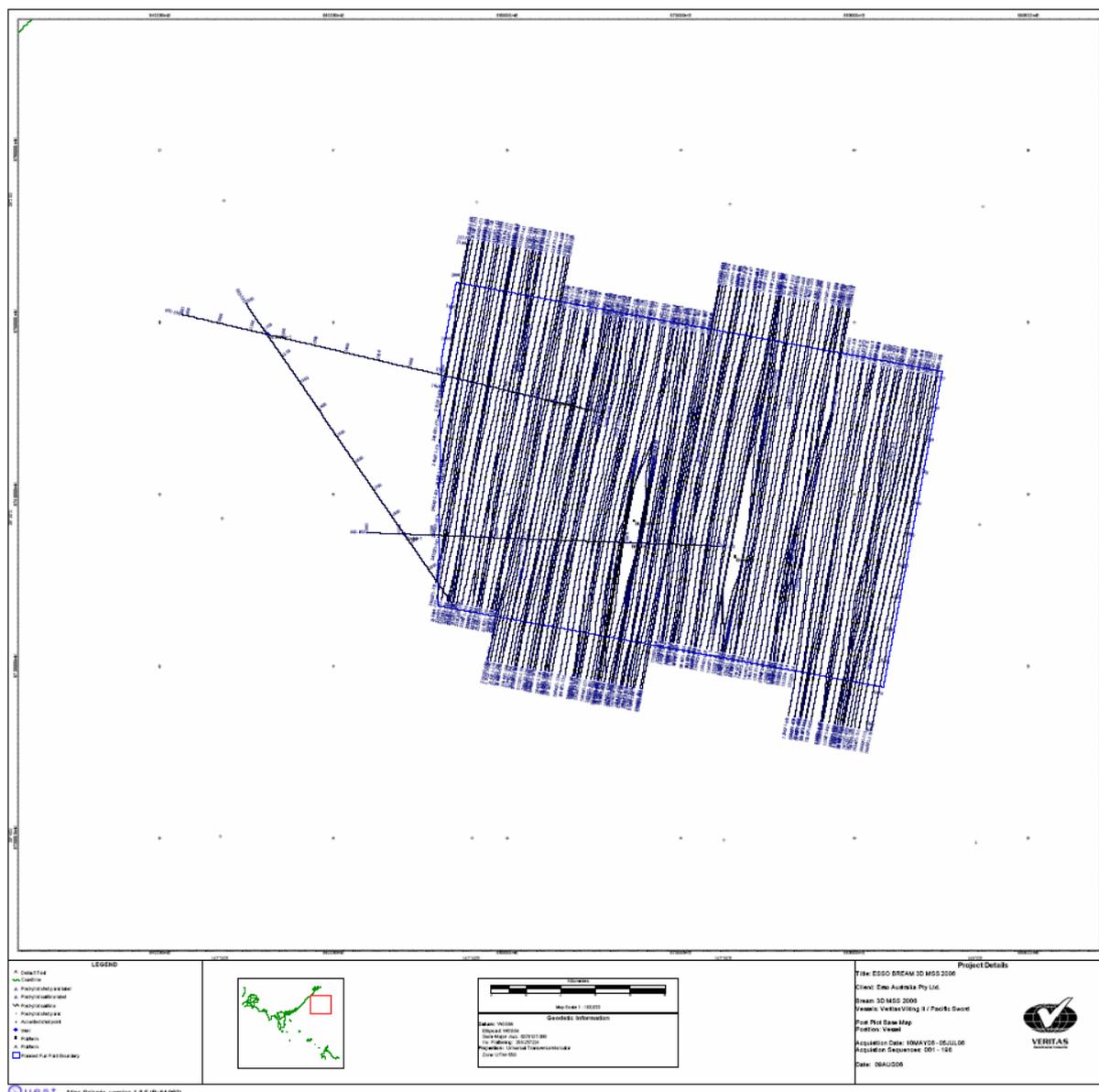


Figure 5: Greater Bream 3D survey post plot

Point	Line	SP	Latitude	Longitude	Eastings	Northings
1	1001	1001	383508.756S	1475615.590E	581666.06	5728773.01
2	2392	1001	383241.724S	1473834.300E	556021.54	5733525.94
3	2520	1757	382455.324S	1473839.372E	556244.92	5747900.95
4	2520	1997	382231.591S	1473911.895E	557064.98	5752325.59
5	1001	1997	382511.953S	1475828.205E	585069.31	5747135.30

Table 1: 3D Survey Full Fold CMP Coordinate Boundary (WGS84)

2.2.7 UNDERSHOOT

Undershoot operations were required to attain data around and underneath the Bream A and Bream B installations. To do this, the M/V Pacific Sword was mobilized from Indonesia to act as the remote source boat.

Undershooting is a technique where a remote source is steered at a lateral (and sometimes in-line) offset to the head of the streamers so that CMP coverage is pulled midway between the two vessels. Figure 6 shows this in a graphical manner. As can be seen, the location of the illumination zone can be varied by changing the distances between source and receivers; however, as the distances increase, so does the minimum offset achieved. This can impact the quality of the image under the structure, particularly in shallower water.

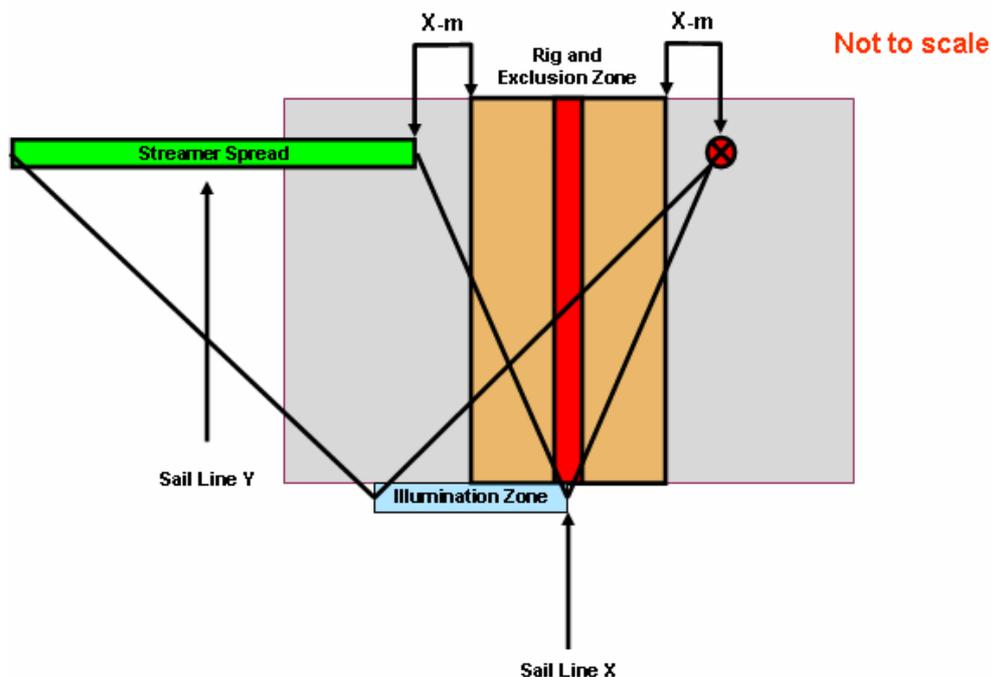


Figure 6: Cross-sectional view of a general undershoot configuration

Prior to the survey, Veritas Houston ATG performed modelling of the undershoot operation given the operational limitations of the platforms and their exclusion zones so as to ascertain the coverage that could be expected from the field. This presentation is included in the Document Archive section of the CD-ROM.

2.3 EQUIPMENT PERFORMANCE

2.3.1 NAVIGATION CALIBRATION AND DEFINITIONS

The performance of the dGPS and rGPS systems was verified in Freemantle Harbor (WA), on 21st and 22nd April 2006. The gyrocompasses were also calibrated at this time. Calibration reports can be found in the Supporting Documents section of the CD-ROM.

2.3.2 NAVIGATION DEFINITIONS

Onboard Veritas vessels, a NavDef is defined as a 'unique acquisition configuration'. The definition comprises a list of all reference points used for derivation of the network solution

and system positions. This list includes base-station locations, antenna locations, equipment locations, serial numbers and offsets, data corrections, compass biases, delays etc. At the start of the survey, the Spectra INS (integrated navigation system) is configured with all this information, and this is collectively identified as NavDef #1. All lines recorded with the same navigation definition are recorded with identical parameters. A full set of NavDef diagrams is supplied in the Supporting Documents section of the CD-ROM.

During the survey, 14 navigation definitions were used to describe the acquisition configuration for single vessel operations, and three navigation definitions were used to describe the acquisition configuration for dual vessel operations (Table 2).

NavDef	Date	First Line	Seq. #	Last Line	Seq. #
01	10-MAY-2006	G06A-1728P1	001	G06A-1728P1	001
02	10-MAY-2006	G06A-1440P1	002	G06A-1440P1	002
03	10-MAY-2001	G06A-1728P2	003	G06A-1744P1	005
04	11-MAY-2006	G06A-1456P1	006	G06A-1520F1	019
05	16-MAY-2006	G06A-1824P1	020	G06A-1872P1	031
01U	19-MAY-2006	G06A-1520U1	032	G06A-1520U1	032
02U	19-MAY-2006	G06A-1824U1	033	G06A-1520U2	034
03U	20-MAY-2006	G06A-1872U1	035	G06A-1824U3	049
06	27-MAY-2006	G06A-1584F2	050	G06A-1616P1	054
03U	28-MAY-2006	G06A-1840U3	055	G06A-1520U7	057
06	30-MAY-2006	G06A-1168P1	058	G06A-1184P1	060
07	31-MAY-2006	G06A-1632P1	061	G06A-1680P1	069
08	04-JUN-2006	G06A-1680F1	070	G06A-1040P1	108
09	14-JUN-2006	G06A-1040P2	109	G06A-1008F1	115
10	18-JUN-2006	G06A-1312F5	116	G06A-2304F1	133
11	23-JUN-2006	G06A-2000F1	134	G06A-2432P1	159
12	28-JUN-2006	G06A-2112F1	160	G06A-1728F3	189
13	04-JUL-2006	G06A-001	190	G06A-002	192
14	05-JUL02006	G06A-1440P3	193	G06A-1104F2	198

Table 2: Line sequence listing for each NavDef used during the survey

2.3.3 NAVIGATION SYSTEMS

Concept Systems' Spectra Integrated Navigation System is used for continuous real-time intra-system monitoring, v10.9.1 was in use at the time of the survey. Time-series plots for a range of essential systems (all monitored by the Spectra software) are generated for each line and are included in the Document Archive section of the CD-ROM.

2.3.4 NAVIGATION METHOD OF APPLICATION

The GPS positioning system service employed aboard the SR/V Veritas Viking II is Veripos Ultra/Standard provided by Subsea 7. The Veripos service combines two independent GPS positioning methods – an SDGPS (Satellite Differential GPS) solution known as Veripos Ultra and a conventional dual-frequency pseudo-range correction dGPS solution known as Veripos Standard.

The Ultra solution is derived from corrections to GPS system errors as computed at a series of global reference sites. These types of errors (clock drift, ephemeris errors, orbit errors, etc.) are tabulated for each satellite. Correction information is transmitted to remote receivers for each satellite tracked in the local positioning constellation, while the conventional dGPS solution relies on pseudo-range corrections derived from a set of local reference stations.

Within the integrated navigation system, the primary system is defined by the more accurate SDGPS solution and the secondary system is derived from the conventional dGPS solution. The Veripos QC software is able to output multiple position solutions that allow for cross system verification and system performance monitoring.

A tertiary system, C-Nav, is provided as an independent verification of the primary and secondary positioning systems.

2.3.5 RELATIVE GPS SYSTEMS

The tailbuoy tracking system in use on the SR/V Veritas Viking II is the BuoyLink STORM rGPS system developed by SeaMap. In addition to the tailbuoys, all source arrays and four streamers (Streamers 2, 3, 6 and 7) have rGPS pods tying in with additional acoustic pods, giving further redundancy to the front positioning network.

The rGPS operating efficiency is documented in the Line Reports found in the Supporting Documents section of the CD-ROM.

2.3.6 ACOUSTIC RANGING SYSTEM

The SR/V Veritas Viking II uses acoustic ranging systems for the subsurface positioning of the sources and streamers. These acoustic networks provide high quality measured ranges with known inline distances acting as constant range verifications. The total system is deployed in three networks – the front-end, mid-net, and tail on the streamers and on each of the source arrays.

The front-end network is more prone to signal instability problems due to the longer ranges within the network and because some ranges have to propagate through the continuous propeller-induced water turbulence behind the vessel and disturbance created by the source arrays. The lost ranges do not significantly degrade data quality due to the redundancy built into the positioning network, including additional redundancy provided by the rGPS units located on the sources and streamer heads.

During the survey, degradation of performance is most noticeable during high side-wind and sea-states, where high vessel crab-angles generate more than usual propeller-wash directed towards one side of the streamer set-up and a single source array.

Any defective or suspect acoustic nodes are noted in the Line Reports for each sail sequence and removed from the navigation solution.

2.3.7 DIGITAL STREAMERS

The SR/V Veritas Viking II is equipped with Guardian Twinax solid streamer manufactured by Thales Underwater Systems (now Sercel). The streamers were towed at a nominal depth of 7 m, with a +/- 0.5 m variation allowed. Significant deviations from the specified streamer depths are noted on the Line Reports. In addition, all areas of the streamer outside the specified depth are removed from the binning system and coverage deficient areas are reacquired if needed. The complete list of edits is provided in industry standard ADS format files in the Document Archive section of the CD-ROM.

On some occasions, if there is a danger of streamers crossing each other, the depths of the respective streamers are changed and in-line offsets may be changed by up to 10 metres to avoid damage and streamer tangles. The client representatives are always kept informed of such occurrences and all occurrences are noted in the Line Reports and subsequently edited from the coverage.

The specifications for noise were such that the ambient noise level for an individual trace on the streamer could not be more than 5 microbars. Exceptions to this are channels located near the vessel, channels near depth controllers and other streamer devices and channels at

the far end of the streamer. Channels failing these criteria or manufacturer's specifications are noted on the Line Reports for each line and edited from the coverage.

Vane-wash – turbulence due to the movement of the paravane through the water – can affect the depth of certain sections on the outermost streamers in certain sea states (particularly during very calm sea states). As a result, fluctuating streamer depths are occasionally observed when the streamer moves through this turbulent water. The specific area affected changes with vessel crab, feather angle and weather conditions. When present, usually only the two outermost streamers are affected, at an area around 400-1000 m behind the paravane. To help combat the problem, an extra depth controller is positioned on streamers 1 and 8.

To further combat the problem the length of the vane tether rope was extended by 10 metres to move the area of turbulence caused by the vanes further from the streamers.

Occasional problems occur with streamer extraction errors and lost telemetry data. Since the location of the extraction error is not always directly identifiable, some time usually needs to be spent tracking down the location of the fault. Often, the error can be temporarily worked around by reducing the vessel speed. This way, troubleshooting and repairs can wait until favourable conditions.

2.3.8 RECORDING INSTRUMENTATION

Raw seismic data are recorded on the Sercel/Syntrak-960 24-bit seismic data acquisition system. This system incorporates 4 separate Multiple Streamer Telemetry Processors (MSTP), each capable of handling two streamers. Data are passed to the Multiple Streamer Recording System (MSRS) from where the data are routed through ProFocus' ARGUS direct-to-disk system to the 3590 tape drives. Data are subsequently passed through to the SeisNet software for online shot display and ambient noise analysis. The main advantage of disk recording over recording data directly to tape is that all tapes are filled to capacity and bad tapes are selected out at the source. If the system encounters a bad tape, the tape is rejected and the intended data is rewritten from the start to a new tape ensuring the highest possible data integrity at all times.

2.3.9 SEISMIC ENERGY SOURCE

The seismic energy for SR/V Veritas Viking II was provided by identical dual 4450 cubic inch tuned source array configurations. The undershoot vessel, M/V Pacific Sword, towed a similar single array of 4550 cubic inches. See Source Array Design under the Supporting Documents section of the CD-ROM for details of the tuning.

The arrays consisted of Bolt 1500LL and 1900LLXT type elements, with each array being made up of 3 individual sub-arrays nominally separated by 8.0 (+/-1.5) metres. The nominal array separation on the SR/V Veritas Viking II was 37.5 (+/- 3.75) metres.

Source fire-times are controlled and monitored by the Syntron GCS-90 Marine Seismic Source Controller. Occasional misfires (i.e. a shot point for which one of the elements in the array fails to engage) are noted on the observer logs. The source synchronization specification for this survey was such that each source element had to fire within +/- 1.0 ms from the aiming point. Source synchronization errors, misfires and autofires (elements firing without command) are all noted in the Line Reports and all source errors greater than 1.5 ms are edited from the coverage and in onboard processing.

Source array and sub-array separations are continuously monitored during the survey, and both generally remained within specification. Differences were caused by variations in weather and sea state, vessel crab and currents. In particular, when a trailing current hit the vessel and equipment, the separations between the two sources were temporarily affected. Source air pressure was specified as 2000 (+/-5%) psi and this was achieved for all valid shots. Any deviations are noted and subsequently edited from the survey coverage.

2.3.10 GENERAL IN-WATER CONFIGURATION

Veritas models the towing set-up before any survey starts; this simulation is referred to as a STARSIM and it was used to design the towing configuration for this survey. The model calculates the expected forces on the in-water equipment, the expected inline offsets, the total layback of the spread, the lengths of rope, the amount of streamer lead-in to be deployed etc. all based on the current physical condition of the equipment in use. The modelling greatly reduces the time spent testing and adjusting the towing configuration during the mobilisation phase, with usually only minor adjustments to be made after deployment.

Some time was spent tweaking the geometry of spread in the early days of the survey, currents in the area turned out to have a big influence on the layout. Contradictory observations were made depending on the sailing direction and the current forcing the equipment to a certain direction. Adjustments were made throughout the survey period.

A measure of the performance of the spread is the average source array and streamer separations. The average streamer separations at the front-end throughout the survey are displayed in Figure 7. Note that these separations are variable, dependent on currents and vessel crab (the angle between the line direction and the vessel heading). Note the change apparent after sequence 69 when the towing configuration was fine-tuned to improve the

streamer separations. Note also that the separations between streamers 4 and 5 were the most susceptible to variations in the vessel speed through the water due to the differing effects that the current dependent on the shooting direction.

The Trouser effect, a variable and often wider than nominal separation observed at the tail of the spread between the inner cables, was observed frequently during the survey (Figure 8). This effect can be detrimental to survey coverage as receiver positions migrate away from the regular grid resulting in coverage gaps. A significant amount of data was retrieved to attempt to isolate the cause of this effect; however, no single indicators were found. Mid to far-mid tag lines were proposed for the inner streamers, but this was deemed operationally unsafe to deploy.

Coverage was monitored throughout the survey using the 33% Rule technique defined in the contract and no additional infill was required as a result of the Trouser effect even though the problem was considered significant. Further investigations will need to be made to isolate the key factors that cause this effect so that a mitigation measure can be designed.

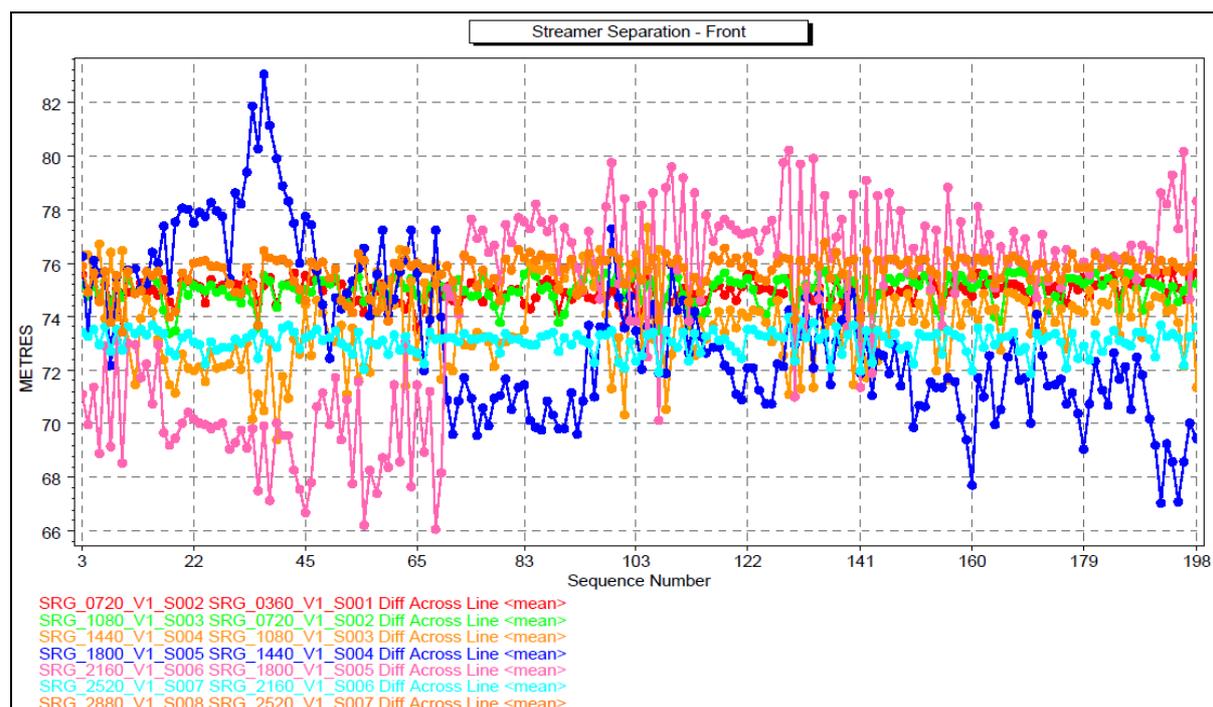


Figure 7: Average streamer separations on the near offset for each sail sequence

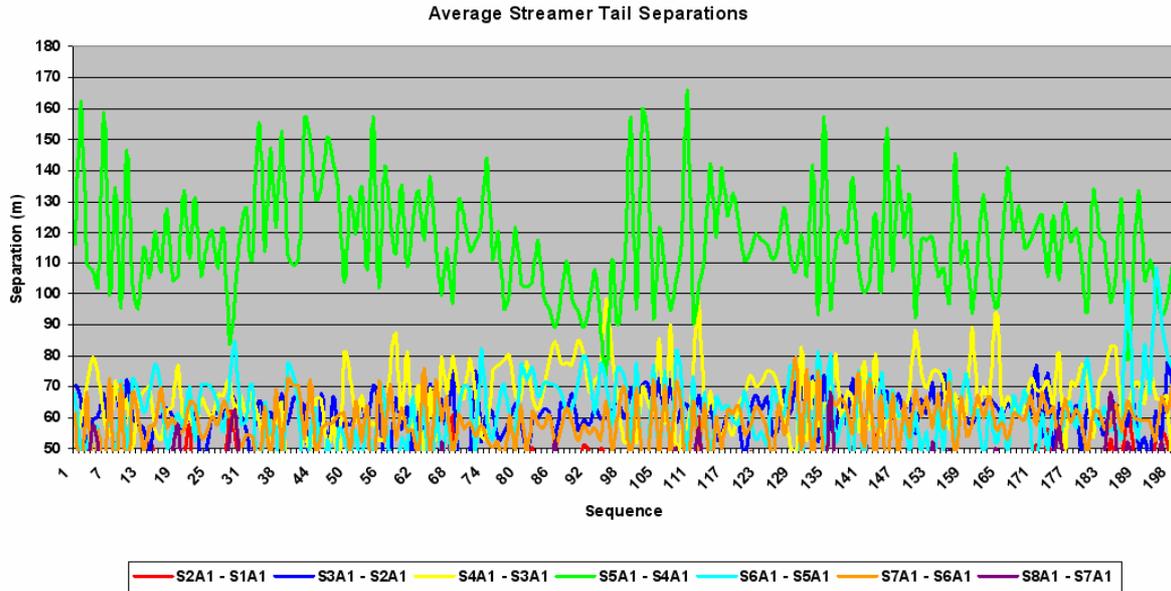


Figure 8: Average separations between the streamers at the tail of the spread (Trousing)

The source separations displayed consistent behaviour for the majority of the survey. The average source separations throughout the survey are displayed in Figure 9; the average separations between the arrays in each source are displayed in Figure 10.

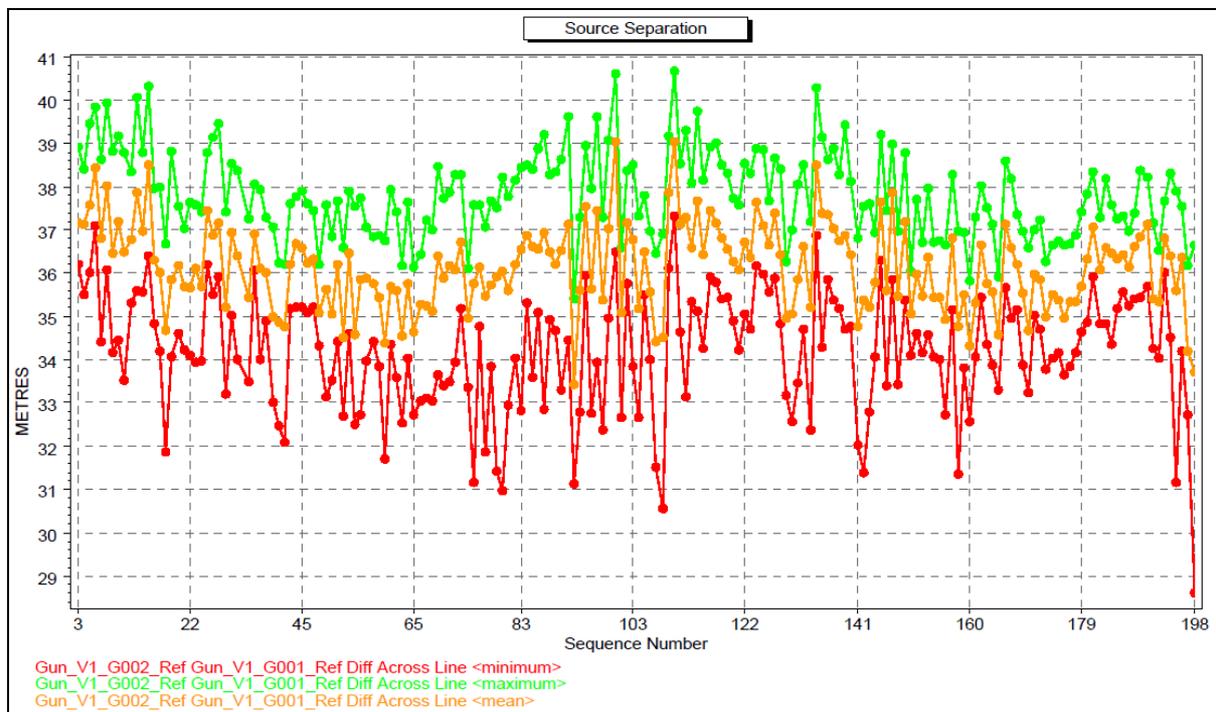


Figure 9: Average source separations per sail sequence

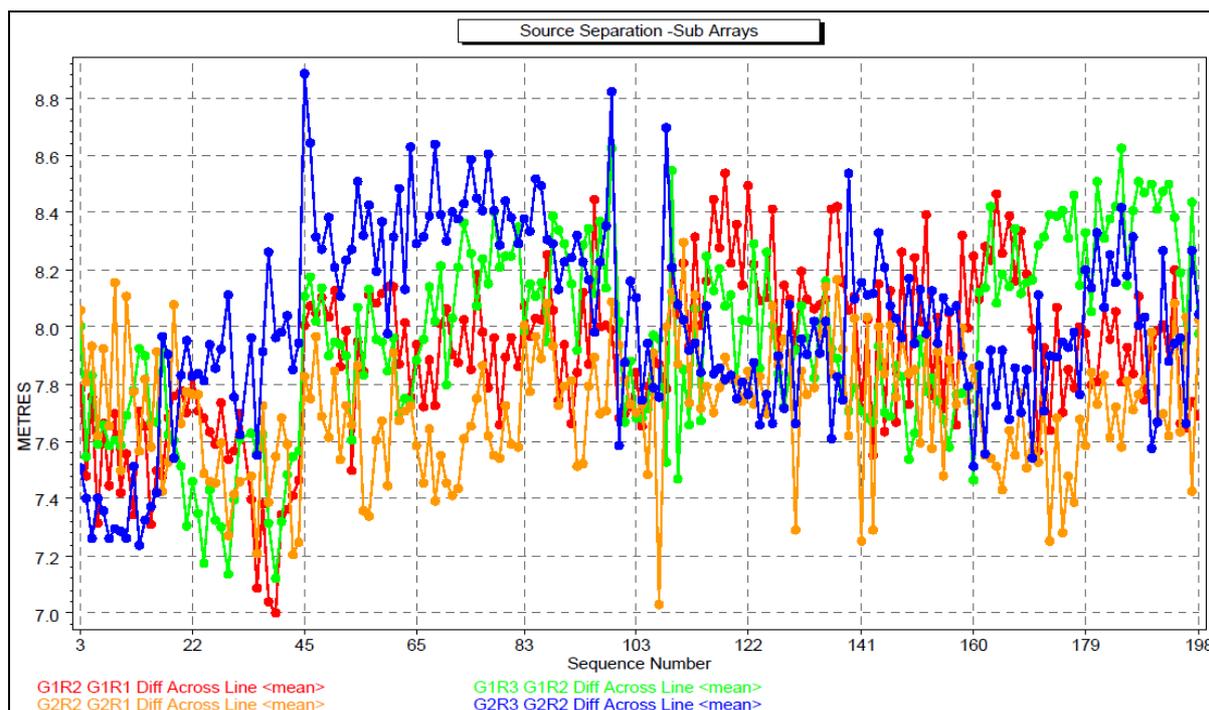


Figure 10: Average inter array source separations per sail sequence

2.3.11 SHIPS EQUIPMENT

The compressors performed well throughout the survey period with very few occasions of lower than usual pressures, with only one occasion where the air pressure dropped below specification.

The M/V Pacific Sword was delayed leaving Portland, Victoria on the 11th May due to issues with the engine exhaust system.

2.4 PRODUCTION SUMMARY

2.4.1 LINE DIRECTION AND SEAMS

The Greater Bream 3D survey consisted of 98 sail lines (incl. three 2D well-tie lines) with an average of 18.07 full-fold sail km per line. The preplot lines were separated by 300 metres; each sail-line results in 16 CMP lines (or tracks) giving a total of 1520 CMP lines spaced 18.75 metres apart. The final swaths and the preplot sail line numbers for the survey were (Figure 4):

- Swath 1: Lines 1008 – 1296 Direction 190.5°
- Swath 2: Lines 1312 – 1712 Direction 010.5°
- Swath 3: Lines 1728 – 2192 Direction 190.5°
- Swath 4: Lines 2208 – 2512 Direction 010.5°

Within the survey area, the sail lines were numbered from 1008 in the east, and incrementing by a value of 16 until 2512 in the west. Consequently, the CMP lines were numbered from 1001 to 2520.

A full listing of sail line coordinates is included in the original P1/90 format in the Document Archive section of the CD-ROM.

2.4.2 LINE COMPLETION AND NOMENCLATURE

Of the 98 pre-plot lines in the survey (incl. well-tie), 5 lines were incomplete after the first attempt at acquisition and a further 5 were DNP (Do Not Process). All line portions that were initially marked incomplete or DNP were completed during later vessel passes. Smaller duration problems, covering only a limited range of shot points (less than 8 subsequent), were edited out of the survey coverage where appropriate but not re-acquired. Line naming for the 3D lines used the following naming convention (except in the P1/90 processed navigation data):

PPPP-LLLL-TN-SSS (including hyphens), where:

PPPP: was the survey prefix (G06A).

LLLL: was the numerical sail line number.

TN: was the line type (P for Prime and F for Infill) followed by incremental attempt number, starting at 1 for each line type attempt.

SSS: was the three-digit sequence number.

Line naming of the 2D lines was similar to above with the exception that the line number was a 3 digit number (LLL) and the type and attempt number (TN) was left out.

Progressive infill lines are acquired when the pre-planned prime sail line drifts too far off the grid due to butting up to previously acquired prime lines; this is usually caused by currents in the area. A progressive infill line is inserted to bring the planned prime sail line back onto the grid. Due to mismatching feather angles, a high number (44) of progressive infill lines were required on this survey, 5 of which were on the seams where the acquisition direction changes or on the survey edges.

Infill lines are acquired in areas of insufficient coverage after completed prime lines.

Each line, whether primary or infill, was given a sequence number for identification. This includes lines that were abandoned for technical reasons.

The completed survey required 198 line sequences, including the 2D well-tie lines; 17 lines were classified as DNP (Do Not Process).

2.4.3 COVERAGE AND INFILL

The Spectra RobTrack interface permits the navigators to steer the vessel remotely from the instrument room with the visual assistance of the BDN (binning display node) for improved CMP coverage.

Steering is controlled directly by the navigators; the acquisition plan is made in conjunction with the onboard client representatives. At all stages of the survey, the client representatives are shown the coverage and asked for their guidance as to exact requirements.

For offline binning, Veritas uses Concept Systems' Reflex (v1.9.4 in use at time of the survey). The software is fully integrated with the Spectra (online) navigation software. Following each line completion, the raw navigation data are processed and imported into the offline binner. At this stage, edits for streamer depth, bad channels, bad shots and anything else outside the contract specifications are applied. The processed coverage data are then available to be used in the online navigation software.

Due to strong and variable currents in the prospect area and resulting high and variable feathering angles of the streamers, certain areas displayed low coverage.

For the Greater Bream survey, the streamer offsets were divided into 4 offset zones. Two grids were used for coverage assessment: a static grid without bin expansion to assess the as-acquired coverage, and a flexed grid, which was used to determine coverage deficient areas. In general, the vessel was steered so that full-fold coverage was achieved in zone 2 (the 'mid-near' offset zone) as per contract specification.

The zones had varying coverage requirements. Table 3 shows the offset zones that were in use during acquisition and the minimum requirements for bin fold coverage.

Description	Actual offset range	Max Fold	Zone ID	Required percentage	Min Hits
Zone 1	150-1275	15	1	90	14 (13.5)
Zone 2	1275-2400	15	2	80	12 (12.0)
Zone 3	2400-3515	15	3	70	11 (10.5)
Zone 4	3515-4650	15	4	60	9 (9.0)
All	150-4650	60	All	80	48

Table 3: Contractual fold requirement per offset and all offsets (acquisition parameters)

The flexing parameters used for the *offline* binning, used for infill allocation, are displayed in Table 4

Description	Actual offset range	Flex Near	Flex Far	Bin Size Near	Bin Size Far
Zone 1	150-1275	100 %	125 %	18.75 x 37.5 m	18.75 x 23.4375 m
Zone 2	1275-2400	125 %	150 %	18.75 x 23.4375 m	18.75 x 46.875 m
Zone 3	2400-3525	150 %	175 %	18.75 x 46.875 m	18.75 x 51.5625 m
Zone 4	3525-4650	175 %	200 %	18.75 x 51.5625 m	18.75 x 56.25 m
All	150-4650	100 %	200 %	18.75 x 37.5 m	18.75 x 56.25 m

Table 4: Bin-flex parameters and requirements for infill allocation

Infill decisions were made by the onboard client representative based on fixed and flexed coverage plots. At survey completion, 54% of primary CMP kilometre coverage had infill data acquired in order to achieve the contractual fold obligations. It should be noted that infill is expressed in terms of sail line kilometres and not the actual area of degraded coverage since it takes the same effort to fill a single CMP line hole as it does for the equivalent 16 CMP line hole.

The final percentages of bins within requirement and the average fold for all offsets per zone are displayed in Table 5. These values are inside the full-fold area and the percentage 'in spec' is defined as the percentage of bins achieving more than the required percentage for that particular offset range.

Offset Zone	Static		After bin expansion	
	Percentage in spec	Average fold	Percentage in spec	Average fold
1	95.5	14.4	98.0	14.8
2	95.1	14.4	99.2	14.9
3	94.6	14.1	99.0	14.9
4	91.9	12.8	97.8	13.8
All	94.5	56.1	97.9	59.9

Table 5: Final coverage in terms of percentage of bins with required coverage and average fold

A series of fold coverage plots of the final static and flexed coverage in high-resolution PDF format is included in the Supporting Documents section of the CD-ROM.

2.4.4 PRODUCTION RATE

Total data production for the survey is shown in Table 6. Production totals include the 2D well tie-lines charged at full 16 CMP-Kms rates.

Total	Planned	Acquired CMP km	% Relative to pre-survey planned
Prime	31974.6	33529.8	104.86%
Infill	7993.65 (25%)	18147.9 (56.76%)	227.03%
Reshoot	0	124.5	0.39%
Total	38342.52	51802.2	135.10%

Table 6: Total data production (in CMP kilometres)

The same information in terms of *full-fold square kilometres* is displayed in Table 7.

Total	Planned Sq km	Acquired FF sq km	% Relative to pre-survey planned
Prime	533.3737	564.848	105.90%
Infill	133.34 (25%)	305.426 (57.26%)	229.06%
Reshoot	0	1.6594	0.31%
Total	666.717	871.934	130.78%

Table 7: Total data production (in full fold square kilometres)

Production totals exceeded 100% primarily due to the fact that lines on the west end of the prospect were extended from the preplots end-point to bring coverage to the full-fold boundary. This was necessary due to the high angle in the project geometry on that end of the prospect (see Figure 4).

The day-to-day production is displayed in Figure 11. Maximum production was achieved on 17th June 2006 when 1675.5 CMP kilometres were acquired. Average production over the 57-day on site survey period was 908.8 CMP-kms per day.

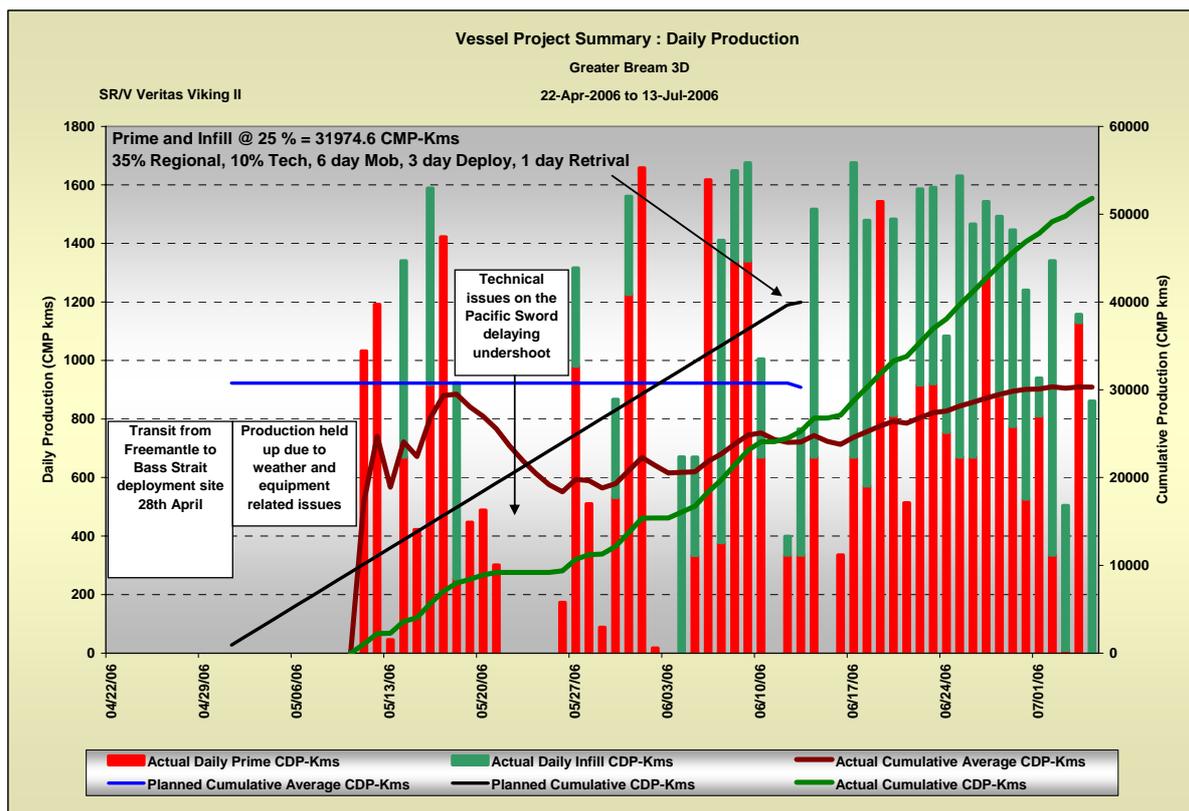


Figure 11: Daily production and survey progress in CMP kilometres

2.4.5 VESSEL SPEED

During production, the maximum speed *through the water* is set at 5.0 knots maximum while the vessel was sailing a straight line and 4.1 knots while in a turn. These limitations are due to the stresses on the trailing gear increasing exponentially with the speed through the water. In addition, more stress is induced whilst turning. However, a minimum water speed of 3.5 knots is needed in order to keep the streamers stable at the desired depths and equipment – such as streamer and source lead-ins – from sagging too much and increasing the overall drag of the trailing gear.

The vessels bottom speed whilst recording on-line is governed by the shot point interval (18.75 m), recording time (6144 ms) and the recording system overhead per shot (approx. 1.1 seconds although the manufacturer recommends at least 1.3 seconds). For this survey, this meant that the vessels *bottom speed* had to be kept below 5.1 knots in order to avoid missing shot points.

Vessel speeds during the survey are not constant; weather, sea state, currents, traffic in the area and other operational constraints dictate the vessel speed at any given time. An example of an operational constraint is a supply vessel coming alongside or fishing gear or

other detritus entangled somewhere in the spread and increasing drag and stresses on the survey equipment.

Figure 12 displays the water and bottom speed per sail sequence as well as the survey average. An average bottom speed of 4.41 knots during acquisition was achieved over the duration of the survey.

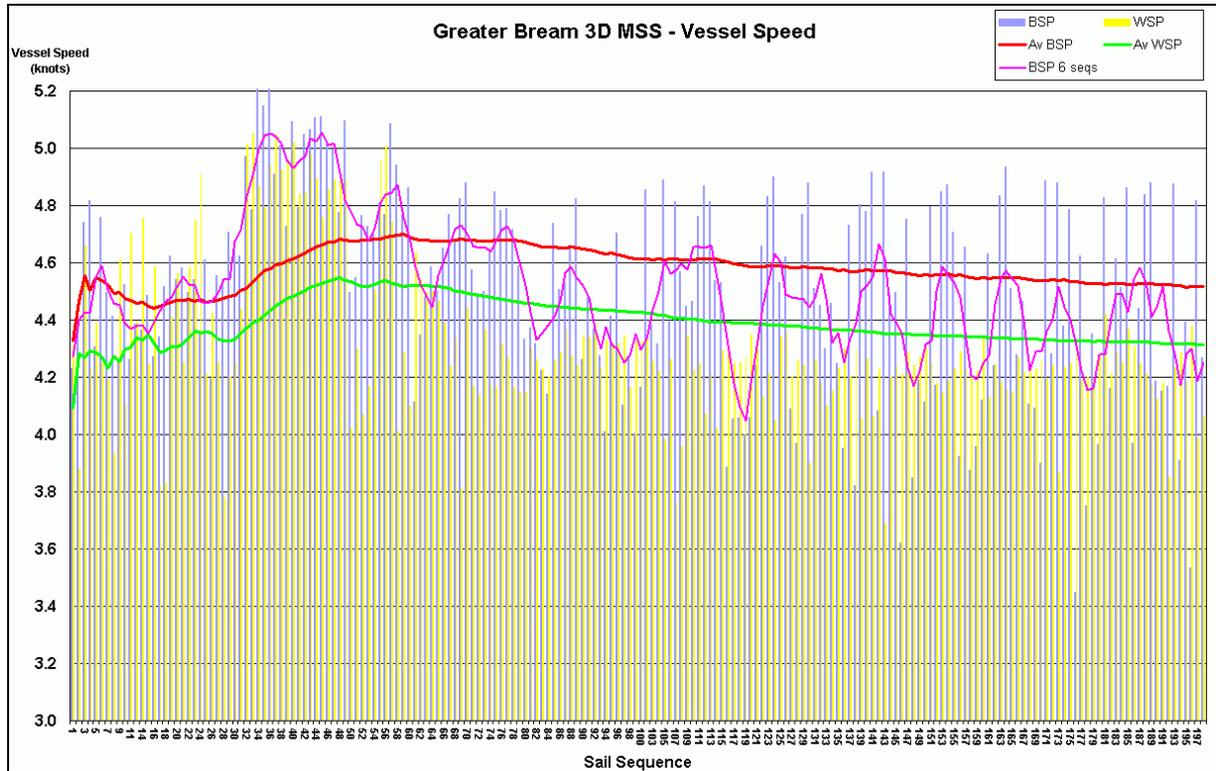


Figure 12: Vessel speed during survey

2.4.6 TIME-USE SUMMARY

Time spent on Veritas marine seismic surveys is designated according to seven primary time-usage categories (Table 8) each of which is further broken down to provide more detailed time-use.

Main Category	Description
Mob/Demob	Time spent mobilising and demobilising from the survey including the deployment and retrieval of the gear.
Service Time	Time spent in transit, testing, maintenance, logistics, reconfiguration and medical evacuation.
Recording	Time shooting and recording prime, infill, and /or undershoot coverage.
Line Change	Time spent sailing from line to line, between prime, infill and /or undershoot lines.
Technical downtime	Time repairing onboard geophysical, navigational and seismic or ships equipment, excluding routine maintenance.
Ship downtime	Time spent repairing vessel owned equipment such as compressors, generators and propulsion specific items.
Regional downtime	Downtime due to environmental conditions, obstructions, industry activity, fishing vessels, wildlife, other traffic, and other seismic activity (including time-sharing), plus time spent changing areas, scouting, and extended line changes. It includes time spent repairing equipment failure due to weather.

Table 8: Main time-use categories and description

The accounting for this survey started on 22nd April 2006 at 00:00 hours at which time the vessel was alongside in the port of Freemantle. At 08:00 22nd April 2006 the vessel departed Freemantle port for the Greater Bream 3D survey area.

Time accounting ended at 24:00 on 13th July 2006.

Figure 13 illustrates the time use for the project (cumulative and individual vessel). The elapsed time on this survey amounted to 3128.1 hours, equivalent to 130.34 vessel days² (details of time-use can be seen in Table 9). Of this total, 425.22 hours were spent recording data (prime, infill and undershoot) and 489.75 hours were spent line changing. This does not include *extended* line changes, which are accounted for in the Regional Downtime category. Collectively, time spent recording and line changing equates to 29.3% the total time spent on the survey. The remaining 70.7% is described as follows:

² Total timing is expressed here in terms of vessel days as each vessel generates 24 hours of time per day while on contract. Total survey duration is actually 1992 hours or 83 days.

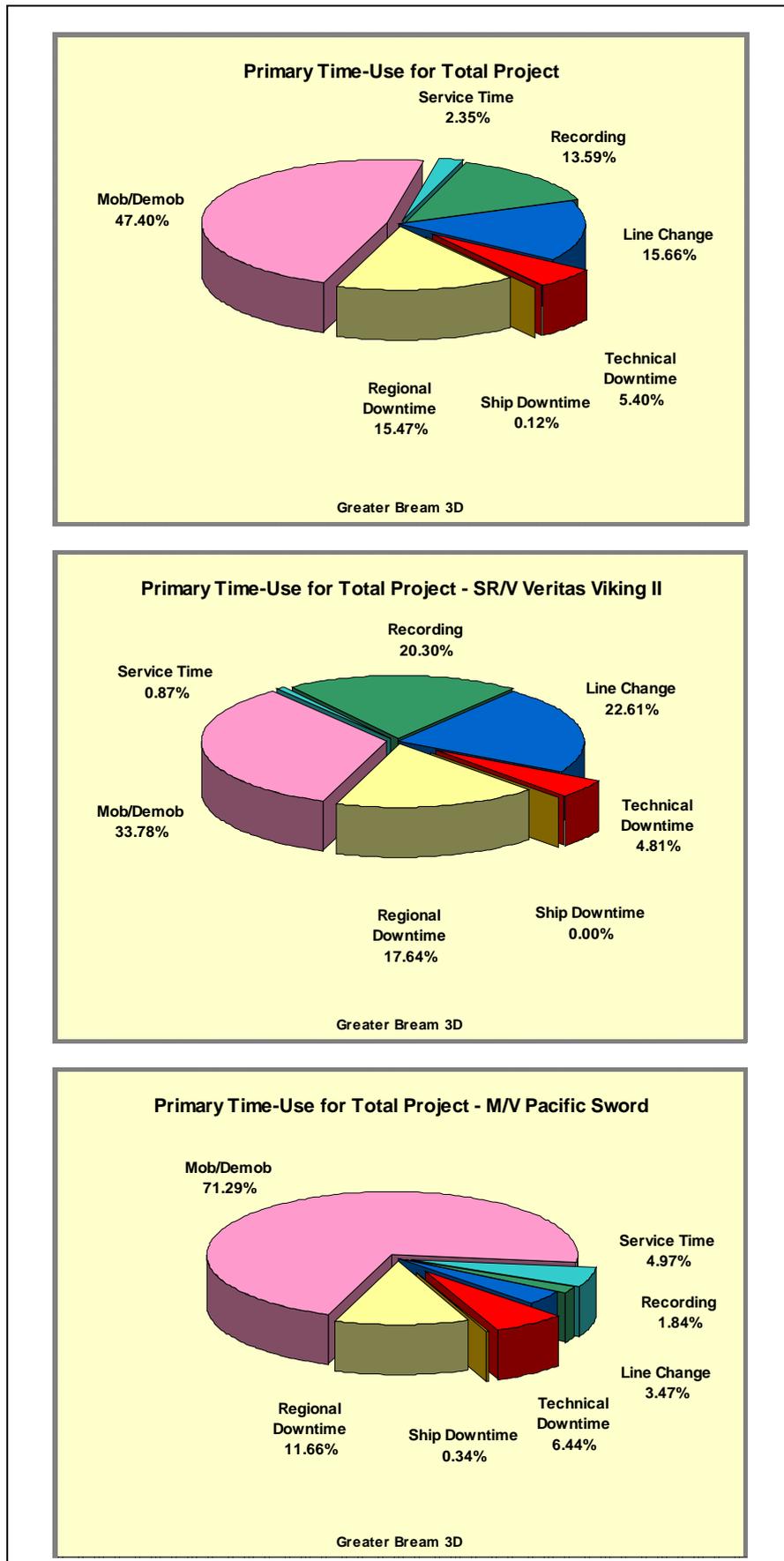


Figure 13: Time-use according to category

MOBILISATION/DEMobilISATION TIME 1482.8 HRS (47.4%)

Mobilisation time for the SR/V Veritas Viking II includes the travel time (159 hours) from the port of Freemantle to the Greater Bream 3D prospect, and all time for the deployment of the trailing gear upon up to the first accepted line on 11th May.

Mobilisation time for the M/V Pacific Sword included travel time from Singapore to Portland, Victoria and further travel time to the project ending on the 12th May.

Demobilisation time for the SR/V Veritas Viking II covers the time from the last shot point, the recovery of the trailing gear (23 hours), and transit (171 hours) to the port of Fremantle (incl. the time in port) until midnight on July 13th.

Demobilisation time for the M/V Pacific Sword included a short retrieval of the guns on the 30th May, customs clearance out of Australia and then travel time to Indonesia eventually concluding on the 11th June.

SERVICE DOWNTIME 73.65 HOURS (2.35%)

Approx. 12.8 hours was accrued for extended line changes in order to facilitate re-supply operations and 7.7 hours for extended line changes to allow safe helicopter landings. A further 53.2 hours were accrued by the M/V Pacific Sword while waiting for the SR/V Veritas Viking II to complete the delineation of the platforms prior to starting the undershoot.

TECHNICAL DOWNTIME 172.7 HOURS (5.5%)

A total of 95.7 hours technical downtime was incurred during the project for the SR/V Veritas Viking II and the remaining 77 hours were allocated to the M/V Pacific Sword³.

By far, the largest source of technical downtime was related to the source array on the M/V Pacific Sword. A total of 66.2 hours was allocated for failed guns and airlines. Additionally, sequences 32 and 33 were flagged as DNP due to poor sub-array separations and accounted for 18.1 hours.

24.3 hours were accrued by the SR/V Veritas Viking II, through a combination of out of spec source arrays, the loss of a source float and an air-leak.

There were 22 hours of handling related downtime onboard the SR/V Veritas Viking II, with 20 hours spent increasing the tether rope lengths to the vanes to combat the outer streamer depth instabilities caused by vane-wash. The remaining time was associated with a hydraulic

³ It should be noted that both vessels logged Technical downtime simultaneously even though errors typically only occurred on one vessel for any given instance.

problem on streamer reel 5, and an extended line change to allow the workboat to return to the vessel before sunset.

There were 26.7 hours of technical downtime for navigational issues attributable to the M/V Pacific Sword for a loss of rGPS data to the centre sub-array.

There were 11.5 hours on the SR/V Veritas Viking II related to navigation systems, with 7.9 hours caused by DigiCOURSE Multiplex Unit lockups and a further 3.6 hours lost to acoustic problems.

3.7 hours were charged to compressors on the SR/V Veritas Viking II when a portion of sequence 5 had to be reacquired due to low air-pressure.

SHIP DOWNTIME 3.83 HOURS (0.12%)

The M/V Pacific Sword was delayed leaving Portland, Victoria on the 11th May due to issues with the engine exhaust system.

REGIONAL DOWNTIME 483.9 HOURS (15.47%)

The biggest contributor in this category was weather standby time with 465.2 hours lost when the vessels were unable to acquire data in adverse sea conditions, and a further 5 hours was added when Extended Line Changes were required due to the sea conditions.

Extended line change time due to survey layout, and obstructions (the Barracuda platform) contributed 3.4 hours.

Fishing vessel activity required 5.6 hours of Extended Line Change in avoidance measures. A total of 15 hours was incurred during the two vessel undershoot operation, 9.5 hours in maintaining the tidal cycle, and 5 hours when it was necessary to break off a close pass of Bream B due to an excessive feather angle.

A cetacean sighting on July 1st accounted for 3.5 hours of regional downtime on the SR/V Veritas Viking II and an additional 1.3 hours was observed on the M/V Pacific Sword when she had to standby the technical for poor visibility related to the marine mammal observation measures.

TIME-USE CATEGORIES	TOTAL HOURS	VIKING II HOURS	SWORD HOURS	TOTAL DAYS	% OF PROJECT	% OF SURVEY	% OF PROD
Mob/Demob	1482.83	672.90	809.93	61.78	47.40%	0.00%	0.00%
Service Time	73.65	17.23	56.42	3.07	2.35%	4.48%	0.00%
Recording	425.22	404.33	20.88	17.72	13.59%	25.85%	39.09%
Line Change	489.75	450.38	39.37	20.41	15.66%	29.77%	45.03%
Technical Downtime	168.90	95.73	73.17	7.04	5.40%	10.27%	15.53%
Ship Downtime	3.83	0.00	3.83	0.16	0.12%	0.23%	0.35%
Regional Downtime	483.90	351.42	132.48	20.16	15.47%	29.41%	0.00%
Mobilization	1240.67	478.35	762.32	51.69	39.66%	0.00%	0.00%
Demobilization	242.17	194.55	47.62	10.09	7.74%	0.00%	0.00%
Logistics	73.65	17.23	56.42	3.07	2.35%	4.48%	0.00%
Maintenance	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%
Testing	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%
Medivac	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%
Record Prime	244.27	244.27	0.00	10.18	7.81%	14.85%	22.46%
Record Infill	139.18	139.18	0.00	5.80	4.45%	8.46%	12.80%
Record Undershoot Prime	41.77	20.88	20.88	1.74	1.34%	2.54%	3.84%
Record Undershoot Infill	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%
Line Change Prime	249.98	249.98	0.00	10.42	7.99%	15.19%	22.98%
Line Change Infill	155.53	155.53	0.00	6.48	4.97%	9.45%	14.30%
Line Change Undershoot Prime	84.23	44.87	39.37	3.51	2.69%	5.12%	7.74%
Line Change Undershoot Infill	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%
Environmental	465.20	334.00	131.20	19.38	14.87%	28.28%	0.00%
Repair of Damage	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%
Extended Line Change	4.97	4.97	0.00	0.21	0.16%	0.30%	0.00%
Fishing	5.58	5.58	0.00	0.23	0.18%	0.34%	0.00%
Obstructions	3.42	3.42	0.00	0.14	0.11%	0.21%	0.00%
Traffic	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%
Time-share	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%
Wildlife	4.73	3.45	1.28	0.20	0.15%	0.29%	0.00%
Scouting	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%
Extraordinary Events	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%
Cable	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%
Source	108.67	51.72	56.95	4.53	3.47%	6.60%	9.99%
Handling Systems	21.93	21.93	0.00	0.91	0.70%	1.33%	2.02%
Navigation	38.30	22.08	16.22	1.60	1.22%	2.33%	3.52%
Recording Instruments	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%
Ship	3.83	0.00	3.83	0.16	0.12%	0.23%	0.35%
GRAND TOTALS :	3128.08	1992.00	1136.08	130.34	100.00%	100.00%	100.00%
DAYS :	130.3368	83.0000	47.3368	130.34	130.34	68.55	65.48

Table 9: Time-use analysis

2.4.7 LINE CHANGE ANALYSIS

In order to optimise acquisition and minimise time spent on line changes, Veritas uses Engenius Software's SurvOpt. The software suggests optimum paths through the remaining lines and gives accurate timing estimates based on current survey parameters.

Planning prior to the survey – using a bottom speed of 4.1 knots in turns and 4.5 knots on straights, 6750 m run-in and 3200 m turn radius – in order to determine the optimum acquisition path resulted in an expected line change time average of 2:44 hours. The total time to complete the survey was expected to be 34 days and 18 hours from first to last shot

point, including 60% downtime due to technical issues (10%), some weather (25%) and infill acquisition (25%).

The line change time after each sequence is displayed in Figure 14. At survey completion, the average line change time for all regular (i.e. prime data) line changes (the maximum for this statistic was set to 3.5 hours to filter out periods of downtime and other anomalously long line changes) over the survey period was 2 hours 37 minutes. The initial completion estimate turned out to be 61% accurate due to the higher than anticipated infill requirement caused by a requirement to steer all zones whilst encountering feather angle mismatches caused by a shooting pattern that did not match the tidal cycle. The total time between first and last shot point was 56 days 13 hours.

Contractually, line change times were set at a nominal value of 2:45 hours. Any time spent on a line change in excess of this value is charged as Regional downtime (weather, sea state or currents). Total line change time for prime lines (not including undershoot) at survey completion amounted to 250 hours for 98 lines, an average of 2:33, well within the nominal line change time. During the survey, the vessel speed was decreased from the planned speed to 4.2 knots to minimise front-end noise.

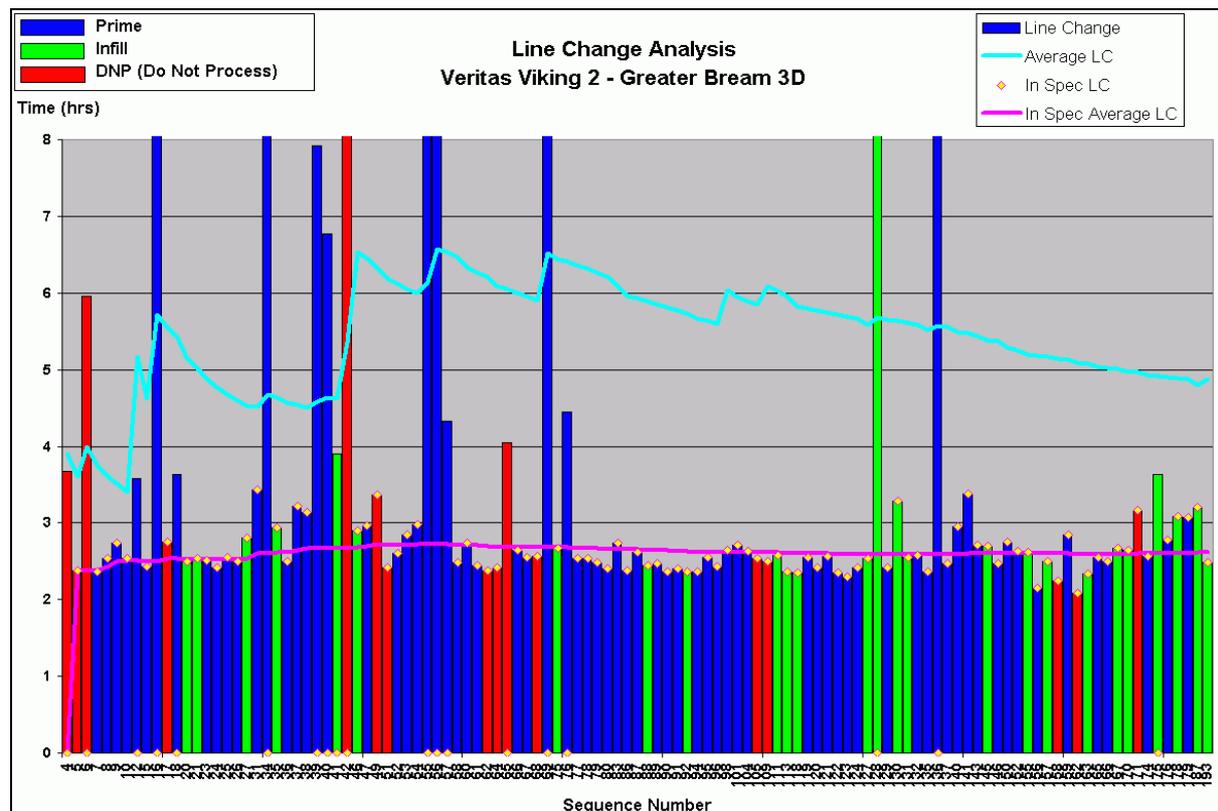


Figure 14: Line-change time per sail sequence

An illustration of the line change paths used during the survey is displayed in Figure 15.

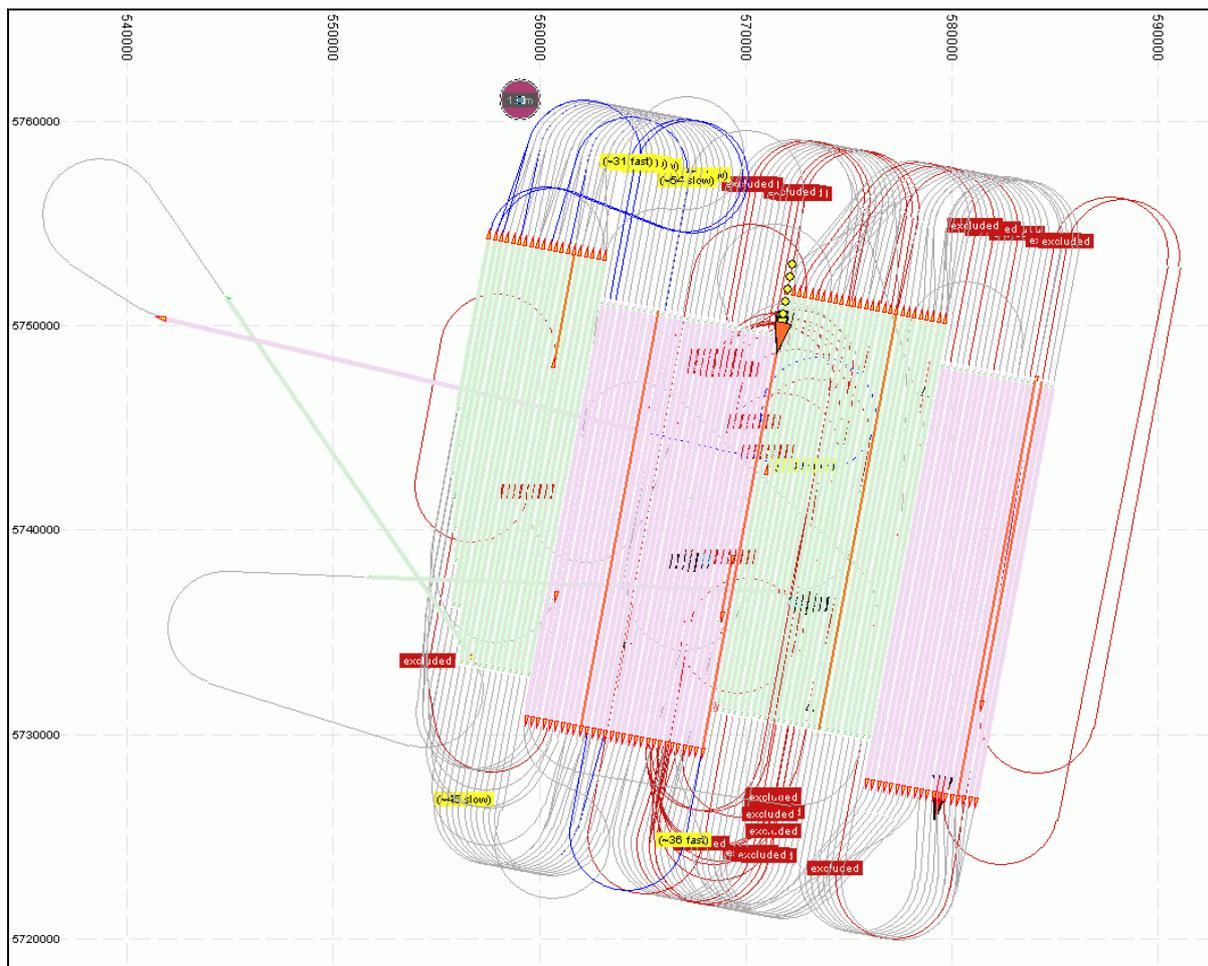


Figure 15: An indication of the line change paths during the survey

2.5 HEALTH, SAFETY AND ENVIRONMENTAL

2.5.1 EXPOSURE HOURS

During the Greater Bream 3D MSS, from 22nd April to 13th July 2006, 155184 exposure hours were incurred, given that 24 hours exposure was attributed to each person onboard the main, support and undershoot vessel for one day. The undershoot vessel – Pacific Sword – is included from 25th April to 11th June 2006.

Vessel	Veritas	Contractor	3 rd Party	Client	Total
Veritas Viking II	56376	37032	18072	7320	118800
Pacific Sword	19008	16128	1248	0	36384
Combined	75384	53160	19320	7320	155184

Table 10: Exposure hours

2.5.2 SAFETY ACTION POINTS

The vessel maintains an Action Point register of items to improve safety onboard. As a result of independent, self- and cross-audits, hazard reporting by crewmembers performed before and during the survey period and general suggestions or issues, 4 safety Action Points were created during this survey; 3 Action Points were closed. At the end of the survey, 1 Action Point remained open.

The Pacific Sword created 7 Action Points during the course of the survey, 4 were closed and 3 remained open at the end.

2.5.3 SAFETY EVENTS

The number of audits, drills etc are listed in Table 11.

Category	Event	Frequency (Pac Sword)	Frequency (Viking 2)
Audits / Inspections	Cross Audit	6	18
	Management Audit	0	0
	Inspection / Department Audit	14	18
	3rd Party Audit (arranged by Client or Veritas)	0	1
	VIMS System Audit	0	0
Drills	Abandon Ship Drill	4	6
	Fire Drill	2	6
	Man Overboard Drill	0	2
	Oil Recovery Drill	0	3
Meetings	Toolbox Meetings	112	933
	Safety Meeting	2	5
	Committee Meeting	4	6
Transportation	Boat-to-Boat Transfers	19	2
	Helicopter Landings	0	22
	Port Calls	2	1
	Small Boat Launch	0	31
Environmental	Environmental Concerns	0	0
	Oil Spills	0	0
Other Events	Safety Induction Briefings	8	32
	Stepback	0	4
	Incident Investigations	6	1
	Job Safety Analysis	0	9

Table 11: Safety events

To continuously improve the safety onboard, Veritas has several programs in place that work on different levels, for instance:

StepBack – a simple yet effective concept that encourages individuals to, physically if needed, ‘take a step back’ and think about the task they are about to undertake and possible consequences of their actions.

Toolbox Meetings – a meeting for everyone involved in a task held immediately prior to the task. During the meetings, the task is outlined, hazards identified and mitigated, and when a consensus is reached that the task can be performed safely, with clear and defined roles for each person involved, the task is performed.

Awareness Improvement (AIM) – an individual performing a task is observed by another individual who then gives feedback on how the working individual handled the task. Ideally, this should be a combination of positive and negative comments. The idea is to emphasize safe actions already done by the individual and at the same time make both the observing and observed persons aware of alternatives for making the task safer.

2.5.4 INCIDENT REPORTING

All Hazard and Incidents are recorded in the Veritas Integrity Management System (VIMS). For this survey, the types and party involved in incident reporting are listed in Table 12 (Veritas Viking II) and Table 13 (Pacific Sword).

Type	Veritas	Contractor	3rd Party	Client	Total
Injury—Fatality	0	0	0	0	0
Injury--Lost Time	0	0	0	0	0
Injury--Restricted Work	0	0	0	0	0
Injury--Medical Treatment	0	0	0	0	0
Injury--First Aid	3	1	0	0	4
Environmental	0	0	0	0	0
Hazard	89	0	0	0	89
Near Miss	4	0	0	0	4
Not Work Related	6	0	0	0	6
Occupational Illness	0	0	0	0	0
Equipment Loss/Damage	2	0	0	0	2

Table 12: Incident Reporting for the Veritas Viking II

Type	Veritas	Contractor	3rd Party	Client	Total
Injury—Fatality	0	0	0	0	0
Injury--Lost Time	0	0	0	0	0
Injury--Restricted Work	0	0	0	0	0
Injury--Medical Treatment	0	0	0	0	0
Injury--First Aid	0	3	0	0	3
Environmental	0	0	0	0	0
Hazard	13	0	0	0	13
Near Miss	0	0	0	0	0
Not Work Related	12	0	0	0	12
Occupational Illness	0	0	0	0	0
Equipment Loss/Damage	1	0	0	0	1

Table 13: Incident Reporting for the Pacific Sword

2.5.5 INCIDENT STATISTICS

SR/V Veritas Viking II long-term incident statistics at the end of the survey (as of 13th July 2006) are listed in Table 14 (Viking 2) and Table 14 (Pacific Sword).

Date of last LTI	12-JAN-01	LTIR at 200K (YTD)	0	TRCF at 200K (YTD)	0.727
Days since last LTI	2007	LTIR at 1000K (YTD)	0	TRCF at 1000K (YTD)	3.633
Man days since last LTI	116768	LTIR at 200K (95 - YTD)	0.115	TRCF at 200K (95 - YTD)	1.038
Man hours since last LTI	2802432	LTIR at 1000K (95 - YTD)	0.577	TRCF at 1000K (95 - YTD)	5.189

Table 14: SR/V Veritas Viking II long-term incident statistics

Date of last LTI	12-MAR-05	LTIR at 200K (YTD)	0	TRCF at 200K (YTD)	5.615
Days since last LTI	456	LTIR at 1000K (YTD)	0	TRCF at 1000K (YTD)	28.077
Man days since last LTI	1484	LTIR at 200K (95 - YTD)	1.97	TRCF at 200K (95 - YTD)	8.372
Man hours since last LTI	35616	LTIR at 1000K (95 - YTD)	9.85	TRCF at 1000K (95 - YTD)	41.861

Table 15: M/V Pacific Sword long-term incident statistics

2.5.6 MARINE MAMMAL ISSUES

In response to concerns regarding the potential impact of geophysical operations on marine mammals, Veritas DGC follows the seismic survey mitigation measures as set out by the Australian Environmental Agency in an attempt to minimize any effects on marine mammals. These procedures were instituted on arrival in Australian waters in January 2004, and have been implemented since that date. The procedure that is followed is:

- A visual check for marine mammal activity is maintained by a trained crewmember for at least 90 minutes before firing any source, for 20 minutes during a 'soft-start', and 10 minutes in every hour for the duration that they were firing. This includes data acquisition and source testing.
- When bringing the source array online, the soft-start method is used. The 'soft-start' method is a process whereby the seismic energy array is brought online progressively over a twenty-minute period, starting with the smallest volume sources and bringing the individual elements online one at a time until the whole array is cycling.
- During periods of darkness, night vision scopes are used to scout marine mammals.
- During line changes or extended periods where the full-array is not being fired, a single source is fired every 90 seconds to help warn off marine mammals. The 10-minute per hour watch remains in effect during this time.

Logs are kept of observer effort, mammal sightings and source use. In addition, a dedicated marine mammal observer was on the vessel for the duration of the survey.

2.6 HYDROGRAPHICAL DATA

Salinity and temperature profiles are gathered using an AML STD-12 Plus CTD probe, serial #719, capable of 50m depths. The SmartTalk AML Total System software is used to download the data; the Chen & Millero method is then used to calculate the speed of sound through the water.

Data and location information are included in the Supporting Documents section of the CD-ROM. Data from the Temperature and Salinity (TS) Dips are used to verify the water speed as continuously measured while recording data. A TS Dip was required once a week, however, this was not always possible due to inclement weather conditions. Eight TS Dip measurements were taken during the survey. An overview of the various measurements is displayed in Figure 16; note the general trend of a steady gradual increase in temperature

(and corresponding increase in velocity) through the survey period, punctuated by drops in temperature noticeable in dips conducted shortly after cyclone activity.

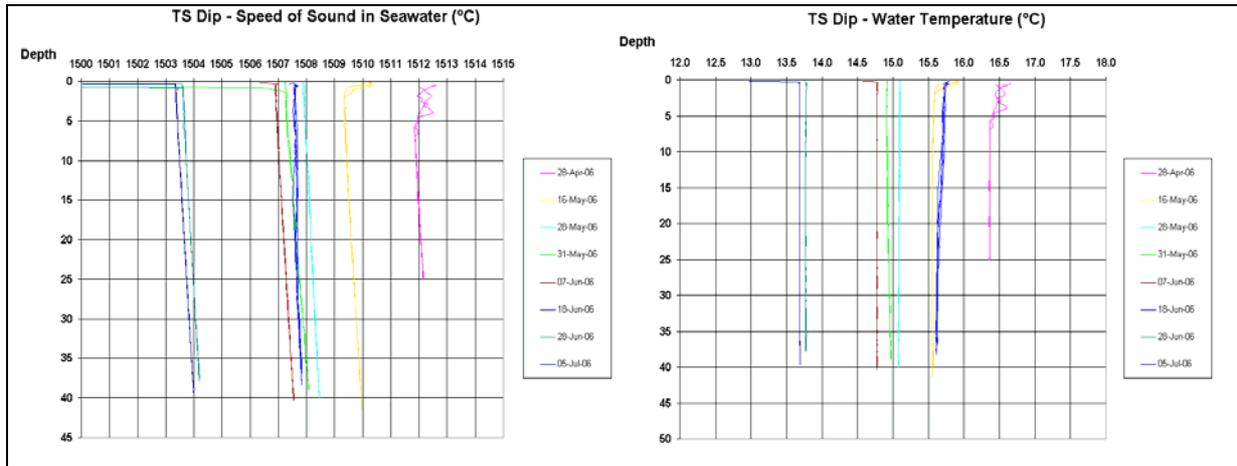


Figure 16: Results of near-surface TS measurements

3 ACQUISITION QUALITY CONTROL

The quality of the acquired seismic and navigation data are continuously monitored, during acquisition ('online') and afterwards ('offline'). Online, the observers visually monitor each shot for irregularities in addition to RMS noise levels. Meanwhile, the navigators continuously steer the vessel for maximum coverage and monitor the performance of all navigational aids. Onboard data processing and the navigation analyst perform the offline quality control.

3.1 ONLINE QUALITY CONTROL OF SEISMIC DATA

3.1.1 ONLINE MONITORING

For online acquisition monitoring and Quality Control, Veritas DGC uses Software Sciences SeisNet™ suite of software. The SeisNet software runs on two conventional PCs running Windows 2000 Professional with 18" dual-screen colour monitors. Additionally, ProFocus' Argus software running on Silicon Graphics hardware is used to capture the raw data coming off the recording instrument before outputting it to 3590 data cartridges ensuring high quality data recording. Bad tapes are rejected; data are recorded to known good tapes.

The online display continuously displays recorded data from two streamers (it cycles through all streamers and all channels) and an RMS noise value for each channel. All shots are displayed without a frequency filter and no scaling is applied. An example screen is displayed in Figure 17.

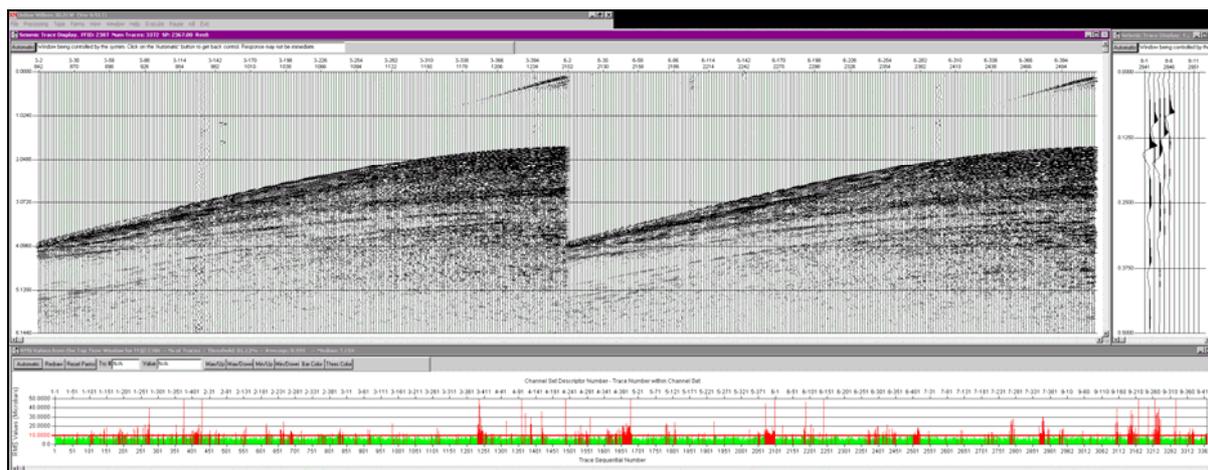


Figure 17: Online monitoring example

3.1.2 ONLINE NOISE ANALYSIS

The monitoring process during the acquisition of a seismic line included the calculation and graphical display of the ambient noise (RMS). The displays updated in real time as the line progressed and showed a channel-by-channel average noise overview - used to monitor for bad or noisy channels and to ensure that the response of each recorded channel is within 3 dB of the adjacent channel. Additionally, a shot-by-shot overview of the signal strength was calculated. Signal RMS values were calculated in a horizontal window across each shot record, a constant window from 2 to 4 seconds was chosen for this.

The ambient noise levels were calculated over a window from 5500 to 6000 ms for each shot. Finally, a signal to noise level calculated from these two values was displayed. The input to these calculations was unfiltered although the contractual noise specifications are based on applying a 5 Hz low cut filter. A sample display is shown in Figure 18.

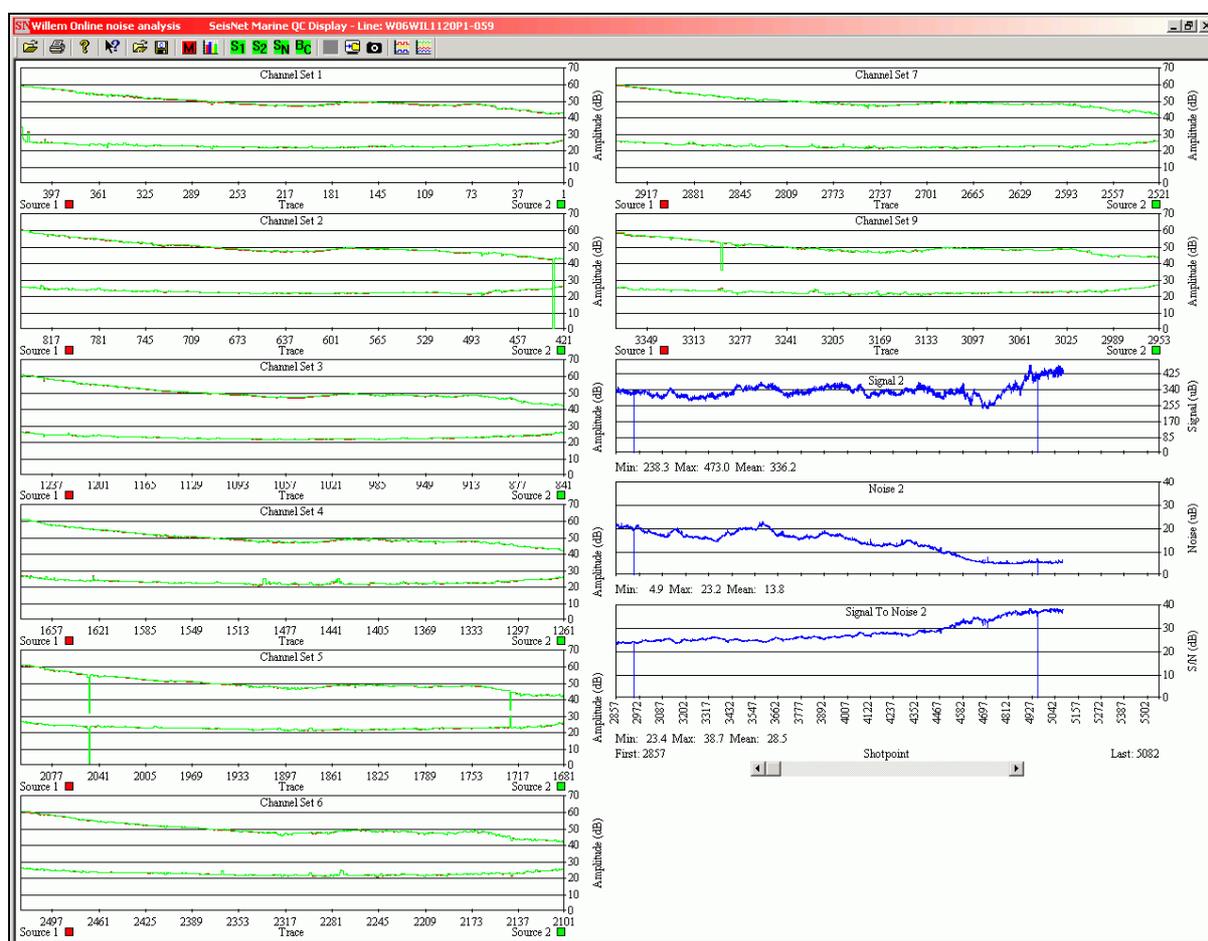


Figure 18: Online noise monitoring example

3.2 ONLINE QUALITY CONTROL OF NAVIGATION DATA

A record of the raw navigation data is kept in the QC Node reports, which are generated for each line and saved in PDF format. They can be found in Supporting Documents section of the CD-ROM.

The QC Node reports contain a plethora of graphs displaying GPS statistics, gyro compass comparisons, source and streamer separations, range and bearing to the tailbuoys and source arrays, feather angles, acoustic ranges etc. In addition, the QC Node reports contain all source and streamer depths, feather angles, velocity measurements, vessel speed, streamer tensions, compressor pressures etc. All these data and graphs are also available in real time throughout the line acquisition.

3.3 OFFLINE QC AND PROCESSING OF NAVIGATION DATA

In order to assure the integrity of the positioning of 3D surveys as near to real-time as possible, navigation processing is performed onboard the vessel. Veritas uses the industry-standard, interactive Sprint™ (version 3.1.20 in use during the survey) processing suite of software. The onboard version of Sprint runs on an HP C360 workstation. An X Window user interface is used to operate the software and the OpenIngres Intelligent DBMS database system used for data management.

Raw navigation data in UKOOA P2/94 format were transferred from the real-time navigation system (Spectra) at the completion of each line. The processing of each line was conducted during the subsequent line change and acquisition of the next line, so that the processed navigation data was delivered within 12 hours of line completion. Generally, final positioning data was available on request prior to the start of the adjacent line.

A general description of the process flow for navigation processing is described here. Quality control products are generated at each stage and enclosed in the Document Archive section of the CD-ROM.

3.3.1 IMPORT

Raw observation data were imported from the raw P2/94 file into the processing database, across the local network. Data Integrity checks were conducted on import and missing or suspect data were reported during this process and the input data quality was assessed.

3.3.2 PRE-PROCESSING

Prior to batch processing, interactive pre-processing was carried out to evaluate and, where necessary, edit the raw data. Visual review of raw and filtered displays were used to determine the amount and type of processing needed for each type of observation group. It was also during this review that the determination was made whether an observation should be disabled in the network calculation. This was typically done for loss of data or high variations associated with signal interference. The processes applied to each observation fall under three categories, that of **gating**, **filtering**, and **interpolating**. Overlay displays of raw and filtered data were used to test the effects of different gating and filter settings for each line prior to the processing of all observation data.

If sufficient noise was observed in a particular observation group, a gating pass was applied to reject data that were outside the anticipated range of acceptable values. This was typically calculated using a moving block or window of data, usually between 7 and 15 points. The median was calculated over the block, spikes rejected, and the block moved forward one point as the process was repeated.

After spikes in the data were flagged and rejected, a filter was applied to the observation. A Fourier Transform – or frequency domain – filter was applied over different time intervals. The amount of time over which the filter was applied was dependent on the noise level of the observations. Less filtering was applied to dGPS data due to the lower noise level of the data coming from the receivers.

Typical settings of gate thresholds, filter lengths, and interpolation lengths are shown in Table 16.

The same methodology was used for each group of different observation types. Filter lengths and gating parameters were adjusted to suit each type to optimise the amount of raw observations used without over-filtering or removing valid data samples.

Observation Type	Gating threshold	Filter length	Interpolation
DGPS latitude/longitude pairs	None	25 s	50 s
RGPS range/bearing pairs	5.0 m running median	75 s	100 s
Acoustic cross-ranges	0.1 m running median	50 s	100 s
Acoustic in-line ranges	2.0 m running median	25 s	150 s
Compasses along each streamer	2.0 deg running median	125 s	150 s

Table 16: Typical Filter lengths, gating thresholds and interpolation ranges

Once an acceptable set of pre-processing parameters was determined, they were saved and used to batch process subsequent data. Since the raw data were always maintained in the database, changes were easily made to adapt to the changing condition of the data on a line-by-line basis.

3.3.3 COMPASS CALIBRATION REPORT

At this stage, the Compass Calibration Report was produced. It is important that this was carried out prior to the Network Adjust process, as the compass data are essential for initial calculation of streamer shape, and as part of the SD calculation for derived observations. The Polynomial Fit method was used with auto QC values set for maximum bias of 0.85 (1.2 if within 200m of front or tail of streamer), maximum SD of 0.7 and maximum DSD of 0.07

3.3.4 DGPS PROCESSING

The dGPS data were analysed as a rate of change (1st derivative) value to graphically represent each receiver's noise level and movement. This analysis is the best means of determining if a receiver should be disabled for a particular period. All dGPS data were viewed in this fashion before it is used in the network for front-end position calculation.

3.3.5 NETWORK ADJUSTMENT

The pre-processed observations were run through a least-squares network adjustment program providing the analyst with statistical views of the solution. In order for the network statistics to be meaningful, the expected variance of each observation (*a priori*) was modified from the raw P2/94 settings. Integrated navigation systems tend to set variance tolerances much higher due to the risk of losing observations while acquiring survey information. Table 17 lists the SD settings used for the various observations groups in the processing database.

Observation Description	Assigned variance (SD)	Units
dGPS latitude/longitude pairs	1.80	Metres
dGPS Ultra lat/long pairs	0.5	Metres
rGPS range (front & tailbuoys)	1.5	Metres
rGPS bearing(front buoys)	0.217	Degrees
rGPS bearing(tail buoys)	0.0185	Degrees
rGPS bearing(sources)	0.265	Metres
Acoustics cross-line ranges	0.6 (1-way)	Metres
Acoustic in-line ranges	0.4 (1-way)	Metres
Acoustics (hull and source rangers)	0.9 (1-way)	Metres
Compass sensors along each streamer	0.40	Degrees
Gyro	0.30	Degrees

Table 17: Sample SD settings used in navigation processing

The Network Adjustment process can be followed interactively on screen; it is illustrated in Figure 19.

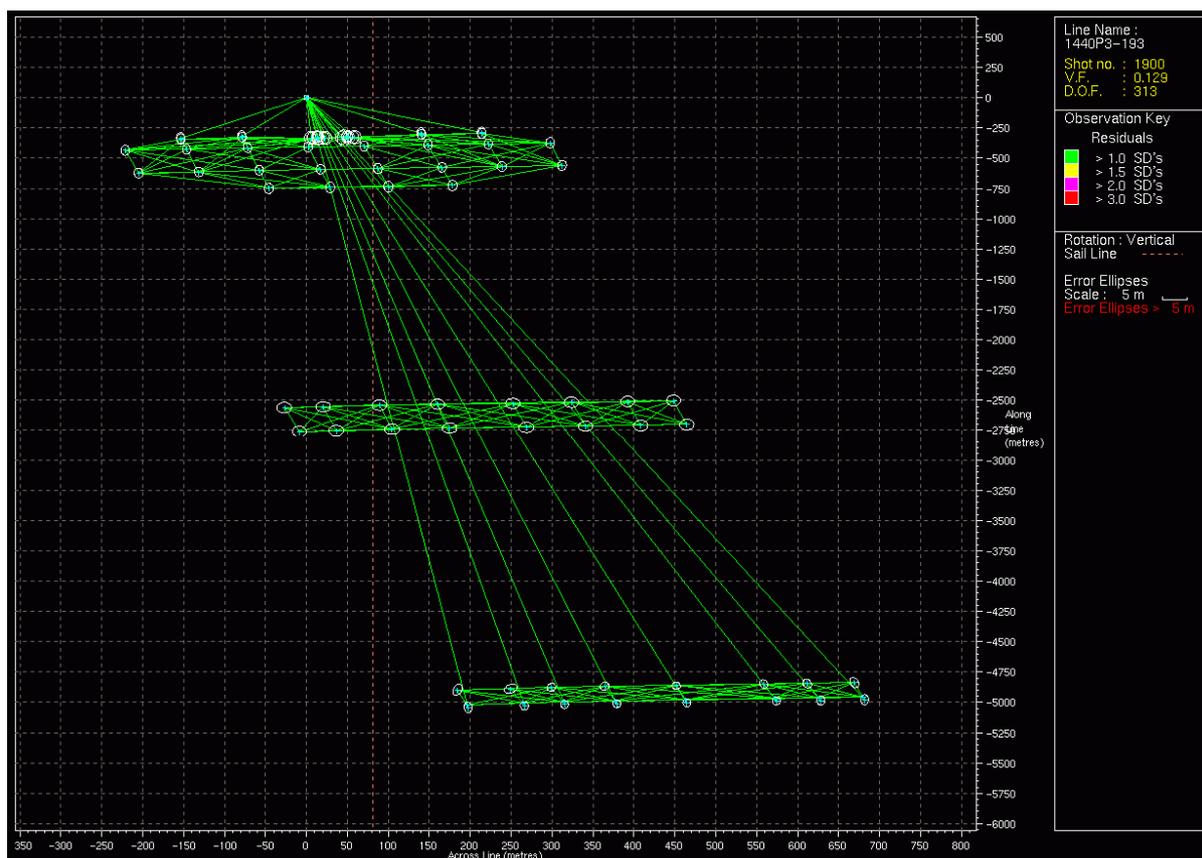


Figure 19: Network Adjust process screen display

3.3.6 ANALYSE

Interactive, graphics-based quality analyses of both the raw and processed data sets were carried out to evaluate the effects of the processing applied. Raw and processed data were overlaid on the same plots for ease of comparison. Time series graphs of selected data items and audit trail summary reports were generated for each line to verify the data quality and to document all processing steps that have been applied to the data file.

3.3.7 SURVEY WIDE ANALYSIS TOOL (SWAT)

The SWAT application was used for monitoring of statistics on a survey wide basis. It enables early detection of anomalies through comparison of new with preceding sequences. The SWAT module enables generation of time series plots for the whole survey, which could then be used for data quality control. It draws its data from a database of statistics for each line. The statistics are exported to the SWAT database on a line-by-line basis, using ANALYSE configuration files as templates. Examples of these graphs were displayed in Figure 20 (Network Unit Variance, high values tend to correspond with lines acquired with higher than average movement of the streamers), Figure 21 (Degrees of Freedom and Figure 22 (Streamer rotations).

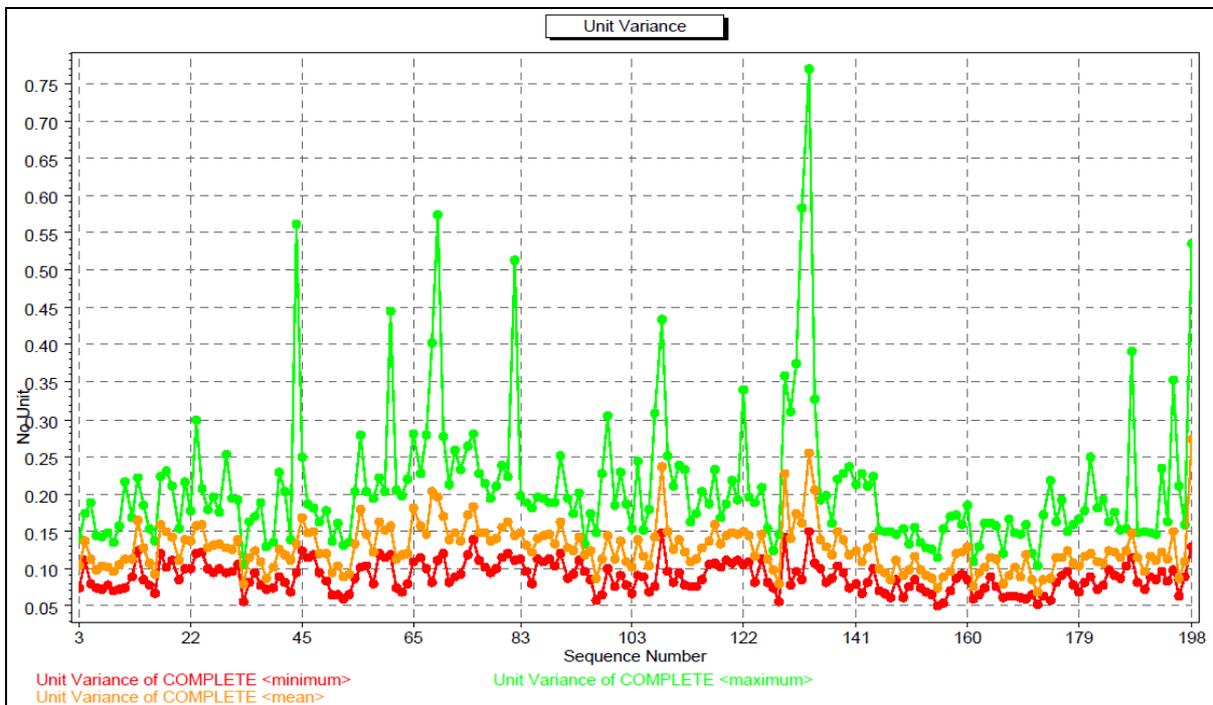


Figure 20: Network unit variance

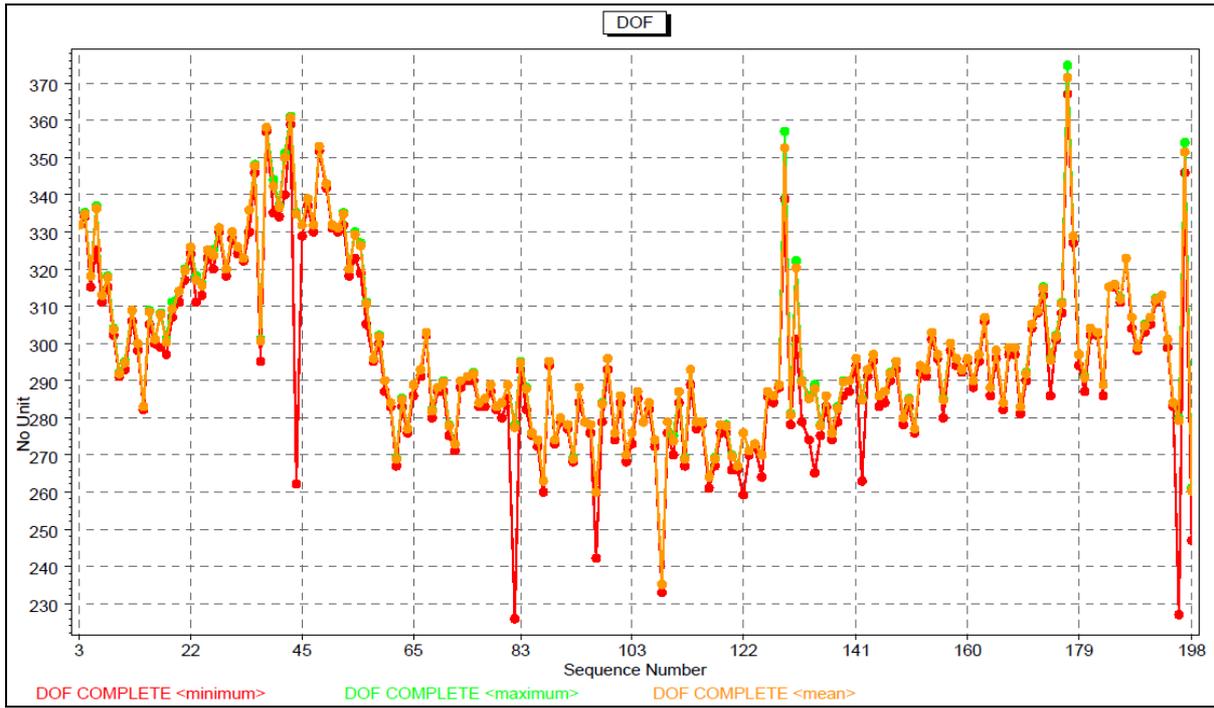


Figure 21: Degrees of Freedom

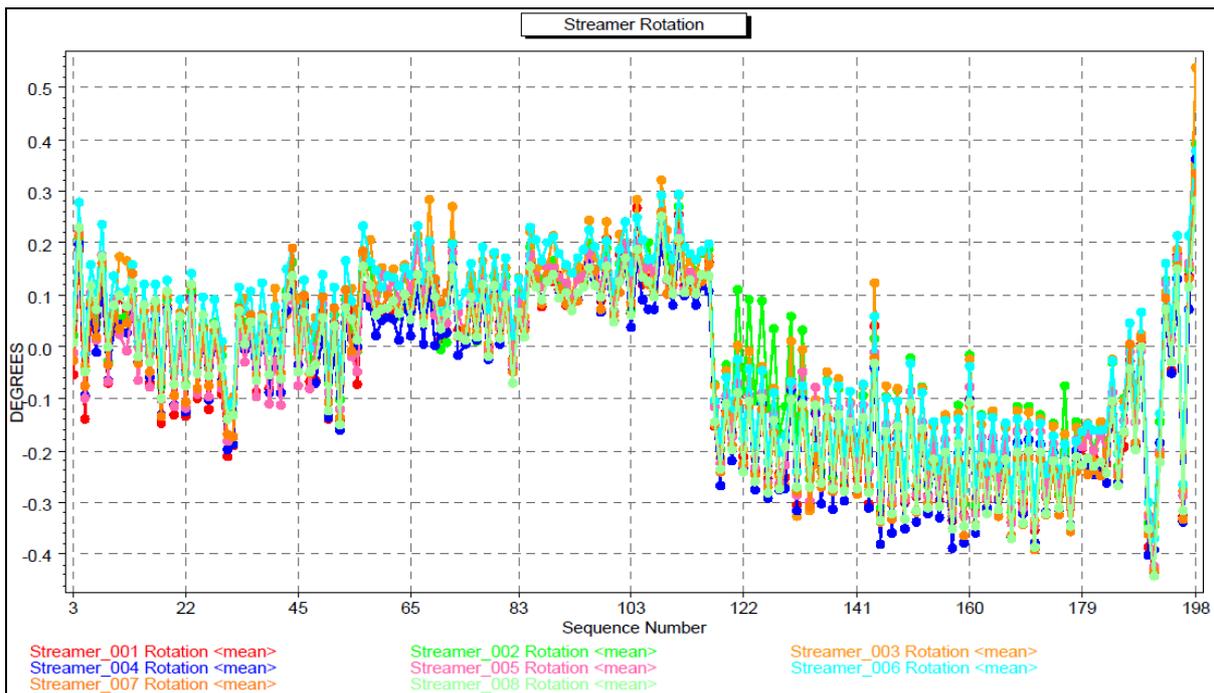


Figure 22: Streamer rotations

Note the change in streamer rotations between sequences 116 and 117, this is when the vessel moved from acquiring phase 2 lines in the east of the survey, to acquiring phase 3 lines in the west of the survey. This same trend can be seen in the infill acquisition phase of sequences 184-198.

3.4 OFFLINE QUALITY CONTROL OF SEISMIC DATA

3.4.1 ONBOARD PROCESSING INTRODUCTION

The seismic data processing onboard the SR/V Veritas Viking II uses the Veritas DGC in-house developed SeismicTANGO and Vega software. The onboard processing machines are connected to the vessel production network and to offices onshore via satellite data link. The software packages used onboard are identical to the software used in Veritas' onshore processing centres around the world.

For this survey, the standard suite of quality control data processing services was produced as well as some extra products. The main goals for the onboard processing for this survey were to provide:

- Near real time quality assurance of acquired data
- Extensive noise analyses and quality control products for each line
- A 2D brute-stacked seismic section for each line available onshore in CGM format.
- A near trace dataset for all streamers, in SEG Y format, available onshore via satellite transmission on completion of each line.
- A near trace cube on the acquisition geometry for navigation quality control
- An initial velocity field, on a 1km x 1km grid.
- Selected Raw Shot gathers in SEG Y format available onshore via satellite transmission on completion each line.

In addition to the above, a full 3D quality control stack was generated onboard.

Full-screen images of the following QC products for all sequences/stages are included in the Document Archive section of the CD-ROM.

3.4.2 HARDWARE OVERVIEW

The onboard processing system comprises four Appro 4U Quad Opteron MP (Linux) servers (each 4x2.6 Ghz Opteron CPU/16GB RAM) with 2.9 TB of available disk space each and a NAS (Network Attached Storage) with 1.5 TB RAID for data shipments (the disks are changed when filled, sent to the onshore processing centre and replaced with a different set).

Two HP N4000 workstations (each 8x550 MHz CPU/16 GB RAM) are in use for data input/output and one HP C360 workstation is in use as a plot server.

Peripheral devices attached to the HP N4000 workstations include 2 x RAID disk arrays totalling 6.3 TB of available disk space, 6 x 3590 tape drives, 2 x Exabyte drives, 2 x DAT drives, 2 x DVD drives, an Oyo 24" thermal plotter, networked laser printers and CD/DVD writers. The N-class workstations, RAID arrays, Linux clusters and NAS are connected over an optical fibre Gigabit network.

The system is networked to three conventional PCs running Windows 2000 Professional with 21" dual-screen monitors.

3.4.3 QUALITY CONTROL AND PROCESSING FLOW

The flowchart in Figure 23 outlines the onboard quality control and processing flow. Subsequent paragraphs describe the items in the flow.

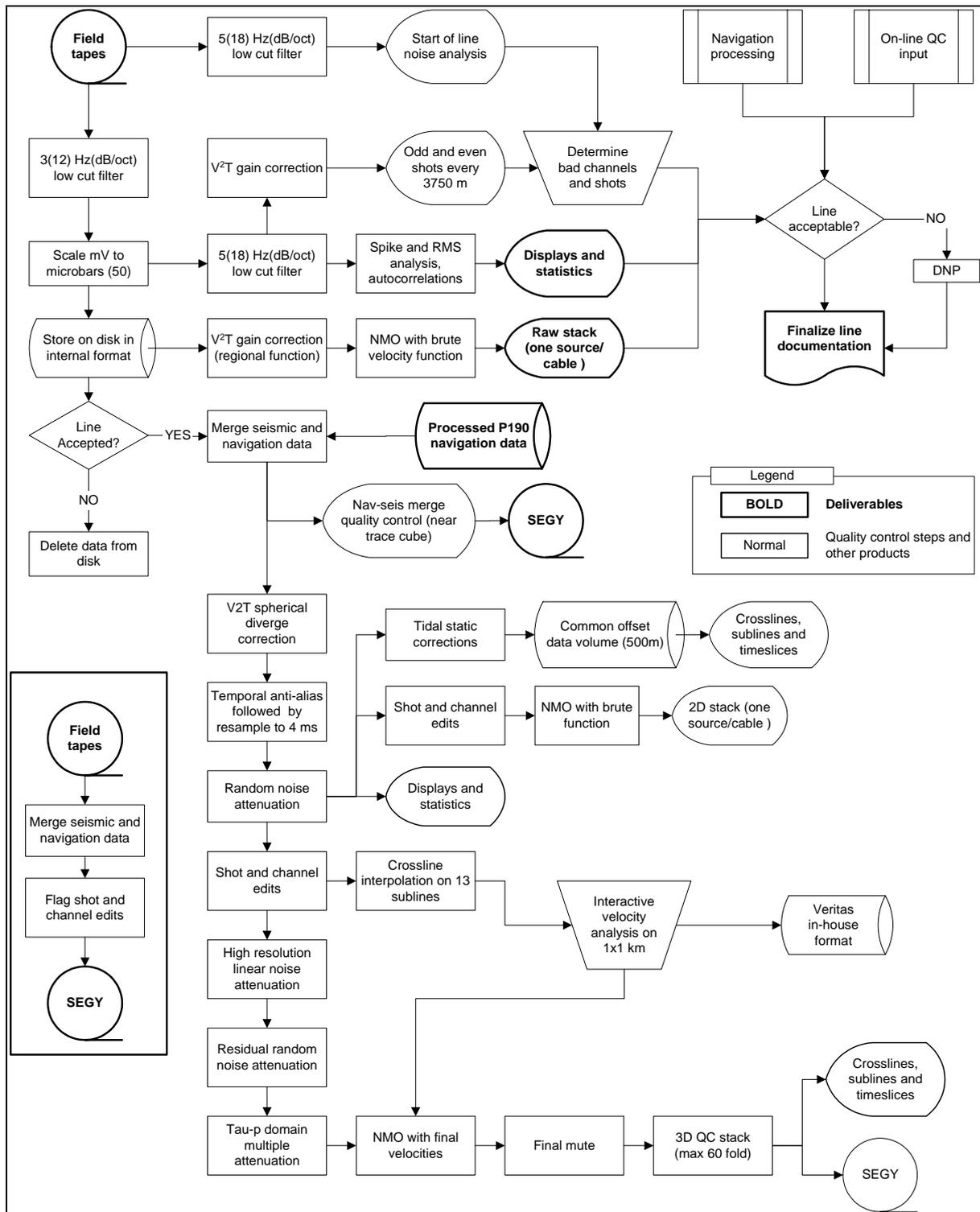


Figure 23: Greater Bream 3D MSS quality control and data processing flow

3.4.4 VERIFICATION OF RECORDED DATA

On the Veritas Viking II, raw seismic data are recorded to disk using the Argus system. Two copies were then made to tape. For each line, tapes from both sets were read by a 3590 drive different from the recording drive in order to ensure the integrity of the recording. Data read from the tapes were stored on local disk and input into the 3D production processing flow.

3.4.5 START OF LINE NOISE (SOL) ANALYSIS

For every acquired line, 12 noise files are recorded (no source firing) prior to the first production shot point. These records are analysed as soon as possible and give a good indication of the expected noise levels on the following line although they are usually taken some time before the actual start of the line on the run-in to the line. Figure 24 is an example of a SOL noise analysis graph for just one streamer. Note the visible peaks at regular intervals, these coincide with streamer depth controllers and are contractually allowed to have a higher noise value.

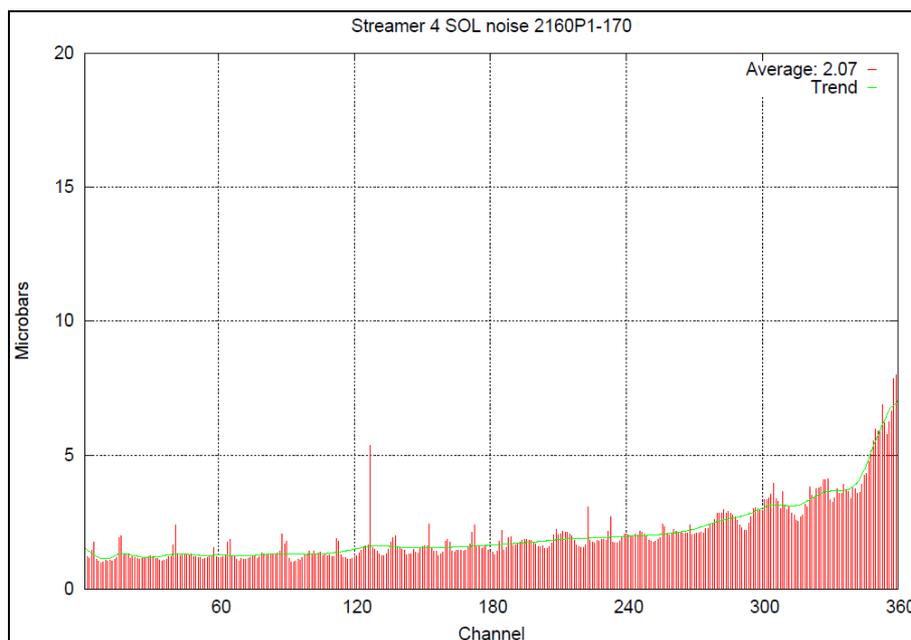


Figure 24: Example SOL noise analysis for streamer 4, line G06A-2160P1-170

Average values for each streamer are collected throughout the survey in order to track, for instance, marine growth on the streamers and ensure that the acquisition is performed within the noise specifications as set out in the contract. In all cases, data are processed through a 5(18) Hz (dB/oct) low cut filter.

Note that the SOL noise data is only valid at the start of a line. The noise data could have been recorded near a rig or vessel resulting in anomalously high and false values for the ambient noise levels on a line.

3.4.6 OFFLINE NOISE ANALYSIS

In addition to the online noise monitoring using the SeisNet system and Start-Of-Line noise analysis, similar analyses are performed after line completion using data from all shots on the line. Average RMS calculations and auto-correlations are performed over several different windows on each recorded shot (these windows are displayed on a shot-record in Figure 25). The resulting statistics are then displayed in various graphs and included in the accompanying digital archive.

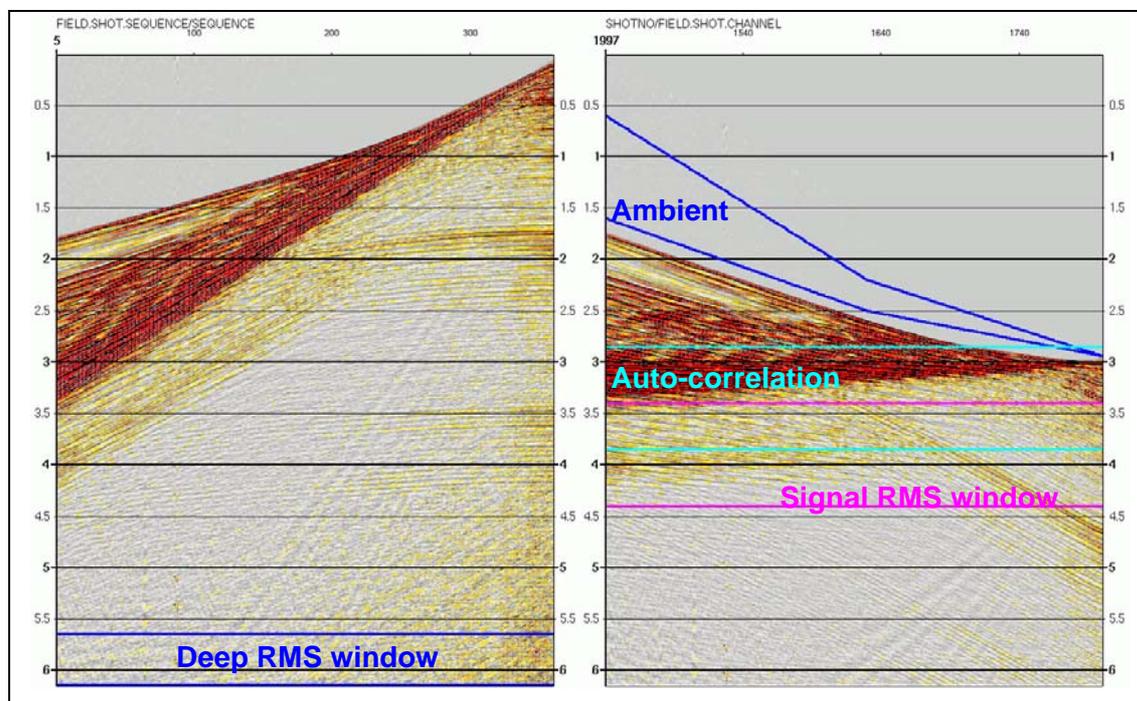


Figure 25: RMS measurement windows displayed on raw shot and after LMO correction

All input data for these analyses have been filtered through a 5(18) Hz (dB/oct) low cut filter in order to be able to directly link the values to the maximum allowable noise specifications as outlined in the contract.

An example for a single streamer is displayed in Figure 26. Also indicated in the graph is the lowest RMS value flagged for a particular channel, this helps tracking fundamentally noisier areas on lines acquired in marginal conditions. Another statistic is displayed in Figure 27, the standard deviation in noise levels per channel helps to flag channels, which are consistently noisier than their adjacent channels, the majority of the spikes fall on locations which have devices attached (depth controllers and acoustic pods).

The data for these analyses is very dependent on the location in the survey. For deeper areas in the prospect, the ambient noise window contains energy for the multiple reflections from the previous shot and this will skew the ambient noise statistics.

Figure 28 displays the (smoothed) ambient noise values per channel, per streamer in order to verify that the noise characteristics are similar for all streamers.

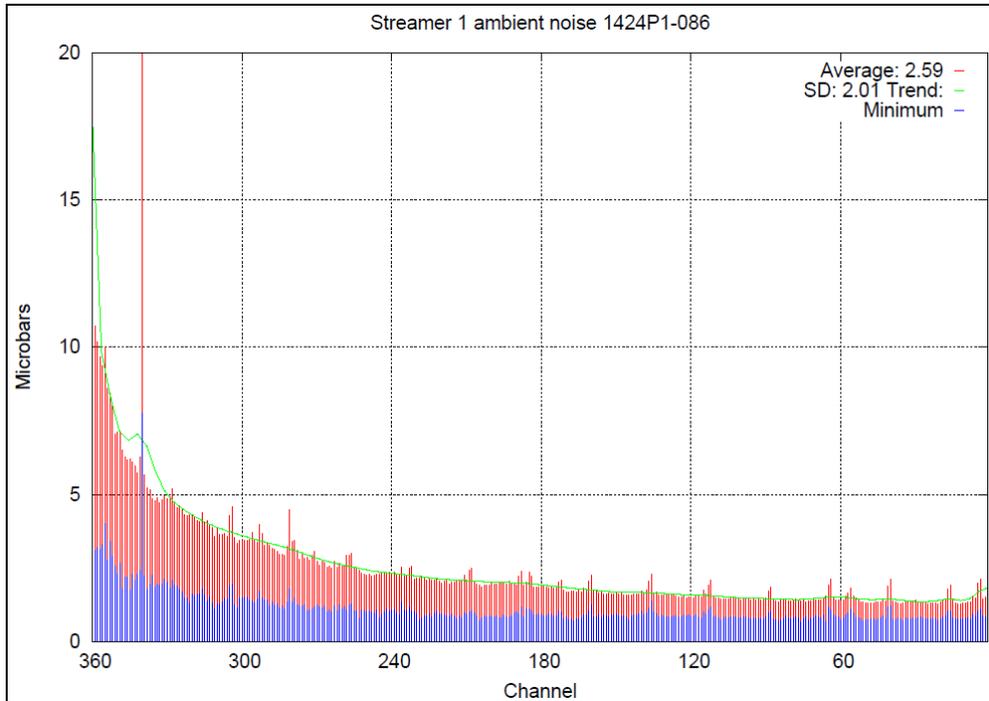


Figure 26: Ambient noise levels per channel, example from line G06A-1424P1-086

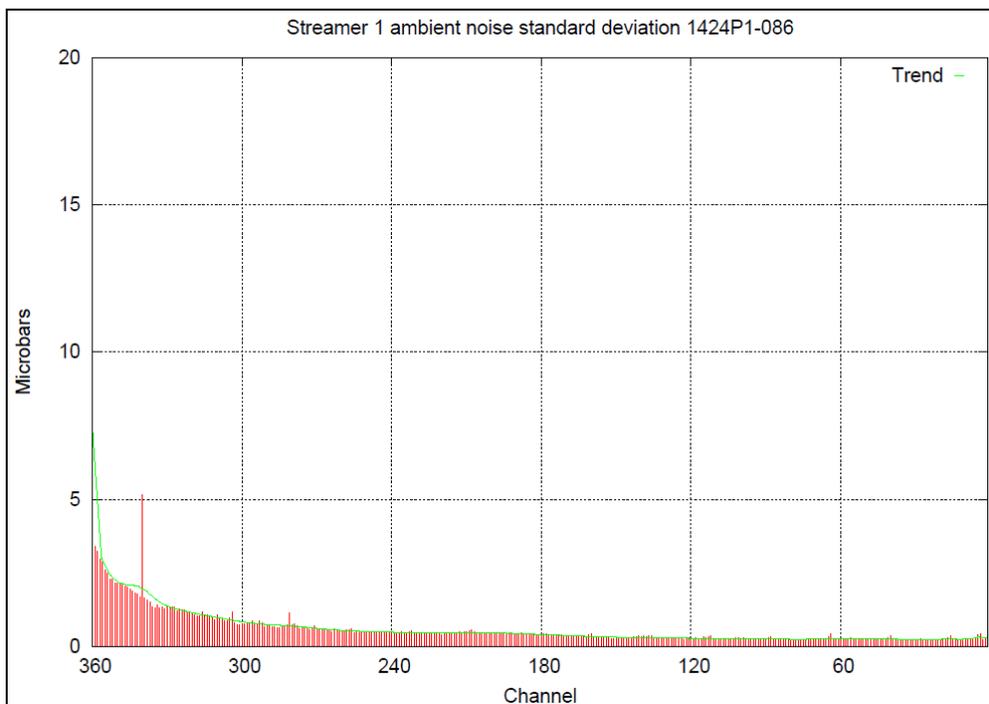


Figure 27: Standard deviation in noise levels per channel, example from line G06A-1424P1-086

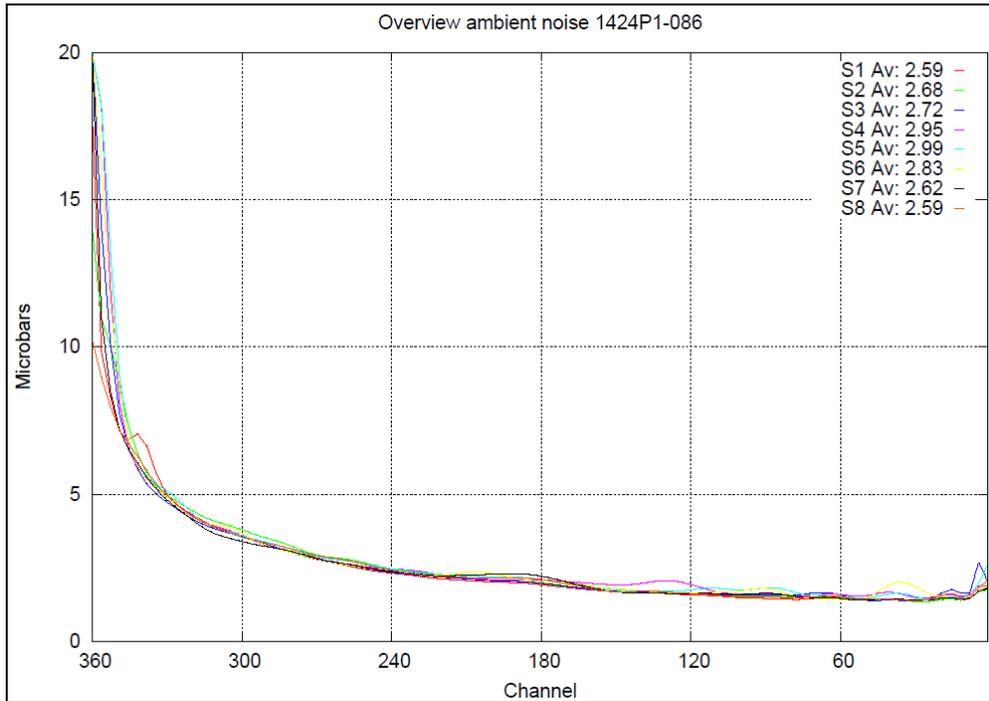


Figure 28: Ambient noise levels per channel, per streamer for sail line G06A-1424P1-086

The ambient noise data are also displayed for each channel in every shot record in attribute map format; an example is displayed in Figure 29. Noisy channels will show up as bright coloured vertical lines.

The ambient noise level averaged per shot over a sail line, excluding the nearest channels from each streamer, is displayed in Figure 30. The signal-to-noise ratio was calculated using the ambient noise window RMS values and the RMS values from the ‘Signal RMS window’ as indicated in Figure 25.

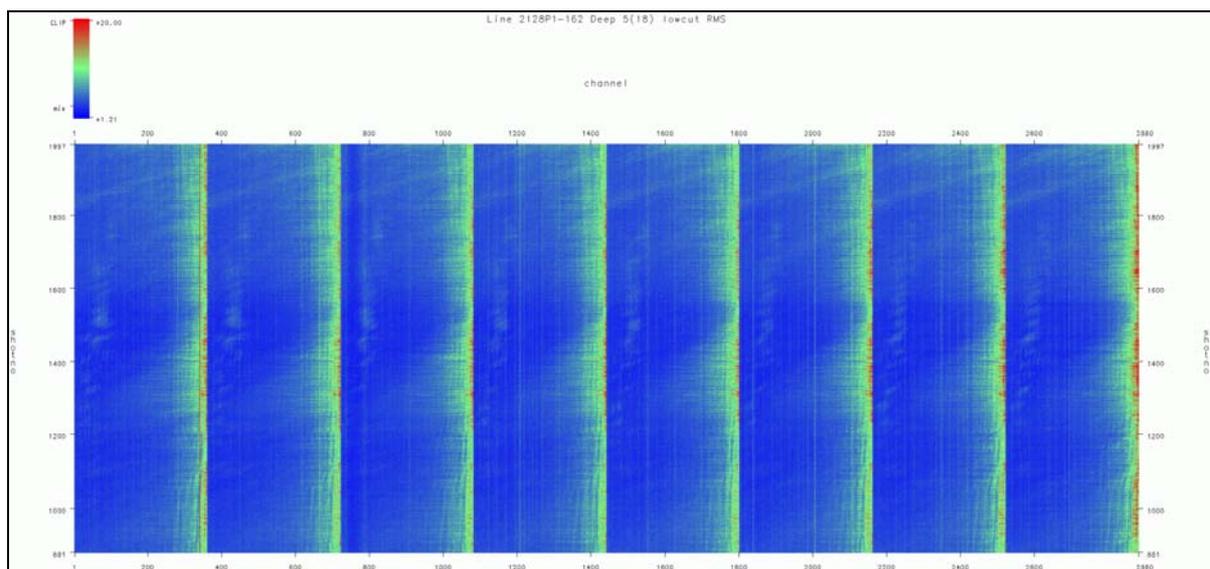


Figure 29: Example ambient RMS Amplitude analysis for line G06A-2128P1-162 (μB display).

Even though the 'Signal RMS' window is not necessarily the geological target, if kept consisted throughout the survey, meaningful conclusions can be drawn based on these as to the general quality of an acquired line.

Figure 31 and Figure 32 and display this information per streamer (data are smoothed in order to see differences). As no single streamer stands out significantly, either in ambient noise levels or in signal-to-noise ratio, it is safe to assume that all streamers behave similar in similar conditions and have similar noise characteristics.

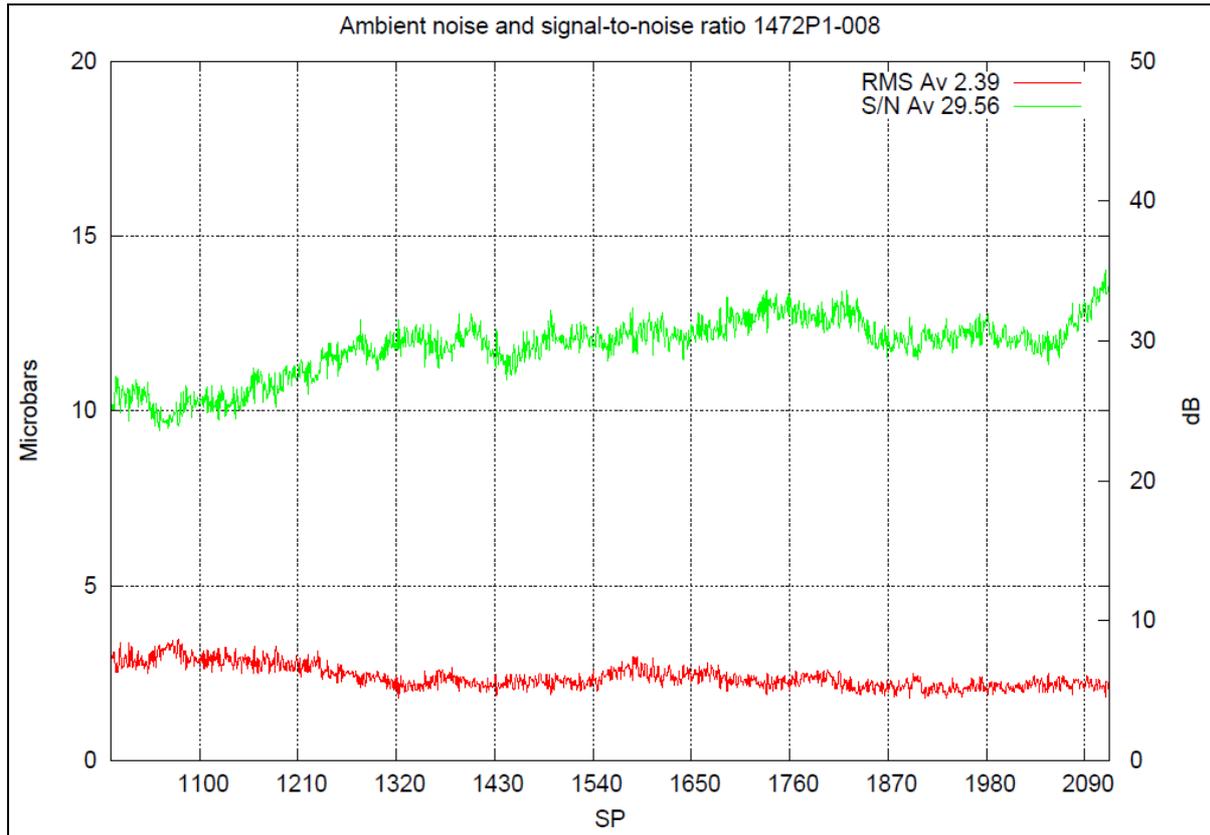


Figure 30: Average ambient noise and signal-to-noise ratio example for line G06A-1472P1-008

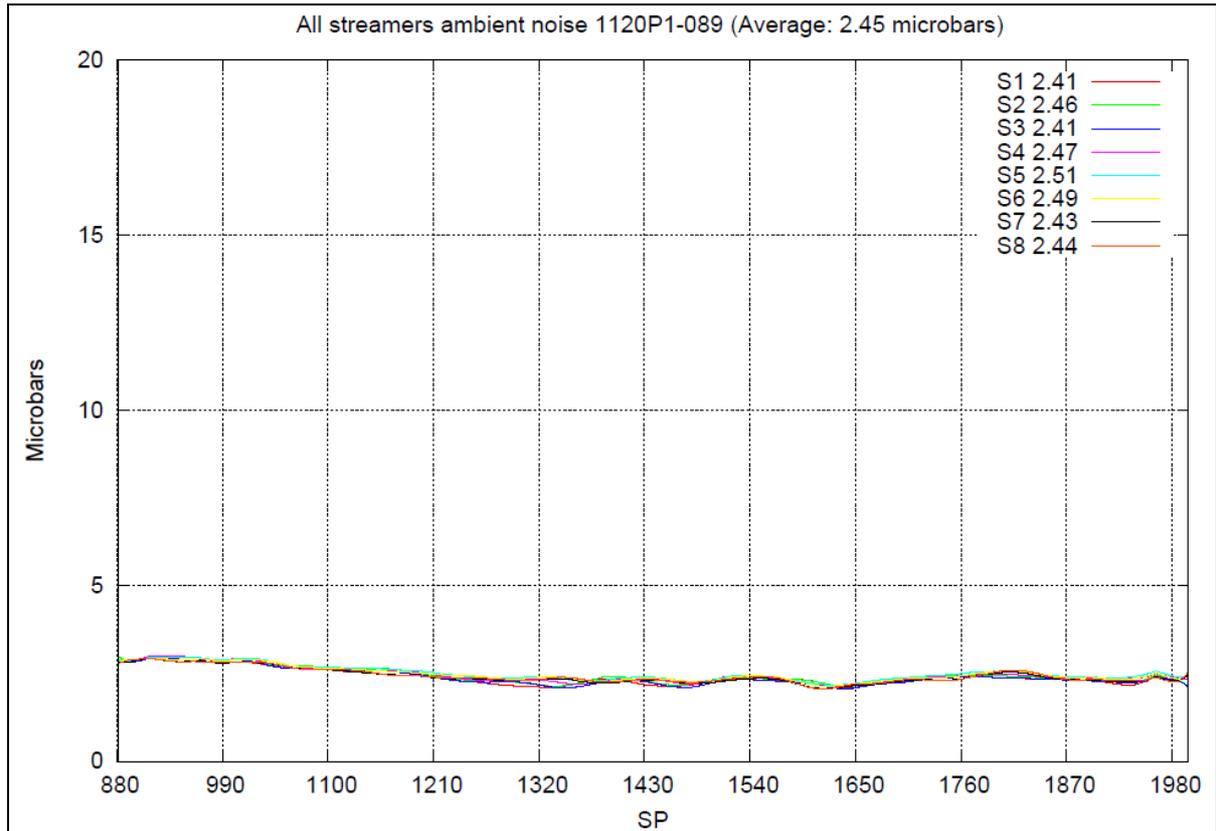


Figure 31: Average ambient noise per streamer per shot for line G06A-1120P1-089

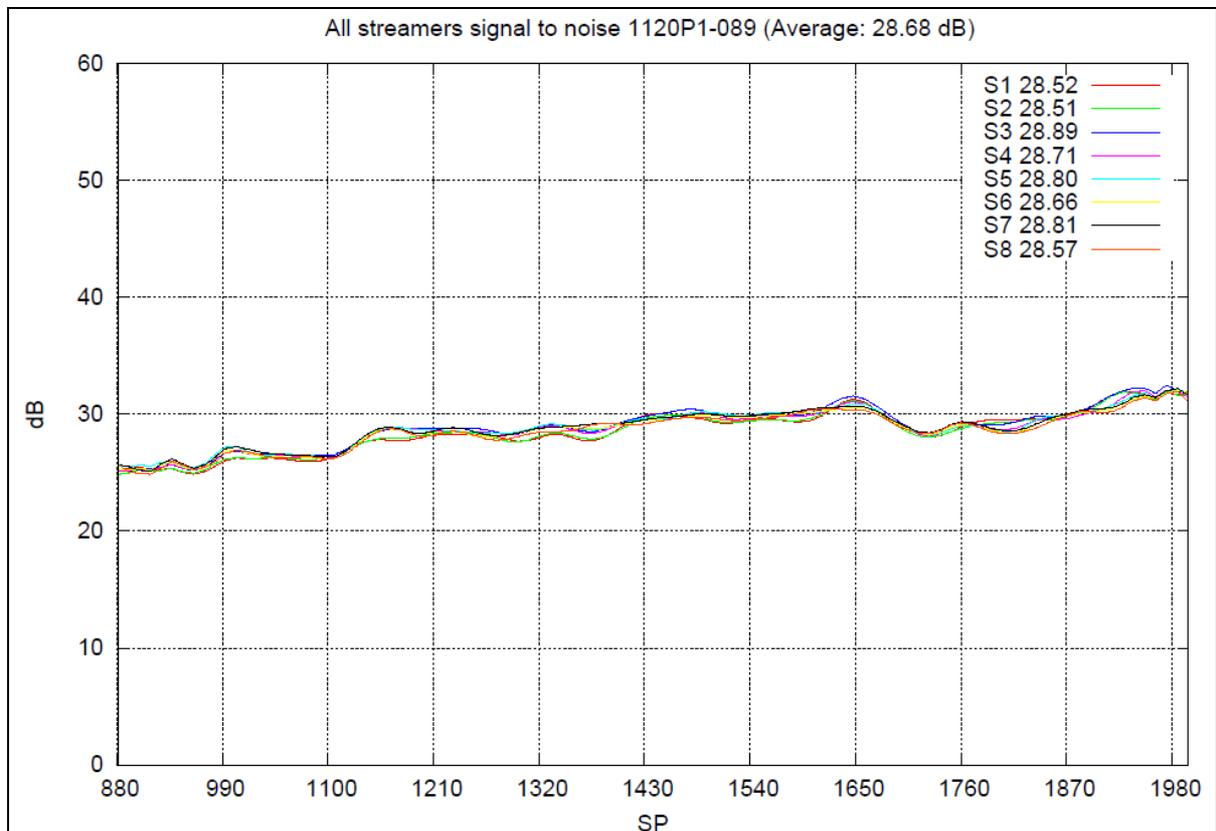


Figure 32: Average signal-to-noise ratio per streamer per shot for line G06A-1120P1-089

On lines acquired in increased sea states, differences between streamers may become visible because of slightly different ballasting and different behaviours of the depth controllers attached to the streamers.

Figure 33 displays the signal-to-noise and ambient noise levels per acquired sequence. As a rule of thumb, an average of over 4 microbars would normally indicate that the line (e.g. sail line G06A-2048P1-144 – 5.24 microbars) was noisy and was subject to review by the onboard QCs utilising the full suite of data quality control products.

Figure 34 displays the SOL ambient noise levels per sail sequence throughout the survey. High peaks in the graph generally coincide with increased sea states.

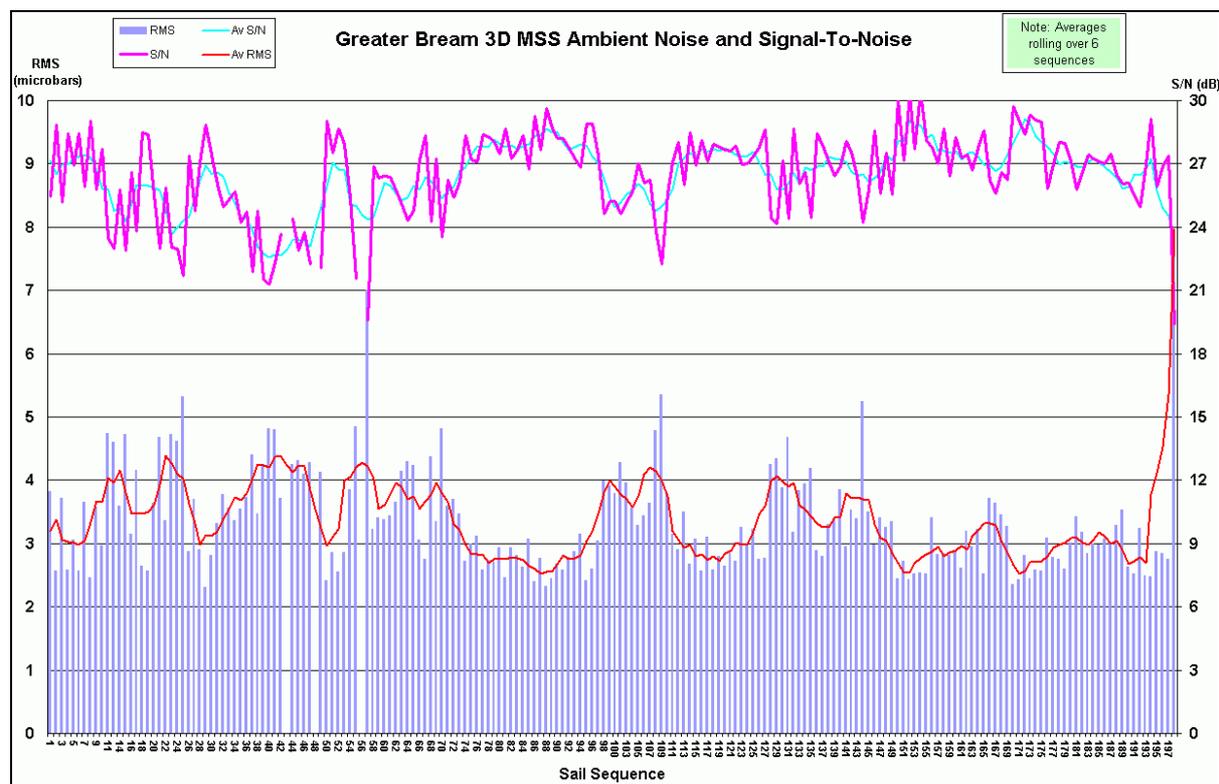


Figure 33: Average ambient noise levels and signal-to-noise ratio per sail sequence

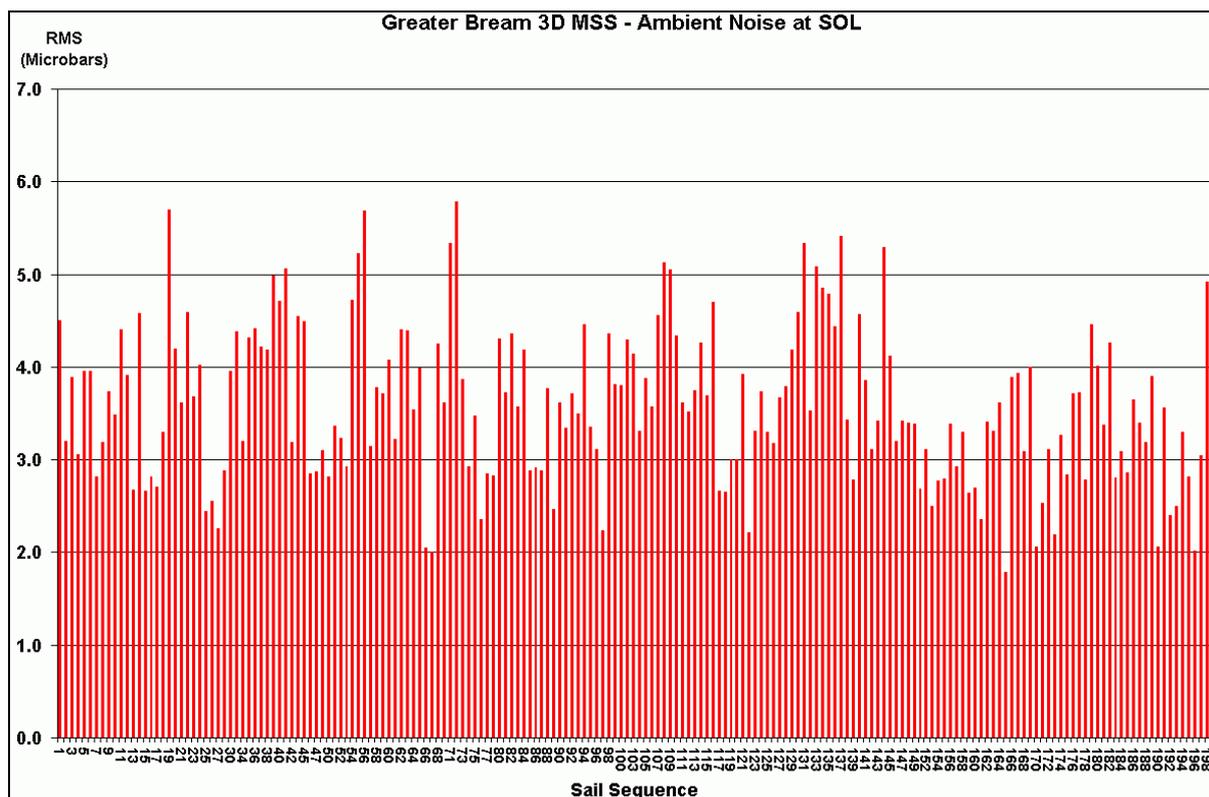


Figure 34: Data from SOL noise analysis throughout the survey period

3.4.7 STREAMER SENSITIVITY

A standard part of every survey is to verify the streamer sensitivity. To this end, a channel-to-channel sensitivity check was performed after every line and the results were graphed. An example is displayed in Figure 35. The input data for this process was an autocorrelation over a 1000 ms window over the part of the shot record that contained most of the signal (150 ms before the expected water bottom reflection and 850 ms below), any channel that was found to be more than 3 dB different from its adjacent channels, was considered bad. Note that differences from channel to channel are exaggerated because ‘real’ data was used for this verification. In addition, the outcome of this test is very dependent on the chosen window and the data that is present in that window.

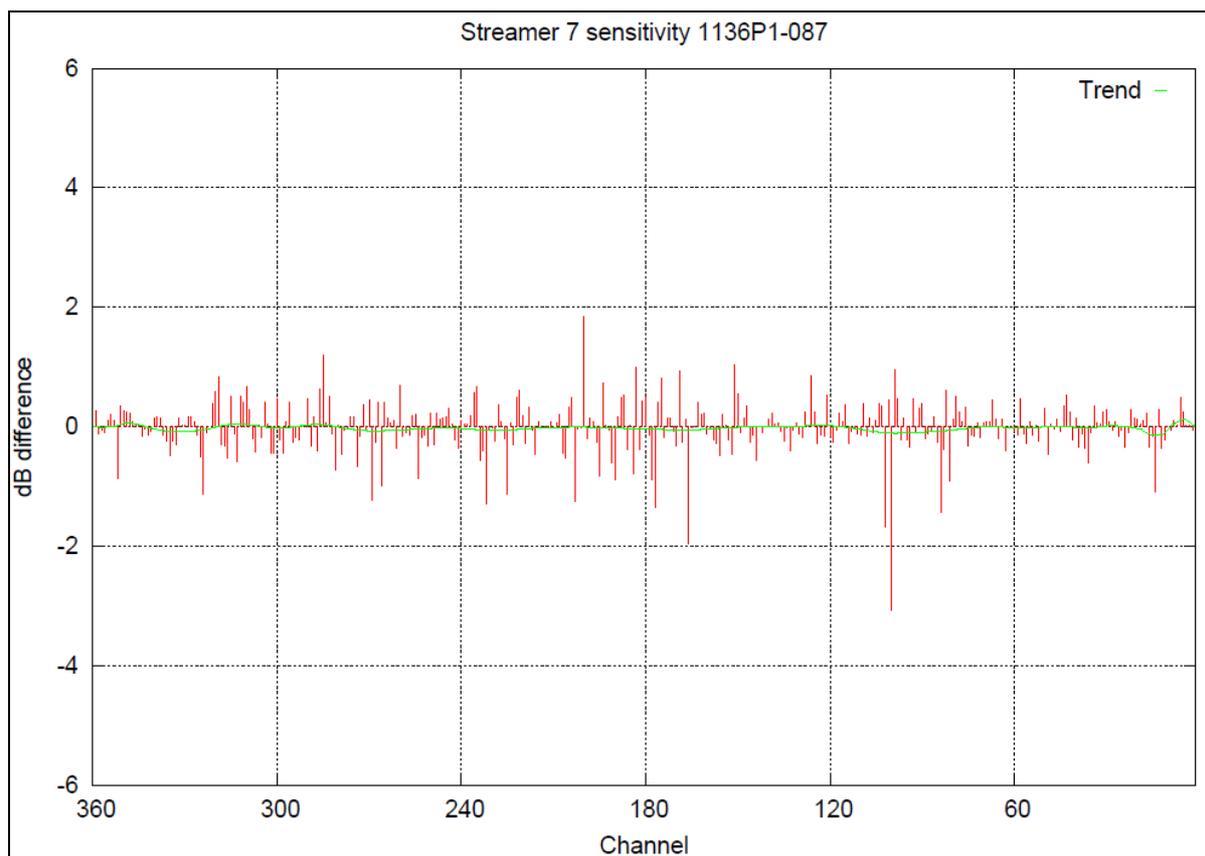


Figure 35: Channel to channel sensitivity verification example for one streamer.

3.4.8 SOURCE-TO-SOURCE OUTPUT COMPARISONS

In addition to the noise monitoring, a quality check on the source array performance was produced for each line. The values used in the displays are calculated from autocorrelations over 51 near traces from all streamers. The 'energy' of the signal was then converted to decibels. In the graph in Figure 36, the port and starboard arrays should track one another closely. Differences between port and starboard array are displayed in Figure 36. In this particular example, one of the elements (P-2 at 220 cu in) on the stbd array was turned off at SP 2027 causing a very slight drop in output.

Differences due to geology, spread layout or sea state should change very little from shot to shot so this method provided an accurate indication of source energy output and consistency from source-to-source. However, geology, spread layout and sea state change throughout the line will cause local variations in the absolute value.

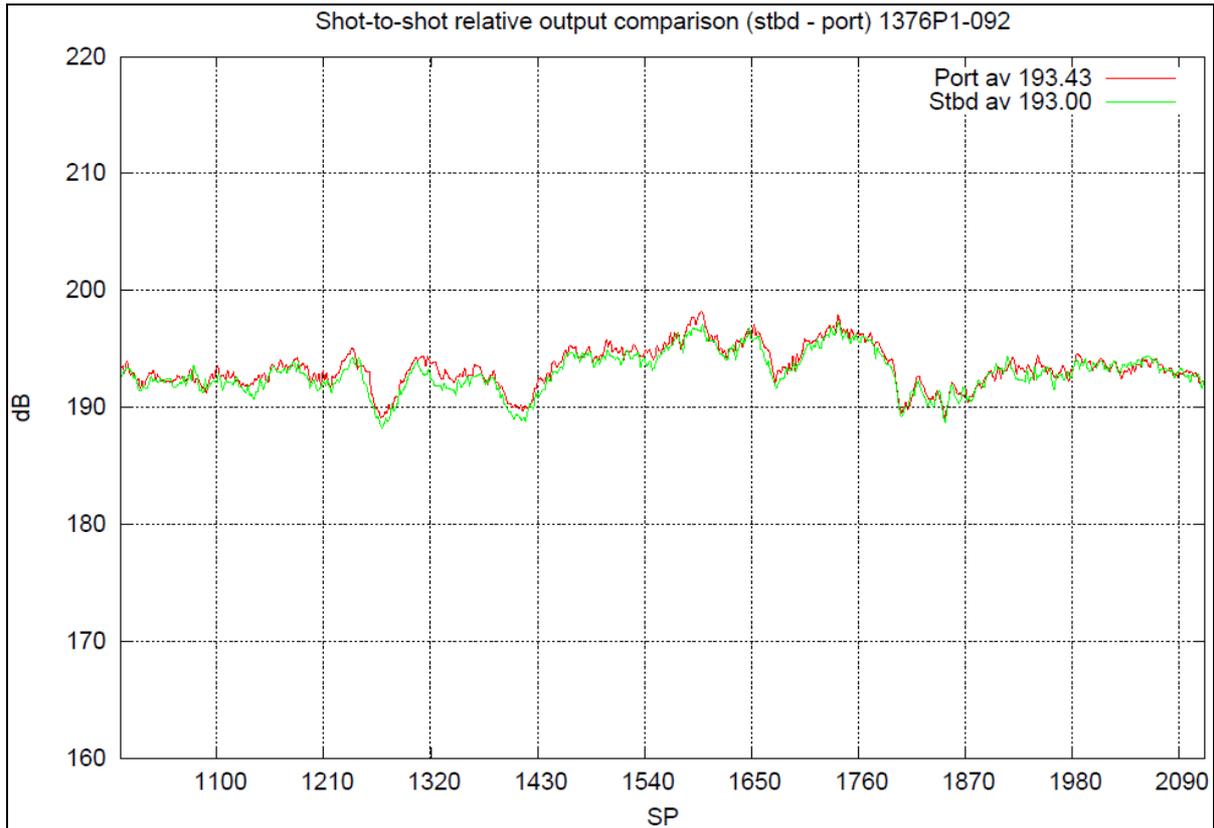


Figure 36: Source array port-stbd relative output versus shot point

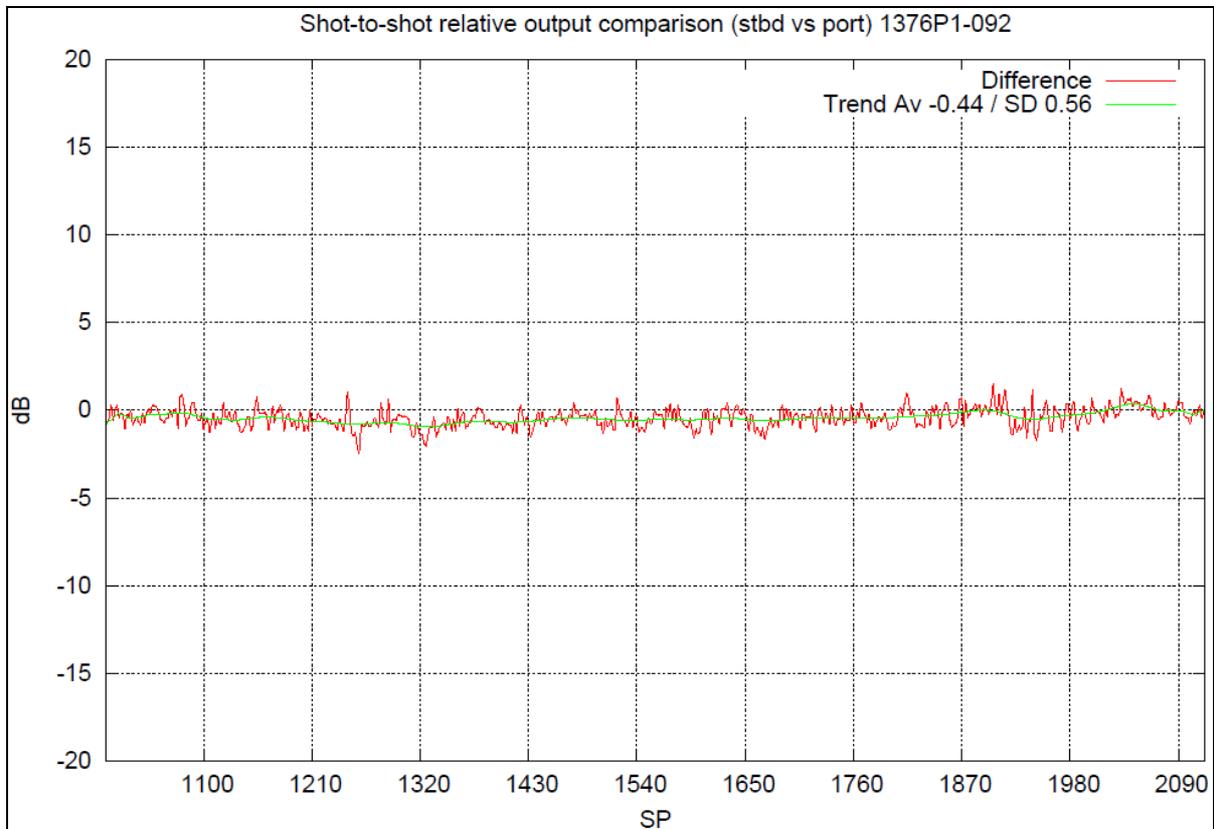
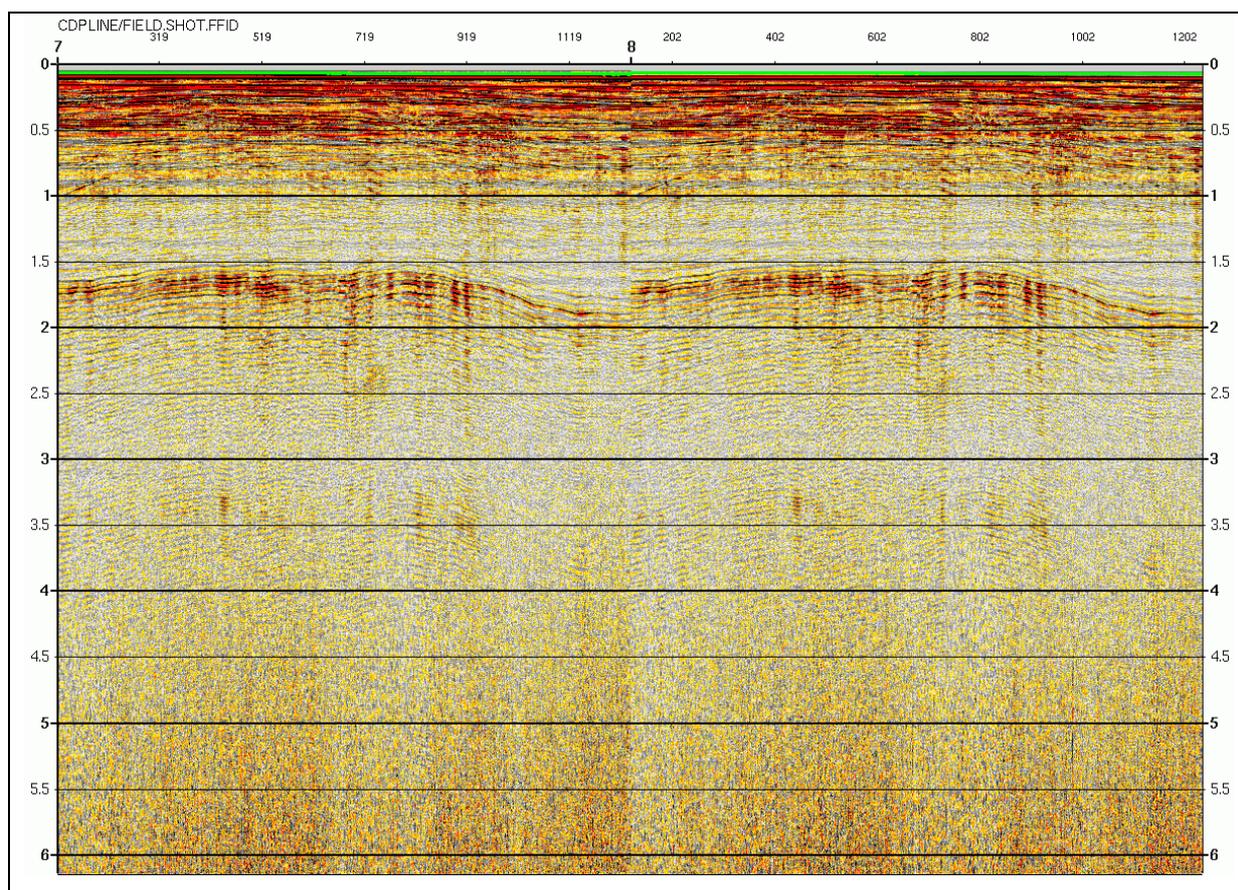


Figure 37: Source array port-stbd output difference

3.4.9 NEAR TRACE DISPLAY

The near trace (Figure 38 displays streamer 4 for the port and starboard sources respectively) is selected from each streamer to produce a single fold representation of the acquired data. These displays are mainly used in the detection of auto fires, source switches and to verify that certain header values (e.g. the water depth as indicated by the green line) for subsequent processing have been assigned correctly.



3. Selective trace edits
4. Select one streamer-source combination (cycle through all combinations on line by line basis)
5. Amplitude recovery using V^2T function
6. Apply 2D basic geometry and reorder to 2D CMP gathers
7. Apply NMO using water depth dependent regional velocity function
8. Far offset trace mute
9. Inner trace mute
10. CMP stack, 60 fold
11. Display gain 4 dB/sec from 2.5 seconds to 5 seconds

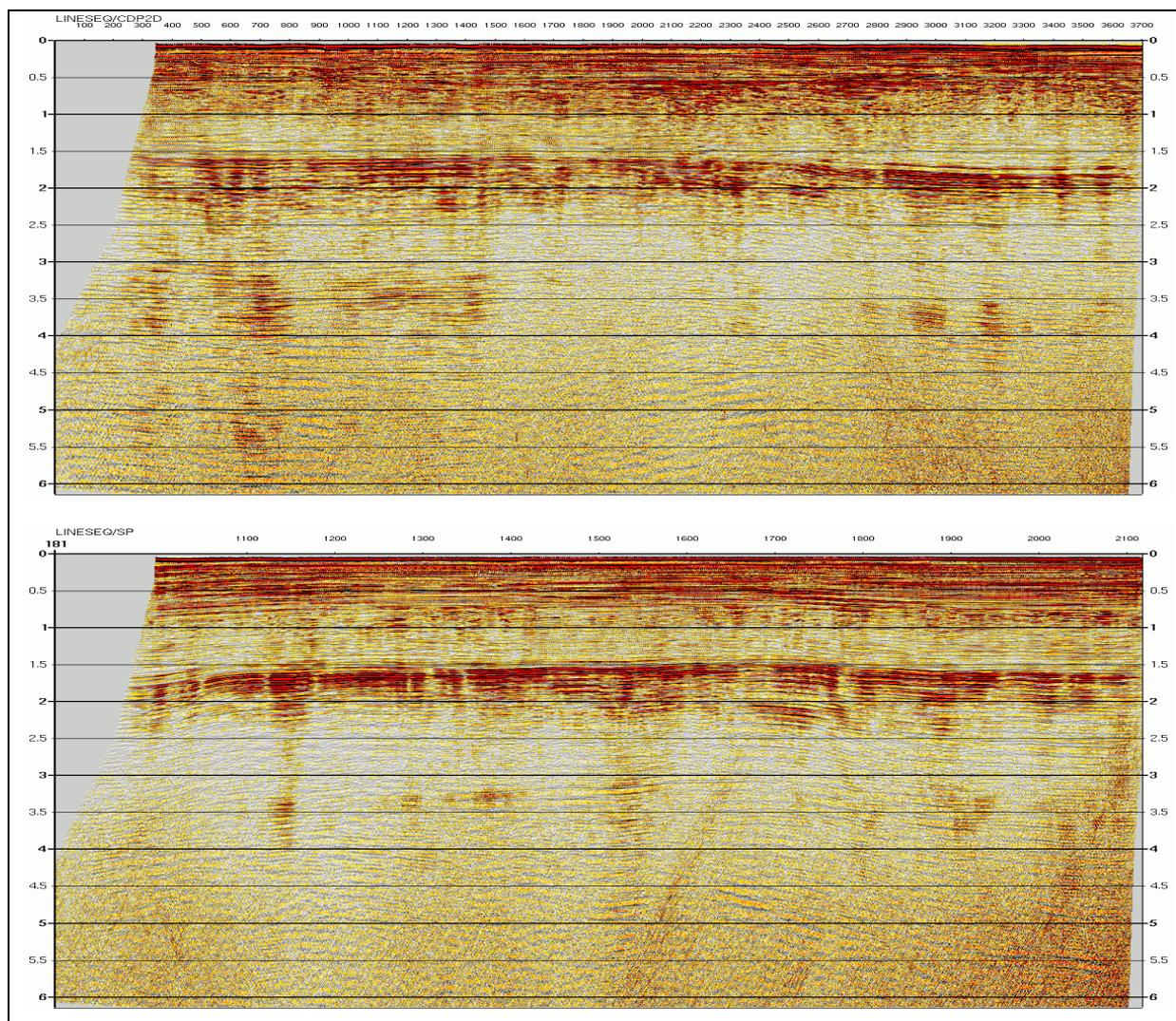


Figure 39: Example brute stack displays from lines G06A-1152P1-083 and G06A-2208F1-181

Screen displays of all initial brute stacks are available in the Document Archive section of the CD-ROM and included as SEG Y format files on tape in the final shipment.

At this point, the data were saved to disk for two separate flows of further processing:

- The onboard raw 3D quality control stack
- Input to the full processing flow to be completed onshore at the Veritas DGC Singapore Processing Centre

At this stage, processed shot records were saved to SEG-Y format and included as a final deliverable. A description of the SEG-Y format used (including the EBCDIC header, binary header and line header) is included in the Document Archive section of the CD-ROM and in the Appendix of this document.

3.4.11 NAVIGATION-SEISMIC MERGE QUALITY CONTROL

A critical step in the onboard quality control scheme is the verification of the merging of seismic and navigation data. Occasional problems that arise from incorrect navigation processing are flagged at this stage and, if required, reverted to onboard navigation processing for review and correction in order to ensure a high quality processed final P1/90 file.

Two checks are used in order to verify the merge. For both methods, the navigation data are merged with the near traces.

For the first check, a linear move-out correction is applied based on the prevalent acoustic velocity for the line in question (an average from the streamer mounted velocity meters verified using results from a recent TS dip). Theoretically, this moves the direct arrivals on all streamers to a common level in time. The actual result is then checked against the theory using displays such as the one in Figure 40. For a valid merge, the onsets of the direct arrival must fall within the limits indicated in the display, the acceptance values indicating a time of 3 ms either side corresponding to approx. 4.5 m from the real world position. The blue lines indicate a visual representation of the changes in offset value from the navigation data; the red lines indicate the minimum and maximum onset times for acceptance. The shape and timing of the onset of the direct arrival is dependent on the distance from nearest element in the source array to the nearest hydrophone on the streamer.

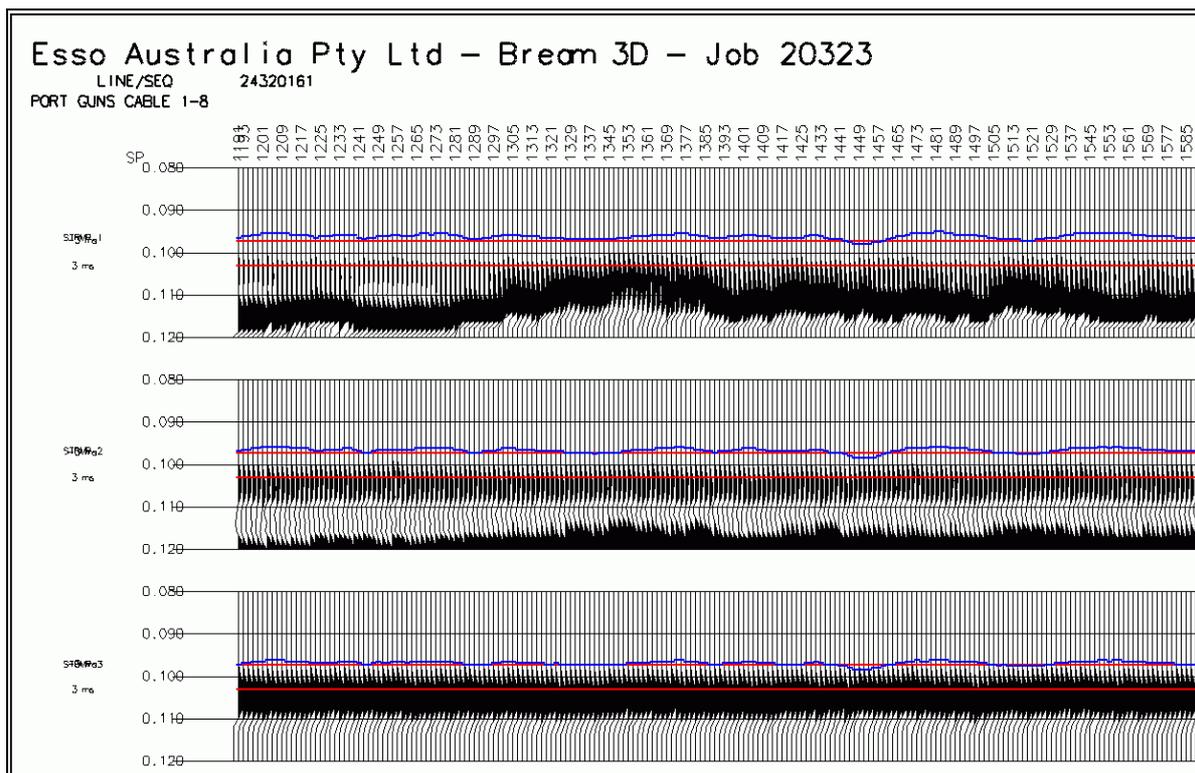


Figure 40: Example of navigation-seismic merge quality control

The second check is to load all these near traces in a single fold cube, after correcting for normal move-out and tidal statics. Example time slices are displayed in Figure 41; these data were loaded onto the 37.5x25 acquisition geometry. Onboard personnel verify that there are no unexplainable breaks in the crossline direction indicating either a problem with the navigation, changes in the acoustic velocity or unpredicted tidal variations causing static shifts in the data.

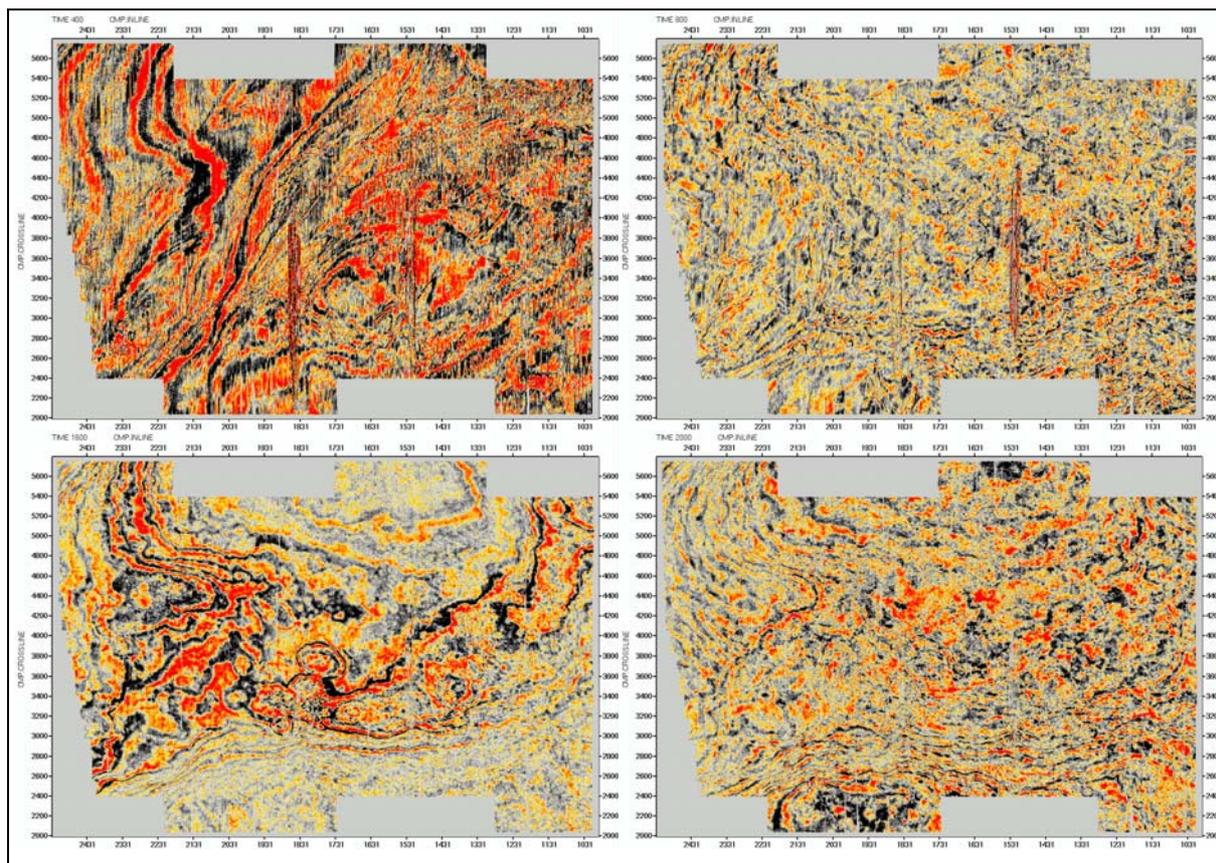


Figure 41: Time slices at 400, 800, 1600 and 2000 ms from the near trace cube

3.5 SEISMIC DATA PROCESSING

In addition to the basic QC processing described above, a pre-processing flow was implemented onboard and used as the starting point for both an onboard 3D stack and initiating a full processing sequence to be completed in the Veritas DGC Singapore Processing Centre.

3.5.1 TRACE AND SHOT EDITS

The first step in the pre-processing flow was to apply the trace and shot edits. All channels labelled 'bad' during the quality control stage are set to zero amplitude as well as shots with autofires, misfires and all delta errors greater than 1.5 ms. Any anomalously high amplitudes encountered are also set to zero.

3.5.2 LOW-CUT AND TEMPORAL ANTI-ALIAS FILTERING AND RESAMPLE

A 3(12) Hz (dB/oct) low cut filter was applied to attenuate low frequency noise caused by the sea state. In addition, a 94(132) Hz (dB/oct) high-cut filter was applied prior to resample to 4 ms. During the processing sequence, these 2 filters were applied in one pass, the filter

diagnostics are displayed in Figure 42. The filters applied to real data and their corresponding frequency spectra are displayed in Figure 43

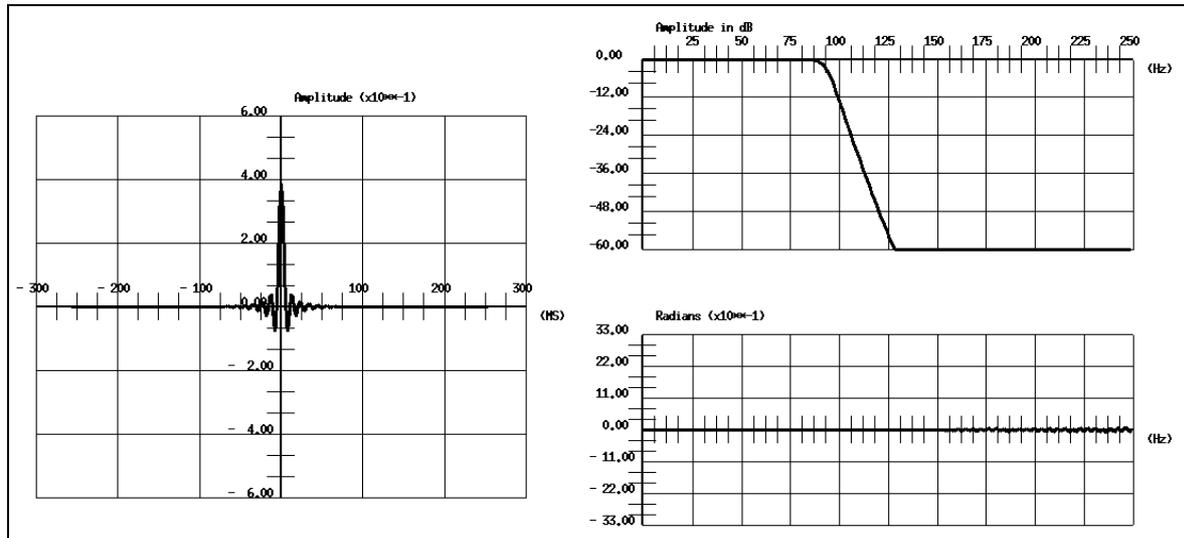


Figure 42: The combined low-cut and temporal anti-alias filter: 94(132) Hz(dB/oct)

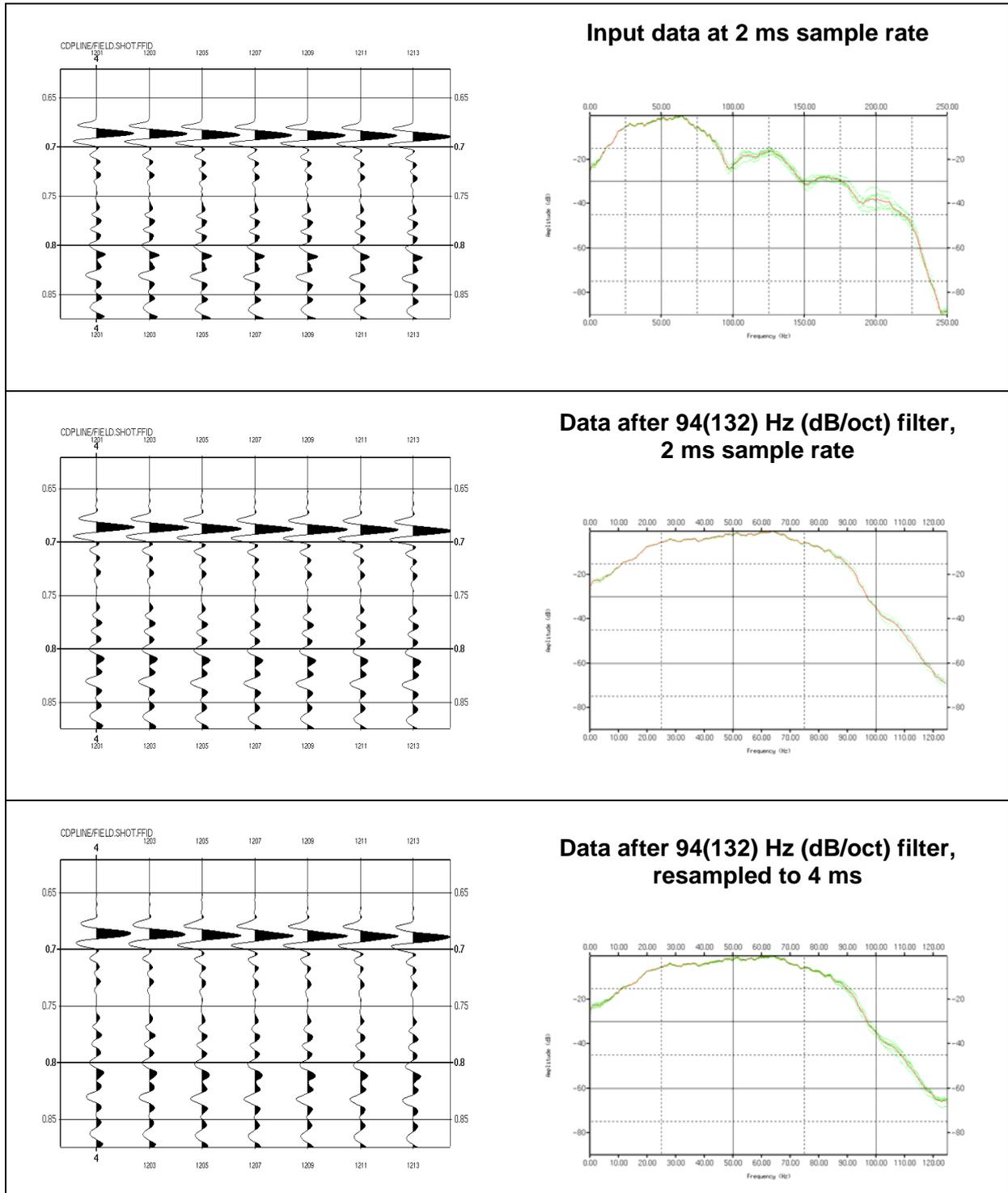


Figure 43: Low-cut and anti-alias filter diagnostics on real data

3.5.3 TRUE AMPLITUDE RECOVERY

Following testing earlier in the sequence, it was decided that a simple V^2T spherical divergence correction best restored the true amplitude condition of the data. Velocities used were 1500 m/s at $t=0$ and 4000 m/s at $t=6144$ ms.

3.5.4 RANDOM NOISE ATTENUATION

The variable weather conditions encountered on the Greater Bream 3D survey meant that an effective swell and random noise attenuation scheme had to be implemented to improve the signal-to-noise levels. The processing flow used two passes of Veritas' proprietary *fxedit* module. The module attenuates random noise by using complex prediction and projection filtering in the f-x domain. A two-pass approach was applied.

For the first pass, data are reordered to channel/CMP line order. This first pass is designed to attenuate low frequency noise, typically sea swell induced noise up to 20 Hz. For the second pass, data are reorder back into regular shot record/channel order and the remaining random noise at frequencies up to 125 Hz is attenuated. A water bottom protection time of 2 seconds on the near traces and 3.5 seconds on the far traces was honoured.

Statistics and displays as to the effectiveness were gathered throughout the survey. Figure 44 displays the effectiveness of the routine on a single shot record (from line G06A-1520U-056).

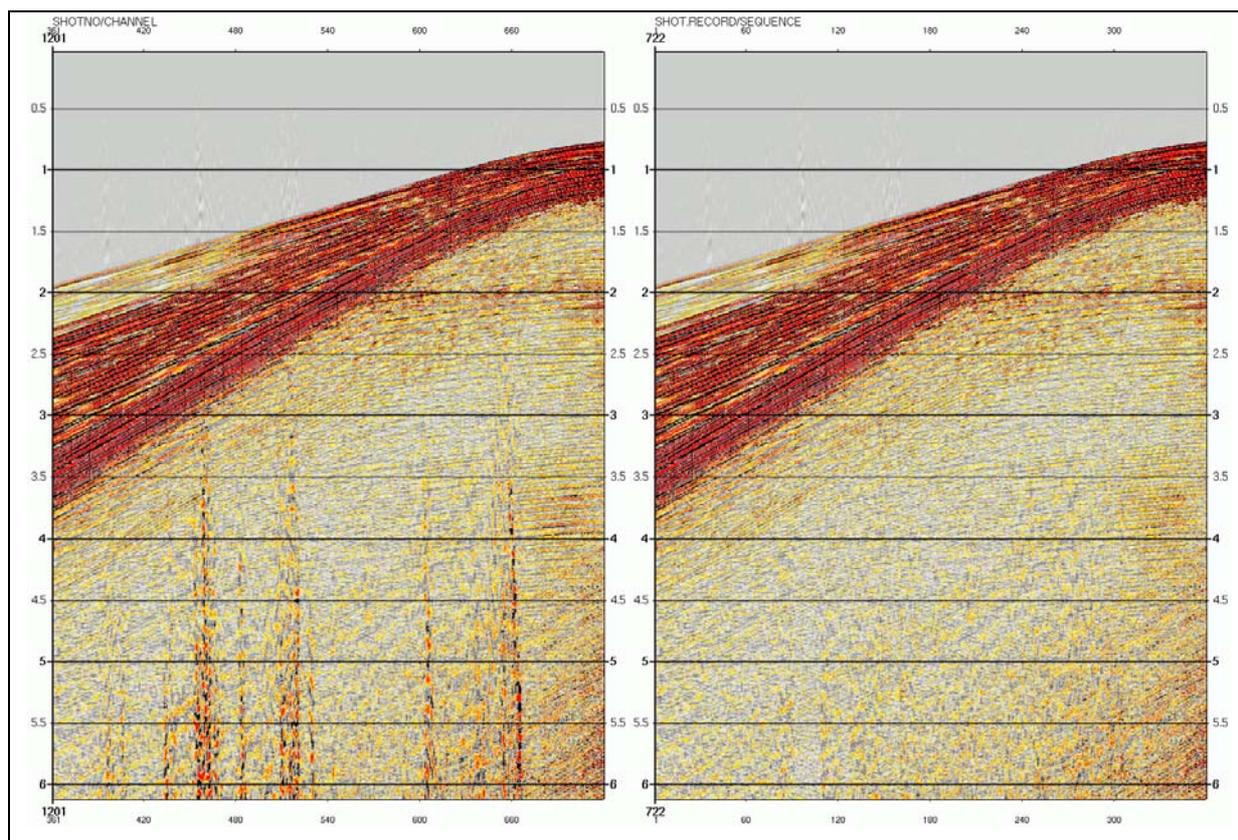


Figure 44: Example shot record before and after random noise attenuation

Additional testing was performed on sequences 11, 55, 56 and 57 where an additional low-cut of 5 Hz was applied to the *fxedit* passes in order to isolate the amount of swell noise that

was in the seismic about 5 Hz. The idea being that this could aid in quick decisions on butt-up infill. The following 2-pass approach was utilised:

1st pass parameterisation

- run in channel/CMP line order
- 201 trace window
- targeted frequency range of 0-20 Hz
- data gated into frequency spectra of 3 Hz
- an application window of 3500-6000ms on the far trace, and 2000-3500 on the near trace.
- tolerance factor of 1.8

2nd pass parameterisation

- run in shot order
- 81 trace window
- targeted frequency range of 0-125 Hz
- data gated into frequency spectra of 10 Hz
- an application window of 4200-6000ms on the far trace, and 2500-3500 on the near trace.
- tolerance factor of 2.5

All amplitudes within a gate are summed to create a median gate amplitude. On a trace by trace basis the gate amplitude is compared to the median amplitude, if the ratio is greater than the tolerance then the gate is bad, and the gate amplitude is scaled to that of the median amplitude.

Examples of the testing are included in the Document Archive section of the CD-ROM.

3.5.5 COMMON-OFFSET NEAR TRACE CUBE

Whilst the near-trace cube was a useful tool to verify the integrity of the navigation data, a drawback is that the near trace of each streamer does not honour the actual offset value; data from multiple offset zones contribute to the result due to the nature of multi-streamer acquisition. In addition, the acquisition pattern was obvious in the near trace cube. For this reason, it is Veritas' practice to also generate a raw data common-offset cube. For this survey, common offset data for 463-538 metres were loaded on a 6.25x25 metre grid (the '500m common offset cube'). This range of offsets, in preference to the near trace only, was used so that the noisier nearest traces at the head of the streamer were not used (except for

the outer streamers) and all data is from the same offset zone. From this cube of data, sublines, crosslines and time-slices were regularly extracted to check on geometry integrity, acquisition lineation, line-to-line noise levels, etc. Example timeslices are displayed in Figure 45. This cube is written to SEG-Y format and included in the final data shipment.

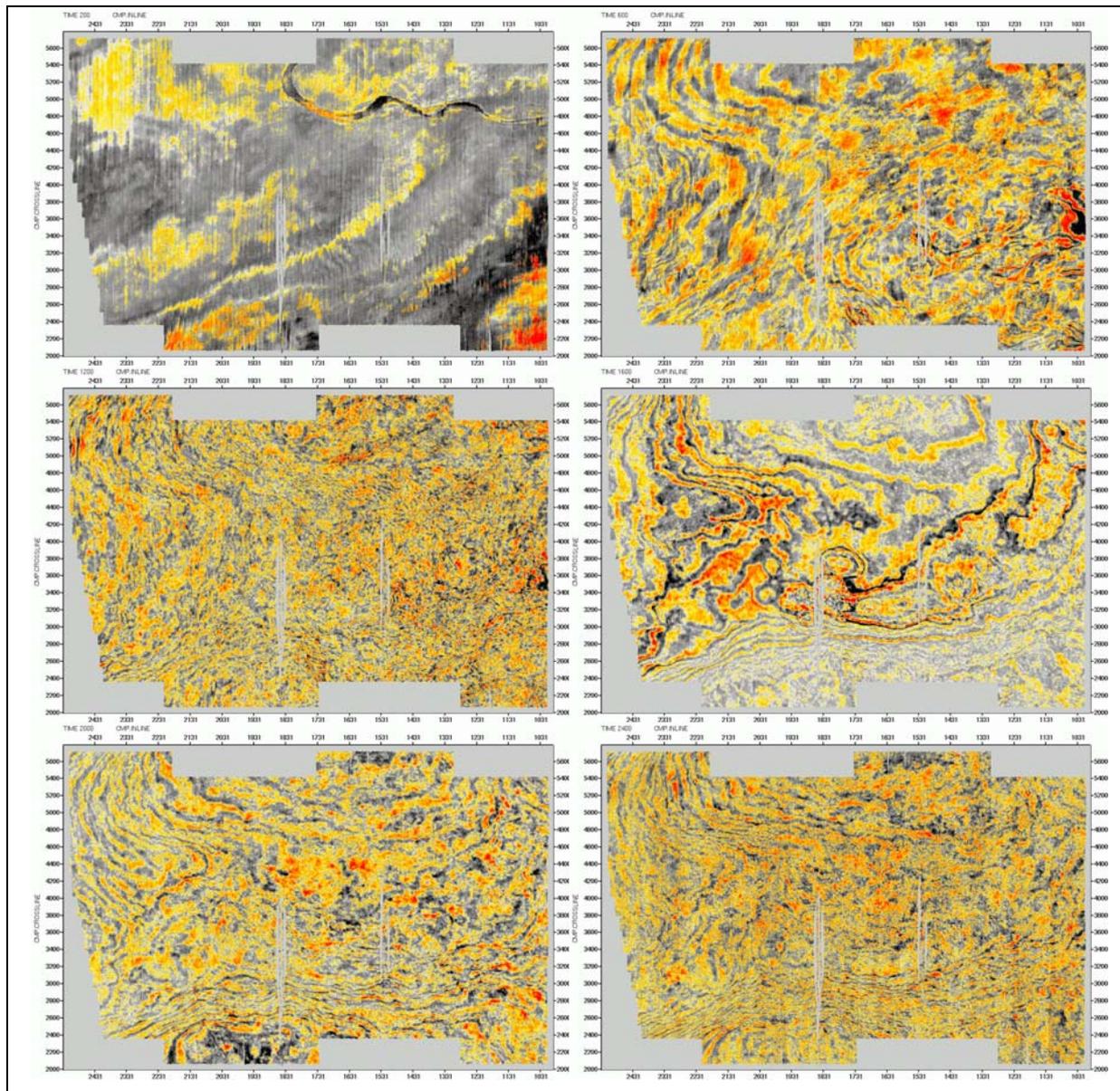


Figure 45: Time slice at 200, 600, 1200, 1600, 2000 and 2400 ms from the 500 m common offset cube

The common offset cube was saved in SEG-Y format and included as a deliverable.

3.5.6 VELOCITY ANALYSIS

Velocities were interactively analysed on a 1 by 1 km grid on subline ordered data.

Conventional 3D seismic data can typically be sparsely sampled, especially on the far offsets. Preparation of the velocity gathers consisted of selecting 13 sublines for all offsets,

centred on the chosen velocity subline. Each offset had missing data interpolated in crossline order for a maximum of five empty bins, prior to a reorder into 3D CMP gathers. This ensured full-fold gathers for accurate velocity analyses.

At survey completion, the final velocity field was exported to Veritas internal format and sent to the onshore processing centre. A representative isovel and 3D velocity time slice are shown below.

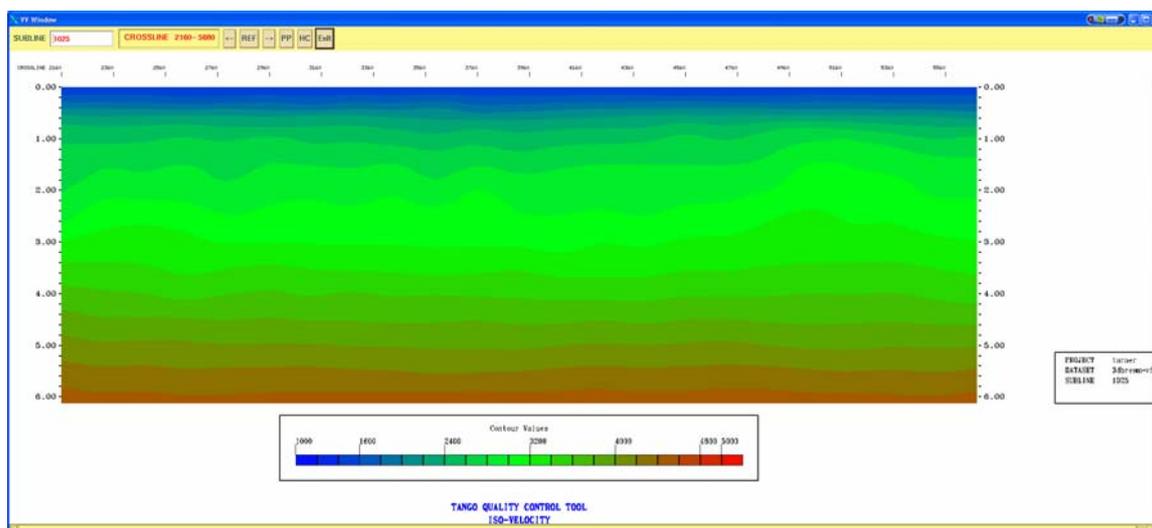


Figure 46: Example isovel from subline 1025

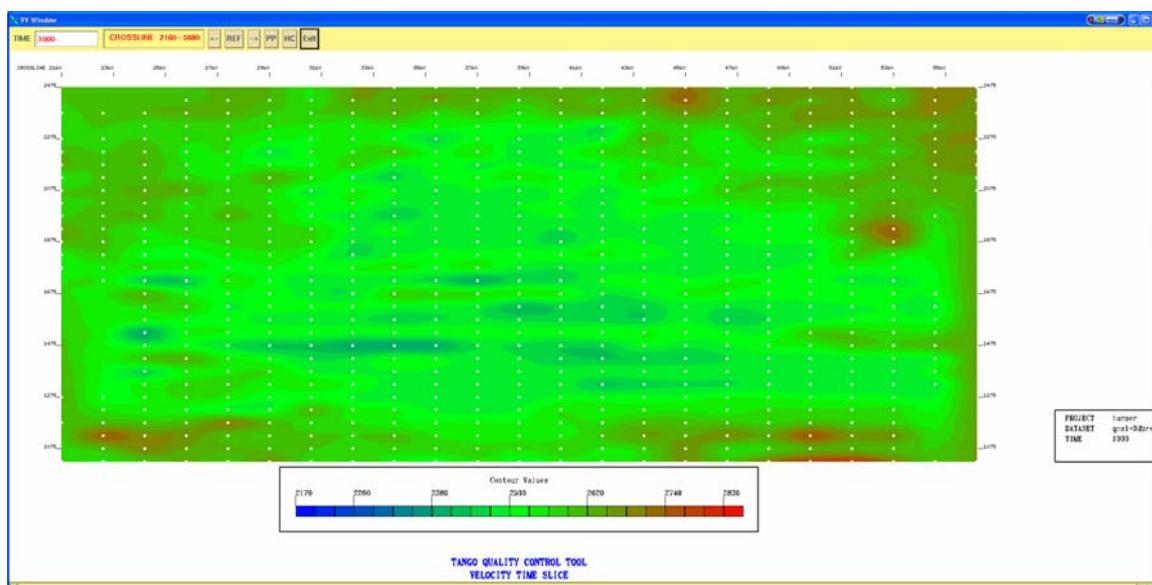


Figure 47: Example 3D velocity time slice (1000ms)

3.5.7 HIGH RESOLUTION LINEAR NOISE ATTENUATION

Veritas' high-resolution constrained linear radon transform – *xrlin* – was applied to the data in order to attenuate linear noise events. Figure 48 displays a shot record and the linear noise removed after the process.

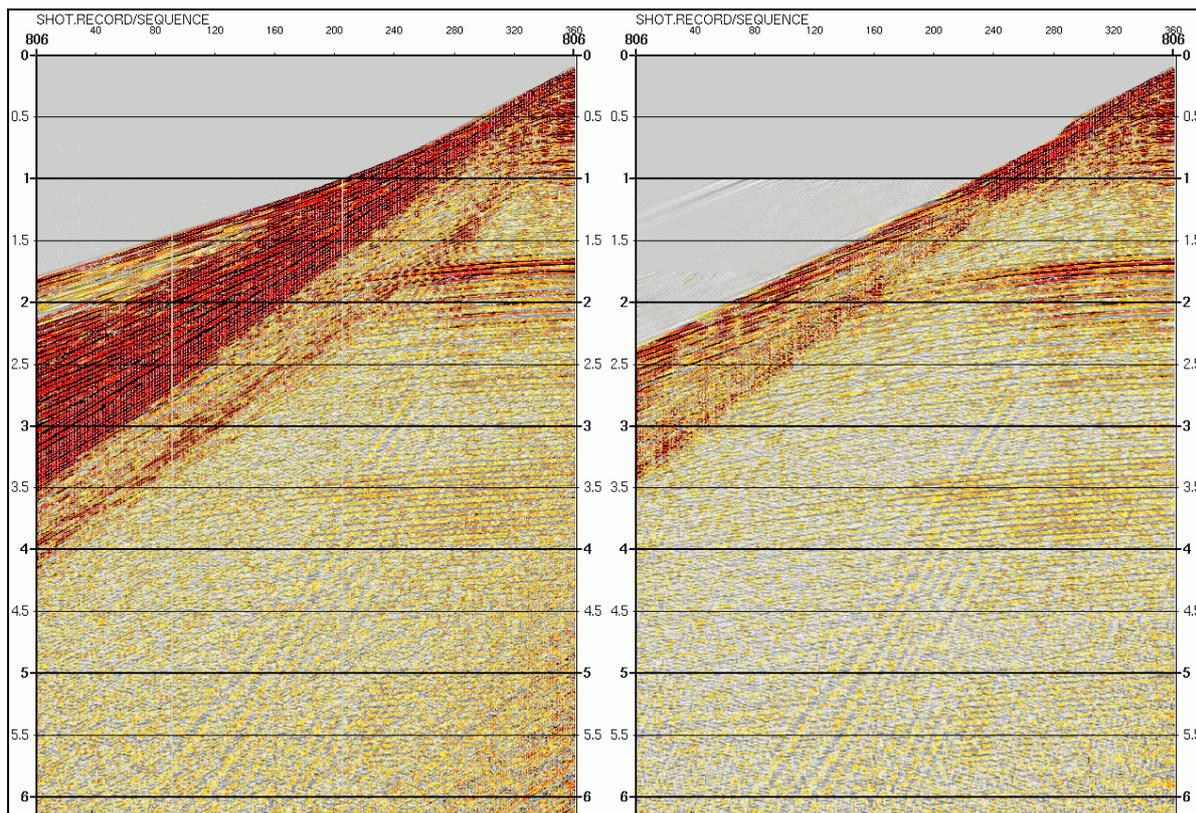


Figure 48: Shot gathers before and after high-resolution linear noise attenuation

3.5.8 RESIDUAL RANDOM NOISE ATTENUATION

At this stage the data underwent a further pass of random noise attenuation, targeting any remnant random noise. An example of the output and of the remnant random noise removed can be seen in Figure 49.

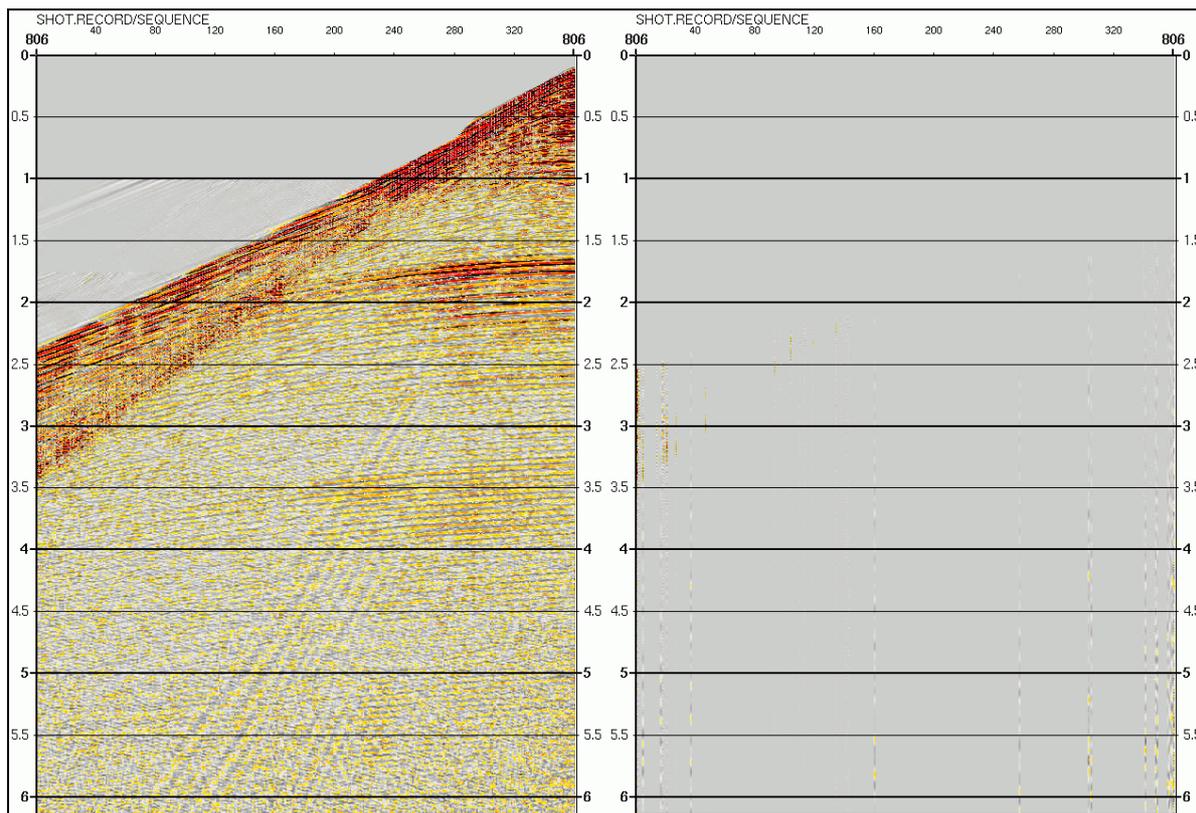


Figure 49: further random noise attenuation

3.5.9 TAU-P DECONVOLUTION

At this point, data are transformed into tau-p space and a 48 ms gap/300 ms deconvolution operator is applied. The operators are derived per p-value over varying p-ranges – Table 18 – and applied over the entire trace length as displayed in Figure 50.

	τ start	τ end
-400	1300	4200
0	1200	4000
400	1150	3000
700	1000	2000

Table 18: Operator derivation knee point in tau-p space

Before transforming the data back into regular x-t domain, a mute is applied as displayed in Figure 51.

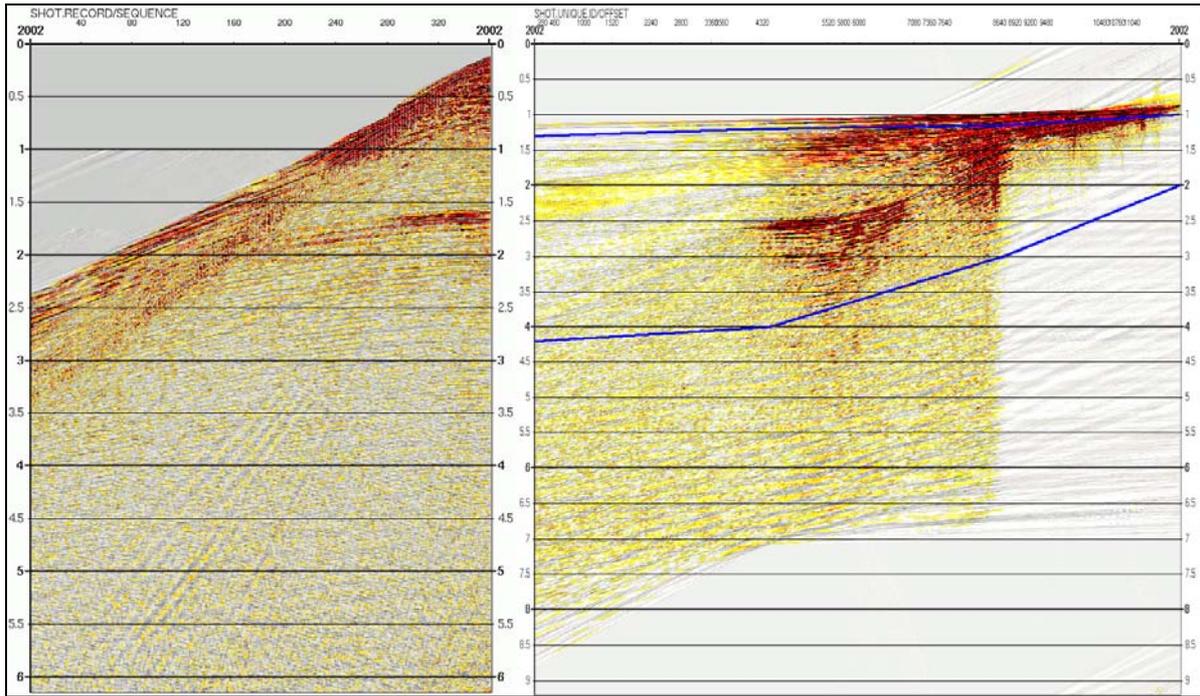


Figure 50: Input shotrecord and its tau-p representation with design window displayed

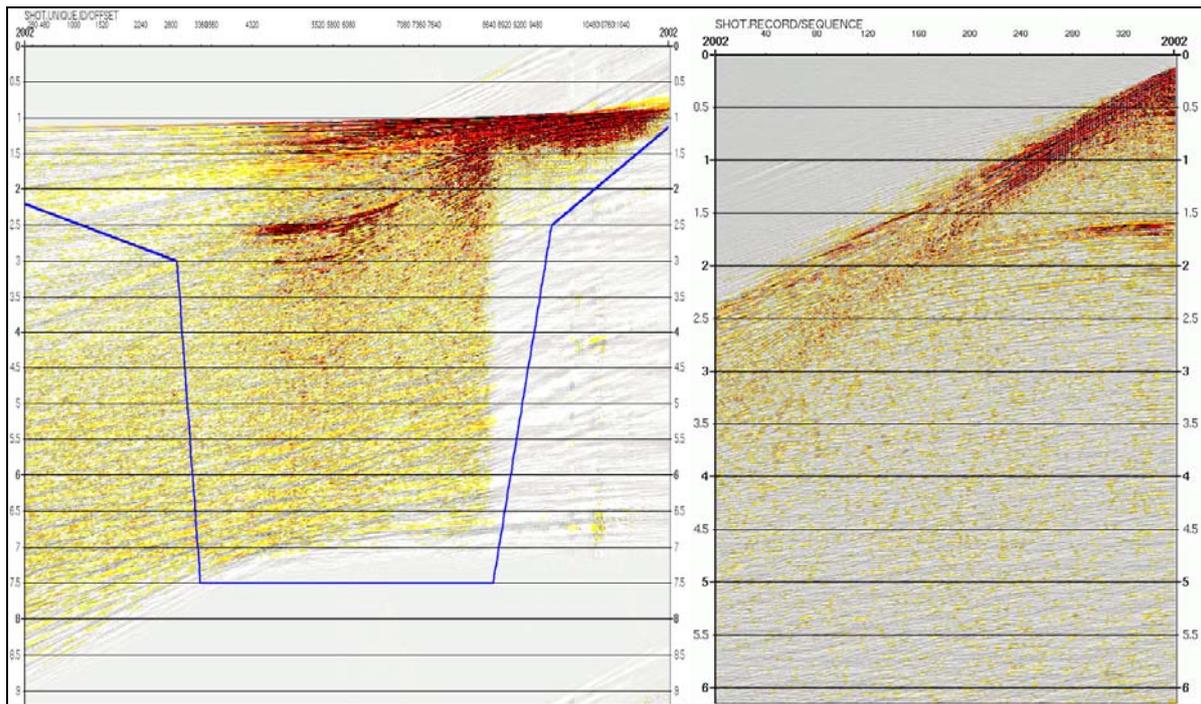


Figure 51: Shotrecord after tau-p deconvolution (mute pattern overlaid) and transform back to x-t domain

3.5.10 3D DATA LOADING

All data were loaded into 60 offset cubes, data were selected on one single criteria: in the case of 2 traces contributing to the same bin the one nearest the bin centre was kept, the other was discarded. Nominal offsets start from 150 m (centre of near offset plane) and

increment by 75 m to 4575 m. From this cube, sublines, crosslines and timeslices were extracted for 3D pre-stack quality control.

3.5.11 FINAL 3D STACK

The final step in the onboard processing sequence was to stack all data using the velocities from the 1 by 1 km grid (included in the Document Archive section of the CD-ROM) producing a 3D stack. Note that the fold in this stack is as acquired, but no areas are over 60 fold, no flex binning or crossline trace interpolation is applied. The final fold (Figure 52), sample crosslines (Figure 53), sublines (Figure 54) and timeslices (Figure 55) are displayed.

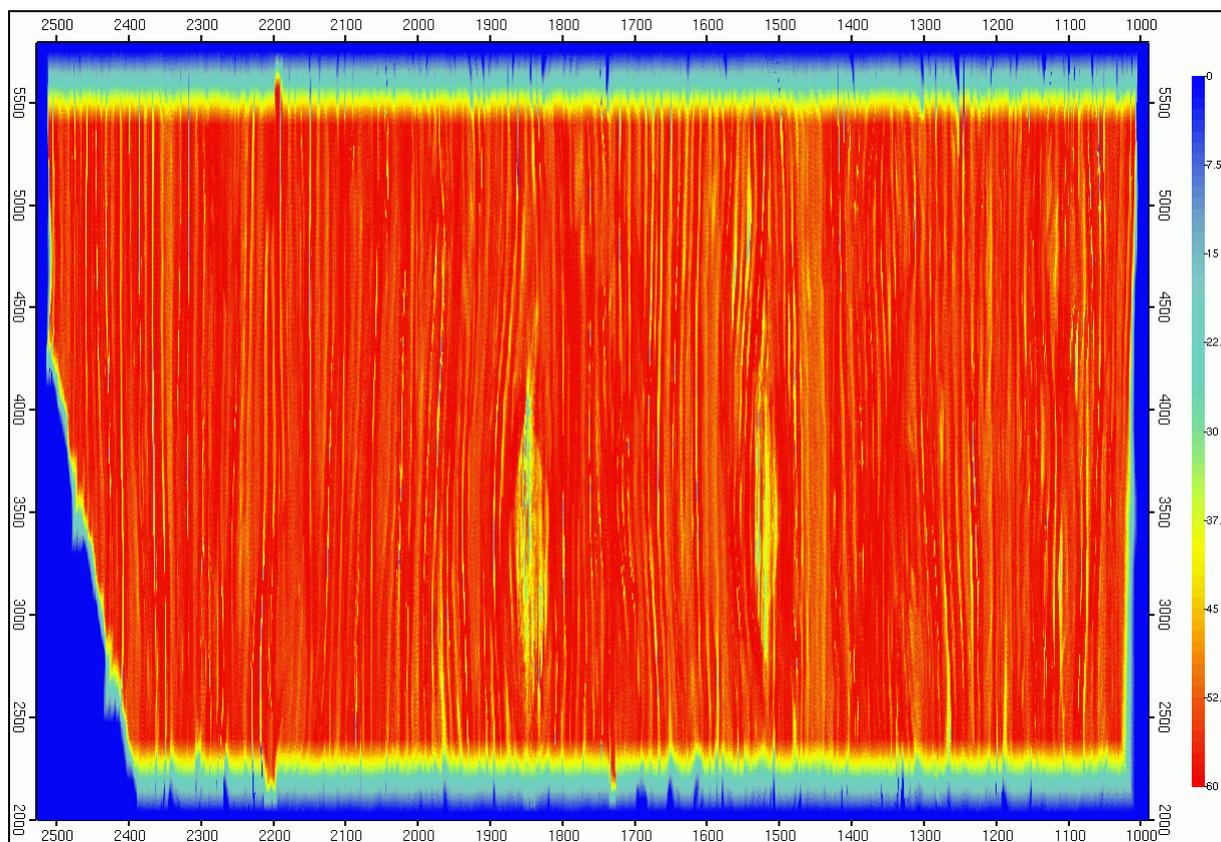


Figure 52: 3D quality control stack fold as-acquired

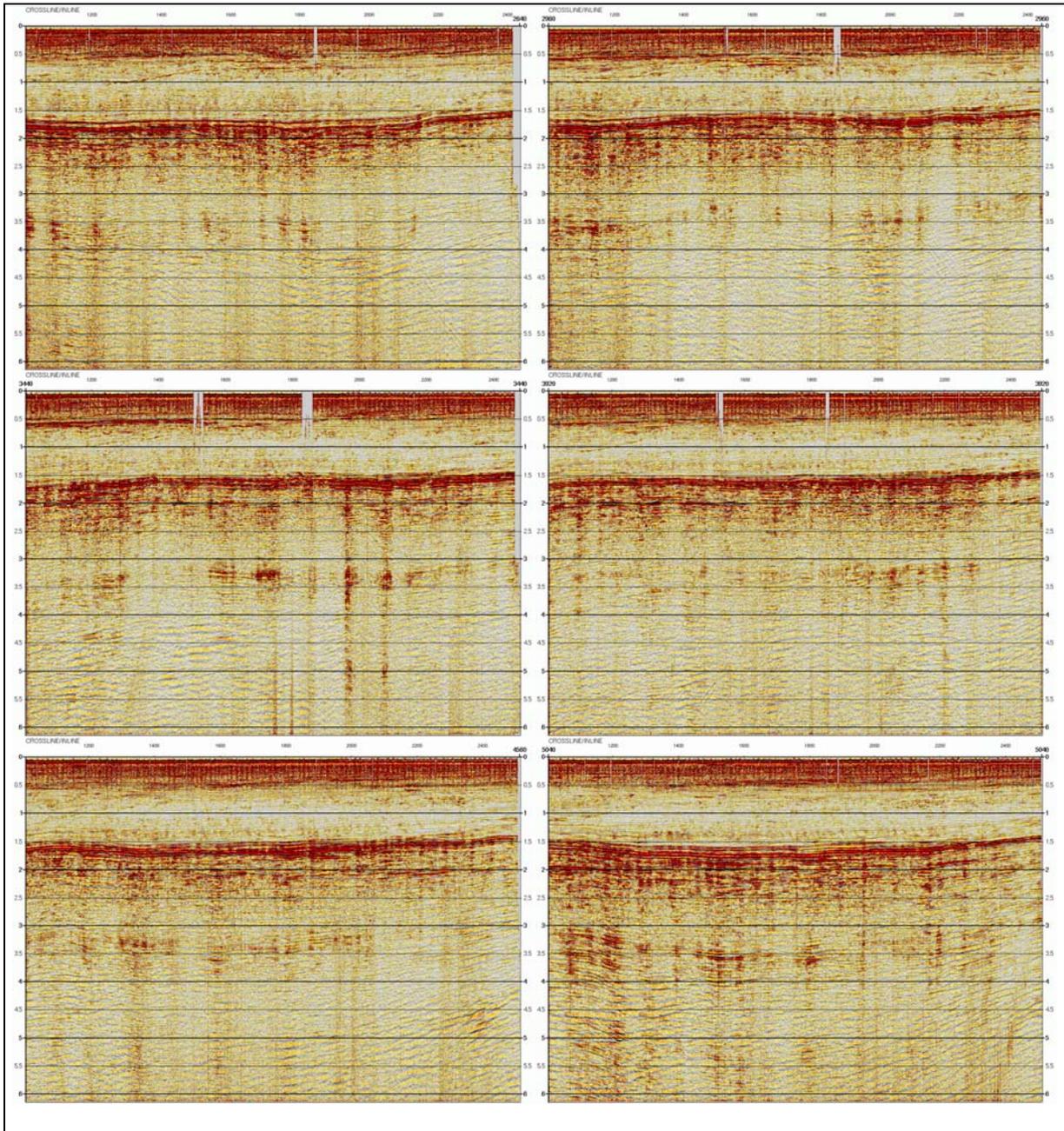


Figure 53: Example crosslines from 3D quality control stack (2640, 2960, 3440,3920, 4560 and 5040)

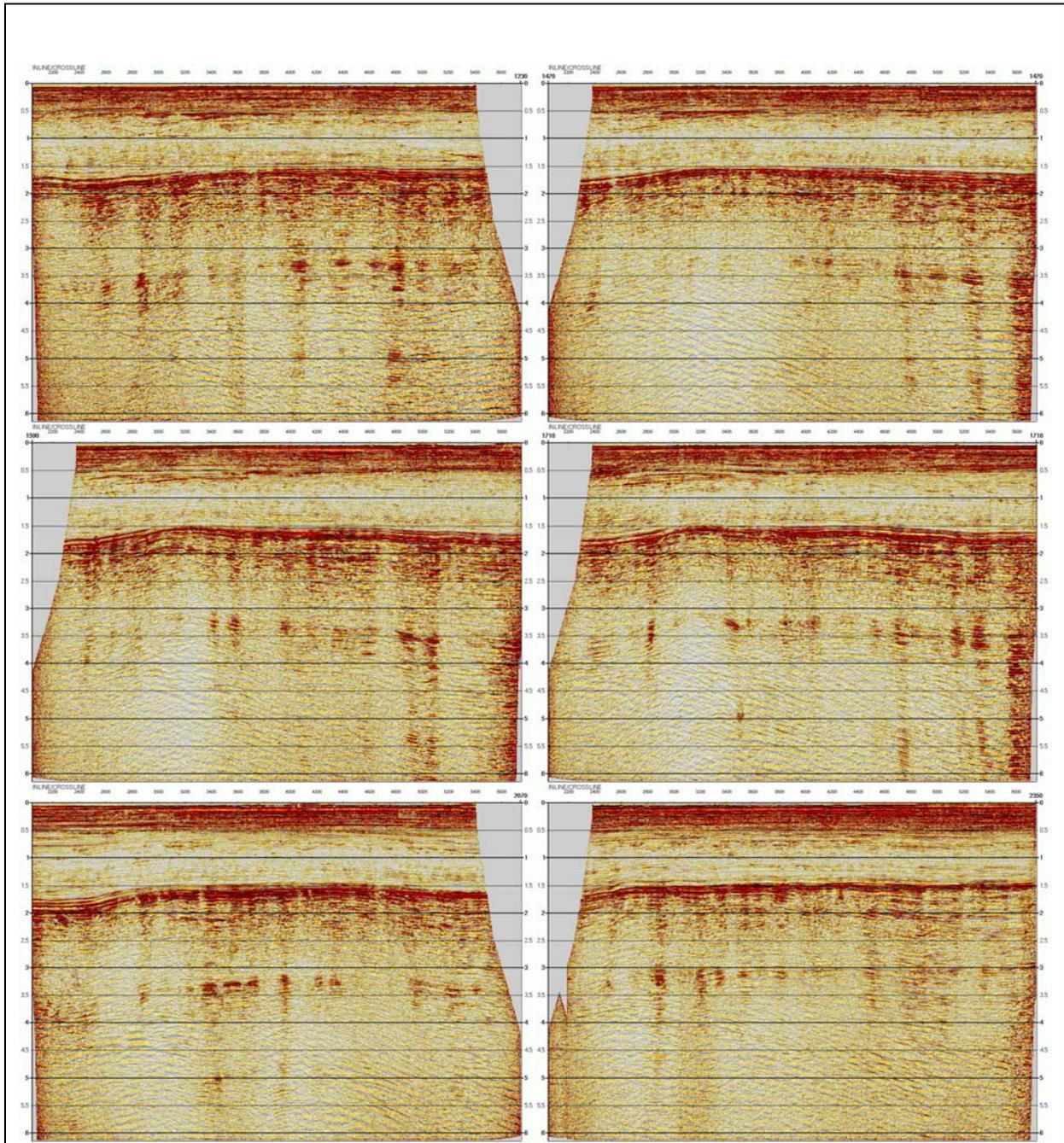


Figure 54: Example sublines from 3D quality control stack (1230, 1470, 1590, 1710, 2070 and 2350)

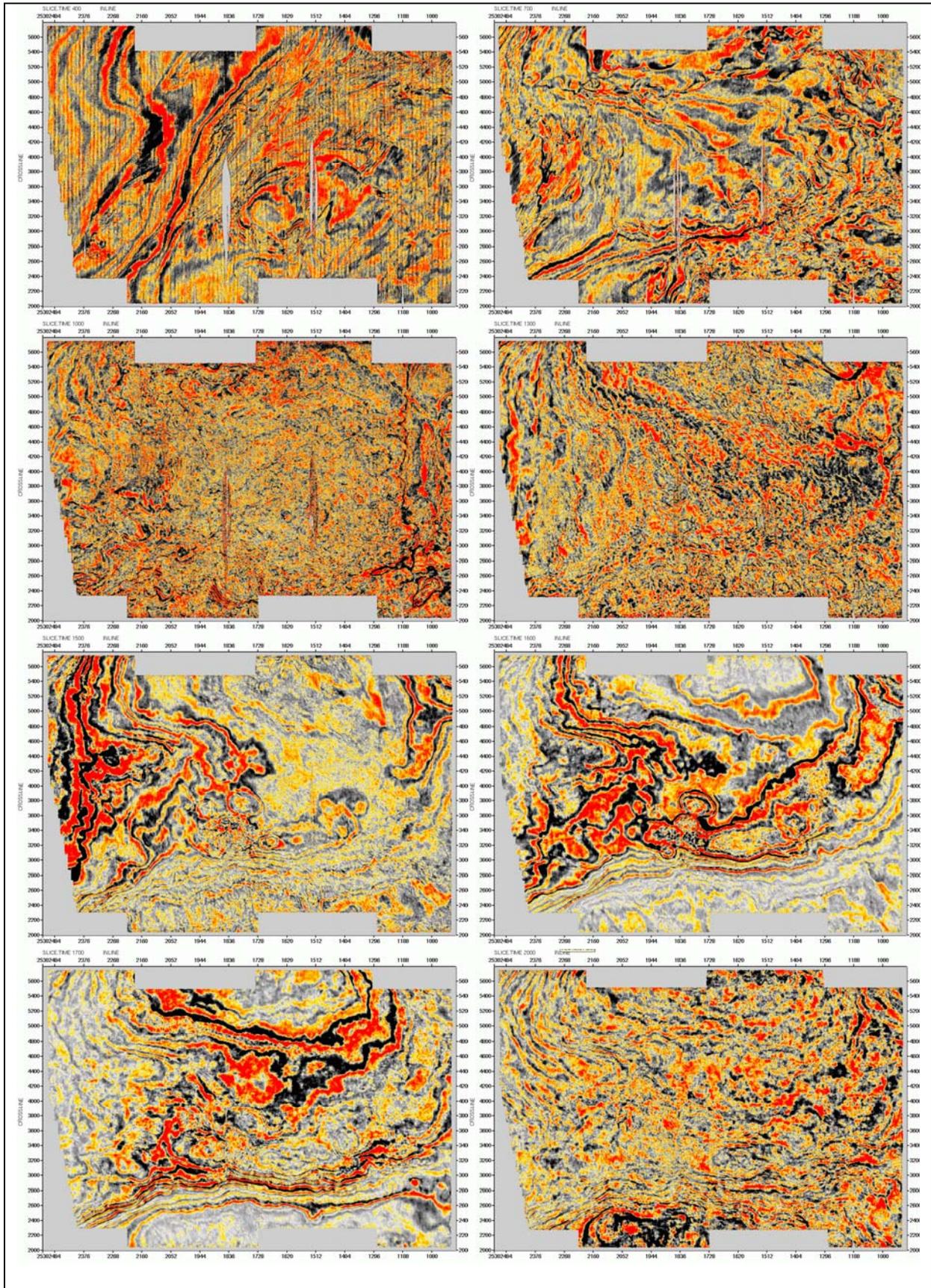


Figure 55: Example timeslices from 3D quality control stack (400, 700, 1000, 1300, 1500, 1600, 1700 and 2000)

4 CONCLUSIONS AND PERSONNEL

The Greater Bream 3D survey completed safely and successfully in occasionally testing conditions caused by local weather conditions. Production rates were steady between these weather interruptions and the data quality appears high and noise free. Technical downtime was above prediction at 15.5% of the Production period; however, for the given conditions this is not considered to be excessive although the majority of source related problems could have been avoided.

The main issue will be to ensure high quality velocity information, which will allow an effective multiple attenuation sequence to be implemented.

The second issue will be to ensure all remnant ambient noise and out-of-plane reflections caused by the presence of the platforms in the area is removed.

4.1 KEY VERITAS DGC PERSONNEL

Veritas onshore	Thor Higrapp, Marine Manager, Veritas Geophysical Pte. Ltd., Singapore Jackie DeLaughter, Vessel Supervisor, Veritas Geophysical Pte. Ltd., Singapore Phil Gunn, Regional Marketing Manager, Veritas Geophysical Pte. Ltd., Singapore Damian Hite, Project Geophysicist, Veritas DGC Inc., Houston, U.S.
Veritas offshore	Key onboard personnel during the Greater Bream 3D survey: Morgan McNelly / Howard Grizaard, Party Managers, Veritas Viking II Mike Bell / Marc Boon, Geophysical Supervisors, Veritas Viking II Paul Turpin / Glenn Cassim, Operations Supervisors, Veritas Viking II

4.2 CONTACTS

Thor Higrapp, email: thor_higrapp@veritasdgc.com, telephone +65 6890 5400 (switchboard).

For more information about Veritas services, visit www.veritasdgc.com.

5 APPENDIX 1 SEG-Y AND DATA FORMAT DEFINITION

5.1 PURPOSE AND DESCRIPTION OF PROCESS

This document describes Buyer's minimum expectations for DATA FORMATS for processed seismic data, seismic derived velocity fields, seismic positioning data and associated derivatives intended for delivery to Buyer. This description is intended as the basis for the initial discussion between Buyer and Contractor.

5.2 OVERVIEW OF SEISMIC TRACE DATA FORMAT REQUIREMENTS

Unless Buyer agrees otherwise, all Seismic Trace Data delivered to Buyer shall be written in SEG-Y (Rev. 0, 1975) format, as defined by the Society of Exploration Geophysicists (SEG)¹.

The descriptions included herein of the information to be written to specific SEG-Y byte locations are a required minimum standard for all SEG-Y data delivered to Buyer. The number of headers, their length in bytes, and the length of all defined entries are expected to be consistent with the SEG-Y standard. Several Extended Header entries have been defined for both the dataset/volume and trace headers.

5.2.1 SYMBOLS USED IN HEADER DEFINITIONS

The following symbols are used in the descriptions of the required SEG-Y format.

Symbol	Description
.	Entry is optional but must contain valid value or proper fill per standard SEG-Y format.
rqd	Entry is required
aux	Entry is required, or may be provided in an Auxiliary Flat File
stat	If statics information is being provided, these entries must be filled or static values provided in an Auxiliary Flat File
@cdp	Enter the value at the CDP or 3D Bin location
avg	Enter the average value of all source-receivers for this CDP or 3D Bin
cond	Enter value only if it exists at the CDP or 3D Bin location. Otherwise enter zero ("0")
3d	Entry is required for 3D data
rbin	Entry is required for Binned Data
i16	16-bit integer number
i32	32-bit integer number

Symbol	Description
I2	2 byte integer number
I4	4 byte integer number
R4	4 byte IBM floating point number

5.2.2 OUTPUT MEDIA

Seismic trace data will be written to output media specified by Buyer. Output media may include magnetic tape, plug and play disk or data files for electronic transfer.

5.2.3 STANDARD SEG Y 3200 BYTE EBCDIC HEADER

The standard SEG Y 3200 byte EBCDIC header shall precede each data trace volume.

Contractor shall write standard information in the pre-defined byte locations of the SEG Y EBCDIC header in the format specified in Table 19.

Contractor shall write Buyer specified information in the optional byte locations of the SEG Y EBCDIC header in the format specified in Table 20 and in the following data type specific sections.

Card image number	Item Description	Byte Positions	Notes
C 2	Line (2D) or Survey (3D) name and Area Code	84 –160	See additional note in 5.2.4 below
C 5	Data traces per record	404-480	
C 6	Sample interval	484-540	
C 8	Byte order	601-640	Indicate whether byte order is Big or Little Endian. Note: Big-Endian is the only format acceptable to Buyer.
C21	Processing description	1604-1680	Brief processing description of data volume, i.e. Migrated Stack, RAP stack, CDP gathers with Decon.
C22	Processing description	1684-1760	Brief processing description (cont. from C21)
C23-26	Detailed processing description	1764-2080	Detailed processing flow, similar to film side label
C27	Shotpoint range / Sub-range for 2D or Inline/crossline range for 3D	2084-2160	Sub-ranges are to be used when a single 2D line (pre-stack) or 3D survey spans multiple physical output media.
C28	CDP range / Sub-range	2164-2240	Sub-ranges are to be used when a single 2D line (pre-stack) or 3D survey spans multiple physical output media.
C29	Processing Grid	2244-2320	X, Y's and inline/crossline numbers of 4 corner points.
C30-40	Reserved for processing specific information	2324-3200	Continuation of C23-C26. Include location and description of any trace header bytes that are not pre-defined elsewhere in this document.

5.2.4 NOTES ON CARD IMAGE C2: LINE (2D) OR SURVEY (3D) NAME AND AREA CODE.

The complete Buyer specified alphanumeric Line Name (for 2D data) or Survey Name (for 3D data) shall be written to card image C2 of the EBCDIC header. The Line Name shall not exceed 12 characters in length. The name shall be unique and allow unambiguous identification of the associated trace data.

The format of card image C2 in the EBCDIC Header will conform to the following:

- Columns 1-3 will be 'C 2'.
- The word 'LINE' will precede the Buyer alphanumeric line name with at least one blank space separating the word 'LINE' and the alphanumeric line name.

- The word 'AREA' will follow the alphanumeric line name separated by at least one space from the last character in the line name.
- The Buyer's designated Area Code will be located after the word 'AREA' separated by at least one space from the last character in the word area.

5.2.5 STANDARD SEG Y 400 BYTE BINARY HEADER

The standard SEG Y 400 byte binary header shall precede each data trace volume.

Contractor shall write standard information in the pre-defined byte locations of the SEG Y 400 byte binary header in the format specified in Table 21

Contractor shall write Buyer specified information in the optional byte locations of the SEG Y 400 byte binary header in the format specified in Table 22 and in the subsequent data type specific sections.

Table 21. Standard information written to the 400 byte SEG Y Binary Header

Description	Byte positions	Binary format	Pre-stack	Post-stack	Notes
Job Identification Number	3201-3204	i32	rqd	rqd	See additional notes below
Line Number	3205-3208	i32	rqd	rqd	See additional notes in below
Tape Reel Number	3209-3212	i32	rqd	rqd	See additional notes in below
No. of data traces per record	3213-3214	i16	.	.	The number of data traces per record including dummy traces and zero traces inserted to fill out the record or file. For stacked data, there is normally one data trace per record.
No. of Auxiliary traces per record	3215-3216	i16	.	.	
Sample interval in microseconds for this line	3217-3218	i16	rqd	rqd	Exception to standard SEG Y. The sample interval of the trace data for this line/survey only. The sample interval should be the same for all lines in a multi-line SEG Y volume. (The original standard specifies this parameter as sample interval in microseconds for this volume of data).
Sample interval in microseconds for original field recording of this line/survey.	3219-3220	i16	.	.	Original field recording sample interval. This value may change between lines on a multi-line SEG Y volume.
Number of samples per data trace for this line/survey.	3221-3222	i16	rqd	rqd	Exception to standard SEG Y. The number of samples per trace for this line only. The number of samples per trace should be the same for all lines in a multi-line SEG Y volume. (The original standard specifies this parameter as the number of samples per data trace for this volume of data).

Description	Byte positions	Binary format	Pre-stack	Post-stack	Notes
Number of samples per trace (Original)	3223-3224	i16	.	.	This value may change between lines on a multi-line SEGY volume.
Data sample format code	3225-3226	i16	rqd	rqd	Exception to standard SEGY. The only data format accepted by Buyer for SEGY data is: DATA SAMPLE FORMAT CODE 1 (one): IBM-floating point.
CDP / Bin fold	3227-3228	i16	.	.	Nominal CDP / Bin fold for the line or 3D survey.
Trace sorting code	3229-3230	i16	rqd	rqd	Exception to standard SEGY (This is a SEGY Rev 1.0 standard). 1 = shot ensemble 2 = CDP ensemble 3 = single fold continuous profile 4 = horizontally stacked 5 = Common source point 6 = Common receiver point 7 = Common offset point 8 = Common mid-point 9 = Common conversion point
Vertical sum code	3231-3232	i16	.	.	
Sweep frequency at start	3233-3234	i16	.	.	
Sweep frequency at end	3235-3236	i16	.	.	
Sweep length	3237-3238	i16	.	.	
Sweep type code	3239-3240	i16	.	.	
Trace No. of sweep channel	3241-3242	i16	.	.	
Sweep trace taper length (begin)	3243-3244	i16	.	.	
Sweep trace taper length (end)	3245-3246	i16	.	.	
Taper type	3247-3248	i16	.	.	
Correlated data traces?	3249-3250	i16	.	.	
Binary gain recovered?	3251-3252	i16	.	.	
Amplitude recovery method	3253-3254	i16	.	.	
Measurement system	3255-3256	i16	rqd	rqd	1 = Meters, 2 = Feet
Impulse signal	3257-3258	i16	.	.	
Vibrator polarity code	3259-3260	i16	.	.	

Table 22. Buyer specified optional information written to the 400 byte SEGY Binary Header

Description	Byte positions	Binary format	Pre-stack	Post-stack	Notes
Data type	3261-3262	i16	rqd	rqd	1 = Land2D, 2 = Marine2D, 3 = Land3D, 4 = Marine3D
Coordinate flag	3263-3264	i16	rqd	.	0 = No coordinate in trace headers 1 = Coordinates in trace headers

Description	Byte positions	Binary format	Pre-stack	Post-stack	Notes
Statics flag	3265-3266	i16	stat	.	0 = No statics in trace headers 1 = Statics in trace headers
CDP / Bin interval (3D primary direction)	3267-3268	i16	rbin	rqd	CDP interval for 2D; Grid Bin Interval for 3D (primary direction). In units of distance.
Scalar for CDP / Bin interval	3269-3270	i16	rbin	rqd	Scalar = $\pm 1, \pm 10, \pm 100 \dots$ +ve is a multiplier; -ve is a divisor. To be applied to values in bytes 3267-3268 and 3277-3278.
Datum elevation	3271-3272	i16	stat	stat	Datum elevation in distance units
Datum velocity	3273-3274	i16	stat	.	Datum velocity in distance units per second
Bulk static (msec)	3275-3276	i16	stat	.	Bulk static applied
Bin interval (3D secondary direction)	3277-3278	i16	3d	3d	Grid Bin interval (secondary direction). In units of distance.
SEG Y Format Revision Number	3501-3502	i16	rqd	rqd	Must = 0 (SEG Y Rev. 0)

JOB IDENTIFICATION NUMBER

The Job Identification Number (JIN) in bytes 3201-3204 (32-Bit Integer) shall be a unique number which allows Contractor to trace, tag or identify the seismic processing and acquisition sequences applied to the data for each line/survey. Each line/survey and process shall have a unique JIN.

In the case of this survey, the Job Identification Number was 'G06A'. Since the JIN contained ASCII characters, this value was stored as a hexadecimal number where ASCII code 'G' is 0x47, '0' is 0x30, '6' is 0x36 and 'A' is 0x41.

LINE NUMBER

The Line Number in bytes 3205-3208 (32-bit integer) shall be formed from the alphanumeric line name written to card image C2 of the EBCDIC volume header by removing the alpha characters from the name and concatenating the remaining numeric characters to give an integer number.

REEL NUMBERS

The reel number written in bytes 3209-3212 (32-bit integer) shall be unique numbers that can be referenced by the Contractor for invoicing purposes. The unique numbers shall

be documented in all transmittals, invoices and other shipping documents. The reel number for each line written to a multi-line physical output media shall be identical.

5.2.6 STANDARD SEGY 240 BYTE TRACE HEADER

The standard SEGY 240 byte binary Trace Header shall precede each data trace.

Contractor shall write standard information in the pre-defined byte locations of the SEGY 240 byte Trace Header in the format specified in Table 23

Contractor shall write Buyer specified information in the optional byte locations of the SEGY 240 byte Trace Header in the format specified in Table 24 and in the subsequent data type specific sections.

Table 23. Standard information written to the 240 byte SEGY Trace Header

Description			Pre-stack				Stack		Notes
			Not Binned		Binned		Binned		
	Byte position	Binary format	Land	Marine	Land	Marine	Land	Marine	
Trace sequence number within line	1-4	I4	rqd	rqd	rqd	rqd	rqd	rqd	See note in section 0
Trace sequence number within reel	5-8	I4	.	.	.	.	.	.	See note in section 0
Field Record identification number	9-12	I4	rqd	rqd	.	.	.	.
Channel/Trace number within Field Record	13-16	I4	rqd	rqd	.	.	.	.
Shot/Source Point identification number	17-20	I4	rqd	rqd	rqd	rqd	cond	cond	
CDP ensemble number	21-24	I4	.	.	rqd	rqd	rqd	rqd	
Trace number within CDP ensemble	25-28	I4	.	.	.	.	.	.	See note in section 0
Trace identification code	29-30	I2	rqd	rqd	rqd	rqd	rqd	rqd	1 = Live, 2 = Dead See note in section 0
Number of vertical summed traces	31-32	I2	.	.	.	.	.	.
Number of horizontal summed traces	33-34	I2	.	.	.	.	.	.
Data use flag	35-36	I2	.	.	.	.	.	.	1 = Production, 2 = Test
Source to receiver distance	37-40	I4	.	.	rqd	rqd	.	.	Signed distance

Description			Pre-stack				Stack		Notes
			Not Binned		Binned		Binned		
	Byte position	Binary format	Land	Marine	Land	Marine	Land	Marine	
Receiver surface elevation	41-44	I4	aux	.	rqd	.	.	.	
Source surface elevation	45-48	I4	aux	.	rqd	.	@cdp	.	
Source depth	49-52	I4	aux	aux	rqd	.	@cdp	@cdp	
Datum elevation at receiver	53-56	I4	.	.	.	.	.	.
Datum elevation at source	57-60	I4	.	.	.	.	.	.
Water depth at source	61-64	I4	.	aux	.	rqd	.	@cdp	
Water depth at receiver	65-68	I4	.	.	.	.	.	.
Scalar to be applied to all elevations and depths	69-70	I2	rqd	rqd	rqd	rqd	rqd	rqd	Scalar = 0 (none), 1, ±10, ±100, ±1,000, ±10,000. If +ve, multiply; if -ve divide.
Scalar to be applied to all coordinates	71-72	I2	rqd	rqd	rqd	rqd	rqd	rqd	Scalar = 0 (none), 1, ±10, ±100, ±1,000, ±10,000. If +ve, multiply; if -ve divide.
Source X-Coordinate	73-76	I4	aux	aux	rqd	rqd	@cdp	@cdp	
Source Y-Coordinate	77-80	I4	aux	aux	rqd	rqd	@cdp	@cdp	
Receiver/Group X-Coordinate	81-84	I4	aux	aux	rqd	rqd	avg	avg	
Receiver/Group Y-Coordinate	85-88	I4	aux	aux	rqd	rqd	avg	avg	
Coordinate units	89-90	I2	.	.	rqd	rqd	rqd	rqd	1 = length in distance units 2 = seconds of arc
Weathering (Land) or water (Marine/OBC) velocity	91-92	I2	stat	aux	.	.	.	.
Sub-weathering velocity	93-94	I2	stat	.	.	.	.	.
Uphole time (msec) at source	95-96	I2	aux	.	.	.	@cdp	.	
Uphole time (msec) at receiver	97-98	I2	.	.	.	.	.	.
Source static correction	99-100	I2	stat	.	stat	.	avg	.	
Receiver static correction	101-102	I2	stat	.	stat	.	avg	.	
Total static applied	103-104	I2	stat	.	.	.	.	.	= 0 (zero) if no static applied.
Lag Time A	105-106	I2	.	.	.	.	.	.
Lag Time B	107-108	I2	.	.	.	.	.	.

Description			Pre-stack				Stack		Notes
			Not Binned		Binned		Binned		
	Byte position	Binary format	Land	Marine	Land	Marine	Land	Marine	
Time (msec) for sample 1	109-110	I2	rqd	rqd	rqd	rqd	rqd	rqd	= 0 (zero) if no delay. Buyer convention is that first sample time is zero if there is no delay or shift.
Mute time begin	111-112	I2	.	.	.	.	.	.	Time of first sample
Mute time end	113-114	I2	.	.	.	.	.	.	Last zero value sample
Number of samples in this trace	115-116	I2	rqd	rqd	rqd	rqd	rqd	rqd	Must match value in Binary Header.
Sample interval	117-118	I2	rqd	rqd	rqd	rqd	rqd	rqd	In microseconds (μ s)

Table 24. Buyer specified optional information written to the 240 byte SEG Y Trace Header

Description			Pre-stack				Stack		Notes
			Not Binned		Binned		Binned		
	Byte position	Binary format	Land	Marine	Land	Marine	Land	Marine	
Receiver Station Number	181-184	I4	aux	.	rqd	.	cond	.	
Receiver Line Number	185-188	I4	3d	.	.	.	.	.
Source Line Number	189-192	I4	3d	3d	.	.	.	.	3D or swath only
Receiver/Cable depth	193-196	I4	.	aux	.	.	.	.
Trace residual static (msec)	197-200	I4	stat	.	.	.	.	.
Reserved	201-204		.	.	.	.	.	.
3D Grid Line Number	205-208	I4	.	.	3d	3d	3d	3d	3D data only
3D Grid Bin Number	209-212	I4	.	.	3d	3d	3d	3d	3D data only
CDP / Bin X-Coordinate	213-216	I4	.	.	rqd	rqd	rqd	rqd	X-Coordinate at CDP / Bin Center
CDP / Bin Y-Coordinate	217-220	I4	.	.	rqd	rqd	rqd	rqd	Y-Coordinate at CDP / Bin Center
Elevation at CDP / Bin	221-224	I4	.	.	rqd	rqd	rqd	rqd	Elevation at CDP / Bin Center
Water bottom time at CDP / Bin (msec)	225-228	I4	.	.	.	rqd	.	rqd	Water bottom time at CDP / Bin Center

Description			Pre-stack				Stack		Notes
			Not Binned		Binned		Binned		
	Byte position	Binary format	Land	Marine	Land	Marine	Land	Marine	
3D Azimuth	229-232	R4	.	.	rqd	rqd	rqd	rqd	Source-Receiver azimuth in decimal degrees.

TRACE SEQUENTIAL LINE NUMBER

For single line output data sets, the trace sequential line number starts at 1 for the first trace of the output data set and increments by 1 for each trace output. For multi-line output data sets, the trace sequential line number is reset to 1 for the first trace output to each new line, and increments by 1 for each trace output in that line.

TRACE SEQUENTIAL REEL NUMBER

The trace sequential reel number is reset to 1 at the start of a new output volume and is incremented by 1 for each trace output to that volume.

TRACE NUMBER WITHIN CDP ENSEMBLE

The trace number within a CDP ensemble is reset to 1 at the start of each new ensemble and is incremented by 1 for each trace output to the ensemble.

TRACE IDENTIFICATION CODE

The trace identification codes are to be interpreted as follows:

A "1" means the data on trace is valid seismic data which is to be further processed.

A "2" means that data values on trace are invalid or corrupt (i.e., "bad"), or that all sample values have been set to zero.

A code "2" trace is to be treated as a "dead" or zero sample value trace for processing purposes. The trace is only written to preserve any valid information in the 240 byte trace header, and to preserve a uniform number of physical traces per record/ensemble. Any

invalid, or corrupt, trace header values should be corrected before writing the trace to tape.

Code "2" traces are typically removed from the processing stream after the Navigation-Seismic merge stage.

DOUBLE END-OF-FILE MARKS

Double end-of-file marks shall immediately follow the last trace of a contiguous seismic data volume.

5.2.7 CONCATENATED SEG Y SEISMIC DATASETS

MULTIPLE 2D POST-STACK DATASETS PER OUTPUT VOLUME.

The writing of multiple 2D post-stack datasets per output volume violates the SEG Y standard, but will be permitted by Buyer to reduce the number of physical output media required. The term 'dataset' in this context means a single 2D post-stack seismic line.

Unless otherwise agreed by Buyer, only one processing product is allowed per physical output media (e.g. Stack, Raw Migration, Final Migration, etc.).

Each dataset on the multi-dataset output shall be preceded by unique EBCDIC (3200 byte) and Binary (400-byte) headers.

A single EOF (end-of-file) marker shall terminate each dataset written. Two EOF markers shall immediately follow the last trace of the last dataset in the volume.

Continuation (splitting) of individual 2D datasets across physical output media shall not be allowed.

WRITING MULTIPLE 3D POST-STACK VOLUMES PER OUTPUT MEDIA.

The writing of multiple 3D post-stack volumes per output volume violates the SEG Y standard and is not permitted by Buyer. The term 'volume' in this context means a single 3D post-stack volume (e.g., a 3D DMO Stack or a 3D migration).

Unless otherwise agreed by Buyer, only one processing product is allowed per physical output media (e.g. Stack, Raw Migration, Final Migration, etc.).

Two EOF markers shall immediately follow the last trace of the 3D volume written.

Continuation (splitting) of a 3D volume across physical output media is permitted by Buyer, if this is dictated by the size of the volume and the capacity of the output media. Individual 3D in-lines (or cross-lines, if cross-line ordered) must not, however, be split across output sub-volumes. Each sub-volume written to each physical output media must have a correctly specified EBCDIC Header and a Binary Header as the first two file records.

PHYSICAL LAYOUT ON TAPE OR DISK FILE

One 3200 byte EBCDIC Header and one 400 byte Binary Header are required for each contiguous volume written to the physical output media. If an output volume spans more than one output media, the EBCDIC and Binary headers must be repeated for each such output.

For multi-line 2D volumes, each 2D line shall have a unique EBCDIC and Binary Header attached.

SEG Y SEISMIC TRACE DATA ENCODING FORMAT

The seismic trace data shall be in 32-bit binary IBM floating point (Big Endian). No other encoding format is acceptable to Buyer.

5.3 SEG Y FORMAT FOR SEISMIC NAV-MERGE FIELD DATA

This section describes Buyer's specific format for Seismic Field Data merged with Navigation/Positioning Data delivered as a Field Acquisition product. Table 25 lists specific requirements for this data type.

Table 25. Requirements for SEG Y Nav-Merge Field Data

Survey Type	Description	Requirement
All	Sample interval (Binary and Trace Headers)	Same as field recording sample rate
All	Trace sample values	Units are millivolts referred to the input of the acquisition system. If the sample values are not in units of millivolts, the actual engineering units used must be stated in the EBCDIC header.
All	Tidal corrections	The EBCDIC header should clearly state whether tidal corrections have been applied or not applied to depth measurements. If tidal corrections are applied, the calculation method must be stated.

Survey Type	Description	Requirement
All	Geodetic Datum	The EBCDIC header must state the geodetic datum used for the coordinates.
All	Source depth	Measured depths at 0.1 m resolution
All	Receiver depth	Measured depths at 0.1 m resolution
All	Source coordinates	All source coordinates measured at 0.1 m resolution
All	Receiver coordinates	All receiver coordinates measured at 0.1 m resolution
All	Channel sampling skew:	Skew removed from data traces or recorded in trace header. The EBCDIC header must state if channel skew has or has not been removed from the data traces.
All	System time delays	System delays removed from data traces or recorded in trace header. The EBCDIC header must state how system time delays are treated.
All	Not to be processed shots / bad shots	Not included in SEG Y data set
All	Reversed traces	Correct the trace in the SEG Y data set to the correct polarity
All	Dead and/or killed traces	Include the trace in the SEG Y data set and flag the trace status in 240 byte trace header, bytes 29-30
All	Sensor transduction constants:	Include in EBCDIC header with transduction units. Clearly state in the EBCDIC header the transduction factors to be used to convert the SEG Y sample values to units of microbars or meters per second.
All	SPS correspondence	All data traces must be traceable to an entry in a SPS data set
All	Data ordering	Shot order data files. The data files are sorted by common receiver type (i.e., Vertical geophone, inline geophone, crossline geophone, hydrophone) then by increasing channel number within a common sensor type then by cable/line number. All sensors from a given station must be contained within the data file.
OBC & Land	Trace identification	Each trace must be identified in its trace header as being a vertical geophone, an inline geophone, a crossline geophone or a hydrophone channel. The trace header location and the sensor type coding must be explained in the EBCDIC header.
OBC & Land	Horizontal geophone polarity	The polarity of the horizontal geophones must be stated in the EBCDIC header or be capable of being directly inferred from cable lay direction and shooting direction trace header entries.
All	Extra Binary and Trace header entries	All non-standard SEG Y Rev. 0 Binary Header and Trace Header entries must be explained in the EBCDIC header
All	Field recording parameters	The EBCDIC header must note the field production filters. If the field data has been filtered or gained in any way, the EBCDIC headers should note all pertinent processing parameters.

5.4 SEG Y FORMAT FOR MARINE STACKED DATA

This section describes Buyer's specific format for stacked marine data volumes.

5.4.1 400 BYTE BINARY HEADER

In addition to, or in place of, the information specified in section 5.2.5, Contractor shall write the information specified in Table 26 to the binary header.

Table 26. 400 byte SEG Y Binary Header for Marine Stacked Data

Description	Byte positions	Notes
Trace sorting code	3229-3230	4 = horizontally stacked
Data type	3261-3262	2 = Marine2D, 4 = Marine3D

5.4.2 SEG Y TRACE HEADERS

In addition to, or in place of, the information specified in section 5.2.6, Contractor shall write the information specified in Table 27 to the binary header.

Table 27. 240 byte SEG Y Trace Header for Marine Stacked Data

Description	Byte position	Notes
Shot/Source Point identification number at this CDP / Bin.	17-20	If source point ID exists at this CDP, enter it. Else enter zero.
Water depth at CDP / Bin.	61-64	If source point ID exists at this CDP, enter water depth at CDP. Else enter zero.
Source X-Coordinate at CDP / Bin.	73-76	If source point ID exists at this CDP, enter its X-Coordinate. Else enter zero.
Source Y-Coordinate at CDP / Bin	77-80	If source point ID exists at this CDP, enter its Y-Coordinate. Else enter zero.
Average Source-Receiver X-Coordinate at CDP / Bin	81-84	Enter the average value of source-receiver X-Coordinates for all traces in this CDP / Bin
Average Source-Receiver Y-Coordinate at CDP / Bin	85-88	Enter the average value of source-receiver Y-Coordinates for all traces in this CDP / Bin
Water Velocity at CDP / Bin	91-92	If source point ID exists at this CDP, enter water velocity at CDP / Bin. Else enter zero.

5.5 SEG Y FORMAT FOR LAND STACKED DATA

This section describes Buyer's specific format for stacked land data volumes.

5.5.1 400 BYTE BINARY HEADER

In addition to, or in place of, the information specified in section 5.2.5, Contractor shall write the information specified in Table 28 to the binary header.

Table 28. 400 byte SEG Y Binary Header for Land Stacked Data

Description	Byte positions	Notes
Trace sorting code	3229-3230	4 = horizontally stacked
Data type	3261-3262	1 = Land2D, 3 = Land3D
Coordinate Info Flag	3263-3264	Must = 1

5.5.2 SEG Y TRACE HEADERS

In addition, to or in place of, the information specified in section 5.2.6, Contractor shall write the information specified in Table 29 to the binary header.

Table 29. 240 byte SEG Y Trace Header for Land Stacked Data

Description	Byte position	Notes
Shot/Source Point identification number at this CDP / Bin.	17-20	If source point ID exists at this CDP, enter it. Else enter zero.
Average Source-Receiver elevation at CDP / Bin	41-44	Enter the average value of source-receiver elevations for all traces in this CDP / Bin
Source surface elevation at CDP / Bin	45-48	If source point ID exists at this CDP, enter its elevation. Else enter zero.
Source depth at CDP / Bin	49-52	If source point ID exists at this CDP, enter its depth. Else enter zero.
Source X-Coordinate at CDP / Bin	73-76	If source point ID exists at this CDP, enter its X-Coordinate. Else enter zero.
Source Y-Coordinate at CDP / Bin	77-80	If source point ID exists at this CDP, enter its Y-Coordinate. Else enter zero.
Average Source-Receiver X-Coordinate at CDP / Bin	81-84	Enter the average value of source-receiver X-Coordinates for all traces in this CDP / Bin
Average Source-Receiver Y-Coordinate at CDP / Bin	85-88	Enter the average value of source-receiver Y-Coordinates for all traces in this CDP / Bin
Source Uphole Time (msec) at CDP / Bin	95-96	If source point ID exists at this CDP, enter its Uphole Time. Else enter zero.
Receiver Station Number	181-184	If a Receiver Station Number exists at this CDP, enter it. Else enter zero.

5.6 SEG Y FORMAT FOR MARINE PRE-STACK DATA

This section describes Buyer's specific format for marine pre-stack data volumes.

5.6.1 400 BYTE BINARY HEADER

In addition to, or in place of, the information specified in section 5.2.5, Contractor shall write the information specified in Table 30 to the binary header.

Table 30. 400 byte SEG Y Binary Header for Marine Pre-Stack Data

Description	Byte positions	Notes
Trace sorting code	3229-3230	1 = shot ensemble 2 = CDP ensemble 3 = single fold continuous profile 5 = Common source point 6 = Common receiver point 7 = Common offset point 8 = Common mid-point 9 = Common conversion point
Data type	3261-3262	2 = Marine2D, 4 = Marine3D

5.6.2 SEG Y TRACE HEADERS

In addition to, or in place of, the information specified in section 5.2.6, Contractor shall write the information specified in Table 31 to the binary header.

Table 31. 240 byte SEG Y Trace Header for Marine Pre-Stack Data

Description	Byte position	Notes
Field Record identification number	9-12	Enter Field Record Number associated with this trace. Used to merge XY info. (Not required for binned data)
Channel/Trace number within Field Record	13-16	Enter Field Channel or Trace Sequence Number for this Field Record. Used to merge XY info. (Not required for binned data)
Shot/Source Point identification number.	17-20	Enter Source Point Identification Number for this Field Record.
Source to receiver distance	37-40	Enter signed source to receiver distance. NOTE: Sign is negative if opposite to direction line shot. (Required for binned data).
Receiver surface elevation	41-44	Enter surface elevation at receiver for this trace.
Source surface elevation	45-48	Enter surface elevation at source point for this trace.
Source depth	49-52	Enter source depth for this source point.
Water depth at Source	61-64	Enter water depth at this source point.
Water Velocity	91-92	Enter water velocity for this trace.
Source Line Number	189-192	For un-binned data, enter 3D survey sail line number.

5.7 SEG Y FORMAT FOR LAND PRE-STACK DATA

This section describes Buyer's specific format for land pre-stack data volumes.

5.7.1 400 BYTE BINARY HEADER

In addition to, or in place of, the information specified in section 5.2.5, Contractor shall write the information specified in Table 32 to the binary header.

Table 32. 400 byte SEG Y Binary Header for Land Pre-Stack Data

Description	Byte positions	Notes
Trace sorting code	3229-3230	1 = shot ensemble 2 = CDP ensemble 3 = single fold continuous profile 5 = Common source point 6 = Common receiver point 7 = Common offset point 8 = Common mid-point 9 = Common conversion point
Data type	3261-3262	1 = Land2D, 3 = Land3D

5.7.2 SEG Y TRACE HEADERS

In addition to, or in place of, the information specified in section 5.2.6, Contractor shall write the information specified in Table 33 to the binary header.

Table 33. 240 byte SEG Y Trace Header for Land Pre-Stack Data

Description	Byte position	Notes
Field Record identification number	9-12	Enter Field Record Number associated with this trace. Used to merge XY info. (Not required for binned data)
Channel/Trace number within Field Record	13-16	Enter Field Channel or Trace Sequence Number for this Field Record. Used to merge XY info. (Not required for binned data)
Shot/Source Point identification number.	17-20	Enter Source Point Identification Number for this Field Record.
Source to receiver distance	37-40	Enter signed source to receiver distance. NOTE: Sign is negative if opposite to direction line shot. (Required for binned data).
Receiver surface elevation	41-44	Enter surface elevation at receiver for this trace.
Source surface elevation	45-48	Enter surface elevation at source point for this trace.
Source depth	49-52	Enter source depth for this source point.
Weathering Velocity (V1)	91-92	Enter weathering velocity for this trace. Units consistent with Binary Header (feet or meters)
Sub-weathering Velocity (V2)	92-94	Enter sub-weathering velocity for this trace. Units consistent with Binary Header.

Description	Byte position	Notes
Source static correction	99-100	Enter one-way time (msec) from Source Depth to Datum Elevation (Binary Header bytes 3271-3272). This is a surface consistent static derived from elevation statics, refraction statics, surface consistent statics or any combination of these.
Receiver static correction	101-102	Enter one-way time (msec) from Receiver Elevation to Datum Elevation (Binary Header bytes 3271-3272). This is a surface consistent static derived from elevation statics, refraction statics, surface consistent statics or any combination of these.
Total static applied	103-104	Enter sum of all statics that have been applied to this trace. I.e., surface consistent + residual + trim statics.
Receiver Station Number	181-184	Receiver Station Number associated with this trace.
Receiver Line Number	185-188	Enter 3D survey receiver line number (un-binned 3D data only)
Source Line Number	189-192	Enter 3D survey source line number (un-binned 3D data only)
Trace residual static (msec)	197-200	Enter non-surface consistent static (two-way time in msec) for this trace. This entry represents all statics whose origin cannot be traced back to either the source or receiver, e.g., correlation (trim) statics for a CDP gather.

5.8 VELOCITY DATA FORMATS

Velocity Data formats are to be agreed by Contractor and Buyer on a project specific basis. More than one format and/or output media may be required for each velocity field to be written.

5.9 POSITIONING DATA FORMATS

Refer to Technical Standard PS-09-04 for Positioning Data Format specifications.

5.10 REFERENCES AND DOCUMENTATION.

- [1] Barry, K. M., Cavers, D. A. and Kneale, C. W., 1975, Report on recommended standards for digital tape formats: Geophysics, 40, no. 02, 344-352

PROJECT PARAMETER SUMMARY

Esso Australia Pty Ltd.
20323 Bream 3D MSS
Veritas Viking II



GENERAL SURVEY PARAMETERS

Survey Definition

Client name (for ALL tapes/logs etc)	Esso Australia Pty. Ltd.
Survey name	2006 Greater Bream 3D MSS
Survey location	Gippsland Basin, Bass Strait, Australia
Veritas job number	20323
Shotpoint interval	18.75 m (37.5m per energy source)
Line orientation	10.5/190.5

Streamer

Number of streamers	8
Streamer active length	4500 m
Streamer type	Thales Guardian Twinax Solid Streamer
Streamer separation	75 m +/- 7.5 m (overall 525 m +/- 18.75 m)
Number of groups per streamer	360
Group length	12.5 m
Streamer depth	7 m +/- 0.5 m
Inline offset	50-100 m
Depth controllers	DigiCOURSE Model 5011 spaced < 300 m

Recording Parameters

Record length	6 seconds (6144 ms recorded)
Sampling rate	2 ms
Low cut filter	3(12) Hz (dB/oct)
High cut filter	206(276) Hz (dB/oct)
Qc analysis display low-cut filter	5(18) Hz (dB/oct)
Recording format	SEGD-8036 (24-bit integer)
Recording media	3590 data cartridge
Fold of data	60
Auxiliary traces	12 (11 near-field + 1 combined near-field/time break)
Recording time delay	0

Energy source

Source type	Bolt 1500LL & Bolt 1900LLXT
Number of sources	2
Source array depth	6 m +/- 0.5 m
Source length	16.5 m
Gun synchronization	+/- 1.0 ms
Nominal air pressure	2000 psi (minimum 1900 psi)
Volume	4450 cu in
Undershoot vessel gun volume	4550 cu in single source.
Source centre-centre separation	37.5 m +/- 3.75 m
Sub-array separation	8 m +/- 1.5 m
Number of sub-arrays	3

PROJECT PARAMETER SUMMARY

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Navigation

Primary Navigation System	Veripos Ultra
Secondary Navigation System	Veripos Standard
Tertiary Navigation System	C-Nav
Steering Position Layback	CMP (inline midpoint between guns and first-group)
Run out shot points to achieve full-fold	120 (does NOT include the 5 shots for navigation processing)
Shooting Mode	Dual source flip-flop
Undershoot Shooting Mode	Single source (2 passes of each line required)
SOL run in	6750 m (1.5 x streamer length)
Offset zones	4 (bin scale MUST display actual hits per bin, not percentages)

Positioning Parameters - Acquisition

Acquisition Datum	WGS84
Spheroid	WGS84
Semi-Major Axis	6378137.000
Inverse Flattening	298.257223563
Projection	UTM
Zone	55S
Origin Latitude	0°00'00" N
Central Meridian	147°00'00 E
False Easting	500000
False Northing	10000000
Scale factor at Central Meridian	0.99960

Positioning parameters - Processing

Processed Datum	WGS84
Processed Spheroid	WGS84
Semi-Major Axis	6378137.000
Inverse Flattening	298.257223563
Projection	UTM
Zone	55S
Origin Latitude	0°00'00" N
Central Meridian	147°00'00 E
False Easting	500000
False Northing	10000000
Scale factor at Central Meridian	0.99960

Geodetic Datum Shift Parameters

Shift Direction	N/A – Acquisition and processing datum is the same
X Offset	0
Y Offset	0
Z Offset	0
X Rotation	0
Y Rotation	0
Z Rotation	0
Scale Difference	0

Survey Area and Bin Grid Parameters

3D sail kilometres	Full-Fold: 1718.83125 km	With Run-Outs: 1939.331 km
2D well-tie sail kilometres	Full-Fold: 59.08125 km	With Run-Outs: 65.83125 km
Total sail kilometres	Full-Fold: 1777.91250 km	With Run-Outs: 1998.41250 km
Total CMP Kilometres (inc 2D lines as 3D)	Full-Fold: 28446.60000 km	With Run-Outs: 31974.60000 km
Full-fold square kilometres (3D only)	Full-Fold: 515.649375 km ²	
Number of 3D pre-plot sail lines	95	
Number of 2D well-tie sail lines	3	
Sail line numbering	1008 – 2512 (incr. 16)	

PROJECT PARAMETER SUMMARY

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Veritas Viking II



2D well-tie lines	Line 1 – Line 2 – Line 3
Average Sail line length	18.07 km
CMP Lines	1001 – 2520
CMP Lines per Sail Line	16
Sail Line Separation	300 metres
CMP Line Separation	18.75 m
Geometry Bin size (inline x crossline)	6.25 m x 18.75 m
Reflex Database Bin size (inline x crossline)	18.75 m x 18.75 m
Map Grid Origin easting / northing	536607.43 / 5733310.28
Map Grid Bearing of J-axis	10.5°
Bin Grid Origin/Increment/Extent I axis	3408 / -1 / 46875 m
Bin Grid Origin/Increment/Extent J axis	801 / 1 / 26175 m
Shot Grid Origin/Increment I axis	3408 / -1
Shot Grid Origin/ Increment J axis	801 / 1
Bin Dimensions (I x J)	18.75 x 18.75 m
Offset Distribution	150 to 4650 Step 75 metres

Binning Offset Zones

Note: 70 m inline offset → 150 metres for start of zone 1 to ensure coverage on nears

Description	Actual offset range	Max Fold	Zone ID	Required percentage	Hits
Zone 1	150 – 1275	15	1	90	14 (13.5)
Zone 2	1275 – 2400	15	2	80	12 (12.0)
Zone 3	2400 – 3515	15	3	70	11 (10.5)
Zone 4	3515 – 4650	15	4	60	9 (9.0)
All	150– 4650	60	All	75	45 (45.0)

Inline offset Source to Centre Near Group Offset	70 m
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Flexible Binning Parameters – for Infill Allocation

Offset	Flex	Bin Width
Near	50%	37.5 m
Far	100%	56.25 m

Steering

Priority	Instruction
1	Steer zone 1 and 2 paying attention to zone 3 and 4

Conventions

Item	Convention
Line names	Format: XXXX-NNNNTA-SSS XX: Esso Identifier (G06A) NNNN: Line name T: Type (P for Prime, F for Infill, U for Undershoot, R for Reshoot) A: Attempt 1- 9 SSS: Sequence Number (3 digits)
Shotpoint Numbering	Direction 1°: 1001 Up (max 2117) Direction 2°: Down to 881 Notes: The last shotpoint LSP/LPSP will include 120 runouts but line will have an additional 5 EOL nav processing shotpoints. For reshoots, need 10 overlap 'A' shotpoints before and after each reshoot segment
File Numbering	Ambient Noise SOL: 99-110 Warm-Up: 111-120 First Shot to Last: 121-n Nav Proc Shots: n+1 to n+5 Ambient Noise EOL: n+6 to n+10 (NOTE: 5 noise records at EOL)

PROJECT PARAMETER SUMMARY

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Veritas Viking II



Field Tape Numbering	First Tape of Survey: 1001 Notes: All daily tests to be recorded to tape (original and copy), assigned the next consecutive tape number and included in the shipments.
Time Zones	Acquisition Time Zone: All acquisition log times will be reported in UTC (UTC is Local +10:00 hours).

Infill and Reshoots

Line Type	Information
Progressive infill	Infill will be acquired progressively after a number of successive prime line passes. As a guide, a progressive infill line should be acquired when the offline distance from the next sail-line is likely to average close to 300 metres (16 CMP lines)
Infill	Infill holes will be picked up once the prime is completed
Incomplete prime	In general, partial prime holes will be picked up once the prime is completed. Due to short average line length, no circling will be done. For any problem that will take more than 15 minutes to repair, the problem is to be fixed during transit/line change to next line.
Reshoot	At client's discretion, any line may be re-acquired near survey end

SPECIFICATIONS AND TOLERANCES

Acquisition Specifications

Specification	Tolerance/spec
Line Segments	
Minimum Line Segment	• 5 km minimum – max 1 reshoot per 12 km line length
Maximum number of line segments	• 3 segments per pre-plot sail line
Bad Shotpoints	
Bad Shots Definition	<ul style="list-style-type: none"> • Autofire/Misfire/No-fire • Shots acquired during air-leaks • Source arrays separation outside 33.75-41.25 m • Any sub-arrays distance outside 6.5-10.5 m • Shot point interval outside 16.25-21.25 m • Any source depth outside 5.5-6.5 m • Delta error: greater than +/- 1.0 ms • Navigation errors (NAVS/NAVL etc) • Gun controller out-of-spec • Any header problems • Any streamer depth outside 5.5-8.5 m • Front end streamer-streamer separation outside range 67.5-82.5 m • Total separation on front end outside range 506.25-543.75 • No data recorded (NDR) – usually a missed shot point • Streamer extraction (> 96) / parity errors (>1152), telemetry errors • Any record for which not all data can be recovered • More than 4 dB difference in group sensitivity • More than 2 bad traces for any 600 m segment • More than 14 bad traces for any streamer in spread • More than 57 bad traces for all streamers in spread
Bad Shots Allowed	<ul style="list-style-type: none"> • Max. 2% of total shots on line (i.e. max 22 bad shots for normal line) • Max. 8 consecutive or 6 consecutive from same source • Max. 12 in any 20 • Max. 20 in any 100
Streamers	

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Veritas Viking II



Specification	Tolerance/spec
Bad Streamer Group Definition	<ul style="list-style-type: none"> System noise outside contract or manufacturer's specification Intermittent, clipped, noisy, spiking, weak etc. >1.5 dB difference in sensitivity Distortion/phase shift >10 degrees at highest frequency Trace has a time shift in excess of +/- 0.2 ms Trace fails daily test Trace has noticeable cross feed with other traces >8 µBar RMS noise after 5(18) Hz(dB/oct) low cut for near 24 channels, channels with a device or far 8 channels >5 µBar RMS noise after 5(18) Hz(dB/oct) low cut for all others
Streamer Depths	<ul style="list-style-type: none"> Better than +/- 0.5 m in general (averaged over whole line, all depth controllers need to be in range!)
Streamer Bird/Compasses	<ul style="list-style-type: none"> ≤ 2 adjacent birds, more than 2000 m apart if more than 1 gap per streamer Compasses showing a bias > 0.5° for 4 consecutive lines to be replaced at first opportunity.
	<ul style="list-style-type: none"> Check 'bad shot' criteria
Navigation	
General	<ul style="list-style-type: none"> Minimum 30% redundancy in system
Positioning Tolerances	<ul style="list-style-type: none"> ≤ 6.0 metres for horizontal CMP position (2-sigma) ≤ 4.0 metres for CMP position (2-sigma) ≤ 4.5 metres for CMP position (2-sigma)
Echosounder	
General	<ul style="list-style-type: none"> 1500 m/s, no changes at any time No line to start without operational Echosounder Maximum 10 minute outage whilst on-line
Source	
Gun timing	<ul style="list-style-type: none"> ≤ +/-0.25 ms for any good shot
Pressure	<ul style="list-style-type: none"> ≥ 1900 psi for each sub-array (95% of nominal)
Drop-out specification	<ul style="list-style-type: none"> As per 4450 drop-out specs
Source depth sensor	<ul style="list-style-type: none"> At least 3 working per array
Source depth	<ul style="list-style-type: none"> 6 m +/- 0.5 m
Separation	<ul style="list-style-type: none"> 37.5 m +/- 5.0 m Subarrays: ≤ +/-2.5 m from nominal averaged over line
Near field hydrophones	<ul style="list-style-type: none"> ≥ 2 per sub array operational
Binner Edits	
Edits to be applied	<ul style="list-style-type: none"> All bad shots All bad traces All channels outside depth 6.0-8.0 metres

PROJECT PARAMETER SUMMARY

Esso Australia Pty Ltd.
20323 Bream 3D MSS
Veritas Viking II



DELIVERABLES

Addresses

Originals

SEISMIC TAPES (F-Labels)

Data Room
Esso House, Rm 5.34
Esso Australia Pty Ltd,
12 Riverside Quay,
Southbank,
VIC 3006

NAVIGATION TAPES (3590)

ExxonMobil Exploration Co.
CORP-GP8-604B
233 Benmar
Houston TX77060
Attn: Data Room Administrator - Ken Bement

NAVIGATION TAPES (DLT)

Copies

SEISMIC TAPES

SEGY TAPES (G-Labels)

OBP Data (NAS disks)

Veritas Asia Pacific Ltd.
Union Industrial Building #06-01
37 Jalan Pemimpin (S) 577177
Attn: Osman Khan
Send tapes, tape listing, line listing and copy of obs logs

Agent

NT Shipping Darwin
East Arm Wharf
Berrimah Road
Berrimah
Northern Territory 0828
Attn: Robbie Robertson
+(61-8) 8981 2541
+(61-417) 819 593

Deliverable Items from Vessel

Dataset (Client)	Responsibility	Destination	Format & media
Seismic Field Tapes (original)	Chief Observer	Esso	SEGD 8036 / 3590
Raw Navigation Tapes (x 3)	Nav Analyst	Esso	P2/94 3590 (tar)
Processed Nav Tapes (x 3)	Nav Analyst	Esso	P1/90 3590 (tar)
Survey Documentation	GS	Esso	DVD
Sippican/TS Dip Data	GS	Esso	DVD
Raw ADCP Data	GS	Esso	CD or DVD
Near Trace 3D Cube	OBP	Esso	SEGY / 3590
Common Offset 3D Cube	OBP	Esso	SEGY / 3590
Single shot record per sail line	OBP	Esso	SEGY / 3590 (tar)
Brute stacks per sail line	OBP	Esso	SEGY / 3590 (tar)
Edits Listing	GS	Esso	DVD
Dataset (Veritas)	Responsibility	Destination	Format & media
FOP (incl. Survey Docs)	GS	Damian Hite	DVD
QCN Raw Data	GS	Damian Hite	DVD
Seisnet Data	GS	Damian Hite	DVD

PROJECT PARAMETER SUMMARY

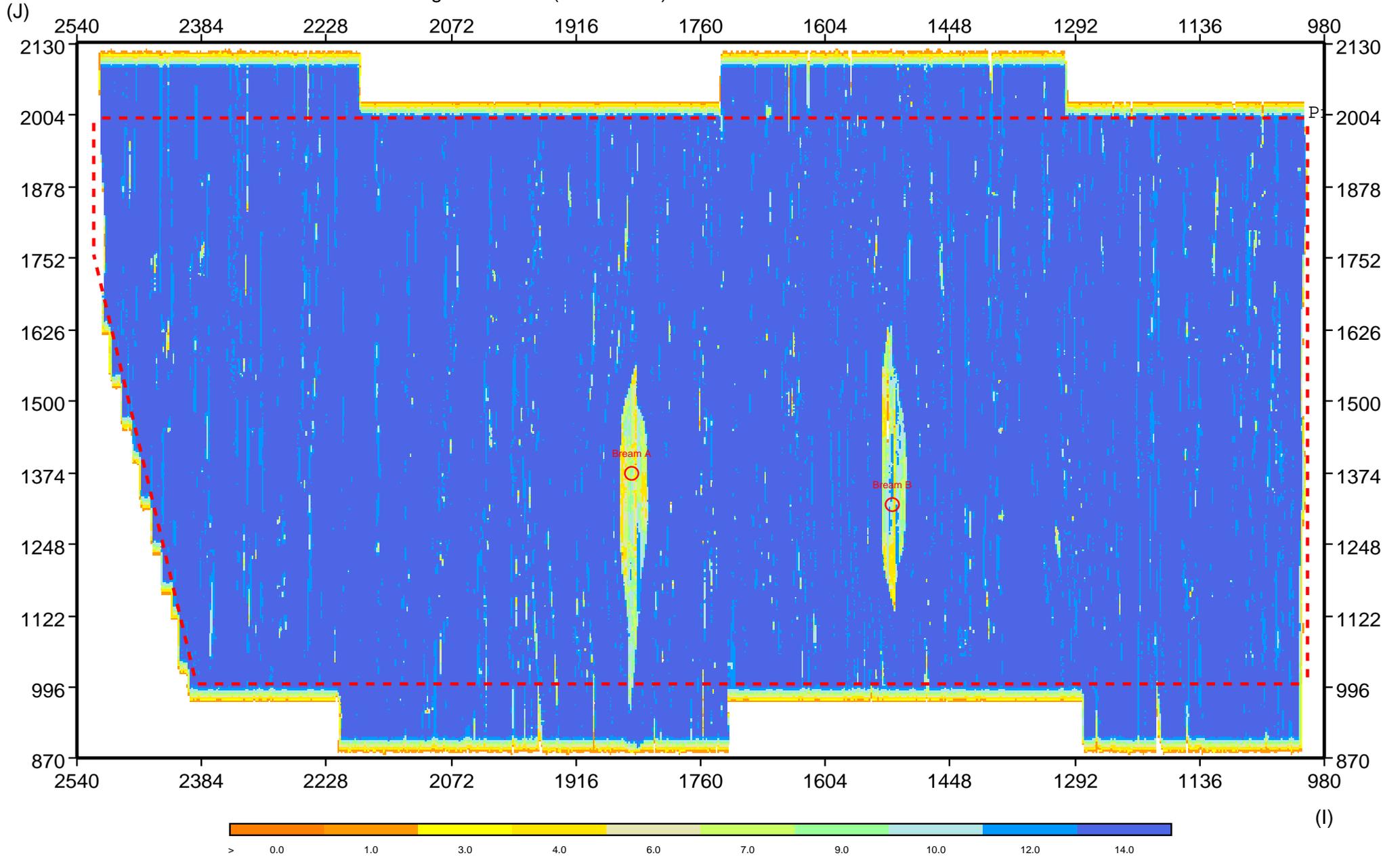
Esso Australia Pty Ltd.
20323 Bream 3D MSS
Veritas Viking II



SEGY	OBP	SPC	3590
Seismic Field Tapes (copy)	OBP	SPC	SEGD 8036 / 3590
Raw P2/94 navigation data	Nav Analyst	Victor Ramirez	DLT
Proc P190 navigation data	Nav Analyst	Victor Ramirez	DLT

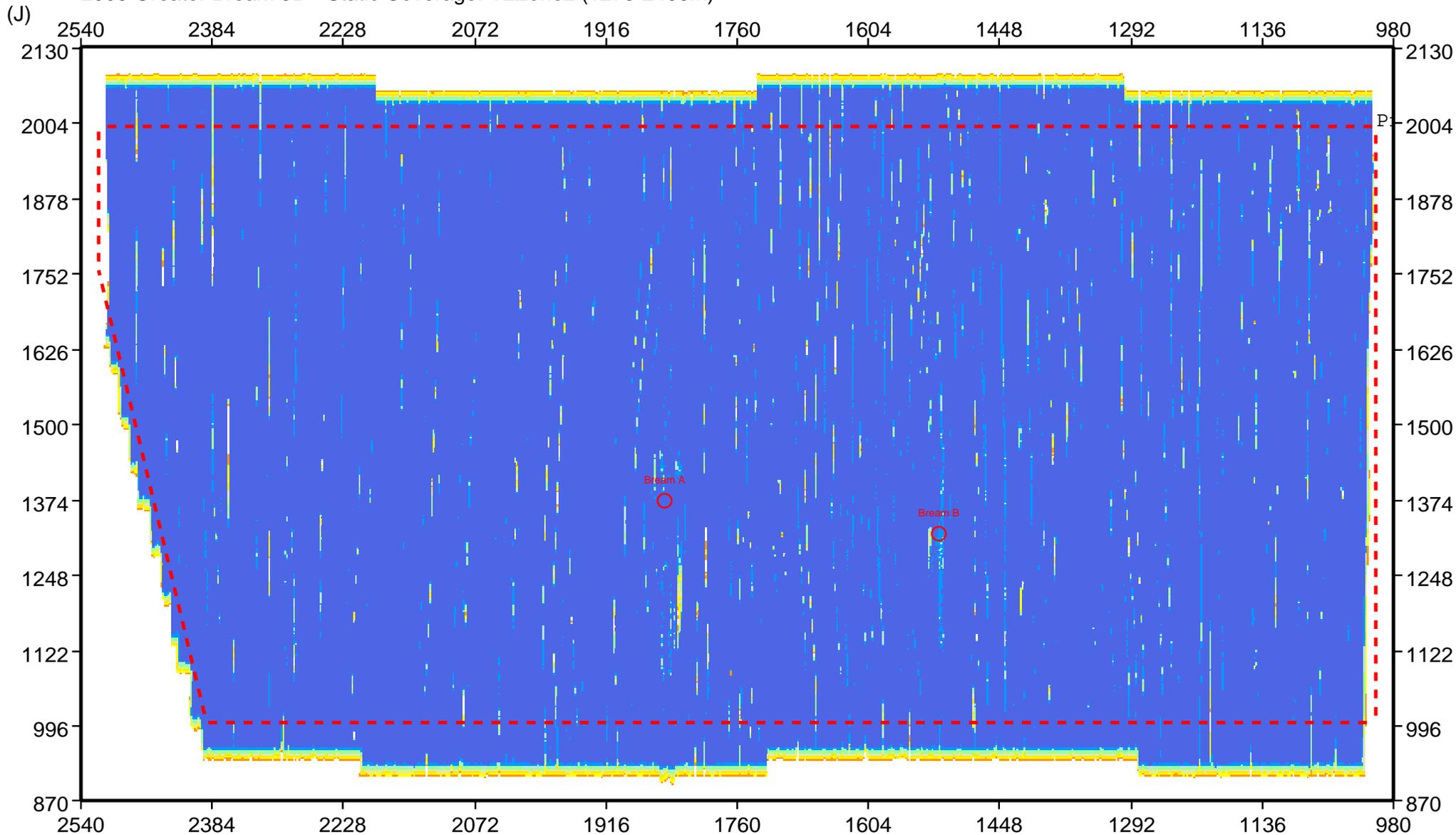


2006 Greater Bream 3D - Static Coverage: V2Zone1 (150-1275m)





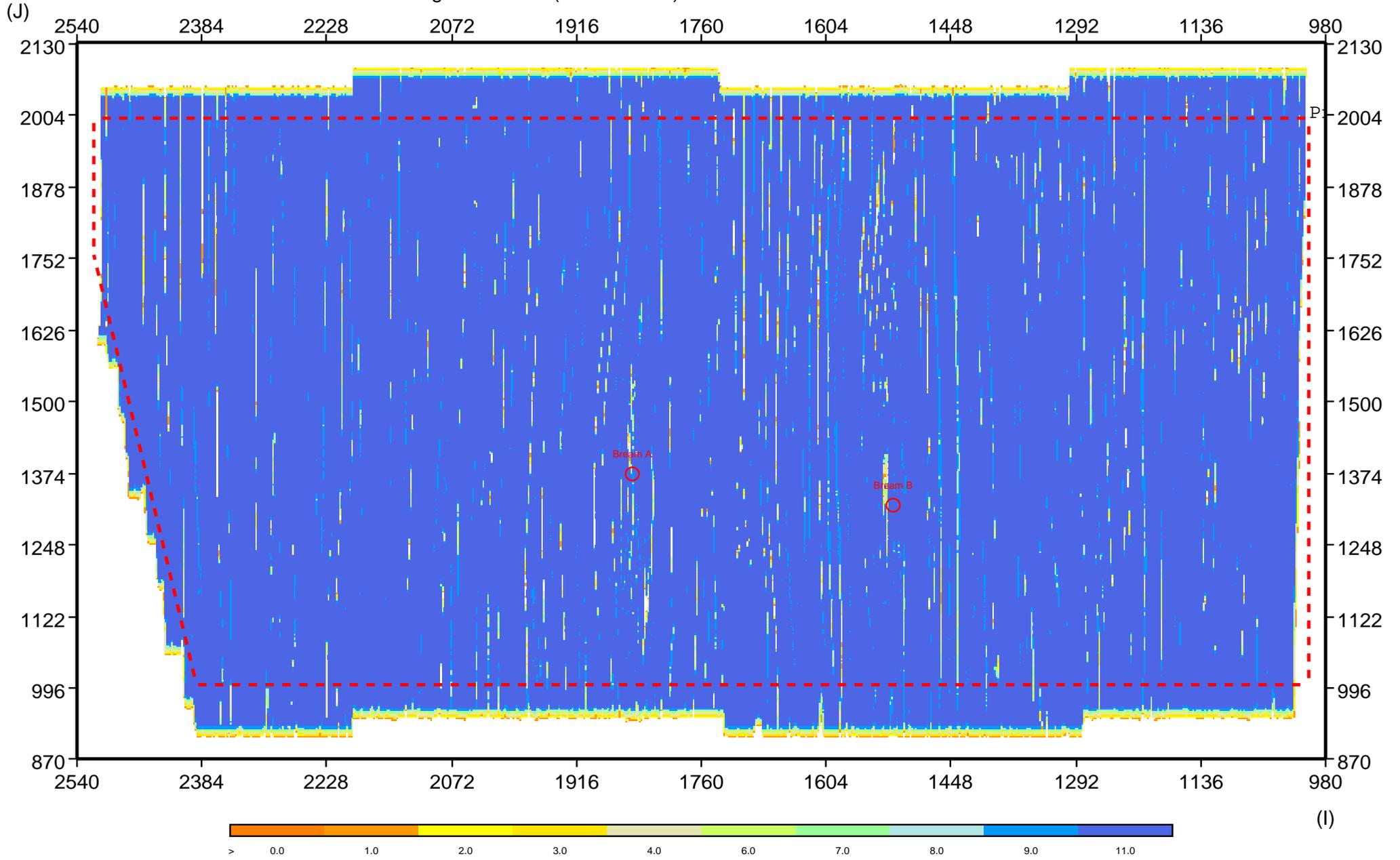
2006 Greater Bream 3D - Static Coverage: V2Zone2 (1275-2400m)



(I)

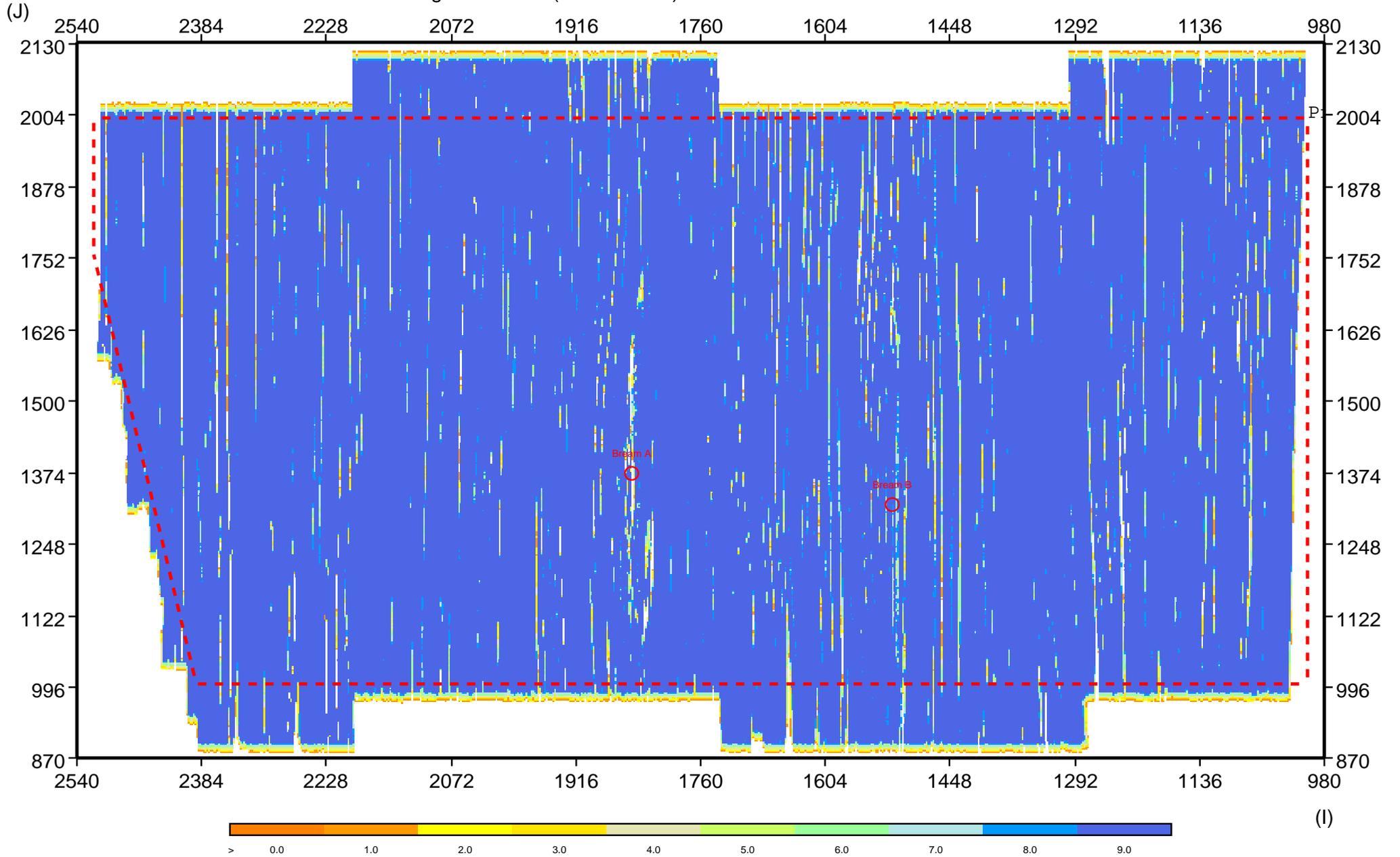


2006 Greater Bream 3D - Static Coverage: V2Zone3 (2400-3525m)



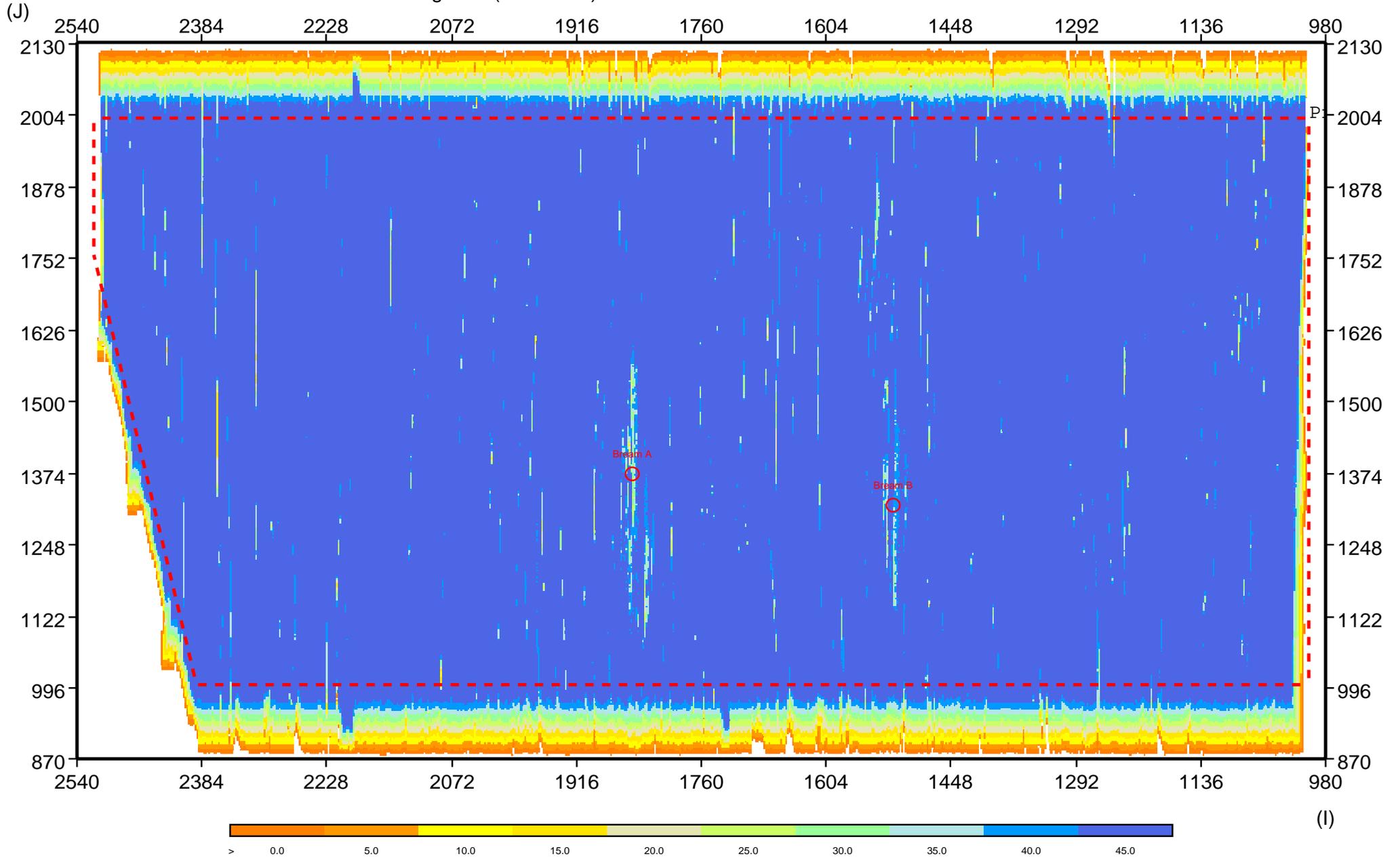


2006 Greater Bream 3D - Static Coverage: V2Zone4 (3525-4650m)



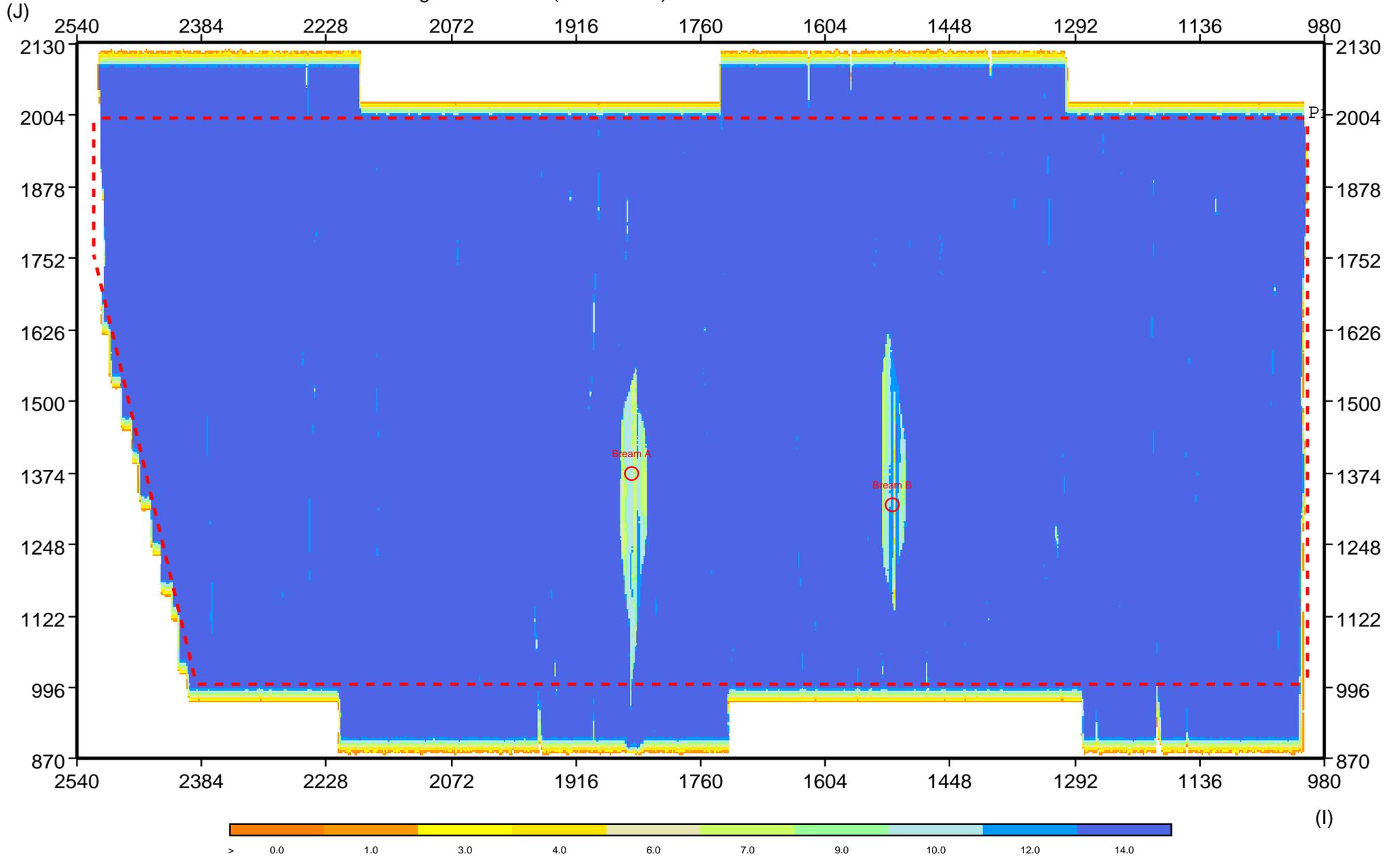


2006 Greater Bream 3D - Static Coverage: All (66-4566m)



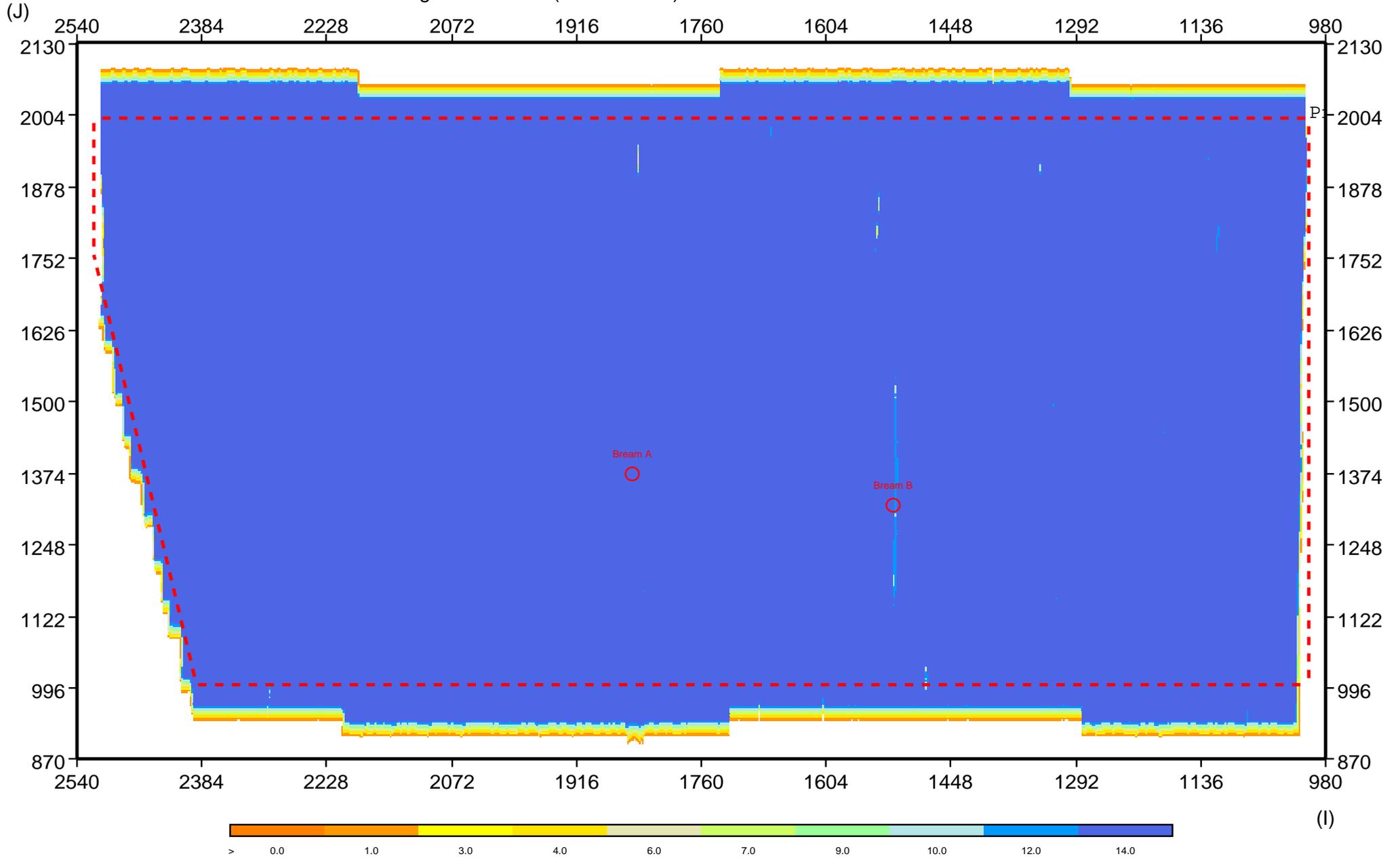


2006 Greater Bream 3D - Flex Coverage: V2Zone1F (150-1275m)



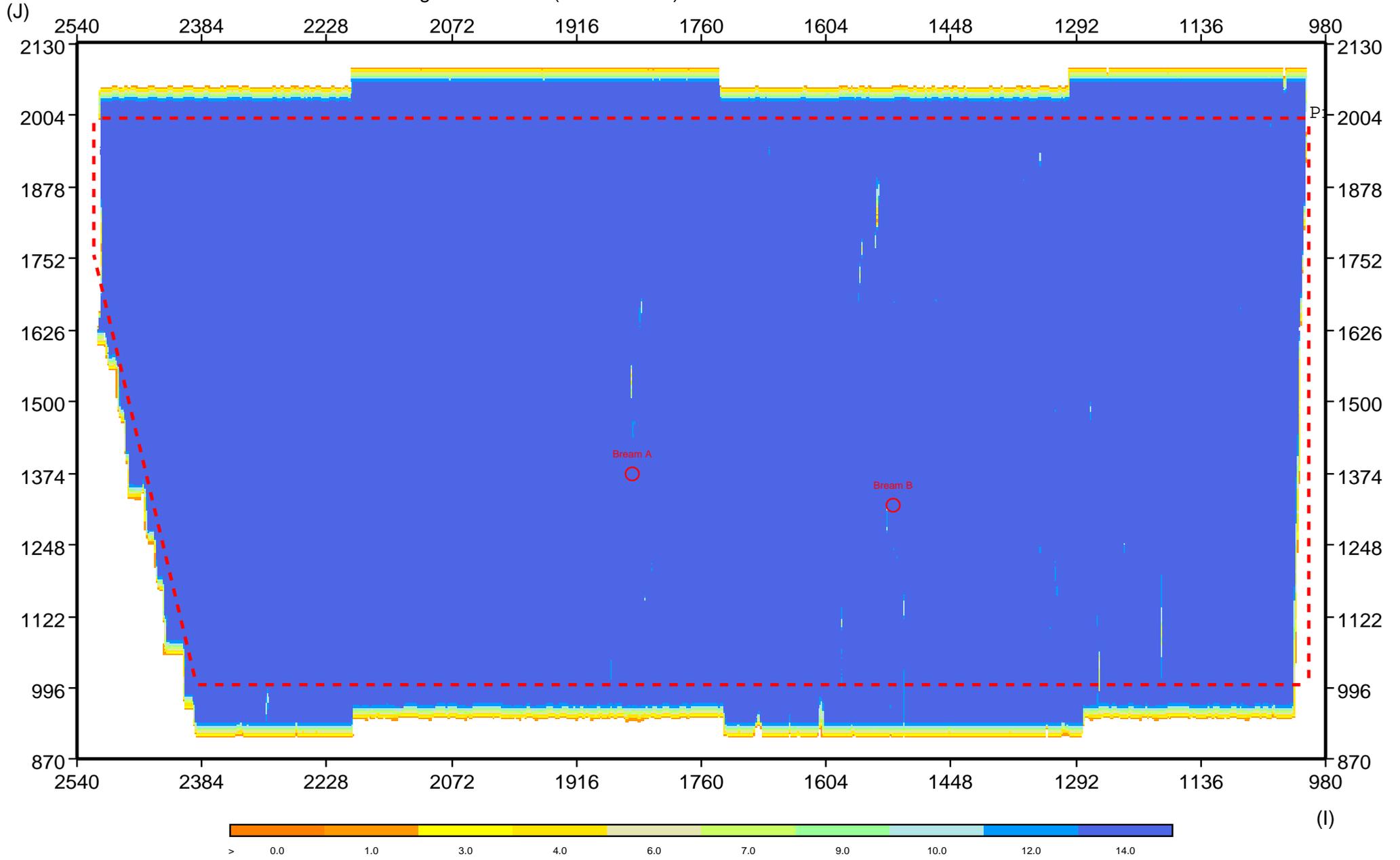


2006 Greater Bream 3D - Flex Coverage: V2Zone2F (1275-2400m)



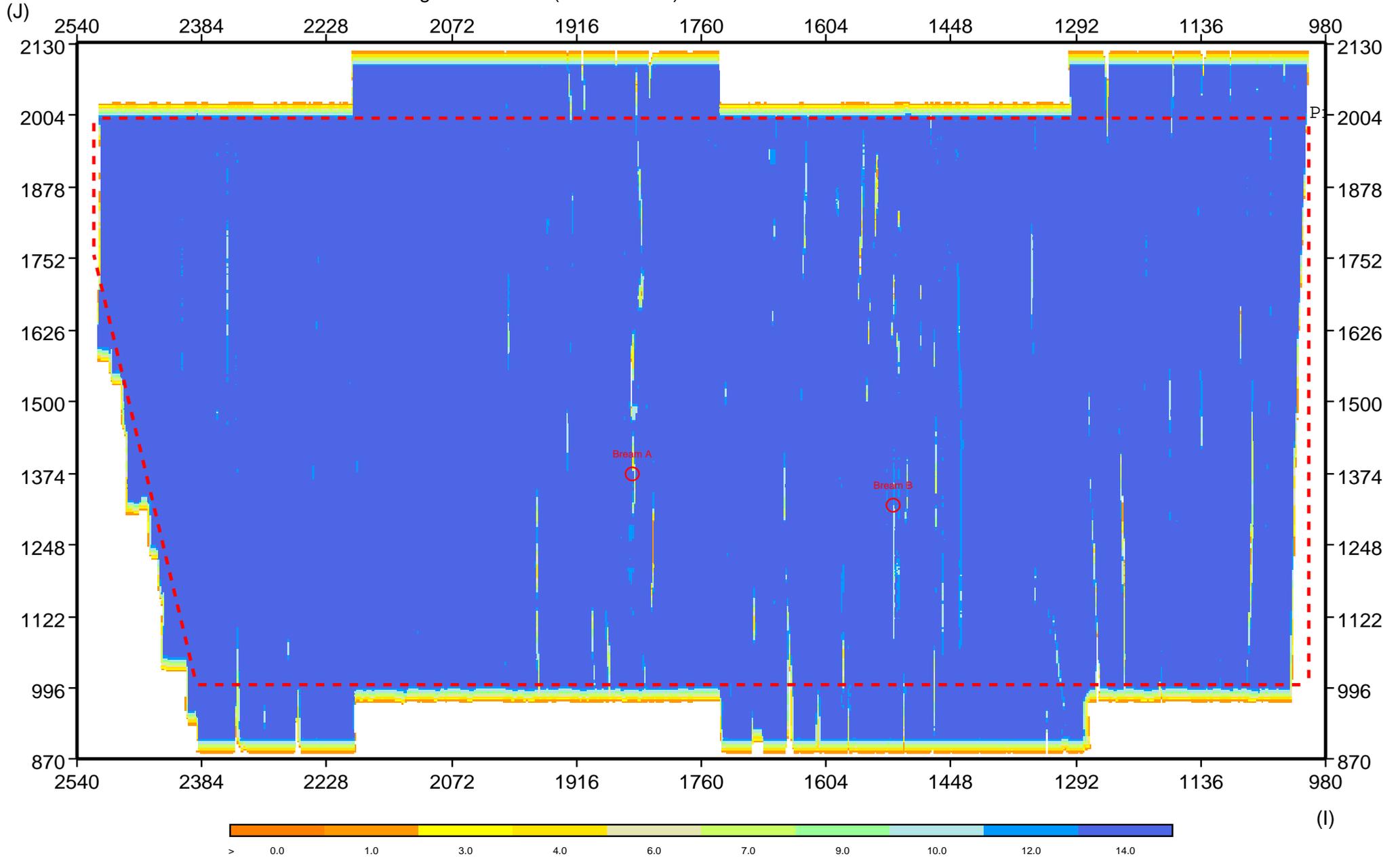


2006 Greater Bream 3D - Flex Coverage: V2Zone3F (2400-3525m)



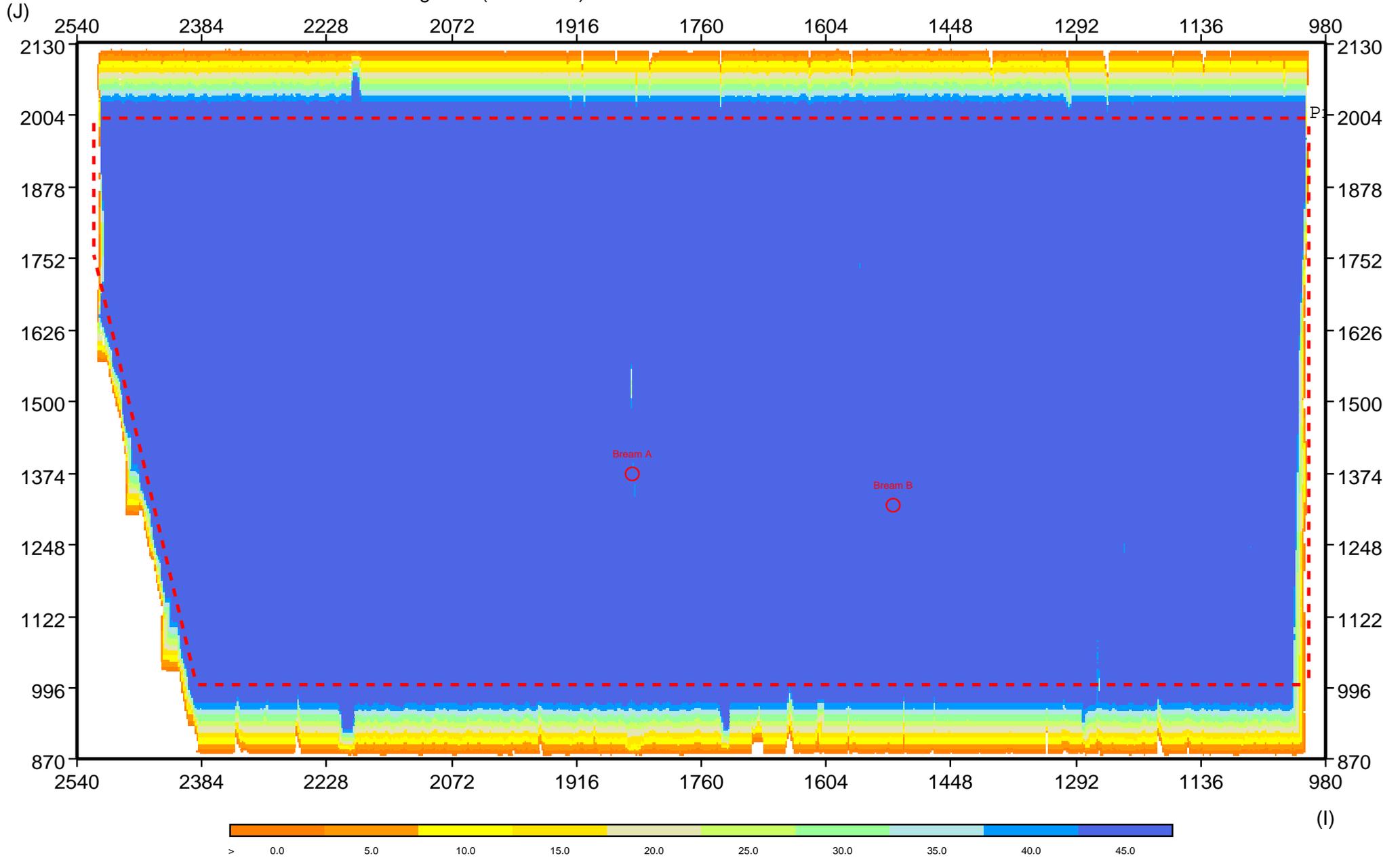


2006 Greater Bream 3D - Flex Coverage: V2Zone4F (3525-4650m)





2006 Greater Bream 3D - Flex Coverage: All (66-4566m)



Daily Events Log

Survey Name: Greater Bream 3D 2006

Dates: 4/22/2006 to 7/13/2006



This report shows the daily comments made for each vessel on the survey.

Date	Comments
Vessel	SR/V Veritas Viking2
4/22/2006	Alongside Fremantle Port, berth # 11. Continue to take on supplies. Carry out repairs on equipment. Complete Gyro/GPS calibration. HSE start up meeting held onboard. 0800 Pilot onboard 0830 V2 away from Port 0855 Pilot departs. Underway to Bass Strait. ETA is April ~ 28.
4/23/2006	Continue travelling to the Bream survey area. Technical audit being carried out during the transit.
4/24/2006	Continue travelling to the Bream survey area. Technical audit being carried out during the transit. New gun umbilicals in place.
4/25/2006	Continue travelling to the Bream survey area. Technical audit being carried out during the transit. EDN Behavioural Training completed.
4/26/2006	Continue travelling to the Bream survey area. Technical audit being carried out during the transit.
4/27/2006	Continue travelling to the Bream survey area. Technical audit being carried out during the transit. 1200 Safety Meeting 1235 Bridge carrying out "Black out" drill
4/28/2006	Continue travelling to the Bream survey area. Technical audit being carried out during the transit. 0145 Toolbox meeting for Helo Operation. 0347 Helicopter on deck with Esso Pilot to inspect the helio deck 0351 Helicopter away. Inspection begins. 0431 Helicopter on deck. Inspection complete."All good" 0437 Helicopter away. Wayne Forrest, Simon Mustoe and Alan Tan Depart.

Date	Comments
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Vessel	SR/V Veritas Viking2
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Bring V2 to all stop to lower ADP and to carry out TS Dip 39°22.5 S and 147°06.3 E.
0437 Lady Roula on sight.
0523 start calibration of ADP
0555 Calibration complete
0652 Deploy tailbuoy 1 Working on ballast
0847 Deploy tailbuoy 8. Will be checking streamer 8 for leakage on bird line.
1410 Streamer 1 deployed off the back of the V2 to check ballast.
1447 logging data on strm 1 for ballast issues.
1500 recover strm 8 to re ballast bird 8
1611 deploy strm 8
1649 Stop logging data to for Strm 1
1652 turning port
1820 turn complete. Continue to trouble shoot leakage problem on Strm 8
1902 logging bird data for Strm 1
2000 Wx NE F3 / 1.5 mtr
2108 stop logging depth data on Strm 1
2258 coming on S1 to ballast front end
2345 Toolbox meeting held for Workboat operation.
2348 deploy Strm 1
2400 Continue to deploy strm 1 and 8. Working on bird communication problem on strm 8.

4/29/2006

Continue to deploy streamers 1 and 8 at start of day.
0008 Workboat deployed to work on ballast on strm 1
0035 WB working on ballast around bird 4
0039 WB moving to bird 8
0042 stop deploying strm 8 due to distance between the strm's
0046 WB ballasting around bird 8 strm 1
0048 Port vane deployed
0051 WB moving to bird 12
0058 WB ballasting around bird 12
0100 going out on Strm 1 and port van
0103 WB complete ballasting. Enroute to V2
0112 deploy streamer 8
0117 WB onboard. Start port turn. Strm 1 and port vane in position.
0260 Trouble shooting bird com problem on stream 8
0409 deploy tailbuoy 1
0559 working on ballast on strm 2
0752 working on bird com problem Strm 8
1014 Toolbox meeting held prior to deployment of headfloat strm 8
1034 Toolbox meeting held prior to deployment of stbd vane
1036 deploy stbd vane
1052 Strm 8 and vane deployed start turn
to 250° Continue to deploy strm 2.
1248 turn complete. Toolbox for launch of Tailbuoy 7
1249 TB 7 launched
1655 install GPS tap can at head of Strm 2.
1700 WX SSW F4 / 1.5 m swell
1722 Install new PMI rods and delta plates on Strm 2.
1953 coming on strm 1 and vane to attach strm 2.
2006 going out on strm 1-2 and vane. Continue to deploy strm 7
2038 Recover strm 7 to replace bad section.
2229 Toolbox meeting held prior to deployment of tailbuoy 3 WX SE F4 / 2m sea.
2235 deploy TB 3
2400 at end of day strm's 1-2 and 8 are fully deployed and Strm 3 and 7 are being deployed.

4/30/2006

Date	Comments
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Vessel	SR/V Veritas Viking2
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Continue to deploy streamers at start of day. Streamers 1-2 and 8 are fully deployed. Strm 3 and 7 going out.
 Continue technical audit.
 0245 Fire drill
 0300 secure from drill.
 0330 Strm 7 fully deployed. Continue out on Strm 3
 0730 install Tap can in strm 3
 1203 add head float to strm 3
 1207 bring strm 1-2 and vane in to attach strm 3.
 1227 going out with strm 1-3 and vane
 1250 Strm 1-3 in position
 1255 Stopped over strm 7 in order to recover strm 8 due to heavy area around bird 12.
 1300 Coming in on Strm 8 and vane
 1328 Vane onboard
 1454 Deploy strm 8
 1555 toolbox meeting held prior to launch of stbd vane.
 1557 deploy stbd vane
 1601 deploy vane and strm 8.
 1707 going out on strm 7-8 and vane
 1722 Strm 7-8 in position
 1725 recover Strm 3 to work on front acoustic pod. Wx SE F4 / 2 mtr seas
 1812 replace collars on head acoustic pod Strm 3.
 1819 deploy strm 3.
 1900 Strm 1-3 in position
 1906 deploy Tailbuoy 6
 2027 continue to deploy strm 6. Wx SE F5 / 2 mtr seas
 2400 continue to deploy strm 6 at end of day. Streamer 6 out to front acoustic net

5/1/2006

Continue to deploy streamers. Strm 1-3 and 7-8 fully deployed. Strm 6 being deployed.
 0009 Coming in on Strm 7-8 to attach strm 6 tag line.
 0030 deploy strm 6-8
 0120 strm 6-8 in position turn to CMG of 070* to run test on streamers.
 0410 Streamers in line start running test on ballast and noise files. Strm's brought up to 7 mtr shooting depth
 0448 Wx ESE F4 / 1.5 mtr
 0800 finish collecting data. Streamers taken down to 14 mtrs
 0815 Toolbox meeting held prior to recover of all streamers due to approaching storm. Forecast is for 6-9 mtr seas with 35 kt winds.

Down for weather. Forecast is for weather to increase. Winds to become 30-35 kts and sea to build to 9 mtrs on the second.
 Begin recovery of Stbd streamers, 6-8
 0901 Coming in on Strm 6 move strm 7-8 out of way.
 0934 come in on strm 1-3.
 1033 begin recovery of strm 3. Move strm 1-2 out of way
 1211 come in on strm 7-8
 1233 Begin recovery of streamer 7. Move strm 8 out of way
 1344 Tailbuoy 6 onboard
 1421 Tailbuoy 3 onboard
 1423 come in on strm 1-2
 1501 begin recovery of strm 2. strm 1 moved off out of way
 1604 Tailbuoy 7 onboard
 1609 coming in on strm 8 and vane
 1615 Toolbox meeting held prior to recovery of vane
 1628 Stbd vane onboard. Continue to recover strm 8
 1719 Tailbuoy 2 onboard. Recover strm 1 and vane
 1724 toolbox meeting held prior to recovery of port vane
 1727 port vane onboard. Continue to recover strm 1
 1855 Tailbuoy 8 onboard.
 1915 Toolbox meeting held prior to recovery of ADP Pole.
 1920 ADP pole up and secured.
 1956 Tailbuoy 1 onboard. V2 enroute to prospect are to carry out gun test.
 2130 MMO started 90 m pre-start whale watch

2310 arrived in survey area. Vessel speed slowed to 4 kts
 2400 will deploy one gun string at a time in order to complete gun signature test.

5/2/2006

Date	Comments
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Vessel	SR/V Veritas Viking2
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In survey area carrying out gun signature test. Whale watch carried out during gun test.
0057 Stbd inner guns deployed
0138 Chase Vessel "Lady Roula" released to goto port due to approaching bad weather.
0208 Test fire guns individually.
0309 stop test due to no Nav header information going to ARGUS
0430 Bridge testing Bow and Stern thrusters.
0440 test complete on thrusters.
0538 Test 1 Stbd outboard guns
0605 stop test. Recover guns. Deploy Stbd mid guns
0656 guns deployed.
0732 recover stbd mid to repair transducer.
0751 Test stbd Mid guns
0830 Gun tes complete recover guns. Deploy stbd inner guns
0915 Guns deployed
1037 test complete. Recover stbd inner.
Deploy port inner
1109 Start test on port innere guns
1305 Test complete Recover port inner guns and deploy port outer guns.
1503 start test of port outer guns.
1534 test complete. Recover guns WX NW F5/ 1.5 m sea
1548 deploy port mid guns.
1600 guns in position.
1629 Testing Port mid guns
1701 Test completed

Down for weather WNW F7 2m
1754 trouble shoot problem between Nav and Argus
1833 guns onboard. WX WNW F7/2m sea.
1834 enroute e to "Bad Weather Loitering Zone" (Closer to shore line)
2015 Wx WNW F7 / 2.5 m seas
2400 WX WNW F6 / 2.5 m seas
Survey area expecting seas to increase to 6-9 mtr.

5/3/2006

Down for weather. Riding in sheltered area. Wx WNW F6 / 2.5-3 m seas
0430 Wx W F7 / 3m sea
0715 Wx SW F8 / 2.5-3m sea
1100 Wx WNW F8 / 3.5-4 m sea
1312 Wx W F7 / 3.5-4 m sea
1715 Wx W F6 / 2.5 m sea
2145 Wx WNW F3 / 2m sea
2217 Bring vessel to all stop to deploy ADP pinger. Prepare to deploy streamers.
2242 Come around to a heading of 238* ADP deployed
2253 Start logging data for ADP cal, File hd238jd123,
2300 complete logging. Trun vessel ta heading of 058*
2310 start logging data for ADP cal, file hd58jd123
2327 deploy Tailbuoy 1. Complete logging
2400 deploying streamer 1 at end of day.
Wx WNW F3 / 2m seas. Deployment is in the Loitering Zone

5/4/2006

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Weather down time. Continue to deploy streamers after being down for weather. Strm 1 being deployed at start of day. 0041 toolbox meeting to launch tailbuoy 8 00042 Tailbuoy launched 0215 Toolbox meeting covering Helo duties. 0304 Helicopter onboard. Two MMO's onboard. 0310 Helicopter away, Ted Clark and Nathan Waugh off 0340 toolbox meeting held prior to launch of vane. 0344 deploy port vane. Going out with Vane and strm 1 0400 Stop on port vane and strm 1 0403 Toolbox meeting held prior to deployment of tailbuoy 2 0405 Deploy tailbuoy 2 0503 all stop on deploying strm 2 due to separation between Strm 2 and 8 0510 Continue deployment of Strm 2 0609 change out section on strm 8 0652 deploy strm 2 and 8 0743 Toolbox meeting held prior to launching head float Strm 8 0745 head float launched 0749 Toolbox meeting held prior to launch of stbd vane 0751 deploy stbd vane. Going out on vane and strm 8 0759 Pleasure boat approaching tail of streamers. Would not answer radio's. Several flares and spot light shined in the direction of the vessel. V2 halted turn to stbd and came back to port so as not to turn in front of vessel. Vessel travelling at 13 knots. 0819 V2 speed brought down to 3.5 kts to allow the Vessel to over take quicker. 0838 deploy strm 2. 0859 toolbox meeting held prior to deployment of tailbuoy 7 0901 Tailbuoy 7 deployed 0937 start turn 1058 Strm 2 coming to surface. Strm 7 Suspect fishing debris 1110 recover strm 2 to bird 10 to remove fishing gear. 1126 Stop coming in on strm 2. Tail end of strm 7 diving deep and being pulled closer to strm 2. Suspect fishing debris caught between the two streamers. 1134 Strm 2 and 7 back to depth. Debris seems to have come off. Continue to recover Strm 2 to bird 10 to inspect area. 1247 Strm 2 up to bird 10. All looks okay. 1254 deploy streamer 2 and 7. 1438 install tap can on strm 2. continue out on strm 7. 1515 Toolbox meeting held for deployment of headfloat strm 2. 1530 deploy head float 1540 come in on strm 1 and vane to attach strm 2. 1600 deploy strm 1-2 and vane. 1616 stop on strm 1-2 and vane. 1628 Have to recover Streamer 7 due to section failing capacity test. Are of failure is area of suspected fishing gear was hung up. 1629 toolbox meeting held prior to launching tailbuoy 3. 1630 deploy tailbuoy 3 1718 hold up on deploy strm 3 until strm 7 passes by to keep from tangling streamers. 1758 strm 7 picked back up to section 8 Trouble shoot section. 1804 section 8 changed out. suspect damage done by fishing debris. 1849 deploy streamer 7. 1908 deploy strm 3 2018 coming in on strm 7 due to noisy channels. suspect debris on section 2034 hold up on strm 3 due to close proximity of strm 7. 2105 strm 7 up to bird 14. nothing obvious. Changed out section 2148 deploy strm 7 2215 deploy strm 3 2237 install tap can on strm 7 2245 toolbox meeting held prior to deployment of headfloat. 2300 Tapcan installed. head float deployed. come in on strm 8 and vane 2334 stop on strm 7-8 and vane 2340 Toolbox meeting held prior to deployment of tailbuoy 6 2344 deploy tailbuoy 6 2400 install tapcan on strm 3. At end of day Streamers 1-2 and 7-8 fully deployed. Streamer 3 to go out on vane and streamer 6 being deployed</p>

5/5/2006

Date	Comments
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Vessel	SR/V Veritas Viking2
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Down for wether.Weather down time. Continue to deploy streamers after being down for weather. Streamers 1-2 and 7-8 fully deployed. Deploying streamers in Loitering zone. Installing tapcan on Strm 3 and deploying strm 6 at start of day.

0016 change out tail stretch on Strm 6
0018 toolbox meeting carried out for launching headfloat on Strm 3.
0020 headfloat launched
0026 come in on Strm 1-2 to attach strm 3.
0035 deploy strm 1-3 and vane
0052 all stop on strm 1-3
0115 deploy strm 6
0133 run ballast test on strm 1-3 and 7-8. Strm brought up to 7m
0145 log ballast data to file
0235 stop logging data
0423 stop deploying due to problem with strm 6 reel.
0441 deploy strm 6
0453 toolbox meeting to launch tailbuoy 4
0455 deploy tailbuoy 4
0522 install tap can on strm 6
0548 toolbox meeting to launch headfloat 6
0555 headfloat launched. Comms good
0557 come in on stbd vane and strm 7-8 to attach strm 6
0611 deploy strm 6-8 and stbd vane
0634 stop on strm 6-8 and vane

Change over to Deployment. Streamer 1-3 and 6-8 fully deployed after weather down time. Continue to deploy strm 4.

0830 ETA Lady Roula 2 hours. Wx SSW F5 / 1m
0920 turn V2 due to fishing gear in path.
1012 Lady Roula on site.
1309 Wx SSW F5 1.5 m seas
1445 Problem with reel for strm 4

Hydraulic problem with streamer reel for strm 4. Trouble shoot problem.

Continue to deploy streamer 4.

1808 toolbox meeting held prior to deployment of tailbuoy 5.
1812 tailbuoy 5 deployed
1828 Strm 4 in position. Strm's 1-4 and 6-8 brought to 7m depth to check ballast.
2114 continue to deploy strm 5. Starting angling towards prospect.
2158 Pre-start Whale watch started.
2233 toolbox meeting held prior to launch of headfloat # 5
2237 headfloat deployed.
2310 strm 5 fully deployed.
2326 make adjustment to front end alignments.
2315 toolbox meeting held prior to launch of workboat.
2335 Stbd workboat launched to carry out ballasting on streamers.
2400 making adjustment to head of streamers 4-5 and working on ballast issues via workboat.

5/6/2006

All streamers fully deployed. Workboat launched working on ballast issues with the streamers.

0000 Strm 6 Birds 2, 3, 8, 14 ballasted. 0056 Strm 7 birds 9 and 17
1118 Strm 8 bird 16
0128 Strm 2 bird 12, 15 and 17. Making adjustments to front ends of strm 4-5.
0201 finish adjustment to strm 4-5
0206 Workboat onboard.
0231 adjustment made to separations on streamers logging noise data and bird data.
0251 toolbox meeting held to deploy guns
0254 deploy guns
0330 Voyager on location. Taking new fuel hose from Lady Roula
0415 Stbd guns in position
0437 Lady Roula departs for shore.
0445 deploy port guns
0557 Port guns in position

Make adjustment to separations with all gear fully deployed. Carry out noise test on streamers. Warm guns up to carry out guns test. Drop test, hydrophone pulse test.
0716 start firing guns one at a time for hydrophone test. Continue to make adjustment to spread.
0900 preform shut down test. All instruments powered off and restarted to insure header information will stay the same.
0956 toolbox meeting carried out for recovery of guns and streamer 6
1000 Problem with Drop test on guns and bad traces have come up on strm 6.

Date	Comments
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Vessel	SR/V Veritas Viking2
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Recover all guns to work on airleak.
 1052 all guns onboard.
 1104 deploy strm 1-4 out 100m.
 1111 recover strm 5 in order strop out of way.
 11333 Stropping strm 5 over.
 1151 coming in on strm 6-8 and vane
 1233 deploy strm 7-8 out of way. continue to recover strm 6
 1352 deploy strm 7-8 out wide
 1411 WX NE F4 / 1.5 m
 1543 strm 6 up to noisy traces. section changed out.
 1614 deploy strm 6 WX NE F4 / 1m swell
 1828 install tapcan
 1830 pre-start cetacean commenced by Veritas Personnel.
 1841 come in on strm 7-8 to attach strm 6
 1905 going out on Strm 6-8 WX NE F4/ 1.5m sea
 1922 come in on strm 5
 1930 all stop on strm 6-8.
 1937 deploy strm 5
 1955 all strm in position. Start turn toward line heading to carry out gun test.
 2045 Wx N F7 / 2m seas
 2053 MMO start whale watch.
 2140 Decision made to recover strm 8 due to bad traces. Weather increasing.
 02225 NW F6 / 2m seas. Continue to come around to head seas to recover streamer 8. Will have to stack strm 5=7 over on top of strm 1-4
 2400 waiting on streamers to straighten up to start recovery.

5/7/2006

Continue to come head seas in order to recover streamer 8 due to power leakage problem. Leakage causing 6 bad traces on streamer. Due to seas state and forecast strm 6 to be recovered fully to give room for strapping strm over on top of port strm's

0000 Wx W F8 / 2m seas
 0101 deploy port streamers out 100 m to increase in line distance on stbd strm's
 0103 coming in on strm 5
 0114 strap strm 5 over on top of strm 3
 0120 coming in on strm 6-8 and vane
 0138 going back out on strm 7-8 and vane. Continue in on strm 6
 0144 toolbox meeting held prior to removing head float from strm 6. Recover head float.
 0250 recover strm 6. Wx WNW F9 / 2.5-3 m seas
 0451 Toolbox meeting held prior to recovery of tailbuoy 6. Tailbuoy 6 onboard.
 0452 coming in on strm 7-8 and vane
 V2 altering course to keep boat heading into the seas.
 0514 strap strm 7 over on top of strm 4.
 Come in on strm 8 and vane
 0521 toolbox meeting held prior to recovery of stbd vane. Vane onboard.
 0657 Strm 8 up to first area to check for leakage problem.
 0717 change out section
 0720 deploy strm 8 to check for leakage.
 0810 all of strm 8 on surface.
 0856 continue to deploy strm 8 to check noise record for power leakage. Wx W F7 / 3m seas
 0945 strm 8 down to 7 m check for leakage.
 1006 still have leakage problem. Recover strm 8 .
 1227 Change section and module 12.
 1325 deploy strm

Down for weather.
 Unable to deploy strm 8 due to sea conditions and direction. Strm 8 is being pushed onto the head float of strm 7
 Wx WNW F8 / 3 -4 m sea
 1552 having to pull clear of oil rigs. Start turn to the south

Date	Comments
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Vessel	SR/V Veritas Viking2
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Continue to recover strm 8. Wx NW F8 / 3-4 m seas.
 1836 change section 16. Wx W F9 / seas 3-4 m seas.
 1905 deploy strm 8
 1925 change out module 18
 1950 change out module 21
 1957 deploy strm 8
 2030 turn back out to sea to avoid shallow water. Wx W f9 3-4 m seas
 2107 deploy strm 8 with head float in order to check leakage
 2212 Leakage gone from strm 8. due to shallow water depths will wait until 40m of depth is under boat before launching vane.
 2320 Toolbox meeting prior to deploy stbd vane
 2324 stbd vane deployed.
 2339 stop deployment to gain separation between strm 7 and 8
 2400 Separation good coming in on strm 7 to attach tag line. Wx WNW F8 / 3 m seas.

5/8/2006

Continue Bream 3D pre-survey testing and calibration at start of day. WX = W F7, 3.0 m combined sea and swell. All times in UTC.

0001 hrs: Streamer 7 attached to stbd PV and going wide.
 0028 hrs: Recover port streamer geometry to tow position.
 0048 hrs: Tailbuoy 6 away. Deploy streamer 6.
 0117 hrs: Replace section 5 on streamer 6 (leakage pulsing).
 0318 hrs: Reduce vessel speed to improve PRH for Helo operations.
 0425 hrs: Helicopter 1 on deck for split seismic crew change.
 0430 hrs: Helicopter 1 away.
 0445 hrs: Helicopter 2 on deck.
 0456 hrs: Helicopter 2 away.
 0458 hrs: Helicopter 3 on deck.
 0505 hrs: Helicopter 3 away.
 0508 hrs: Helicopter 3 back on deck for missing Australian maritime crew member. See IR V2-IR-06-OSVV6PL9JV.
 0511 hrs: Helicopter 3 away. Crew change complete. McNelly's rotation off/ Grizaard's rotation on.
 0520 hrs: Replace section 12 on streamer 6 (leakage pulsing).
 0927 hrs: Streamer 6 attached to stbd PV and going wide.
 0935 hrs: Commence 90 minute pre-soft start cetacean monitoring.
 1025 hrs: Deploy source arrays.
 1038 hrs: Streamers in tow position.
 1108 hrs: Source arrays in tow position.

 1125 hrs: Commence source array pressure verification (all 6 sub-arrays).
 1128 hrs: Fine tune streamer geometry separations.
 1143 hrs: Adjusting source array in-line and cross-line separations.
 1243 hrs: Commence source array soft start for individual station pressure verification.
 1501 hrs: Recover source arrays. Stbd centre sub-array failed pressure verification at 1 station. Port inboard sub-array failed pressure verification at 1 station.

 1503 hrs: Streamer 1 out of specification. Adjacent channels 316-313 noisy/ leakage pulsing. Make preparations to recover.
 1547 hrs: Streamer 6 hard telemetry failure at first passive module. Commence troubleshooting.
 1603 hrs: Source arrays onboard and secure.
 1722 hrs: Streamer 4 stacked over streamer 7.
 1743 hrs: Streamer 3 stacked over streamer 6.
 1754 hrs: Streamer 2 stacked over streamer 5.
 1801 hrs: Port PV onboard and secure.
 1806 hrs: Recover streamer 1 to active section 27.
 1937 hrs: Replace active section 27 on streamer 1. Channel range proves good.
 2147 hrs: Deploy port PV and streamer 1.
 2200 hrs: Streamer 6 RVIM thought to be the cause of telemetry failure.
 2246 hrs: Streamer 2 connected to port PV and going wide.
 2332 hrs: Streamer 3 connected to port PV and going wide.
 Deploying streamers 1, 2, 3 and 4 at end of day. WX = NW F6, 2.0 m combined sea and swell.

5/9/2006

Date	Comments
Vessel	SR/V Veritas Viking2

Continue Bream 3D pre-survey testing and calibration. WX = NW F7, 3.0 m combined sea and swell. All times in UTC.

0032 hrs: Streamers 1, 2, 3 and 4 in tow position. Make preparations to recover streamer 6 due to hard telemetry failure at passive module 2.
0110 hrs: Streamer 5 stacked over streamer 2. Recover streamer 6.
0148 hrs: Streamer 6 passive configuration onboard. Commence troubleshooting.
0239 hrs: TAP module found to be at fault. TAP module replaced. Run tests.
0245 hrs: Emergency muster and abandon ship drill.
0315 hrs: Streamer 6 telemetry proves good.
0317 hrs: Drill stood down.
0325 hrs: Streamer 1 active module 27 failure.
0442 hrs: Streamer 6 connected to stbd PV and going wide.
0505 hrs: Streamers 8, 7, 6 and 5 in tow position. Make preparations to recover streamer 1 due to active module 27 failure.
0614 hrs: Streamer 4 stacked over streamer 7.
0708 hrs: Streamer 3 stacked over streamer 6.
0738 hrs: Streamer 2 stacked over streamer 5. Recover port PV and streamer 1.
0751 hrs: Port PV onboard and secure. Recover streamer 1 to active module 27.
0817 hrs: Chase/ support vessel 'OMS Voyager' reports stbd engine failure.
0906 hrs: OMS Voyager heading for sheltered waters to make repairs.
0913 hrs: Replace active module 27. Run tests.
0930 hrs: Telemetry proves good. Deploy streamer 1.
1020 hrs: Replace active section 29 on streamer 1 (noisy channels).
1025 hrs: Deploy port PV and streamer 1.
1128 hrs: OMS Voyager off station heading for Corner Inlet for stbd drive train repairs.
1225 hrs: Streamer 2 connected to port PV and going wide.
1231 hrs: Commence stbd turn back towards the program area.
1417 hrs: Streamer 3 connected to port PV and going wide.
1532 hrs: Streamer 4 connected to port PV and going wide.
1612 hrs: All streamers in tow position.
1654 hrs: Deploy source arrays. WX = WSW F7, 3.0 m.

Weather standby. WX = WSW F8, 3.0 m combined sea and swell. Wind gusting to 50 kts.

1706 hrs: Halt deploying source arrays due to adverse wind and sea conditions.
1714 hrs: Recover source arrays.
1723 hrs: Source arrays onboard and secure.
1725 hrs: Vessel heading to 'adverse weather loitering area' for shelter. Streamers in tow position (target depth 20 m).
1900 hrs: WX = W F8, 4.0-5.0 m combined sea and swell.
2100 hrs: WX = W F7, 4.0 m combined sea and swell.
2200 hrs: WX = WSW F5, 3.0 m combined sea and swell.
2255 hrs: Weather improving, vessel turning back towards program area.

Vessel heading for program area at end of day. WX = WSW F5, 3.0 m combined sea and swell.

5/10/2006

Weather standby. WX = WSW F7, 3.0 m combined sea and swell. Vessel heading to program area at start of day. All times in UTC.

0135 hrs: Deploy source arrays.
0215 hrs: Commence 90 minute pre-soft start cetacean monitoring.
0218 hrs: Source arrays in tow position.
0411 hrs: Crossed into acoustic boundary. Commence source array soft start and cetacean monitoring.
0431 hrs: Source arrays at full volume.
0455 hrs: Commence test line to confirm header transfer and instrument integrity.
0524 hrs: Test line complete. All systems good.
0535 hrs: Commence port source array pressure drop verification.
0550 hrs: Port source array pass.
0555 hrs: Commence stbd source array pressure drop verification.
0610 hrs: Stbd source array pass.
0612 hrs: Recover source arrays to adjust separation tethers.
0642 hrs: Deploy source arrays.
0715 hrs: Source arrays in tow position.
0717 hrs: Run pre-survey instrument tests.
0758 hrs: Commence source array soft start and cetacean monitoring.
0818 hrs: Source arrays at full volume.

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record 1728P1, sequence 001, >191°, 16 CMP prime, volume: 4450/ 4450. FSP: 1997/ LSP: 881. Do Not Process. All data scratched due to wide S4/S5 separation (trouser effect) resulting in depleted coverage.</p> <p>Wx: W F4, 2.0 m combined sea and swell.</p> <p>Line change.</p> <p>1115 hrs: Recover port centre sub-array to repair P-11 and P-14. 1229 hrs: Deploy port centre sub-array. 1235 hrs: Port centre sub-array in tow position. 1250 hrs: Chase/ support vessel 'Lady Rula' on station. 1310 hrs: Commence source array soft start and cetacean monitoring. 1330 hrs: Source arrays at full volume.</p> <p>Record 1440P1, sequence 002, >011°, 16 CMP prime, volume: 4450/ 4450. FSP: 1009/ LSP: 2117. Do Not Process. All data scratched due to wide S4/S5 separation (trouser effect) resulting in depleted coverage.</p> <p>Wx: W F4, 2.0 m combined sea and swell.</p> <p>Line change.</p> <p>1608 hrs: Commence port source array signature test. 1628 hrs: Port source array signature test complete. Recover source arrays to adjust depth ropes. 1730 hrs: Deploy source arrays. 1803 hrs: Source arrays in tow position. 1804 hrs: Recover front-end geometry by 10 m to improve S4/S5 separations. 1820 hrs: Commence source array soft start and cetacean monitoring. 1824 hrs: Port source arrays collapsed due to slipped Yale grip. Recover source arrays.</p> <p>1843 hrs: Projected SOL prime sequence 003. 1847 hrs: Abort attempt at prime sequence 003 due to collapsed source array separations.</p> <p>1908 hrs: Commence circle back to restart prime sequence 003. 2030 hrs: Port source arrays in tow position. 2104 hrs: Commence stbd source array signature test. 2223 hrs: Stbd source array signature test complete. 2300 hrs: Commence source array soft start and cetacean monitoring. 2320 hrs: Source arrays at full volume.</p> <p>Record 1728P2, sequence 003, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSPD: 1712. Prime reshoot of sequence 001 due to wide S4/S5 separation (trouser effect) resulting in depleted coverage. Line rejected due to source imbalance (>1.5 dB). Do Not Process.</p> <p>Wx: W F4, 1.5 m combined sea and swell.</p>
5/11/2006	<p>Continue recording 1728P2, sequence 003, >191°, 16 CMP prime, volume: 4450/ 4450. FPSPD: 1711/ LPSP: 881. Prime reshoot of sequence 001 due to wide S4/S5 separation (trouser effect) resulting in depleted coverage. Line rejected due to source imbalance (>1.5 dB). Do Not Process.</p> <p>Wx: NW F4, 2.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>0153 hrs: Recover stbd source arrays to adjust depth ropes. 0235 hrs: Stbd workboat away for streamer ballast adjustment. Streamers 8, 6 and 1. 0313 hrs: Deploy stbd source arrays. 0335 hrs: Commence source array soft start and cetacean monitoring. 0336 hrs: Stbd source arrays in tow position. 0355 hrs: Source arrays at full volume.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record 1440P2, sequence 004, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 1862. Prime reshoot of sequence 002 due to wide S4/S5 separation (trouser effect) resulting in depleted coverage. Line incomplete due to source array air leak.</p> <p>0412 hrs: Stbd workboat onboard and secure.</p> <p>Wx: NW F3, 1.5 m combined sea and swell.</p> <p>Airleak.</p> <p>0559 hrs: Stbd workboat away for platform position verification.</p> <p>Line change prime.</p> <p>0632 hrs: Recover port centre sub-array to repair airleak. 0720 hrs: Stbd workboat onboard and secure. 0800 hrs: Deploy port centre sub-array. 0819 hrs: Port centre sub-array in tow position. 0902 hrs: Commence source array soft start and cetacean monitoring.</p> <p>Line change extended to recover stbd workboat before sunset. Vessel had to reduce speed during line change.</p> <p>0922 hrs: Source arrays at full volume.</p> <p>Record 1744P1, sequence 005, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LGSP: 1390. Sudden air pressure loss. Continue down sail line while effecting repairs.</p> <p>Wx: SW F4, 1.0 m combined sea and swell.</p> <p>Unable to determine sudden air pressure loss.</p> <p>1117 hrs: Air pressure nominal.</p> <p>151 SP edit.</p> <p>Continue recording 1744P1, sequence 005, >191°, 16 CMP prime, volume: 4450/ 4450. FGSP: 1238/ LPSP: 881. Line incomplete due to air pressure out of specification.</p> <p>Wx: W F5, 1.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>1220 hrs: Daily instrument tests. 1400 hrs: Commence source array soft start and cetacean monitoring. 1420 hrs: Source arrays at full volume.</p> <p>Record 1456P1, sequence 006, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>Wx: NW F6, 1.5 m combined sea and swell.</p> <p>Line change prime.</p> <p>1659 hrs: Recover port centre sub-array to repair P-21 (erratic). 1733 hrs: Deploy port centre sub-array. 1744 hrs: Port centre sub-array in tow position. 1907 hrs: Stbd outboard sub-array deep. Float parted. 1908 hrs: Recover stbd outboard sub-array.</p> <p>Stbd outboard sub-array float parted. Decision made to circle.</p> <p>1928 hrs: Stbd outboard sub-array onboard. Commence repairs. 2033 hrs: Deploy stbd outboard sub-array. 2105 hrs: Stbd outboard sub-array in tow position. 2230 hrs: Commence source array soft start and cetacean monitoring. 2250 hrs: Source arrays at full volume.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	Record 1760P1, sequence 007, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSPD: 1502. Line in progress at end of day.
	Wx: NW F6, 2.0 m combined sea and swell.
5/12/2006	
	Continue recording 1760P1, sequence 007, >191°, 16 CMP prime, volume: 4450/ 4450. FPSPD: 1501/ LPSP: 881. Line complete.
	Wx: 300° at 11.4 m/s, 2.0 m combined sea and swell.
	Line change prime.
	0128 hrs: Recover stbd centre sub-array to repair S-10 and S-11 (erratic). 0230 hrs: Deploy port centre sub-array. 0254 hrs: Stbd centre sub-array in tow position. 0315 hrs: Commence source array soft start and cetacean monitoring. 0335 hrs: Source arrays at full volume.
	Record 1472P1, sequence 008, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.
	0400 hrs: Chase/ support vessel 'Swissco 168' on station. 0411 hrs: Chase/ support vessel 'Lady Rula' off station. Released from the program area.
	Wx: 270° at 10.3 m/s, 2.0 m combined sea and swell.
	Line change prime.
	0825 hrs: Commence source array soft start and cetacean monitoring. 0845 hrs: Source arrays at full volume.
	Record 1776P1, sequence 009, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.
	1022 hrs: Vessel passing 1600 m clear of Bream 'A'.
	Wx: 270° at 13.4 m/s, 1.5 m combined sea and swell.
	Line change prime.
	1135 hrs: Recover port inboard sub-array to repair P-19 and P-21. 1140 hrs: M/V Pacific Sword on location. 1347 hrs: Deploy port inboard sub-array. 1350 hrs: Commence source array soft start and cetacean monitoring. 1357 hrs: Port inboard sub-array in tow position. 1410 hrs: Source arrays at full volume.
	Record 1488P1, sequence 010, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.
	1456 hrs: Vessel passing 875 m clear of Bream 'B'.
	Wx: 270° at 12.0 m/s, 1.5 m combined sea and swell.
	Line change prime.
	1649 hrs: Recover port inboard sub-array to repair gun P-19. 1730 hrs: Deploy port inboard sub-array. 1753 hrs: Port inboard sub-array in tow position. 1850 hrs: Commence source array soft start and cetacean monitoring. 1910 hrs: Source arrays at full volume.

Date	Comments
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Vessel	SR/V Veritas Viking2
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Record 1776F1, sequence 011, >191°, progressive infill, volume: 4450/ 4450.
 FPSP: 1997/ LPSP: 881.
 Do Not Process. Line rejected due to excessive swell noise and streamer control.

2046 hrs: Vessel passing 1300 m clear of Bream 'A'.

Wx: 265° at 12.0 m/s, 2.5 m combined sea and swell.

Weather stand-by. WX: 270° at 16.2 m/s, 2.5 m combined sea and swell.

2400 hrs: Abort attempt at progressive infill sequence 012. Vessel on weather stand-by at end of day.

5/13/2006

Weather stand-by. WX = 262° at 17 m/s, 3.0 m combined sea and swell.

0010 hrs: Source arrays at full volume.
 0018 hrs: Abort attempt at progressive infill sequence 012.
 0200 hrs: WX = 260° at 17 m/s, 3.0 m combined sea and swell.
 0230 hrs: Decision made to recover streamer 8 during adverse weather period for preventive maintenance (noisy channels and bad CMUs).
 0238 hrs: Recover source arrays.
 0338 hrs: Source arrays onboard and secure.
 0350 hrs: Vessel course 287° for streamer recovery.
 0411 hrs: Deploy port geometry a further 50 m.
 0448 hrs: Streamer 5 stacked over streamer 2.
 0525 hrs: Streamer 6 stacked over streamer 3.
 0546 hrs: Streamer 7 stacked over streamer 4.
 0553 hrs: Port PV onboard and secure.
 0605 hrs: Recover streamer 8 to active section 12.
 0906 hrs: Azimuth thruster locked down and engaged for testing.
 1004 hrs: Tests prove good. Azimuth thruster up and secure.
 1034 hrs: Replace active section 12. Run tests.
 1136 hrs: Tests prove good. Deploy streamer 8.
 1213 hrs: Replace CMU S8C13.
 1301 hrs: Replace CMU S8C14.
 1314 hrs: Deploy Port PV.
 1330 hrs: Streamer 8 connected to port PV and going wide.
 1356 hrs: Streamer 7 connected to port PV and going wide.
 1506 hrs: Streamer 6 connected to port PV and going wide.
 1602 hrs: Streamer 5 connected to port PV and going wide.
 1628 hrs: Port geometry in tow position.
 1635 hrs: All streamers in tow position. Vessel heading for progressive infill sequence 012.
 1712 hrs: Deploy source arrays.
 1720 hrs: Raise streamers to target depth for noise analysis.
 1830 hrs: WX = 230° at 11 m/s, 2.0 m combined sea and swell.
 1835 hrs: Source arrays in tow position.
 2020 hrs: Commence source array soft start and cetacean monitoring.
 2040 hrs: Source arrays at full volume.
 2043 hrs: Abort attempt at progressive infill sequence 012 due to excessive swell noise. WX = 230° at 9 m/s, 2.0 m combined sea and swell. Continue down sail line to attempt partial prime hole.
 2140 hrs: Commence source array soft start and cetacean monitoring.
 2200 hrs: Source arrays at full volume.

Run-in Alpha SPs. 1399A-1390A.

Record 1744P2, sequence 012, >191°, 16 CMP prime, volume: 4450/ 4450.
 FPSP: 1389/ LPSP: 1239.
 Partial prime reshoot of sequence 005 due to air pressure out specification.
 Line complete.

Wx: 266° at 10 m/s, 2.0 m combined sea and swell.

Run-out Alpha SPs. 1238A-1229A.

Line change technical.

Vessel heading for progressive infill sequence 013 at end of day.

5/14/2006

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>On approach to progressive infill sequence 013 at start of day.</p> <p>0135 hrs: Commence source array soft start and cetacean monitoring. 0155 hrs: Source arrays at full volume. 0207 hrs: Azimuth thruster locked down and engaged.</p> <p>Record 1488F1, sequence 013, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>0248 hrs: Vessel passing 705 m clear of Bream 'B'. 0330 hrs: Azimuth thruster up and secure. 0353 hrs: Stbd workboat away for personnel transfer with Pacific Sword. 0422 hrs: Workboat onboard and secure. Shirley, La Bouve and Morris onboard.</p> <p>Wx: 070° at 10 m/s, 1.0 m combined sea and swell.</p> <p>Line change infill.</p> <p>0503 hrs: Stbd workboat away for streamer maintenance. Replace active section 2 in streamer 6. 0627 hrs: Workboat successfully replaced active section 2. Heading back to vessel. 0645 hrs: Commence source array soft start and cetacean monitoring. 0656 hrs: Stbd workboat onboard and secure. 0705 hrs: Source arrays at full volume.</p> <p>Record 1776F2, sequence 014, >191°, progressive infill, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Reshoot of progressive infill sequence 011 due to excessive swell noise and streamer control. Line complete.</p> <p>Wx: 197° at 05 m/s, 1.5 m combined sea and swell.</p> <p>Line change infill.</p> <p>1150 hrs: Commence source array soft start and cetacean monitoring. 1210 hrs: Source arrays at full volume.</p> <p>Record 1504P1, sequence 015, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>1302 hrs: Vessel passing 360 m clear of Bream 'B'.</p> <p>Wx: 270° at 08 m/s, 1.5 m combined sea and swell.</p> <p>Line change prime.</p> <p>1650 hrs: Commence source array soft start and cetacean monitoring. 1710 hrs: Source arrays at full volume.</p> <p>Record 1792P1, sequence 016, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>1830 hrs: Chase/ support vessel 'Marimba' on station. 'Swissco 168' off station, released from the program area. 1847 hrs: Vessel passing 750 m clear of Bream 'A'.</p> <p>Wx: 260° at 12 m/s, 1.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>2045 hrs: Abort attempt at prime sequence 017. Streamers 1 and 8 out of contractual depth specification due to PV wash/ vortex. Decision made to recover PVs and increase the tether length by 10 m. 2100 hrs: Recover source arrays. 2200 hrs: Source arrays onboard and secure.</p>

Date	Comments
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Vessel	SR/V Veritas Viking2
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2236 hrs: Streamer 4 stacked over streamer 7.
 2241 hrs: Conduct tow drill exercise with 'Marimba'.
 2254 hrs: Drill stood down.
 2325 hrs: Streamer 3 stacked over streamer 6.
 2342 hrs: Streamer 2 stacked over streamer 5.
 2351 hrs: Port PV onboard and secure. Increase tether length by 10 m.

Vessel on course 030° for PV recovery at end of day.

5/15/2006

Vessel on course 030° for PV recovery at start of day. Port PV onboard and secure. Increase tether length by 10 m.

0225 hrs: Deploy port PV (tether = 50 m) and streamer 1.
 1310 hrs: Helicopter on deck for personnel transfer.
 1315 hrs: Helicopter away. La Bouve and Morris depart vessel.
 0329 hrs: Streamer 2 connected to port PV and going wide.
 0358 hrs: Streamer 3 connected to port PV and going wide.
 0445 hrs: Streamer 4 connected to port PV and going wide.
 0458 hrs: Port streamers in temporary tow position (50 m further out from marks).
 0510 hrs: Recovery stbd PV to increase tether length by 10 m.
 0535 hrs: Streamer 5 stacked over streamer 2.
 0605 hrs: Streamer 6 stacked over streamer 3.
 0625 hrs: Streamer 7 stacked over streamer 4.
 0630 hrs: Stbd PV onboard and secure. Increase tether length by 10 m.
 0730 hrs: Deploy stbd PV (tether = 50 m) and streamer 8.
 0821 hrs: Streamer 7 connected to stbd PV and going wide.
 0843 hrs: Streamer 6 connected to stbd PV and going wide.
 0845 hrs: Commence 90 minute pre-soft start cetacean monitoring.
 0902 hrs: Streamer 5 connected to stbd PV and going wide.
 0915 hrs: Deploy source arrays.
 0939 hrs: All streamers in tow position.
 1005 hrs: Source arrays in tow position.
 1014 hrs: Adjust and fine tune in-line and cross-line geometry separations. Streamers 1 and 8 appear stable. PV wash effect reduced.
 1015 hrs: Commence source array soft start and cetacean monitoring.
 1045 hrs: Source arrays at full volume.
 1151 hrs: Commence 2-boat timing verification and trigger configuration.
 1518 hrs: 2-boat timing erratic. Configuration file sent to CSL for analysis. Head for prime sequence 017.
 1530 hrs: Recover port centre sub-array to repair P-4 (autofiring).
 1657 hrs: Deploy port centre sub-array.
 1712 hrs: Port centre sub-array in tow position.
 1730 hrs: Commence source array soft start and cetacean monitoring.
 1750 hrs: Source arrays at full volume.

Record 1520P1, sequence 017, >011°, 16 CMP prime, volume: 4450/ 4450.
 FPSP: 1001/ LPSP: 2117.
 Line complete.

1842 hrs: Vessel passing 90 m clear of Bream 'B'.

Wx: 335° at 3 m/s, 1.0 m combined sea and swell.

Line change prime.

2038 hrs: Commence 2-boat timing verification.
 2045 hrs: Recover port inboard sub-array to repair P-10 (erratic).
 2157 hrs: Deploy port inboard sub-array.
 2220 hrs: Port inboard sub-array in tow position.
 2244 hrs: 2-boat triggers erratic. Unable to Flip-Flop-Flap. CSL and ATG investigating.
 2250 hrs: Commence source array soft start and cetacean monitoring.
 2310 hrs: Source arrays at full volume.

Record 1808P1, sequence 018, >191°, 16 CMP prime, volume: 4450/ 4450.
 FPSP: 1997/ LPSPD: 1708.
 Line in progress at end of day.

Wx: 290° at 2 m/s, 1.0 m combined sea and swell.

5/16/2006

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Continue recording 1808P1, sequence 018, >191°, 16 CMP prime, volume: 4450/ 4450. FPSPD: 1707/ LPSP: 881. Line complete.</p> <p>0100 hrs: Vessel passing 235 m clear of Bream 'A'. Wx: 290° at 2 m/s, 1.0 m combined sea and swell. Line change prime.</p> <p>0152 hrs: Stbd workboat away for inwater CMU maintenance and TS dip analysis. 0155 hrs: Commence 2-boat timing verification. Line change extended to further troubleshoot 2-boat timing issues.</p> <p>0500 hrs: Commence source array soft start and cetacean monitoring. 0510 hrs: 2-boat triggers/ timing erratic. Unable to commence source comparison test. CSL and ATG investigating. 0520 hrs: Source arrays at full volume. 0523 hrs: Stbd workboat onboard and secure.</p> <p>Record 1520F1, sequence 019, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>0612 hrs: Vessel passing 75 m clear of Bream 'B'. Wx: 052° at 5 m/s, 1.0 m combined sea and swell. Line change infill.</p> <p>0758 hrs: Continue troubleshooting 2-boat trigger timing issues. 0805 hrs: Recover stbd inboard sub-array to repair rGPS beacon. 0935 hrs: Deploy stbd inboard sub-array. 0945 hrs: 2-boat triggers/ timing erratic. Unable to commence source comparison test. CSL and ATG investigating. 0955 hrs: Stbd inboard sub-array in tow position. 1000 hrs: Commence source array soft start and cetacean monitoring. 1020 hrs: Source arrays at full volume.</p> <p>Record 1824P1, sequence 020, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>1150 hrs: Vessel passing 230 m clear of Bream 'A'. Wx: 080° at 4 m/s, 1.0 m combined sea and swell. Line change prime.</p> <p>1300 hrs: Continue troubleshooting 2-boat trigger timing issues. 1430 hrs: 2-boat triggers/ timing erratic. Unable to commence source comparison test. CSL and ATG investigating. 1450 hrs: Commence source array soft start and cetacean monitoring. 1510 hrs: Source arrays at full volume.</p> <p>Record 1536P1, sequence 021, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>1607 hrs: Vessel passing 75 m clear of Bream 'B'. Wx: 020° at 6 m/s, 1.0 m combined sea and swell. Line change prime.</p> <p>1800 hrs: Continue troubleshooting 2-boat trigger timing issues. 1935 hrs: 2-boat trigger timing resolved. Source comparison test to be conducted next line change. 1950 hrs: Commence source array soft start and cetacean monitoring. 2010 hrs: Source arrays at full volume.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record 1824F1, sequence 022, >191°, progressive infill, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>2156 hrs: Vessel passing 310 m clear of Bream 'A'. Wx: 270° at 3 m/s, 0.5 m combined sea and swell. Line change infill.</p> <p>2324 hrs: Commence source comparison test (flip-flop-flap) with Pacific Sword.</p> <p>2400 hrs: Source comparison test considered complete for charging purposes. Pacific Sword on stand-by rate at end of day.</p>
5/17/2006	<p>Continue source comparison test (flip-flop-flap) with Pacific Sword at start of day.</p> <p>0008 hrs: Source comparison test complete. Technical audit complete. Pacific Sword on stand-by rate from 0001 hrs. Line change extended to complete source comparison test with Pacific Sword.</p> <p>0230 hrs: Commence source array soft start and cetacean monitoring. 0250 hrs: Source arrays at full volume.</p> <p>Record 1552P1, sequence 023, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>0351 hrs: Vessel passing 75 m clear of Bream 'B'. Wx: 360° at 2 m/s, 1.0 m combined sea and swell. Line change prime.</p> <p>0545 hrs: Recover stbd source arrays for preventive maintenance. 0654 hrs: Deploy stbd source arrays. 0710 hrs: Stbd source arrays in tow position. 0730 hrs: Commence source array soft start and cetacean monitoring. 0750 hrs: Source arrays at full volume.</p> <p>Record 1840P1, sequence 024, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>0933 hrs: Vessel passing 75 m clear of Bream 'A'. Wx: 200° at 5 m/s, 1.0 m combined sea and swell. Line change prime. Spectra in 2-boat mode.</p> <p>1052 hrs: Recover port centre sub-array to adjust depth ropes. 1148 hrs: Deploy port centre sub-array. 1157 hrs: Port centre sub-array in tow position. 1235 hrs: Commence source array soft start and cetacean monitoring. 1258 hrs: Source arrays at full volume.</p> <p>Record 1568P1, sequence 025, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>1353 hrs: Vessel passing 270 m clear of Bream 'B'. Wx: 290° at 5 m/s, 1.0 m combined sea and swell. Line change prime. Spectra in 2-boat mode.</p> <p>1730 hrs: Commence source array soft start and cetacean monitoring. 1750 hrs: Source arrays at full volume.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record 1856P1, sequence 026, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>1942 hrs: Vessel passing 75 m clear of Bream 'A'. Wx: 240° at 6 m/s, 1.0 m combined sea and swell. Line change prime. Spectra in 2-boat mode.</p> <p>2250 hrs: Commence source array soft start and cetacean monitoring. 2310 hrs: Source arrays at full volume.</p> <p>Record 1584P1, sequence 027, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSPD: 1272. Line in progress at end of day.</p> <p>Wx: 110° at 2 m/s, 1.0 m combined sea and swell.</p>
5/18/2006	<p>Continue recording 1584P1, sequence 027, >011°, 16 CMP prime, volume: 4450/ 4450. FPSPD: 1273/ LPSP: 2117. Line complete.</p> <p>0006 hrs: Vessel passing 470 m clear of Bream 'B'. 0150 hrs: Stbd workboat away for CMU maintenance and equipment transfer with Pacific Sword.</p> <p>Wx: 110° at 2 m/s, 1.0 m combined sea and swell. Line change prime.</p> <p>0245 hrs: Fire emergency drill. 0308 hrs: Drill stood down. 0405 hrs: Commence source array soft start and cetacean monitoring. 0425 hrs: Source arrays at full volume. 0435 hrs: Stbd workboat onboard and secure.</p> <p>Line change extended for dual boat timing verification and SRI tests.</p> <p>Record 1856F1, sequence 028, >191°, progressive infill, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>1605 hrs: Vessel passing 260 m clear of Bream 'A'. Wx: 140° at 6 m/s, 1.0 m combined sea and swell. Line change infill.</p> <p>0716 hrs: Recover stbd centre sub-array to repair S-11 (autofiring). 0810 hrs: Deploy stbd centre sub-array. 0828 hrs: Stbd centre sub-array in tow position. 0855 hrs: Commence source array soft start and cetacean monitoring. 0915 hrs: Source arrays at full volume.</p> <p>Record 1584F1, sequence 029, >011°, progressive infill, volume: 4450/ 4450. FSP: 1001/ LSP: 1132. Line aborted due to excessive feather angle. Tailbuoys unable to clear Bream 'B' safely. Do Not Process.</p> <p>Wx: 085° at 7 m/s, 1.0 m combined sea and swell. Continue down sail line to maintain tidal sequence.</p> <p>0950 hrs: Vessel moving at 1.5 kts VC to clear platform Bream 'B'. 1042 hrs: Vessel clear of Bream 'B'. Heading for progressive infill sequence 030 (close pass Bream 'A'). 1355 hrs: Commence source array soft start and cetacean monitoring. 1420 hrs: Source arrays at full volume.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record 1856F2, sequence 030, >191°, progressive infill, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>1551 hrs: Vessel passing 75 m clear of Bream 'A'.</p> <p>Wx: 085° at 4 m/s, 1.0 m combined sea and swell.</p> <p>Line change infill.</p> <p>1703 hrs: Recover port source arrays for preventive maintenance. 1825 hrs: Deploy port source arrays. 1842 hrs: Port source arrays in tow position. 1845 hrs: Commence source array soft start and cetacean monitoring. 1905 hrs: Source arrays at full volume.</p> <p>Abort attempt at prime sequence 031 due to port source arrays out of depth specification. Continue down sail line to maintain tidal sequence.</p> <p>1939 hrs: Recover port source arrays. 2000 hrs: Port source arrays onboard. Depth rope caught on station 03. Replace depth rope. Deploy port source arrays. 2015 hrs: Port source arrays in tow position. 2030 hrs: Supply vessel 'Lady Rula' on station for stores and equipment transfer. 2138 hrs: Stbd workboat away for stores and equipment transfer with Lady Rula. 2214 hrs: Stbd workboat onboard and secure. Stores and equipment transfer complete. Lady Rula released from the program area. 2325 hrs: Commence source array soft start and cetacean monitoring. 2350 hrs: Source arrays at full volume.</p> <p>On approach to prime sequence 031 (final close pass of Bream 'A') at end of day.</p>
5/19/2006	<p>On approach to prime sequence 031 (final close pass of Bream 'A') at start of day.</p> <p>Record 1872P1, sequence 031, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>0124 hrs: Vessel passing 265 m clear of Bream 'A'. 0220 hrs: General crew meeting to discuss 2-boat operations.</p> <p>Wx: 300° at 6 m/s, 1.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>0234 hrs: Start 2-boat network. Heading for undershoot sequence 032 (Bream 'B'). 0237 hrs: Recover port centre sub-array to repair faulty DI. 0256 hrs: Deploy port centre sub-array. 0317 hrs: Port centre sub-array in tow position. 0345 hrs: Pacific Sword source array soft start. 0405 hrs: Pacific Sword at full volume. 0445 hrs: Pacific Sword in position. Commence 2-boat test line.</p> <p>Continue 2-boat test line. Confirm header transfer.</p> <p>0525 hrs: Test line complete.</p> <p>Record 1520U1, sequence 032, >011°, single source undershoot, volume: 4550. FSP: 1159/ LSP: 1913. Line rejected due to sub-array separations out of specification. Do Not Process. Pacific Sword downtime.</p> <p>0617 hrs: Vessel passing 120 m clear of Bream 'B'.</p> <p>Wx: 025° at 5 m/s, 1.0 m combined sea and swell.</p> <p>Line change technical. Pacific Sword downtime.</p> <p>0800 hrs: Pacific Sword adjusting source sub-array separations. 0915 hrs: Pacific Sword source array soft start. 0920 hrs: Sub-array separations stable and in specification. 0935 hrs: Pacific Sword at full volume.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record 1824U1, sequence 033, >191°, single source undershoot, volume: 4550. FSP: 1563/ LSP: 1455. Line terminated due to sub-array separations out of specification. Do Not Process. Pacific Sword downtime.</p> <p>Wx: 250° at 15 m/s, 1.5 m combined sea and swell.</p> <p>Continue down sail line to maintain tidal sequence. Pacific Sword downtime.</p> <p>1012 hrs: Pacific Sword released to work on sub-array separations. 1205 hrs: Pacific Sword on station. Sub-array separations stable and in specification. 1334 hrs: Pacific Sword source array soft start. 1354 hrs: Pacific Sword at full volume.</p> <p>Record 1520U2, sequence 034, >011°, single source undershoot, volume: 4550. FPSP: 1147/ LPSP: 1891. Line complete.</p> <p>1459 hrs: Vessel passing 75 m clear of Bream 'B'.</p> <p>Wx: 270° at 5 m/s, 1.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>Line change extended to maintain tidal sequence.</p> <p>1913 hrs: Pacific Sword source array soft start. 1925 hrs: Abort attempt at prime sequence 035 due to excessive swell noise. Wx: 220° at 15 m/s, 2.5 m combined sea and swell.</p> <p>Weather stand-by. Vessel continuing race track to maintain tidal sequence.</p> <p>1930 hrs: Pacific Sword moving 1 nm clear of Viking2. 2200 hrs: Wx = 220° at 13 m/s, 3.0 m combined sea and swell. 2230 hrs: Commence 90 minute pre-soft start cetacean monitoring. 2300 hrs: Wx = 240° at 7 m/s, 2.5 m combined sea and swell.</p> <p>On approach to prime sequence 035 at end of day.</p>
5/20/2006	<p>Weather stand-by. On approach to prime sequence 035 at start of day.</p> <p>0005 hrs: Abort attempt at prime sequence 035 due to excessive swell noise. Wx: 240° at 11 m/s, 2.5-3.0 m combined sea and swell. 0008 hrs: Vessel continuing race track to maintain tidal sequence. Pacific Sword moving 1 nm clear of Viking2. 0052 hrs: Pacific Sword source array soft start for test line. 0112 hrs: Pacific Sword at full volume. 0130 hrs: Commence test line for radio network health check. 0135 hrs: Recover stbd inboard sub-array for inspection. 0140 hrs: Test line complete. System integrity proves good. 0200 hrs: Wx = 240° at 5 m/s, 2.5 m combined sea and swell. 0245 hrs: Deploy stbd inboard sub-array. 0300 hrs: Stbd inboard sub-array in tow position. 0315 hrs: Weather improving. Pacific Sword in position. Head for prime sequence 035. 0345 hrs: Pacific Sword source array soft start. 0410 hrs: Pacific Sword at full volume.</p> <p>Record 1872U1, sequence 035, >191°, 8 CMP prime undershoot, volume: 4550. FPSP: 1518/ LPSP: 882. Line complete.</p> <p>0457 hrs: Vessel passing 230 m clear of Bream 'A'.</p> <p>Wx: 255° at 10 m/s, 2.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>0805 hrs: Pacific Sword source array soft start. 0825 hrs: Pacific Sword at full volume.</p> <p>Line change extended to maintain tidal sequence.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record 1504U1, sequence 036, >011°, 8 CMP prime undershoot, volume: 4550. FPSP: 1068/ LPSP: 1910. Line complete.</p> <p>0926 hrs: Vessel passing 75 m clear of Bream 'B'. Wx: 285° at 6 m/s, 2.0 m combined sea and swell. Line change prime.</p> <p>1205 hrs: Pacific Sword source array soft start. 1225 hrs: Pacific Sword at full volume.</p> <p>Record 1840U1, sequence 037, >191°, 8 CMP prime undershoot, volume: 4550. FPSP: 1572/ LPSP: 882. Line complete.</p> <p>1339 hrs: Vessel passing 115 m clear of Bream 'A'. Wx: 270° at 7 m/s, 1.5 m combined sea and swell. Line change prime.</p> <p>1700 hrs: Pacific Sword source array soft start. 1720 hrs: Pacific Sword at full volume. Line change extended to maintain tidal sequence.</p> <p>Record 1520U3, sequence 038, >011°, 8 CMP prime undershoot, volume: 4550. FPSP: 1152/ LPSP: 1920. Line complete.</p> <p>1815 hrs: Vessel passing 100 m clear of Bream 'B'. Wx: 305° at 12 m/s, 1.5 m combined sea and swell. Line change prime.</p> <p>2210 hrs: Pacific Sword source array soft start. Line change extended due to adverse wind and sea conditions. Turn radius increased. Vessel speed reduced.</p> <p>2235 hrs: Pacific Sword at full volume.</p> <p>Record 1840U2, sequence 039, >191°, 8 CMP prime undershoot, volume: 4550. FPSP: 1513/ LPSP: 1199. Line terminated early due to source array airleak. Line considered complete.</p> <p>2310 hrs: Vessel passing 100 m clear of Bream 'A'. Wx: 290° at 12 m/s, 2.0 m combined sea and swell. Source array airleak. Pacific Sword downtime. Vessel continuing race track to maintain tidal sequence at end of day.</p>
5/21/2006	<p>Source array airleak. Pacific Sword downtime. Vessel continuing race track to maintain tidal sequence at start of day. Line change prime.</p> <p>0228 hrs: Pacific Sword source array soft start. 0245 hrs: MOB drill. 0258 hrs: MOB drill stood down. 0247 hrs: Pacific Sword soft start aborted due to no rGPS data from centre sub-array. 0255 hrs: Abort attempt at sequence 040 due to no rGPS data from centre sub-array. Pacific Sword recovering centre sub-array for repairs.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>No rGPS data from centre sub-array. Pacific Sword downtime.</p> <p>0258 hrs: Vessel continuing race track to maintain tidal sequence. 0311 hrs: Pacific Sword altering course to fair seas to recover centre sub-array. 0318 hrs: Vessel out of Spectra steering to move clear of platform Bream 'B'. 0632 hrs: Pacific Sword back in position. rGPS beacon repaired. 0633 hrs: Pacific Sword source array soft start. 0653 hrs: Pacific Sword at full volume.</p> <p>Record 1872U2, sequence 040, >191°, 8 CMP prime undershoot, volume: 4550. FPSP: 1513/ LPSP: 881. Line complete.</p> <p>0751 hrs: Vessel passing 210 m clear of Bream 'A'.</p> <p>Wx: 285° at 11 m/s, 2.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>1046 hrs: Pacific Sword source array soft start. 1106 hrs: Pacific Sword at full volume. 1125 hrs: Abort attempt at sequence 042 due to excessive swell noise. Wx: 280° 14 m/s, 2.0-2.5 m combined sea and swell. 1126 hrs: Vessel out of Spectra steering to move clear of platform Bream 'B'. 1130 hrs: Pacific Sword moving 1 nm clear of Viking2.</p> <p>Weather stand-by. Vessel continuing race track to maintain tidal sequence.</p> <p>1400 hrs: Wx = 280° at 11 m/s, 2.0 m combined sea and swell. 1500 hrs: Pacific Sword in position. 1505 hrs: Pacific Sword source array soft start. 1525 hrs: Pacific Sword at full volume.</p> <p>Record 1872U3, sequence 041, >191°, 8 CMP prime undershoot, volume: 4550. FPSP: 1512/ LPSP: 934. Line complete.</p> <p>1605 hrs: Vessel passing 100 m clear of Bream 'A'.</p> <p>Wx: 000° at 12 m/s, 2.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>Line change extended to maintain tidal sequence.</p> <p>2030 hrs: Pacific Sword source array soft start. 2050 hrs: Pacific Sword at full volume.</p> <p>Record 1504U2, sequence 042, >011°, 8 CMP prime undershoot, volume: 4550. FPSP: 1001/ LGSP: 1393. Spectra data server problem on Pacific Sword. Continue down sail line while effecting repairs. Line incomplete.</p> <p>2145 hrs: Vessel passing 100 m clear of Bream 'B'.</p> <p>Wx: 240° at 4 m/s, 1.5 m combined sea and swell.</p> <p>Spectra data server problem on Pacific Sword. Unable to accept data. Pacific Sword downtime.</p> <p>11 SP edit.</p> <p>Continue recording 1504U2, sequence 042, >011°, 8 CMP prime undershoot, volume: 4550. FGSP: 1415/ LPSP: 1817. Line incomplete due to Spectra server problem on Pacific Sword.</p> <p>Wx: 240° at 4 m/s, 1.5 m combined sea and swell.</p> <p>Line change prime.</p> <p>2302 hrs: Stbd workboat away for inwater CMU maintenance. 2312 hrs: Recover stbd source arrays for inspection. 2358 hrs: Deploy stbd source arrays.</p> <p>On approach to sequence 043 at end of day.</p>

Date	Comments
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Vessel	SR/V Veritas Viking2
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5/22/2006

On approach to sequence 043 at start of day.

0004 hrs: Viking2 stbd source arrays in tow position.
0025 hrs: Stbd workboat onboard and secure.
0120 hrs: Pacific Sword source array soft start.

Line change extended to maintain tidal sequence.

0148 hrs: Abort attempt at sequence 043 due to source array air leak. Pacific Sword source arrays disabled.
Source array airleak. Pacific Sword downtime.

0149 hrs: Continue race track to maintain tidal sequence.
0150 hrs: Vessel out of Spectra steering to move clear of platform Bream 'A'.
0155 hrs: Pacific Sword moving 1 nm clear of Viking2.
0500 hrs: Pacific Sword in position - airleak rectified.
0520 hrs: Pacific Sword source array soft start.
0540 hrs: Pacific Sword at full volume.
0558 hrs: Abort attempt at sequence 043 due to excessive swell noise. Wx: 240° 13 m/s, 2.0-2.5 m combined sea and swell.
0602 hrs: Vessel out of Spectra steering to move clear of platform Bream 'B'.
0608 hrs: Pacific Sword moving 1 nm clear of Viking2.
0618 hrs: Predicted SOL sequence 042.

Weather stand-by. Vessel continuing race track to maintain tidal sequence.

0800 hrs: Wx = 260° at 14 m/s, 2.5 m combined sea and swell.
0905 hrs: Pacific Sword in position.
0940 hrs: Pacific Sword source array soft start.
1000 hrs: Pacific Sword at full volume.
1011 hrs: Abort attempt at sequence 043 due to excessive swell noise. Wx: 230° 14 m/s, 3.0 m combined sea and swell (increasing).
1015 hrs: Vessel out of Spectra steering to move clear of platform Bream 'A'.
1016 hrs: Pacific Sword moving 1 nm clear of Viking2.
1200 hrs: Wx = 180° at 15 m/s, 3.0 m combined sea and swell.
1400 hrs: Wx = 180° at 11 m/s, 3.0 m combined sea and swell.
1423 hrs: Pacific Sword in position.
1428 hrs: Pacific Sword source array soft start.
1443 hrs: Abort attempt at sequence 043 due to excessive swell noise. Wx: 190° 10 m/s, 3.0 m combined sea and swell.
1448 hrs: Vessel out of Spectra steering to move clear of platform Bream 'B'.
1450 hrs: Pacific Sword moving 1 nm clear of Viking2.
1508 hrs: Recover source arrays. Plan to recover streamer 4 during period of inclement weather for preventive maintenance.
1600 hrs: Wx = 170° at 8 m/s, 3.0 m combined sea and swell.
1627 hrs: Source arrays onboard and secure.
1800 hrs: Wx = 180° at 9 m/s, 3.0 m combined sea and swell.
1920 hrs: Recover streamer 4 to active section 22 (noisy channels).
2112 hrs: Replace active section 22.
2152 hrs: Deploy streamer 4.
2350 hrs: Streamer 4 in tow position.
2353 hrs: Deploy source arrays.

On approach to sequence 043 at end of day. Wx: 140° at 10 m/s, 2.5 m combined sea and swell.

5/23/2006

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Weather stand-by. On approach to sequence 043 at start of day. Wx: 140° at 10 m/s, 2.5 m combined sea and swell.</p> <p>0020 hrs: Pacific Sword source array soft start. 0025 hrs: Viking2 source arrays in tow position. 0040 hrs: Pacific Sword at full volume. 0043 hrs: Abort attempt at sequence 043 due to excessive swell noise. Wx: 140° 9 m/s, 2.5 m combined sea and swell. 0050 hrs: Vessel out of Spectra steering to move clear of platform Bream 'B'. 0052 hrs: Pacific Sword moving 1 nm clear of Viking2. 0200 hrs: Wx = 155° at 7 m/s, 2.5 m combined sea and swell. 0300 hrs: Chase/ support vessel 'Swissco 168' on station. Support vessel 'Marimba' off station - released from the program area, enroute to Melbourne. 0400 hrs: Wx = 180° at 12 m/s, 2.5 m combined sea and swell. 0445 hrs: Pacific Sword source array soft start. 0505 hrs: Pacific Sword at full volume. 0521 hrs: Abort attempt at sequence 043 due to excessive swell noise. Wx: 180° 10 m/s, 2.5 m combined sea and swell. 0530 hrs: Vessel out of Spectra steering to move clear of platform Bream 'A'. 0532 hrs: Pacific Sword moving 1 nm clear of Viking2. 0600 hrs: Wx = 160° at 12 m/s, 2.5 m combined sea and swell. 0800 hrs: Wx = 140° at 12 m/s, 2.0 m combined sea and swell. 0905 hrs: Pacific Sword source array soft start. 0925 hrs: Pacific Sword at full volume.</p> <p>Record 1520U4, sequence 043, >191°, 8 CMP prime undershoot, volume: 4550. FSP: 1001/ LSP: 1207. Line terminated due to erratic tidal shift (currents). Feather angle moving towards platform Bream 'B'. Tidal transition one hour ahead of prediction. Do Not Process.</p> <p>Wx: 140° at 8 m/s, 1.5 m combined sea and swell.</p> <p>Vessel continuing race track to maintain tidal sequence.</p> <p>1032 hrs: Vessel out of Spectra steering to move clear of platform Bream 'B'. 1035 hrs: Pacific Sword moving 1 nm clear of Viking2. 1116 hrs: Tailbuoys clear of Bream 'B'. 1200 hrs: Wx = 140° at 8 m/s, 2.5 m combined sea and swell. 1311 hrs: Pacific Sword in position. 1320 hrs: Pacific Sword source array soft start. 1340 hrs: Pacific Sword at full volume. 1407 hrs: Abort attempt at sequence 044 due to excessive swell noise. Wx: 140° 12 m/s, 3.0 m combined sea and swell.</p> <p>Weather stand-by.</p> <p>1412 hrs: Vessel out of Spectra steering to move clear of platform Bream 'A'. 1600 hrs: Wx = 140° at 12 m/s, 3.0 m combined sea and swell. 1800 hrs: Wx = 150° at 12 m/s, 4.0 m combined sea and swell. 1830 hrs: Abort any further attempts at line. Weather increasing. Decision made to head for 'Adverse Weather Loitering Area'. Pacific Sword 1 nm clear of Viking2. 2000 hrs: Wx = 170° at 10 m/s, 4.0 m combined sea and swell. 2200 hrs: Wx = 160° at 10 m/s, 4.0 m combined sea and swell. 2207 hrs: Recover source arrays. 2300 hrs: Wx = 160° at 9 m/s, 4.0 m combined sea and swell.</p> <p>Heading for 'Adverse Weather Loitering Area' at end of day.</p>

5/24/2006

Date	Comments
Vessel	SR/V Veritas Viking2

Weather stand-by. Heading for 'Adverse Weather Loitering Area' at start of day. Pacific Sword clear of Viking2. Wx: 160° at 9 m/s, 4.0 m combined sea and swell.

0015 hrs: Viking2 source arrays onboard and secure.
0100 hrs: Wx = 200° at 10 m/s, 4.0 m combined sea and swell.
0300 hrs: Wx = 180° at 13 m/s, 4.0 m combined sea and swell.
0425 hrs: Enter loitering zone.
0500 hrs: Wx = 200° at 15 m/s, 4.5 m combined sea and swell.
0700 hrs: Wx = 190° at 14 m/s, 4.5 m combined sea and swell.
0740 hrs: Pacific Sword recovering source arrays.
0900 hrs: Wx = 175° at 10 m/s, 4.0 m combined sea and swell.
1100 hrs: Wx = 180° at 5 m/s, 4.0 m combined sea and swell.
1300 hrs: Wx = 175° at 10 m/s, 4.0 m combined sea and swell.
1400 hrs: Undershoot vessel 'M/V Pacific Sword' off station. Released from the program area, enroute to BBT for crew change.
1500 hrs: Wx = 260° at 8 m/s, 4.0 m combined sea and swell.
1700 hrs: Wx = 220° at 11 m/s, 3.5 m combined sea and swell.
1900 hrs: Wx = 200° at 13 m/s, 3.5 m combined sea and swell.
2100 hrs: Wx = 190° at 11 m/s, 3.5 m combined sea and swell.
2300 hrs: Wx = 170° at 10 m/s, 4.0 m combined sea and swell.

Vessel in 'Adverse Weather Loitering Area' at end of day. Streamers in tow position and stable.

5/25/2006

Weather stand-by. Vessel in 'Adverse Weather Loitering Area' at start of day. Streamers in tow position and stable. Wx: 180° at 12 m/s, 3.5 m combined sea and swell.

0200 hrs: Wx = 180° at 09 m/s, 3.5 m combined sea and swell.
0341 hrs: Commence turn back towards the Greater Bream work site.
0400 hrs: Wx = 215° at 10 m/s, 3.5 m combined sea and swell.
0600 hrs: Wx = 190° at 11 m/s, 3.5 m combined sea and swell.
0800 hrs: Wx = 180° at 10 m/s, 3.0 m combined sea and swell.
1000 hrs: Undershoot vessel 'M/V Pacific Sword' back on location. Crew change complete.
1000 hrs: Wx = 180° at 12 m/s, 3.0 m combined sea and swell.
1145 hrs: Viking2 DTN enabled. Radio link established with Pacific Sword.
1200 hrs: Wx = 180° at 12 m/s, 3.0 m combined sea and swell.
1400 hrs: Wx = 160° at 08 m/s, 3.0 m combined sea and swell.
1525 hrs: Pacific Sword deploying source arrays.
1545 hrs: Commence 90 minute pre-soft start cetacean monitoring.
1600 hrs: Wx = 160° at 10 m/s, 3.0 m combined sea and swell.
1608 hrs: Deploy source arrays.
1707 hrs: Source arrays in tow position.
1715 hrs: Pacific Sword source arrays in tow position.
1730 hrs: Pacific Sword source array soft start.
1743 hrs: Abort attempt at sequence 044 due to excessive swell noise break-out.
1748 hrs: Vessel out of Spectra steering to move clear of platform Bream 'B'.
1750 hrs: Pacific Sword moving 1 nm clear of Viking2.
1755 hrs: Vessel continuing race track to maintain tidal sequence.
1800 hrs: Wx = 160° at 08 m/s, 3.0 m combined sea and swell.
2000 hrs: Wx = 145° at 07 m/s, 2.5 m combined sea and swell.
2215 hrs: Pacific Sword source array soft start.
2235 hrs: Pacific Sword at full volume.
2247 hrs: Abort attempt at sequence 044 due to excessive swell noise break-out.
2250 hrs: Vessel out of Spectra steering to move clear of platform Bream 'A'.
2253 hrs: Pacific Sword moving 1 nm clear of Viking2.

Vessel heading for sequence 044 at end of day. Vessel continuing race track to maintain tidal sequence. Wx: 170° at 09 m/s, 2.5 m combined sea and swell.

5/26/2006

Weather stand-by. Vessel heading for sequence 044 at start of day. Wx: 170° at 09 m/s, 2.5 m combined sea and swell.

0200 hrs: Wx = 167° at 07 m/s, 2.5 m combined sea and swell.
0240 hrs: Pacific Sword source array soft start.
0300 hrs: Pacific sword at full volume.

Date	Comments
Vessel	SR/V Veritas Viking2
	Record 1504U3, sequence 044, >011°, 8 CMP prime undershoot, volume: 4550. FSP: 1002/ LSP: 1706. Line rejected due to energy source out of specification (erratic timing) and poor sub-array separations. Do Not Process. Pacific Sword downtime.
	0443 hrs: Vessel passing 100 m clear of Bream 'B'. Wx: 190° at 6 m/s, 2.5 m combined sea and swell. Line change technical. Pacific Sword downtime.
	0735 hrs: Pacific Sword source array soft start. Line change extended to maintain tidal sequence.
	0805 hrs: Pacific Sword at full volume.
	Record 1872U4, sequence 045, >191°, 8 CMP prime undershoot, volume: 4550. FSP: 1539/ LSP: 881. Line rejected due to energy source out of specification (airleak). Do Not Process. Pacific Sword downtime.
	0910 hrs: Vessel passing 220 m clear of Bream 'A'. Wx: 170° at 7 m/s, 2.0 m combined sea and swell. Line change technical. Pacific Sword downtime.
	1015 hrs: Viking2 recover stbd source arrays to adjust separation tethers. 1110 hrs: Viking2 source arrays in tow position. 1230 hrs: Pacific Sword source array soft start. 1250 hrs: Pacific Sword at full volume. Line change extended to maintain tidal sequence.
	Record 1504U4, sequence 046, >011°, 8 CMP prime undershoot, volume: 4550. FPSP: 1118/ LPSP: 1682. Line complete.
	1413 hrs: Vessel passing 230 m clear of Bream 'B'. Wx: 130° at 3 m/s, 2.0 m combined sea and swell. Line change prime.
	1720 hrs: Pacific Sword source array soft start. 1740 hrs: Pacific Sword at full volume. Line change extended for source array repairs. Pacific Sword downtime.
	Record 1824U2, sequence 047, >191°, 8 CMP prime undershoot, volume: 4550. FPSP: 1512/ LPSP: 922. Line complete.
	1816 hrs: Vessel passing 280 m clear of Bream 'A'. Wx: 170° at 7 m/s, 2.0 m combined sea and swell. Line change prime.
	2115 hrs: Pacific Sword source array soft start. 2135 hrs: Pacific Sword at full volume. Line change extended to maintain tidal sequence.
	Record 1520U5, sequence 048, >011°, 8 CMP prime undershoot, volume: 4550. FSP: 1001/ LSP: 1445. Line rejected due to energy source out of specification (erratic timing). Do Not Process. Pacific Sword downtime.
	1816 hrs: Vessel passing 120 m clear of Bream 'B'. Wx: 020° at 3 m/s, 2.0 m combined sea and swell.

Date	Comments
Vessel	SR/V Veritas Viking2
	Line change technical. Pacific Sword downtime.
	Heading for sequence 049 at end of day.
5/27/2006	
	Continue line change technical. Pacific Sword downtime. Heading for sequence 049 at start of day.
	0001 hrs: Stbd workboat away for inwater CMU maintenance.
	Line change extended for optimal tidal current.
	0225 hrs: Pacific Sword source array soft start.
	0245 hrs: Pacific Sword at full volume.
	0300 hrs: Stbd workboat onboard and secure.
	Record 1824U3, sequence 049, >191°, 8 CMP prime undershoot, volume: 4550. FPSP: 1513/ LPSP: 1199.
	Line incomplete due to energy source out of specification (erratic timing, airleak).
	0327 hrs: Vessel passing 260 m clear of Bream 'A'.
	Wx: 235° at 7 m/s, 2.0 m combined sea and swell.
	Energy source out of specification (erratic timing, airleak). Pacific Sword downtime.
	Line change prime.
	0411 hrs: Decision made to go back to single vessel acquisition. Pacific Sword off station to repair and test source arrays.
	0413 hrs: Viking2 back in single vessel mode.
	0426 hrs: Stbd workboat away for TS-dip analysis and equipment transfer with Pacific Sword.
	0509 hrs: Stbd workboat onboard and secure.
	0630 hrs: Commence source array soft start and cetacean monitoring.
	Energy source out of specification (erratic timing, airleak). Pacific Sword downtime.
	0650 hrs: Source arrays at full volume.
	Record 1584F2, sequence 050, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117.
	Line complete.
	Wx: 270° at 7 m/s, 2.0 m combined sea and swell.
	Line change infill.
	1145 hrs: Commence source array soft start and cetacean monitoring.
	1205 hrs: Source arrays at full volume.
	Record 1888P1, sequence 051, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881.
	Line complete.
	Wx: 270° at 11 m/s, 2.0 m combined sea and swell.
	Line change prime.
	1630 hrs: Commence source array soft start and cetacean monitoring.
	1650 hrs: Source arrays at full volume.
	Record 1600P1, sequence 052, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117.
	Line complete.
	Wx: 300° at 7 m/s, 2.0 m combined sea and swell.
	Line change prime.
	2110 hrs: Commence source array soft start and cetacean monitoring.
	2130 hrs: Source arrays at full volume.

Date	Comments
Vessel	SR/V Veritas Viking2
	Record 1904P1, sequence 053, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSPD: 1120. Line in progress at end of day.
	Wx: 290° at 7 m/s, 2.0 m combined sea and swell.
5/28/2006	
	Continue recording 1904P1, sequence 053, >191°, 16 CMP prime, volume: 4450/ 4450. FPSPD: 1119/ LPSP: 881. Line complete.
	Wx: 280° at 12 m/s, 2.0 m combined sea and swell.
	Line change prime.
	0250 hrs: Commence source array soft start and cetacean monitoring. 0310 hrs: Source arrays at full volume.
	Line change extended for source array testing (Pacific Sword).
	Record 1616P1, sequence 054, >011°, 16 CMP prime, volume: 4230/ 4450. FPSP: 1002/ LPSP: 2117. Line complete.
	Wx: 280° at 14 m/s, 2.0 m combined sea and swell.
	Line change prime. Decision made to resume 2-boat undershoot operations. Pacific Sword source arrays prove acceptable.
	0550 hrs: Recover Viking2 port source arrays for preventive maintenance. 0605 hrs: Pacific Sword in position. Establish 2-boat radio link. 0720 hrs: Pacific Sword source array soft start. 0740 hrs: Pacific Sword at full volume. 0805 hrs: Viking2 port source arrays in tow position.
	Line change extended due to transition from single vessel to dual vessel acquisition. Pacific Sword downtime.
	Record 1840U3, sequence 055, >191°, 8 CMP undershoot, volume: 4550. FPSP: 1572/ LPSP: 882. Line complete.
	0914 hrs: Vessel passing 145 m clear of Bream 'A'.
	Wx: 270° at 14 m/s, 2.0 m combined sea and swell.
	Line change prime.
	1230 hrs: Pacific Sword source array soft start. 1245 hrs: Pacific Sword reports no rGPS data from centre sub-array. 1250 hrs: Pacific Sword at full volume. 1310 hrs: Abort attempt at sequence 056 due to no rGPS data from centre sub-array. Pacific Sword source arrays disabled for recovery.
	Commence circle back to restart sequence 056. Pacific Sword downtime.
	1521 hrs: Pacific Sword unable to repair rGPS unit in time. Decision made to go back to single vessel acquisition. 1840 hrs: Viking2 commence source array soft start and cetacean monitoring. 1900 hrs: Viking2 source arrays at full volume. 1907 hrs: Abort attempt at prime sequence 056 due to excessive swell noise = >5 uBars.
	Weather stand-by. Wx: 200° at 10 m/s, 3.0 m combined sea and swell.
	2308 hrs: Pacific Sword rGPS repaired and proves good. Back in 2-boat mode. Heading for undershoot sequence 056. 2350 hrs: Pacific Sword source array soft start.
	On approach to undershoot sequence 056 at end of day.
5/29/2006	

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Weather stand-by. Wx: 230° at 13 m/s, 2.5 m combined sea and swell. On approach to undershoot sequence 056 at start of day.</p> <p>0010 hrs: Pacific Sword at full volume.</p> <p>Record 1520U6, sequence 056, >011°, 8 CMP undershoot, volume: 4550. FPSP: 1111/ LPSP: 1699. Line complete.</p> <p>0116 hrs: Vessel passing 130 m clear of Bream 'B'.</p> <p>Wx: 270° at 14 m/s, 2.0 m combined sea and swell.</p> <p>Line change undershoot (deadhead).</p> <p>Vessel manoeuvring to maintain Pitch-Roll-Heave within tolerance for Helo operations.</p> <p>0410 hrs: Helicopter 1 on deck. 0419 hrs: Helicopter 1 away. 0420 hrs: Helicopter 2 on deck. 0428 hrs: Helicopter 2 away. 0455 hrs: Helicopter 3 on deck. 0501 hrs: Helicopter 3 away. 0511 hrs: Helicopter 4 on deck. 0518 hrs: Helicopter 4 away. 0522 hrs: Helicopter 5 on deck. 0529 hrs: Helicopter 5 away. Crew change complete. Boon's rotation off/ Bell's rotation on. 0530 hrs: Vessel heading back to Bream 'B' to resume production after completing crew change.</p> <p>Continue heading back to Bream 'B' to resume production after completing crew change. Pacific Sword on station.</p> <p>1100 hrs: Wind and seas increasing. 210° at 15 m/s, 4.0 m combined sea and swell.</p> <p>Weather stand-by. Wx: 210° at 12 m/s, 4.0 m combined sea and swell.</p> <p>1200 hrs: Abort attempt at sequence 057 due to excessive swell noise = >10 uBar. 1300 hrs: Wx = 180° at 13 m/s, 4.0 m combined sea and swell. 1500 hrs: Wx = 180° at 11 m/s, 3.5 m combined sea and swell. 1700 hrs: Wx = 170° at 12 m/s, 3.5 m combined sea and swell. 1900 hrs: Wx = 180° at 12 m/s, 3.5 m combined sea and swell. 2000 hrs: Decision made to recover streamer 3 for preventive maintenance during inclement weather period (bad depth control and noisy channels). 2026 hrs: Recover source arrays. 2144 hrs: Source arrays onboard and secure. 2212 hrs: Streamer 4 stacked over streamer 7. 2239 hrs: Recover streamer 3.</p> <p>Streamer 3 coming onboard for preventive maintenance at end of day.</p>
5/30/2006	<p>Weather stand-by. Wx: 145° at 7 m/s, 3.0 m combined sea and swell. Streamer 3 coming onboard for preventive maintenance at start of day.</p> <p>0200 hrs: Wx = 160° at 11 m/s, 3.0 m combined sea and swell. 0220 hrs: Replace active section 13 (noisy channels). Run tests. 0325 hrs: New section proves good. Deploy streamer 3. 0345 hrs: Replace CMU S3C9 (erratic depth keeping). 0400 hrs: Wx = 145° at 7 m/s, 3.0 m combined sea and swell. 0540 hrs: Streamer 3 connected to port PV and going wide. 0617 hrs: Streamer 4 connected to port PV and going wide. 0625 hrs: Deploy Viking2 source arrays. 0640 hrs: Pacific Sword source array soft start. 0644 hrs: All streamers in tow position. 0646 hrs: Viking2 source arrays in tow position. 0700 hrs: Pacific Sword at full volume.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record 1520U7, sequence 057, >011°, 8 CMP undershoot, volume: 4550. FPSP: 1108/ LPSP: 1656. Line and undershoot complete.</p> <p>0839 hrs: Vessel passing 75 m clear of Bream 'B'.</p> <p>Wx: 090° at 12 m/s, 2.5 m combined sea and swell.</p> <p>Line change undershoot.</p> <p>1015 hrs: Undershoot complete - back in single vessel mode. 'Pacific Sword' released from the program area. 1030 hrs: Chase/ support vessel 'Lady Rula' on station. 'Swissco 168' released from the program area for crew change.</p> <p>Extended line change due to program geometry. Distance from undershoot to prime acquisition.</p> <p>1310 hrs: Commence source array soft start and cetacean monitoring. 1330 hrs: Source arrays at full volume.</p> <p>Record 1168P1, sequence 058, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>Wx: 110° at 12 m/s, 2.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>1605 hrs: Recover source arrays to adjust separation tethers. 1642 hrs: Source arrays in tow position. 1800 hrs: Commence source array soft start and cetacean monitoring. 1820 hrs: Source arrays at full volume.</p> <p>Record 1616F1, sequence 059, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>Wx: 040° at 7 m/s, 1.5 m combined sea and swell.</p> <p>Line change progressive infill.</p> <p>2104 hrs: Stbd workboat away for inwater CMU maintenance. 2240 hrs: Commence source array soft start and cetacean monitoring. 2300 hrs: Source arrays at full volume.</p> <p>Record 1184P1, sequence 060, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSPD: 1616. Line in progress at end of day.</p> <p>2344 hrs: Stbd workboat onboard and secure.</p> <p>Wx: 275° at 2 m/s, 1.5 m combined sea and swell.</p>
5/31/2006	<p>Continue recording 1184P1, sequence 060, >191°, 16 CMP prime, volume: 4450/ 4450. FPSPD: 1615/ LPSP: 881. Line complete.</p> <p>0120 hrs: Stbd workboat away for inwater CMU maintenance.</p> <p>Wx: 275° at 2 m/s, 1.5 m combined sea and swell.</p> <p>Line change prime.</p> <p>0242 hrs: Stbd workboat onboard and secure. 0325 hrs: Commence source array soft start and cetacean monitoring. 0345 hrs: Source arrays at full volume.</p> <p>Record 1632P1, sequence 061, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>Wx: 030° at 4 m/s, 1.5 m combined sea and swell.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	Line change prime.
	0900 hrs: Commence source array soft start and cetacean monitoring. 0920 hrs: Source arrays at full volume.
	Record 1200P1, sequence 062, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.
	Wx: 100° at 6 m/s, 1.0 m combined sea and swell.
	Line change prime.
	1350 hrs: Commence source array soft start and cetacean monitoring. 1410 hrs: Source arrays at full volume.
	Record 1632F1, sequence 063, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.
	Wx: 075° at 10 m/s, 1.5 m combined sea and swell.
	Line change progressive infill.
	1700 hrs: Chase/ support vessel 'Swissco168' back on station. 'Lady Rula' off station - released from the program area. 1845 hrs: Commence source array soft start and cetacean monitoring. 1905 hrs: Source arrays at full volume.
	Record 1216P1, sequence 064, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.
	Wx: 100° at 12 m/s, 1.5 m combined sea and swell.
	Line change prime.
	2345 hrs: Commence source array soft start and cetacean monitoring.
	On approach to prime sequence 065 at end of day.
6/1/2006	
	Continue line change prime. On approach to prime sequence 065 at start of day.
	0005 hrs: Source arrays at full volume.
	Record 1648P1, sequence 065, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2116. Line complete.
	Wx: 080° at 10 m/s, 2.0 m combined sea and swell.
	Line change prime.
	0244 hrs: Vessel steering to improve Pitch-Roll-Heave for Helo operations. 0327 hrs: Helicopter on deck. 0334 hrs: Helicopter away. Client representative rotation change complete. 0337 hrs: Recover port inboard sub-array to repair P-20 (erratic). 0440 hrs: Port inboard sub-array in tow position. 0453 hrs: Stbd workboat away for inwater active section replacement. 0500 hrs: Workboat node failure. Unable to use PC. Workboat returning to vessel for repairs. 0514 hrs: Workboat onboard and secure. Active section replacement aborted.
	Line change extended for client Helo operations.
	0615 hrs: Commence source array soft start and cetacean monitoring. 0635 hrs: Source arrays at full volume.
	Record 1232P1, sequence 066, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.
	Wx: 170° at 5 m/s, 1.5 m combined sea and swell.

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Line change prime.</p> <p>1120 hrs: Commence source array soft start and cetacean monitoring. 1140 hrs: Source arrays at full volume.</p> <p>Record 1664P1, sequence 067, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>Wx: 120° at 5 m/s, 2.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>1615 hrs: Commence source array soft start and cetacean monitoring. 1635 hrs: Source arrays at full volume.</p> <p>Record 1248P1, sequence 068, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>Wx: 150° at 12 m/s, 2.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>1916 hrs: Recover port source arrays for preventive maintenance. 2110 hrs: Commence source array soft start and cetacean monitoring. 2111 hrs: Port source arrays in tow position. 2130 hrs: Source arrays at full volume.</p> <p>Record 1680P1, sequence 069, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSPD: 2059. Line in progress at end of day.</p> <p>Wx: 150° at 7 m/s, 2.0 m combined sea and swell.</p>
6/2/2006	<p>Continue recording 1680P1, sequence 069, >011°, 16 CMP prime, volume: 4450/ 4450. FPSPD: 2060/ LPSP: 2117. Line complete.</p> <p>Wx: 155° at 9 m/s, 3.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>0150 hrs: Commence source array soft start and cetacean monitoring. 0210 hrs: Source arrays at full volume. 0216 hrs: Abort attempt at sequence 070 due to excessive swell noise = >7 uBar. Wx = 180° at 13 m/s, 3.0 m combined sea and swell. 0220 hrs: Decision made to recover streamers 4 and 5 for preventive maintenance during inclement weather period. 0225 hrs: Recover source arrays.</p>

Date	Comments
Vessel	SR/V Veritas Viking2

Weather stand-by.

0303 hrs: Source arrays onboard and secure.
0310 hrs: Recover streamer 5.
0600 hrs: Wx = 180° at 12 m/s, 3.0 m combined sea and swell.
0800 hrs: Wx = 190° at 10 m/s, 3.0 m combined sea and swell.
0935 hrs: Replace active section 12 (leakage pulsing). Run tests.
0953 hrs: New active section 12 proves good. Deploy streamer 5.
1000 hrs: Wx = 200° at 7 m/s, 3.0 m combined sea and swell.
1020 hrs: Replace CMU S5C8 (erratic depth keeping).
1025 hrs: Replace active section 14 (low capacitance). Run tests.
1049 hrs: New active section 14 proves good. Deploy streamer 5.
1127 hrs: Recover streamer 5 to CMU S5C4 due to erratic depth keeping.
1200 hrs: Wx = 200° at 7 m/s, 3.0 m combined sea and swell.
1230 hrs: Relace CMU S5C4 (erratic depth keeping).
1238 hrs: Deploy streamer 5.
1400 hrs: Wx = 230° at 10 m/s, 3.0 m combined sea and swell.
1540 hrs: Streamer 5 in tow position.
1600 hrs: Wx = 200° at 9 m/s, 3.0 m combined sea and swell.
1608 hrs: Recover streamer 4.
1800 hrs: Wx = 170° at 10 m/s, 3.0 m combined sea and swell.
2000 hrs: Wx = 180° at 10 m/s, 3.0 m combined sea and swell.
2015 hrs: Replace active section 11 (low capacitance). Run tests.
2024 hrs: New active section 11 proves good. Deploy streamer 4.
2111 hrs: Black ship - port ME failure. Stbd ME online. Propulsion good.
2115 hrs: Chase/ support vessel 'Swissco 168' instructed to get in position to take-up tow.
2121 hrs: Azimuth thruster locked down and engaged.
2123 hrs: Vessel power restored.
2134 hrs: Port ME back online. Investigation pending for ME failure.
2155 hrs: Continue deploying streamer 4 - HPU back online.
2252 hrs: Azimuth thruster stowed.
2300 hrs: Commence 90 minute pre-soft start cetacean monitoring.
2351 hrs: Deploy source arrays.

Heading for an attempt at sequence 070 at end of day. Wx: 180° at 8 m/s, 3.0 m combined sea and swell.

6/3/2006

Weather stand-by. Heading for an attempt at sequence 070 at start of day. Wx: 200° at 8 m/s, 3.0 m combined sea and swell.

0000 hrs: Supply vessel 'Lady Kari-Ann' on station for FO, stores and equipment transfer. Resupply operations cancelled due to adverse wind and sea conditions. 'Lady Kari-Ann' on stand-by.
0006 hrs: Streamer 4 in tow position.
0037 hrs: Commence 90 minute pre-soft start cetacean monitoring.
0050 hrs: Source arrays in tow position.
0056 hrs: Abort attempt at sequence 070 due to excessive swell noise. Average random noise level = >8 microbars RMS. Continue race track.
0200 hrs: Wx = 230° at 4 m/s, 3.0 m combined sea and swell.
0310 hrs: Recover source arrays to adjust and fine tune cross-line streamer separations.
0350 hrs: Source arrays onboard and secure.
0400 hrs: Wx = 190° at 5 m/s, 3.0 m combined sea and swell.
0600 hrs: Wx = 180° at 6 m/s, 3.0 m combined sea and swell.
0610 hrs: Commence 90 minute pre-soft start cetacean monitoring.
0613 hrs: All streamers in tow position. Cross-line separations prove good.
0620 hrs: Deploy source arrays.
0705 hrs: Source arrays in tow position.
0730 hrs: Abort attempt at sequence 070 due to excessive swell noise. Average random noise level = >8 microbars RMS. Continue race track.
0800 hrs: Wx = 180° at 5 m/s, 3.0 m combined sea and swell.
1000 hrs: Wx = 170° at 10 m/s, 3.0 m combined sea and swell.
1200 hrs: Wx = 175° at 11 m/s, 3.0 m combined sea and swell.
1318 hrs: Abort attempt at sequence 070 due to excessive swell noise. Average random noise level = >9 microbars RMS. Continue race track.
1400 hrs: Wx = 130° at 5 m/s, 3.0 m combined sea and swell.
1600 hrs: Wx = 175° at 5 m/s, 3.0 m combined sea and swell.
1800 hrs: Wx = 170° at 10 m/s, 3.0 m combined sea and swell.
2000 hrs: Wx = 180° at 10 m/s, 3.0 m combined sea and swell.
2200 hrs: Wx = 195° at 6 m/s, 2.5 m combined sea and swell.
2340 hrs: Commence source array soft start and cetacean monitoring.

On approach to sequence 070 at end of day. Wx: 170° at 9 m/s, 2.5 m combined sea and swell.

Date	Comments
Vessel	SR/V Veritas Viking2
6/4/2006	<p>Weather stand-by. On approach to sequence 070 at start of day. Wx: 170° at 9 m/s, 2.5 m combined sea and swell.</p> <p>0005 hrs: Source arrays at full volume.</p> <p>Record 1680F1, sequence 070, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line rejected due to excessive swell noise. Average random noise level = >8 microbars RMS. Do Not Process.</p> <p>Wx: 170° at 9 m/s, 2.5 m combined sea and swell.</p> <p>Line change.</p> <p>0245 hrs: Fire emergency drill. 0305 hrs: Recover port centre sub-array to repair P-12 (erratic). 0312 hrs: Fire emergency drill stood down. 0405 hrs: Port centre sub-array in tow position. 0430 hrs: Commence source array soft start and cetacean monitoring. 0450 hrs: Source arrays at full volume.</p> <p>0456 hrs: Abort attempt at sequence 071 due to excessive swell noise. Average random noise level = >9 microbars RMS. Continue race track. 0700 hrs: Wx = 140° at 10 m/s, 2.5 m combined sea and swell. 0900 hrs: Wx = 170° at 11 m/s, 2.5 m combined sea and swell. 0930 hrs: Commence source array soft start and cetacean monitoring. 0950 hrs: Source arrays at full volume.</p> <p>Record 1680F2, sequence 071, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line rejected due to excessive swell noise. Average random noise level = >7 microbars RMS. Do Not Process.</p> <p>Wx: 110° at 6 m/s, 2.5 m combined sea and swell.</p> <p>Line change.</p> <p>1240 hrs: Recover port centre sub-array to repair P-12 (erratic). 1344 hrs: Port centre sub-array in tow position. 1430 hrs: Commence source array soft start and cetacean monitoring. 1450 hrs: Source arrays at full volume.</p> <p>Record 1248F1, sequence 072, >191°, progressive infill, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>Wx: 145° at 10 m/s, 2.0 m combined sea and swell.</p> <p>Line change progressive infill.</p> <p>1940 hrs: Commence source array soft start and cetacean monitoring. 2000 hrs: Source arrays at full volume.</p> <p>Record 1680F3, sequence 073, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Reshoot of sequences 070 and 071 rejected due to excessive swell noise. Line complete.</p> <p>Wx: 140° at 5 m/s, 2.0 m combined sea and swell.</p> <p>Line change progressive infill.</p> <p>2245 hrs: Bridge steering 3°/ minute stbd to come to a SW heading (optimum) to allow the 'Lady Kari-Ann' to make fast alongside for FO, stores and equipment transfer. 2306 hrs: Recover source arrays for streamer preventive maintenance. 2344 hrs: Source arrays onboard and secure.</p> <p>Preparing to bring the 'Lady Kari-Ann' alongside for resupply at end of day.</p>
6/5/2006	

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Continue line change progressive infill. Preparing to bring the 'Lady Kari-Ann' alongside for resupply at start of day.</p> <p>0015 hrs: Recover streamer 5 for preventive maintenance.</p> <p>Conditions not optimum for resupply operations. Vessel making several heading adjustments to allow the 'Lady Kari-Ann' to make fast alongside.</p> <p>0140 hrs: 'Lady Kari-Ann' made fast alongside. Vessel heading south-west away from the program area. 0200 hrs: Commence stores and equipment transfer. 0328 hrs: Replace active section 14 due to leakage pulsing. Run tests. 0330 hrs: New active section 14 proves good. 0340 hrs: Commence FO transfer. 0409 hrs: Replace active module 12 due to noisy channels. Run tests. 0415 hrs: New active module 12 proves good. Deploy streamer 5. 0500 hrs: Replace CMU S5C14 (erratic depth keeping). 0630 hrs: Streamer 5 back in tow position. 0645 hrs: Stores and equipment transfer complete. 0720 hrs: FO transfer complete. Received 400 m3. 0745 hrs: 'Lady Kari-Ann' cast off. Released from location. 0748 hrs: Vessel turning back towards to the program area. ETA SOL = 1400 hrs UTC. 1030 hrs: Commence 90 minute pre-soft start cetacean monitoring. 1227 hrs: Deploy source arrays. 1300 hrs: Source arrays in tow position. 1330 hrs: Commence source array soft start and cetacean monitoring. 1350 hrs: Source arrays at full volume.</p> <p>Record 1680F4, sequence 074, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>Wx: 060° at 2 m/s, 1.0 m combined sea and swell.</p> <p>Line change progressive infill.</p> <p>1648 hrs: Recover stbd centre sub-array to repair element S-13 (misfiring). 1814 hrs: Stbd centre sub-array in tow position. 1840 hrs: Commence source array soft start and cetacean monitoring. 1900 hrs: Source arrays at full volume.</p> <p>Record 1264P1, sequence 075, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 883. Line considered complete (air pressure out off specification for the last two run-out SPs - compressor shut-down).</p> <p>Wx: 180° at 4 m/s, 1.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>2135 hrs: Recover stbd centre sub-array to repair element S-13 (misfiring). 2337 hrs: Stbd centre sub-array in tow position. 2345 hrs: Commence source array soft start and cetacean monitoring.</p> <p>On approach to prime sequence 076 at end of day.</p>
6/6/2006	<p>Line change prime. On approach to prime sequence 076 at start of day.</p> <p>0005 hrs: Source arrays at full volume.</p> <p>Record 1696P1, sequence 076, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 1643. Stbd energy source air pressure out off specification. Continue down sail line while effecting repairs.</p> <p>0030 hrs: Helicopter on deck for client representatives. 0039 hrs: Helicopter away. Danyluk, Tarin and Galloway depart vessel.</p> <p>Wx: 045° at 2 m/s, 1.0 m combined sea and swell.</p> <p>Stbd energy source air pressure out off specification.</p> <p>0135 hrs: S-13 airlock enabled. Element disabled. Air pressure back in specification.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record 1696P1, sequence 076, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1677/ LPSP: 2117. Line incomplete due to stbd energy source air pressure out off specification. 33 SP edit.</p> <p>Wx: 120° at 2 m/s, 1.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>0235 hrs: Stbd workboat away for inwater CMU maintenance. 0236 hrs: Recover stbd centre sub-array to repair element S-13 (airleak). 0320 hrs: Stbd centre sub-array in tow position. 0400 hrs: Stbd workboat onboard and secure.</p> <p>Line change extended due to fishing activity. Shark vessel 'Sharben' on line azimuth recovering nets. Turn radius increased to clear inwater fishing gear.</p> <p>0620 hrs: Commence source array soft start and cetacean monitoring. 0640 hrs: Source arrays at full volume.</p> <p>Record 1280P1, sequence 077, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>Wx: 160° at 2 m/s, 1.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>1040 hrs: Commence source array soft start and cetacean monitoring. 1100 hrs: Source arrays at full volume.</p> <p>Record 1712P1, sequence 078, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1021/ LPSP: 2117. Line incomplete due to MSRS crash at SOL. First 20 SPs missed.</p> <p>Wx: 060° at 4 m/s, 1.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>1615 hrs: Commence source array soft start and cetacean monitoring. 1635 hrs: Source arrays at full volume.</p> <p>Record 1296P1, sequence 079, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>Wx: 120° at 7 m/s, 1.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>2110 hrs: Commence source array soft start and cetacean monitoring. 2135 hrs: Source arrays at full volume.</p> <p>Record 1728P3, sequence 080, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSPD: 1974. Prime reshoot of sequence 003 due to source imbalance. Line in progress at end of day.</p> <p>Wx: 070° at 5 m/s, 1.0 m combined sea and swell.</p>
6/7/2006	<p>Record 1728P3, sequence 080, >011°, 16 CMP prime, volume: 4450/ 4450. FPSPD: 1975/ LPSP: 2117. Prime reshoot of sequence 003 due to source imbalance. Line complete.</p> <p>0004 hrs: Stbd workboat away for inwater CMU maintenance and TS-dip analysis.</p> <p>Wx: 300° at 5 m/s, 1.0 m combined sea and swell.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	Line change prime.
	0102 hrs: Stbd workboat onboard and secure. 0105 hrs: Chase/ support vessel 'Lady Rula' on station. 'Swissco 168' released from the program area for crew change. 0200 hrs: Commence source array soft start and cetacean monitoring. 0220 hrs: Source arrays at full volume.
	Record 1296F1, sequence 081, >191°, progressive infill, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.
	Wx: 300° at 3 m/s, 1.0 m combined sea and swell.
	Line change infill.
	0705 hrs: Commence source array soft start and cetacean monitoring. 0725 hrs: Source arrays at full volume.
	Record 1728F1, sequence 082, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.
	Wx: Light airs, 1.0 m combined sea and swell.
	Line change infill.
	1025 hrs: Recover stbd centre sub-array to repair element S-10 (leakage). 1040 hrs: Chase/ support vessel 'Swissco 168' back on station. 'Lady Rula' released from the program area. 1144 hrs: Stbd centre sub-array in tow position. 1225 hrs: Commence source array soft start and cetacean monitoring. 1245 hrs: Source arrays at full volume.
	Record 1152P1, sequence 083, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.
	Wx: Light airs, 1.0 m combined sea and swell.
	Line change prime.
	1745 hrs: Commence source array soft start and cetacean monitoring. 1805 hrs: Source arrays at full volume.
	Record 1728F2, sequence 084, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.
	Wx: 300° at 5 m/s, 1.0 m combined sea and swell.
	Line change infill.
	2110 hrs: Recover stbd centre sub-array to repair element S-10 (erratic). 2319 hrs: Stbd centre sub-array in tow position. 2320 hrs: Commence source array soft start and cetacean monitoring. 2340 hrs: Source arrays at full volume.
	Record 1152F1, sequence 085, >191°, progressive infill, volume: 4450/ 4450. FPSP: 1997/ LPSPD: 1907. Line in progress at end of day.
	Wx: 290° at 5 m/s, 1.0 m combined sea and swell.
6/8/2006	
	Record 1152F1, sequence 085, >191°, progressive infill, volume: 4450/ 4450. FPSPD: 1906/ LPSP: 881. Line complete.
	Wx: 290° at 5 m/s, 1.0 m combined sea and swell.

Date	Comments
Vessel	SR/V Veritas Viking2
	Line change infill.
	0345 hrs: Commence source array soft start and cetacean monitoring. 0405 hrs: Stbd workboat away for inwater front-end geometry inspection. 0410 hrs: Source arrays at full volume. 0417 hrs: Commence energy source output test - sub-arrays 1 and 4 active. 0424 hrs: Output test complete. 0430 hrs: Stbd work boat onboard and secure.
	Record 1424P1, sequence 086, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.
	Wx: Light airs, 1.0 m combined sea and swell.
	Line change prime.
	0910 hrs: Commence source array soft start and cetacean monitoring. 0930 hrs: Source arrays at full volume.
	Record 1136P1, sequence 087, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.
	Wx: Light airs, 1.0 m combined sea and swell.
	Line change prime.
	1225 hrs: Commence energy source output test - sub-arrays 2 and 5 active. 1231 hrs: Output test complete. 1410 hrs: Commence source array soft start and cetacean monitoring. 1430 hrs: Source arrays at full volume.
	Record 1408P1, sequence 088, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.
	Wx: Light airs, 0.5 m combined sea and swell.
	Line change prime.
	1915 hrs: Commence source array soft start and cetacean monitoring. 1935 hrs: Source arrays at full volume.
	Record 1120P1, sequence 089, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.
	Wx: Light airs, 0.5 m combined sea and swell.
	Line change prime.
	2221 hrs: Commence energy source output test - sub-arrays 3 and 6 active. 2223 hrs: Stbd workboat away for inwater CMU maintenance. 2228 hrs: Output test complete. 2330 hrs: Stbd workboat onboard and secure. 2335 hrs: Commence source array soft start and cetacean monitoring. 2355 hrs: Source arrays at full volume.
	On approach to prime sequence 090 at end of day.
6/9/2006	
	Line change prime. On approach to prime sequence 090 at start of day.
	0005 hrs: Source arrays at full volume.
	Record 1392P1, sequence 090, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.
	Wx: 070° at 5 m/s, 1.0 m combined sea and swell.

Date	Comments
Vessel	SR/V Veritas Viking2
	Line change prime.
	0321 hrs: Commence energy source output tests - sub-arrays 1 and 4 active. 0328 hrs: Output tests complete. 0445 hrs: Commence source array soft start and cetacean monitoring. 0505 hrs: Source arrays at full volume. 0508 hrs: Commence energy source output tests - sub-arrays 1 and 4 active. 0515 hrs: Output tests complete.
	Record 1104P1, sequence 091, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.
	Wx: 115° at 6 m/s, 0.5 m combined sea and swell.
	Line change prime.
	0809 hrs: Rotate all in-water equipment reels and winches to circulate purified hydraulic oil. 0848 hrs: Streamers and source arrays in tow position. 0950 hrs: Commence source array soft start and cetacean monitoring. 1010 hrs: Source arrays at full volume.
	Record 1376P1, sequence 092, >011°, 16 CMP prime, volume: 4450/ 4230. FPSP: 1001/ LPSP: 2117. Line complete.
	Wx: 080° at 5 m/s, 1.0 m combined sea and swell.
	Line change prime.
	1310 hrs: Recover port source arrays for preventive maintenance. 1455 hrs: Port source arrays in tow position. 1505 hrs: Commence source array soft start and cetacean monitoring. 1525 hrs: Source arrays at full volume.
	Record 1104F1, sequence 093, >191°, progressive infill, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.
	Wx: Light airs, 1.0 m combined sea and swell.
	Line change infill.
	1815 hrs: Commence energy source output tests - sub-arrays 1 and 4 active. 1822 hrs: Output tests complete. 1957 hrs: Commence energy source output tests - sub-arrays 1 and 4 active. 2004 hrs: Output tests complete. 2020 hrs: Commence source array soft start and cetacean monitoring. 2040 hrs: Source arrays at full volume.
	Record 1360P1, sequence 094, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.
	2333 hrs: Stbd workboat away for inwater CMU maintenance.
	Wx: Light airs, 0.5 m combined sea and swell.
	Line change prime.
	Heading for prime sequence 095 at end of day.
6/10/2006	Line change prime. Heading for prime sequence 095 at start of day.
	0013 hrs: Stbd workboat onboard and secure. 0119 hrs: Commence energy source output tests - sub-arrays 1 and 4 active. 0125 hrs: Output tests complete. 0130 hrs: Commence source array soft start and cetacean monitoring. 0150 hrs: Source arrays at full volume.

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record 1088P1, sequence 095, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>Wx: 280° at 5 m/s, 1.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>0437 hrs: Recover inboard sub-arrays for preventive maintenance. 0536 hrs: Inboard sub-arrays in tow position. 0630 hrs: Commence source array soft start and cetacean monitoring. 0650 hrs: Source arrays at full volume.</p> <p>Record 1344P1, sequence 096, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>Wx: 100° at 6 m/s, 1.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>1118 hrs: Commence energy source output tests - record individual elements. 1127 hrs: Output tests complete. 1130 hrs: Commence source array soft start and cetacean monitoring. 1150 hrs: Source arrays at full volume.</p> <p>Record 1088F1, sequence 097, >191°, progressive infill, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>Wx: 250° at 8 m/s, 1.0 m combined sea and swell.</p> <p>Line change infill.</p> <p>1500 hrs: Turn radius increased to 3000 m due to adverse wind and sea conditions. 1710 hrs: Abort attempt at sequence 098 due to excessive swell noise. Average random noise level = >16 microbars RMS. Continue race track. Wx: 195° at 16 m/s, 3.0 m combined sea and swell.</p> <p>Weather stand-by.</p> <p>1727 hrs: Recover port source arrays. 1753 hrs: Port source arrays onboard and secure. 1900 hrs: Wx = 180° at 14 m/s, 3.0 combined sea and swell (increasing). 2100 hrs: Wx = 160° at 16 m/s, 4.0 combined sea and swell. 2146 hrs: Streamers down to 20 m and stable. 2159 hrs: Recover stbd source arrays. 2234 hrs: Stbd source arrays onboard and secure.</p> <p>Weather stand-by at end of day. Wx: 175° at 17 m/s, 4.0 m combined sea and swell.</p>
6/11/2006	<p>Weather stand-by. Vessel heading to 'adverse weather loitering area' for shelter at start of day. Streamers in tow position, deep and stable.</p> <p>0100 hrs: Wx = 235° at 17 m/s, 4.0 m combined sea and swell. 0206 hrs: Vessel in loitering area - running parallel with boundary. 0300 hrs: Wx = 120° at 12 m/s, 4.0 m combined sea and swell. 0500 hrs: Wx = 250° at 10 m/s, 4.0 m combined sea and swell. 0700 hrs: Wx = 250° at 11 m/s, 4.0 m combined sea and swell. 0900 hrs: Wx = 245° at 10 m/s, 4.0 m combined sea and swell. 1100 hrs: Wx = 260° at 14 m/s, 4.0 m combined sea and swell. 1300 hrs: Wx = 280° at 16 m/s, 4.0 m combined sea and swell. 1500 hrs: Wx = 300° at 17 m/s, 4.0 m combined sea and swell. 1700 hrs: Wx = 285° at 10 m/s, 3.5 m combined sea and swell. 1900 hrs: Wx = 300° at 11 m/s, 3.5 m combined sea and swell. 2100 hrs: Wx = 280° at 16 m/s, 3.0 m combined sea and swell. 2238 hrs: Commence port turn back towards the Bream worksite. 2300 hrs: Commence ExxonMobil endorsed 'Safety Stand Down'. 2330 hrs: Wx = 285° at 15 m/s, 3.0 m combined sea and swell.</p> <p>Heading for Bream worksite at end of day. ETA = 0330 hrs, 12 June. Weather conditions appear to be improving. Wx: 280° at 11 m/s, 3.0 m combined sea and swell.</p>

Date	Comments
Vessel	SR/V Veritas Viking2

6/12/2006

Weather stand-by. Heading for Bream worksite at start of day. Wx: 270° at 14 m/s, 3.0 m combined sea and swell.

0200 hrs: ExxonMobil endorsed 'Safety Stand Down' adjourned - 3 hours complete.
 0230 hrs: Wx = 270° at 13 m/s, 3.0 m combined sea and swell.
 0225 hrs: Abort attempt at prime sequence 098 due to excessive swell noise. Average random noise level = >12 microbars RMS. Continue race track.
 0300 hrs: Recommence ExxonMobil endorsed 'Safety Stand Down'.
 0400 hrs: Wx = 260° at 12 m/s, 3.0 m combined sea and swell.
 0600 hrs: ExxonMobil endorsed 'Safety Stand Down' complete (6 hours total). Safety awareness videos screened and vessel specific JSA's discussed and generated. All seismic crew in attendance.
 0630 hrs: Wx = 260° at 14 m/s, 3.0 m combined sea and swell.
 0800 hrs: Wx = 270° at 13 m/s, 3.0 m combined sea and swell.
 1000 hrs: Wx = 260° at 13 m/s, 3.0 m combined sea and swell.
 1200 hrs: Wx = 285° at 12 m/s, 2.5 m combined sea and swell.
 1400 hrs: Wx = 270° at 12 m/s, 2.5 m combined sea and swell.
 1500 hrs: Weather conditions improving - head for prime sequence 098.
 1600 hrs: Commence 90 minute pre-soft start cetacean monitoring.
 1618 hrs: Deploy source arrays.
 1700 hrs: Wx = 270° at 10 m/s, 2.0 m combined sea and swell.
 1721 hrs: Source arrays in tow position.
 1740 hrs: Commence source array soft start and cetacean monitoring.
 1800 hrs: Source arrays at full volume.

Record 1072P1, sequence 098, >191°, 16 CMP prime, volume: 4450/ 4450.
 FPSP: 1997/ LPSP: 881.
 Random low frequency swell noise break-out visible on streamers.
 Line complete.

Wx: 270° at 11 m/s, 2.0 m combined sea and swell.

Line change prime.

2051 hrs: Recover port source arrays to adjust sub-array separation tether.
 2110 hrs: Port source arrays in tow position.
 2245 hrs: Azimuth thruster locked down and engaged for testing.
 2250 hrs: Commence source array soft start and cetacean monitoring.
 2257 hrs: Recover stbd source arrays to adjust sub-array separation tether.
 2309 hrs: Stbd source arrays in tow position.
 2310 hrs: Source arrays at full volume.
 2314 hrs: Azimuth thruster stowed. Tests complete.

Record 1344F1, sequence 099, >011°, progressive infill, volume: 4450/ 4450.
 FPSP: 1001/ LPSPD: 1212.
 Random low frequency swell noise break-out visible on streamers.
 Line in progress at end of day.

Wx: 290° at 12 m/s, 2.0 m combined sea and swell.

6/13/2006

Record 1344F1, sequence 099, >011°, progressive infill, volume: 4450/ 4450.
 FPSPD: 1213/ LPSP: 2117.
 Random low frequency swell noise break-out visible on streamers.
 Line complete.

Wx: 290° at 12 m/s, 2.0 m combined sea and swell.

Line change infill.

0219 hrs: Recover port source arrays to adjust sub-array separation tether.
 0256 hrs: Port source arrays in tow position.
 0420 hrs: Commence source array soft start and cetacean monitoring.
 0440 hrs: Source arrays at full volume.

Record 1056P1, sequence 100, >191°, 16 CMP prime, volume: 4450/ 4450.
 FPSP: 1997/ LPSP: 881.
 Line rejected due to excessive swell noise. Do Not Process.

Wx: 260° at 16 m/s, 2.0 m combined sea and swell.

Date	Comments
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Vessel	SR/V Veritas Viking2
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Line change.

0950 hrs: Commence source array soft start and cetacean monitoring.
1010 hrs: Source arrays at full volume.

Line change extended due to adverse wind and sea conditions. Turn radius increased to 3000 m.

Record 1328P1, sequence 101, >011°, 16 CMP prime, volume: 4450/ 4450.
FPSP: 1001/ LPSP: 2117.
Random low frequency swell noise break-out visible on streamers.
Line complete.

Wx: 290° at 13 m/s, 2.0 m combined sea and swell.

Line change prime.

1308 hrs: Recover port source arrays to repair P-4 (erratic) and adjust sub-array separation tether.
1500 hrs: Commence source array soft start and cetacean monitoring.
1517 hrs: Port source arrays in tow position.
1520 hrs: Source arrays at full volume.

Record 1056P2, sequence 102, >191°, 16 CMP prime, volume: 4450/ 4450.
FSP: 1997/ LSP: 1994.
Line aborted due to poor sub-array separations. Do Not Process.
Continue down sail line while effecting repairs.

Wx: 290° at 12 m/s, 2.0 m combined sea and swell.

1545 hrs: Recover port source arrays to rectify poor sub-array separations.

1605 hrs: Port outboard sub-array tangled in streamer 4 head support float.
1610 hrs: Port outboard sub-array crossed over OTL 4. Make several vessel heading adjustments to make free.
1641 hrs: Heading adjustments not working. Recover OTL 4 and port outboard sub-array together.
1714 hrs: Port outboard sub-array onboard and secure. No damage visible.
1821 hrs: Streamer 4 frontend onboard. Replace CMU S4C18 (lost at sea) and re-secure CMU S4C19 (off collars).
1837 hrs: Deploy streamer 4.
1916 hrs: Streamer 4 back in tow position.
1918 hrs: Deploy port source arrays.
1954 hrs: Port source arrays in tow position.
2100 hrs: Commence 90 minute pre-soft start cetacean monitoring.
2225 hrs: Commence source array soft start and cetacean monitoring.
2245 hrs: Source arrays at full volume.

Record 1328F1, sequence 103, >011°, progressive infill, volume: 4450/ 4450.
FPSP: 1001/ LPSPD: 1530.
Random low frequency swell noise break-out visible on streamers.
Line in progress at end of day.

Wx: 300° at 12 m/s, 2.0 m combined sea and swell.

6/14/2006

Record 1328F1, sequence 103, >011°, progressive infill, volume: 4450/ 4450.
FPSPD: 1531/ LPSP: 2117.
Mild to moderate swell noise energy visible on streamers.
Line complete.

0040 hrs: 'Swissco 168' off station. 'Lady Rula' on station.

Wx: 290° at 12 m/s, 2.0 m combined sea and swell.

Line change infill.

0310 hrs: Commence source array soft start and cetacean monitoring.
0330 hrs: Source arrays at full volume.

Record 1056P3, sequence 104, >191°, 16 CMP prime, volume: 4450/ 4450.
FPSP: 1997/ LPSP: 881.
Mild to moderate swell noise energy visible on streamers.
Prime reshoot of sequence 102 due to poor sub-array separations. Line complete.

Wx: 275° at 12 m/s, 2.0 m combined sea and swell.

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Line change prime.</p> <p>0640 hrs: Azimuth thruster locked down and engaged for testing. 0650 hrs: Azimuth thruster stowed. Tests complete. 0835 hrs: Commence source array soft start and cetacean monitoring. 0855 hrs: Source arrays at full volume.</p> <p>Record 1312P1, sequence 105, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Mild to moderate swell noise energy visible on streamers. Line complete.</p> <p>1030 hrs: 'Lady Rula' off station. 'Swissco 168' back on station.</p> <p>Wx: 270° at 16 m/s, 2.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>1315 hrs: Commence source array soft start and cetacean monitoring. 1335 hrs: Source arrays at full volume.</p> <p>Record 1056F1, sequence 106, >191°, progressive infill, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Mild to moderate swell noise energy visible on streamers. Line complete.</p> <p>Wx: 280° at 12 m/s, 2.0 m combined sea and swell.</p> <p>Line change infill.</p> <p>1650 hrs: Recover port source arrays to repair P-10 (erratic). 1855 hrs: Commence source array soft start and cetacean monitoring. 1903 hrs: Port source arrays in tow position. 1915 hrs: Source arrays at full volume.</p> <p>Record 1312F1, sequence 107, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Mild to moderate swell noise energy visible on streamers. Line complete.</p> <p>Wx: 270° at 15 m/s, 2.0 m combined sea and swell.</p> <p>Line change infill.</p> <p>2207 hrs: Recover stbd inboard sub-array to repair S-10 (misfiring). 2243 hrs: Stbd inboard sub-array in tow position. 2345 hrs: Commence source array soft start and cetacean monitoring.</p> <p>On approach to prime sequence 108 at end of day.</p>
6/15/2006	<p>Line change infill. On approach to prime sequence 108 at start of day.</p> <p>0005 hrs: Source arrays at full volume.</p> <p>Record 1040P1, sequence 108, >191°, 16 CMP prime, volume: 4450/ 4450. FSP: 1997/ LSP: 1134. Line aborted due to excessive swell noise. Do Not Process.</p> <p>Wx: 270° at 18 m/s, 3.0 m combined sea and swell.</p>

Date	Comments
Vessel	SR/V Veritas Viking2

Weather stand-by. Wx: 290° at 20 m/s, 3.0 m combined sea and swell. Vessel heading to adverse weather loitering area.

0400 hrs: Wx = 295° at 18 m/s, 3.0 m combined sea and swell.
 0545 hrs: Recover source arrays.
 0635 hrs: Source arrays onboard and secure.
 0700 hrs: Wx = 270° at 17 m/s, 3.0 m combined sea and swell.
 0900 hrs: Wx = 270° at 17 m/s, 3.0 m combined sea and swell.
 1100 hrs: Wx = 280° at 18 m/s, 3.0 m combined sea and swell.
 1130 hrs: Arrive loitering area. Run parallel to boundary.
 1300 hrs: Wx = 280° at 15 m/s, 3.0 m combined sea and swell.
 1500 hrs: Wx = 260° at 16 m/s, 3.0 m combined sea and swell.
 1700 hrs: Wx = 290° at 12 m/s, 3.0 m combined sea and swell.
 1900 hrs: Wx = 270° at 12 m/s, 3.0 m combined sea and swell.
 2100 hrs: Wx = 270° at 13 m/s, 2.5 m combined sea and swell.
 2230 hrs: Turn back towards the Bream worksite.
 2300 hrs: Wx = 285° at 14 m/s, 2.5 m combined sea and swell.

Heading for the program area to attempt prime sequence 109 at end of day.

6/16/2006

Weather stand-by. On approach to prime sequence 109 at start of day.

0050 hrs: Abort attempt at prime sequence 109 due to excessive swell noise. Average random noise level = >13 microbars RMS. Continue race track.

0200 hrs: Wx = 245° at 14 m/s, 3.0 m combined sea and swell.
 0400 hrs: Wx = 230° at 12 m/s, 3.0 m combined sea and swell.
 0600 hrs: Wx = 245° at 13 m/s, 3.0 m combined sea and swell.
 0800 hrs: Wx = 250° at 14 m/s, 3.0 m combined sea and swell.
 1000 hrs: Wx = 250° at 12 m/s, 3.0 m combined sea and swell.
 1230 hrs: Commence 90 minute pre-soft start cetacean monitoring.
 1300 hrs: Wx = 255° at 10 m/s, 2.5 m combined sea and swell.
 1313 hrs: Abort attempt at prime sequence 109 due to excessive swell noise. Average random noise level = >10 microbars RMS. Continue race track.
 1500 hrs: Wx = 230° at 9 m/s, 2.5 m combined sea and swell. Wx improving.
 1630 hrs: Commence 90 minute pre-soft start cetacean monitoring.
 1638 hrs: Deploy source arrays.
 1738 hrs: Source arrays in tow position.
 1900 hrs: Commence source array soft start and cetacean monitoring.
 1920 hrs: Source arrays at full volume.

Record 1040P2, sequence 109, >191°, 16 CMP prime, volume: 4450/ 4450.
 FPSP: 1997/ LPSP: 881.
 Mild to moderate swell noise energy visible on streamers.
 Prime reshoot of sequence 108 due to excessive swell noise. Line complete.

Wx: 250° at 9 m/s, 2.0 m combined sea and swell.

Line change prime.

On approach to progressive infill sequence 110 at end of day.

6/17/2006

Line change prime. On approach to progressive infill sequence 110.

0005 hrs: Commence source array soft start and cetacean monitoring.
 0025 hrs: Source arrays at full volume.

Record 1312F2, sequence 110, >011°, progressive infill, volume: 4450/ 4450.
 FPSP: 1001/ LPSP: 2117.
 Mild to moderate swell noise energy visible on streamers.
 Line complete.

Wx: 260° at 8 m/s, 2.0 m combined sea and swell.

Line change infill.

0500 hrs: Commence source array soft start and cetacean monitoring.
 0520 hrs: Source arrays at full volume.

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record 1024P1, sequence 111, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Mild to moderate swell noise energy visible on streamers. Line complete.</p> <p>Wx: 270° at 10 m/s, 2.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>0950 hrs: Commence source array soft start and cetacean monitoring. 1010 hrs: Source arrays at full volume.</p> <p>Record 1312F3, sequence 112, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Mild to moderate swell noise energy visible on streamers. Line complete.</p> <p>Wx: 280° at 10 m/s, 2.0 m combined sea and swell.</p> <p>Line change infill.</p> <p>1450 hrs: Commence source array soft start and cetacean monitoring. 1510 hrs: Source arrays at full volume.</p> <p>Record 1008P1, sequence 113, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Mild to moderate swell noise energy visible on streamers. Line complete.</p> <p>Wx: 260° at 10 m/s, 2.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>1930 hrs: Commence source array soft start and cetacean monitoring. 1950 hrs: Source arrays at full volume.</p> <p>Record 1312F4, sequence 114, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Mild swell noise energy visible on streamers. Line complete.</p> <p>2222 hrs: Stbd workboat away for inwater CMU maintenance and TS-dip analysis (water velocity profile).</p> <p>Wx: 270° at 7 m/s, 1.5 m combined sea and swell.</p> <p>Line change infill.</p> <p>On approach to progressive infill sequence 115 at end of day.</p>
6/18/2006	<p>Line change infill. On approach to progressive infill sequence 115 at start of day.</p> <p>0014 hrs: Stbd workboat onboard and secure. 0030 hrs: Commence source array soft start and cetacean monitoring. 0050 hrs: Source arrays at full volume.</p> <p>Record 1008F1, sequence 115, >191°, progressive infill, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Mild swell noise energy visible on streamers. Line complete.</p> <p>0245 hrs: MOB drill. 0251 hrs: FRC away. 0309 hrs: FRC onboard and secure. MOB drill stood down. 0312 hrs: FRC away for coxswain training.</p> <p>Wx: 265° at 6 m/s, 2.0 m combined sea and swell.</p> <p>Line change infill.</p> <p>0334 hrs: FRC onboard and secure. 0500 hrs: Commence source array soft start and cetacean monitoring. 0520 hrs: Source arrays at full volume.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record 1312F5, sequence 116, >011°, progressive infill, volume: 4450/ 4450. FPSP: 1001/ LPSP: 1790. Mild swell noise energy visible on streamers. Line complete. Phase 2 complete.</p> <p>Wx: 280° at 5 m/s, 1.5 m combined sea and swell.</p> <p>Line change infill.</p> <p>Line change extended due to program geometry. Start phase 3.</p> <p>1100 hrs: Commence source array soft start and cetacean monitoring. 1120 hrs: Source arrays at full volume.</p> <p>Record 1904F1, sequence 117, >191°, progressive infill, volume: 4450/ 4450. FPSP: 1997/ LPSP: 881. Line complete.</p> <p>1245 hrs: Azimuth thruster locked down and engaged. 1400 hrs: Azimuth thruster stowed.</p> <p>Wx: Light airs, 1.0 m combined sea and swell.</p> <p>Line change infill.</p> <p>1620 hrs: Commence source array soft start and cetacean monitoring. 1640 hrs: Source arrays at full volume.</p> <p>Record 2224P1, sequence 118, >011°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1001/ LPSP: 2117. Line complete.</p> <p>Wx: Light airs, 1.0 m combined sea and swell.</p> <p>Line change prime.</p> <p>2115 hrs: Commence source array soft start and cetacean monitoring. 2135 hrs: Source arrays at full volume.</p> <p>Record 1920P1, sequence 119, >191°, 16 CMP prime, volume: 4450/ 4450. FPSP: 1997/ LPSPD: 1211. Line in progress at end of day.</p> <p>Wx: Light airs, 1.0 m combined sea and swell.</p>
6/19/2006	<p>Continue Line 1920P1-119, > 190* Prime CDP 1913-128, Sp 1210-881 Wx Calm Line complete</p> <p>Line change 0215 Toolbox held for Heli-ops 0250 soft start guns 0301 Chopper 1 on deck 0309 Chopper 1 away 0310 Guns at full volume</p> <p>Record line 2240P1-120, > 10* Prime CDP 2233-2248, Sp's 1001-2117 Wx Light airs/ 1.5m swell Line Complete 0329 Chopper 2 on deck 0338 Chopper 2 away 0401 Chopper 3 on deck 0409 Chopper 3 away</p> <p>Line change 0800 soft start guns 0837 guns at full volume</p>

Date	Comments
	<p>Record line 1936P1-121, > 190* Prime CDP 1929-1944, SP's 1997-881 Wx Light airs/ 1m sea Line Complete</p> <p>Line change 1315 Soft start 1335 Guns at full volume</p> <p>Record line 2256P1-122, > 10* Prime CDP 2249-2264, SP's 1001-2117 Wx Light air / 1m sea Line complete</p> <p>Line change 1800 soft start guns 1820 guns at full volume</p> <p>Record line 1952P1-123, > 190* Prime CDP 1945-1960, Sp's 1997-881 Wx light airs/ 1m seas Line complete</p> <p>Line change 2120 Recover port mid gun string 2141 guns onboard 2200 deploy guns 2215 guns in position 2235 soft start guns 2255 guns at full volume</p> <p>Record line 2272P1-124, > 10* Prime CDP 2265-2280, Sp's 1001-1345 Wx Light airs / 1m seas Line in progress at end of day</p>
6/20/2006	<p>Continue line 2272P1-124, > 10.5* Prime CDP 2265-2280 Sp's 1346-2117 Wx light airs/ 1m seas Line complete</p> <p>Line change 0245 Abandon Ship drill 0310 Drill complete 0330 soft start guns 0350 guns at full volume</p> <p>Record line 1952F1-125, > 190.5* Progressive Infill CDP 1945-1960, Sp's 1997-881 Wx NE 5 knots / 1m seas Line complete</p> <p>0440 Strm 7-8 riding close together due to currents. 0448 adjustments made to bird depths on strm 7-8 on last 4 birds d/t separation. 0450 pick up 10 mtrs on strm 7 to ensure strm do not tangle 0458 strm 7 back on marks. Separtaion opening back up.</p> <p>Line change 0810 soft start guns 0830 guns at full volume</p> <p>Record line 2272F1-126, > 10.5* Progressive Infill CDP 2265-2280 Sp's 1001-2117 Line complete Wx East 10 knots / 1m sea</p> <p>Line change 1300 Soft start guns 1320 guns at full volume</p>

Date	Comments
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Vessel	SR/V Veritas Viking2
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Record line 1968P1-127, > 190.5*
 Prime CDP 1961-1976, Sp's 1997-881
 Line complete. Wx East wind 10 knots/ 1m seas

Line change
 1730 Supply Vessel Kari Ann arrives on prospect
 1810 Soft start guns
 1830 guns at full volume

Record line 2288P1-128. > 10.5*
 Prime CDP 2281-2296, Sp's 1001-1820
 Wx East 16 knots / 1m seas
 Line In complete

Line terminated in order to take on fuel and supplies from the Supply Vessel Kari Ann. Turn 200* to fair seas
 2238 on line heading
 2305 Supply vessel alongside.
 2325 Toolbox meeting for transferring stores
 2400 End of day running fair seas in order to take on fuel.

6/21/2006

Supply Vessel "Kari Ann" alongside with fuel and supplies. Fuel being taken going fair seas (SSW direction).

0031 Fuel hose connected
 0057 begin fuelling
 0104 loading stores and cargo
 0150 stores onboard continue to take on cargo
 0205 moving 2* to port to avoid shallow water.
 0449 bunkering complete
 0517 Supply Vessel departs.
 0525 start turn back towards prospect. Heading toward line 2288P2-129
 0545 turn radius opened up due to seas conditions 2 m seas
 0556 turn radius opened up more due to weather and crab angle
 0900 Begin 90 min prestart whale watch
 1025 crossing over the Fire Zone.
 1030 single gun activated
 1350 Soft start guns
 1410 Guns at full volume

Overlap "A" Shotpoints. 1811-1820
 Original seg shut down early to allow bunkering / stores transfer

Record line 2288P2-129, > 10.5*
 Partial Prime CDP 2281-2296, Sp's 1821-2117, Wx E 25-30 kts/2m seas
 Line complete

Line change
 1710 soft start guns
 1730 guns at full volume

Record line 1984P1-130, > 190.5*
 Prime CDP 1977-1992, Sp's 1001-881, Wx NE 25-30 kts/2m seas
 Line complete

Line change
 2240 soft start guns
 2245 line change extended due to weather.

Line extended due to weather. 1.5 knot current causing the need to open the turn to 3.5km

Record line 2304P1-131, > 10.5*
 Prime CDP 2297-2312, Sp's 1001-1298
 Wx ENE 30 kts / 3.5 m seas
 Line in progress at end of day

6/22/2006

Record line 2304P1-131, > 10.5*
 Prime CDP 2297-2312, SP's 1299-2117
 Wx ENE 30 kts/ 3.5 m seas
 Line Complete

Date	Comments
	<p>Vessel SR/V Veritas Viking2</p> <p>Line change 0330 soft start guns 0350 guns at full volume</p> <p>Record line 2000P1-132, > 190.5* Prime CDP 1993-2008, Sp's 1997-881 Wx E 22 kts / 3 m seas Line complete</p> <p>0556 Birds 1-5 adjusted on strm's 7 (6.5m) and 8 (7.5) due to tailbuoy 7 crossing over strm 8 0603 Tailbuoy 7 back on correct side birds adjusted back to target depth</p> <p>Line change 0825 soft start guns 0845 guns at full volume</p> <p>Record line 2304F1-133, > 10.5* Progressive Infill CDP 2297-2312, Sp's 1001-2117, Wx E 20 kts/ 3 m seas Line complete</p> <p>0942 Birds adjusted on strm's 1 (7.5m) and 2 (6.5m) due to tailbuoy 2 crossing over strm 1 0947 up 10 m on strm 2 to allow tb 2 to cross in front of tb 1 0951 All birds back at target depth and strm 2 back in position 1147 birds 1-5 adjusted on Strm 1-2. Tailbuoy 2 crossing over strm 1</p> <p>Line change 1209 continue shooting guns to trouble shoot acoustic 1219 complete trouble shooting acoustic 1440 soft start guns</p> <p>Line change extended due to trouble shooting acoustics 1500 guns at full volume</p> <p>Record line 2000F1-134, > 190.5* Progressive Infill CDP 1993-2008, Sp's 1997-881, Wx ENE 20 kts/ 2.5 m seas. Line Complete</p> <p>Line change 1800 Toolbox meeting carried out on gun deck 1806 recover Port inner and mid gun strings. 1830 guns onboard. Check on acoustics 1915 deploy guns 1940 guns in position 1950 soft start guns 2010 guns at full volume</p> <p>Record line 2320P1-135, > 10.5* Prime CDP 2313-2328, SP's 1001-2117 Wx NW 10 kts/ 2.5 m swell Line complete</p> <p>Line change 2307 toolbox meeting on guns deck 2310 recover port inner and mid guns 2330 guns onboard. Heading toward line 2016P1 at end of day</p>
6/23/2006	<p>Continue line change 0010 deploy guns 0030 guns in position 0050 soft start guns 0110 guns at full volume</p> <p>Record line 2016P1-136, > 190.5* Prime CDP 2009-2024, Sp's 1997-881 Wx E 10 kts/ 2 m seas. Line complete</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Line change 0420 toolbox meeting prior to recovery of guns 0433 recover guns 0450 guns onboard 0623 soft start guns 0645 guns at full volume 0646 guns in position</p> <p>Record line 2336P1-137, > 10.5* Prime CDP 2329-2344, Sp's 1001-2117 Wx WNW 10 kts/ 1.5 m seas Line Complete</p> <p>Line change 1110 soft start guns 1130 guns at full volume</p> <p>Record line 2016F1-138, > 190.5* Progressive Infill CDP 2009-2024, Sp's 1997-881. Wx W 10 kts / 2m seas Line complete</p> <p>Line change 1700 soft start guns 1720 guns at full volume</p> <p>Record line 2336P1-139, > 10.5* Progressive Infill CDP 2329-2344, Sp's 1001-2117, Wx W 20 kts/ 2 m seas Line Complete</p> <p>Line change 2130 soft start guns 2150 guns at full volume</p> <p>Record line 2032P1-140, > 190.5* Prime CDP 2025-2040, SP's 1997-1162 Wx W 30 kts/ 2m seas Line in progress at end of day</p>
6/24/2006	<p>Continue line 2032P1-140, > 190.5* Prime CDP 2025-2040, SP's 1161-881 Wx W 30kts / 2m seas. Line complete</p> <p>Line change 0300 soft start guns 0320 guns at full volume 0321 Line change extended</p> <p>Line change extended due to seas conditions. Turn radius opened up to 3300m due to 30 kt winds and 2 m seas</p> <p>Record line 2352P1- 141, > 10.5* Prime CDP 2345-2360, SP's 1001-2117 Wx W 30 kts/ 2m seas Line complete</p> <p>Line change 0830 soft start guns 0836 line change extended</p> <p>Line change extended due to seas weather conditions. Turn radius opened up to 3500m 0850 guns at full volume</p> <p>Digicourse (DMU) lock up in nav. Missed sp's 1997-1976</p> <p>Record line 2032F1-142, > 190.5* Progressive Infill CDP 2025-2040, Sp's 1975-881, Wx W 30 kts/ 2m seas. Line Incomplete</p> <p>Line change 1400 soft start guns 1420 guns at full volume</p> <p>Record line 2368P1-143, > 10.5* Prime CDP 2361-2376, Sp's 1001-2117 Wx WSW 30 kts/ 2m seas Line complete</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Line change 1655 toolbox on gun deck prior to recovery. 1700 recover stbd mid gunstring 1715 guns onboard 1800 deploy guns 1820 guns in position 1900 soft start guns 1920 guns at full volume 1922 run test on gun S-14. All guns off 1924 test complete 1925 all guns active</p> <p>Record line 2048P1-144, > 190.5* Prime CDP 2041-2056, Sp's 1997-881 Wx WSW 25 kts/ 2m seas Line Incomplete due to swell noise streamers</p> <p>Line change 2355 soft start guns</p>
6/25/2006	<p>Continue line change. 0015 guns at full volume</p> <p>Record line 2384P1-145, > 10.5* Prime CDP 2377-2392, Sp's 1001-2117 Wx WSW 20 kts / 1.5 m seas Line change</p> <p>0245 Fire Drill 0300 Frie Drill complete</p> <p>Line change 0500 soft start guns 0520 guns at full volume</p> <p>Record line 2048P2-146, > 190.5* Prime CDP 2041-2056, SP's 1997-881 Wx WSW 15 kts / 1.5 m seas Line complete</p> <p>Original Seq (144) was DNP'd due to excessive swell noise.</p> <p>Line change 1050 soft start guns 1110 guns at full volume</p> <p>Record line 2384F1-147, > 10.5* Progressive Infill CDP 2377-2392, SP's 1001-2117, Wx W 15 kts/ Seas 1m Line complete</p> <p>Line change 1540 soft start guns 1600 guns at full volume</p> <p>Record line 2048F1-148, > 190.5* Progressive Infill CDP 2041-2056, SP's 1997-881, Wx WSW 15 kts / 1 m seas Line complete</p> <p>Line change 2112 soft start guns 2132 guns at full volume</p> <p>Record line 2384F2-149, > 10.5* Progressive Infill CDP 2377-2392, SP's 1001-1966, Wx WNW 15 kts/ 1m seas Line in progress at end of day</p>
6/26/2006	<p>Continue line 2384F2-149, > 10.5* Progressive Infill CDP 2377-2392, Sp's 1967-2117, Wx W 12 kts/ 1 m seas Line complete</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Line change 0215 toolbox meeting held prior to helicopter operations. soft start guns 0235 guns at full volume 0255 chopper 1 on deck</p> <p>Record line 2064P1-150, > 190.5* Prime CDP 2057-2072, Sp's 1997-881 Wx WNW 10 kts / 1m seas. Line change</p> <p>0303 Chopper away 0309 Chopper 2 on deck 0317 Chopper away 0329 Chopper 3 on deck 0335 Chopper away 0430 toolbox meeting carried out for workboat run. 0500 Workboat launched 0510 TS Dip at 38°34'22.7" S / 147°43'28.5"E 0517 Complete TS Dip. WB running to chase boat to recover buoys</p> <p>Line change 0600 WB change out pod 2 on Strm 2 0612 WB change out pod 2 on Strm 3 0625 Wb heading back to vessel 0642 WB onboard 0750 soft start guns 0810 guns at full volume</p> <p>Record line 2384F3-151, > 10.5* Progressive infill CDP 2377-2392, Sp's 1001-2117, Wx WNW 15kts / 1m seas line change</p> <p>Line change 1240 soft start guns 1300 guns at full volume</p> <p>Record line 2080P1-152, > 190.5* Prime CDP 2073-2088, Sp's 1997-881 Wx W 10 kts/ 1m seas. Line change</p> <p>Line change 1805 soft start guns 1825 guns at full volume</p> <p>Record line 2384F4-153, > 10.5* Progressive infill CDP 2377-2392, Sp's 1001-2117, Wx WNW 18 kts / 1 m seas Line complete</p> <p>Line change 2255 soft start guns 2315 guns at full volume</p> <p>Record line 2080F1-154, > 190.5* Progressive infill CDP 2073-2088, Sp's 1997-1731, Wx W 12 kts, 1.5 m seas Line in progress at end of day.</p>
6/27/2006	<p>Continue line 2080F1-154, > 190.5* Progressive Infill CDP 2073-2088, Sp's 1730-881, Wx W 15 kts / 1.5 m seas Line complete</p> <p>Line change 0215 Crew safety meeting 0230 Safety meeting complete 0245 Abandon ship drill 0255 drill complete 0330 soft start guns 0350 guns at full volume</p> <p>Record line 2400P1-155, > 10.5* Prime CDP 2393-2400, Sp's 1051-2117 Wx W 25 kts / 1.5 m seas, Line complete</p>

Date	Comments
	<p>Line change</p> <p>0820 soft start guns 0840 guns at full volume</p> <p>Record line 2096P1-156, > 190.5* Prime CDP 2089-2104, Sp's 1997-881 Wx W 15 kts / 2m seas. Line complete</p> <p>Line change 1330 soft start guns 1350 guns at full volume</p> <p>Record line 2416P1-157, > 10.5* Prime CDP 2409-2424, Sp's 1145-2117, Wx W 10 kts / 1.5m seas . Line complete</p> <p>Line change 1810 soft start guns 1830 guns at full volume</p> <p>Record line 2112P1-158, > 190.5* Prime CDP 2105-2120, Sp's 1997-881 Wx WSW 10 kts / 1m seas. Line complete</p> <p>Line change 2143 toolbox meeting prior to recovery of guns. 2145 recover stbd inner guns for maintenance 2150 toolbox meeting about WB operations. 2205 guns onboard 2223 WB launched 2247 Deploy guns 2259 guns in position. 2311 WB aborted attempt of changing out section due to time limitations. 2325 Change out acoustic pod 6 on strm 4 2345 WB back onboard</p> <p>Record line 2432P1-159, > 10.5* Prime CDP 2425-2440, SP's 1145-1163 Wx WNW 10 kts / 1 m seas/ Line in progress at end of day</p>
6/28/2006	<p>Record line 2432P1-159, > 10.5* Prime CDP 2425-2440, Sp's 1164-2117 Wx WNW 10 kts / 1m seas, Line complete. Line started 95 Sp's early for coverage</p> <p>0011 First pre-plot sp 1240 0016 Workboat carrying out TS Dip 0028 WB onboard</p> <p>Line change 0228 Toolbox meeting held prior to recovery of port guns 0230 recover port inner guns 0245 guns onboard 0310 deploying guns 0320 guns in position 0445 soft start guns 0505 guns at full volume</p> <p>Record line 2112F1-160, > 190.5* Progressive Infill CDP 2105-2120, SP's 1997-881, Wx E 10 kts / calm seas. Line complete</p> <p>Line change 1000 soft start guns 1020 guns at full volume</p>

Date	Comments
	<p>Record line 2432F1-161, > 10.5* Progressive infill CDP2425-2440, Sp's 1190-2117, Wx ENE 15 kts / 1m seas Line complete Line started 95 Sp's early for coverage 1039 Lady Roula on site Swissco departs 1043 first pre-plot sp 1240</p> <p>Line change 1246 toolbox meeting held prior to recovery of stbd guns 1248 recover stbd inner guns 1257 guns onboard 1331 deploy guns 1340 guns in position</p> <p>Line change extended due to close proximity of Barracuda Drilling platform at end of seq 161. 1550 soft start guns 1610 guns at full volume</p> <p>Record line 2128P1-162, > 190.5* Prime CDP 2121-2136, Sp's 1997-881 Wx ENE 10 kt/ calm seas. Line complete</p> <p>Line Change 2035 soft start guns 2055 guns at full volume.</p> <p>Record line 2448P1-163, > 10.5* Prime CDP 2441-2456, Sp's 1260-2117 Wx NE 15 kts / 1 m seas. Line complete Line started early for coverage</p> <p>2116 First sp of pre plot 1334 0830 toolbox carried out for workboat mission. 0854 WB launched to work on acoustic pods and birds.</p> <p>Line change 2315 change out pod 3 on strm 3 2341 change out pod 6 on strm 3 2400 working on changing out bird 19 on strm 5 at end of day</p>
6/29/2006	<p>Continue line change Workboat carrying in water maintenance at start of day. 0005 change out bird 19 on strm 5 0016 WB onboard. 0045 soft start guns 0105 guns at full volume</p> <p>Record line 2128F1-164, > 190.5* Progressive infill CDP 2121-2136, CDP 1997-881, Wx NW 5 kts / 1.5 m sea Line complete</p> <p>Line change 0505 Whale sighted 4 km away 0510 Whale sighted 3km away - compliance gun disabled. Vessel slowed down to allow whale time to travel out of 3 km range 0544 Soft start guns 0604 guns at full volume</p> <p>Record line 2462P1-165, > 10.5* Prime CDP 2457-2472, Sp's 1340-2117 Wx NE 10 kts / 1 m seas. Line complete Line started early for coverage 0622 First pre-plot sp 1429</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Line change 0758 toolbox meeting held prior to recovery of guns 0800 recover stbd gun string 0820 guns onboard 0855 deploy guns 0905 guns in position 0914 Vessel speed dropped due to stbd engine maintenance 0950 soft start guns 1005 stbd engine on line 1010 guns at full volume</p> <p>Record line 2144P1-166, > 190.5* Prime CDP 2137-2152, Sp's 1997-881 Wx E 10 kts / 1 m seas. Line complete</p> <p>Line change 1500 soft start guns 1520 guns at full volume</p> <p>Record line 2480P1-167, > 10.5* Prime CDP 2473-2488, Sp's 1429-2117 Wx NW 20 kts / 1m seas, Line complete Line started early for coverage. First pre plot sp 1523</p> <p>Line change 1915 soft start guns 1935 guns at full volume.</p> <p>Record line 2144F1-168, > 190.5* Progressive Infill CDP 2137-2152, Sp's 1997-881, Wx W5 kts / 1m seas, Line complete</p> <p>Line change 2236 Toolbox meeting prior to recovery of guns 2238 recover stbd inner guns 2252 guns onboard. 2305 deploy guns 2320 guns in position 2400 continue line change to line 2480F1 at end of day</p>
6/30/2006	<p>Continue line change 0020 soft start guns 0040 guns at full volume</p> <p>Record line 2480F1-169, > 10.5* Progressive infill 2473-2488, Sp's 1420-2117, Wx NE 20 kts/ 1.5 m sea Line complete</p> <p>Line started early for coverage due to survey outline First pre-plot sp 1523</p> <p>Line Change 0241 all guns disabled due to crossing the "No Fire Zone". 90 Min pre-start whale watch 0248 toolbox meeting prior to recovery of guns 0250 recover port outer guns 0305 guns onboard 0330 deploy guns 0345 guns in position 0411 end of pre-start whale watch 0450 Entering back into "Fire Zone". Compliance gun activated.</p> <p>Line change extended due to close proximity of Barracuda Drilling platform. 0545 soft start guns 0605 guns at full volume</p> <p>Reocrd line 2160P1-170, > 190.5* Prime CDP 2153-2168, Sp's 1997-881 Wx NE 10 kts/ 1.0 seas. Line complete</p> <p>Line change 1115 soft start guns 1135 guns at full volume</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record line 2496P1-171, > 10.5* Prime CDP 2489-2504, Sp's 1480-2117 Wx NW 25 kts / 1.5 m seas. Line Complete</p> <p>Line started early for coverage due to survey out line. First pre-plot sp 1681</p> <p>Line change 1345 Compliance gun disabled, "No Fire Zone". 90 min pre-start whale watch. 1455 Vessel entering into the "Fire Zone". Compliance gun activated. 1550 soft start guns</p> <p>Line change extended due to close proximity of Barracuda Drilling platform. 1610 guns at full volume</p> <p>Record line 2160F1-172, > 190.5* Progressive infill CDP 2153-2168, Sp's 1997-881, Wx NW 16 kts , 1.5 m seas Line complete</p> <p>Line change 2115 soft atart 2135 guns at full volume</p> <p>Record line 2496F1-173, > 10.5* Progressive infill CDP 2489-2504, Sp's 1554-2117, Wx NE 25 kts / 1.5 m seas Line complete</p> <p>Line started early for coverage due to survey out line. First pre-plot Sp 1618</p> <p>Line change 2330 compliance gun disabled due to travel out of "No Fire Zone" 90 min pre-start whale watch</p>
7/1/2006	<p>Continue line change 0037 entering back into the "Fire Zone" 0100 Pre-start whal watch. Compliance gun activated 0140 soft start guns</p> <p>Line change extended dut to obstacles. 0200 Guns at full volume</p> <p>Record line 2176P1-174, > 190.5* Prime CDP 2169-2184, Sp's 1997-1215 Wx WNW 18 kts/ 1.5 m seas, Line incomplete due to whale sighting within the 3km zone.</p> <p>Whale sighted with in the 3km zone. Line terminated. 0435 Whale moved out of #km zone. Compliance gun activated. 0555 soft stat guns 0615 guns at full volume</p> <p>Record line 2512P1-175, > 10.5* Prime CDP 2505-2520, Sp's 1648-2117 Wx NW 12 kts, 1.5 m sea, Line complete</p> <p>Line started early for coverage due to survey out line. 0642 First pre-plot sp1712</p> <p>Line change</p> <p>Time spent travleing to prime coverage that was left from Whale sighting, Seq 174 1030 soft start 1050 guns at full volume</p> <p>First "A" overlap shots 1224-1215</p> <p>Record line 2176P2-176, > 190.5* Prime CDP 2169-2184, Sp's 1214-881 Wx NW 10kts/ 1.5 m seas, Line complete</p> <p>Line was originally shot as Seq 174. Left due to Whale sighting.</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Line change 1420 soft start guns 1440 guns at full volume</p> <p>Record line 2512F1-177, > 10.5* Progressive infill CDP 2505-2520, SP's 1690-2117, Wx N 16 kts / 1m seas Line complete</p> <p>Line started early for coverage due to survey out line. 1500 First pre-plot sp 1712</p> <p>Line change 1656 Entering "No Fire Zone" 1700 Pre-start whale watch 1743 Entering the "Fire Zone" 1830 Compliance gun activated</p> <p>Line change extended dut to obstacles. 1840 soft start guns 1900 guns at full volume.</p> <p>Record line 2192P1-178, > 190.5* Prime CDP 2185-2200, Sp's 1997-881 Wx NW 10 kts/ 1.5 m seas, Line complete.</p> <p>Line change 2228 toolbox meeting held prior to recovery of guns 2230 recover guns 2250 guns onboard 2315 toolbox meeting held prior to workboat operation. 2320 workboat away 2400 WB change out acoustic pod 3 on strm 1. Continue line change at end of day. L/C is tear drop turn on to next line.</p>
7/2/2006	<p>Continue line change Workboat carrying out in water maintenance. 0015 deploy guns 0030 change out acoustic pod 4 on strm 4 0036 guns in position 0053 WB back onboard 0055 soft start guns</p> <p>Extended line change due to teardrop turn on to line. Seem pass. 0115 guns at full volume</p> <p>Record line 2208P1-179, > 10.5* Prime CDP 2201-2216, Sp's 1001-2117 Wx SE 12 kts / 1.5m seas Line complete</p> <p>0245 Fire drill 0300 Fire drill complete</p> <p>Line change 0405 Entering the "No Fire Zone" 0408 pre-start whale watch 0539 end of the whale watch 0604 entering the "Fire Zone"</p> <p>Line change extended due to teardrop turn onto line. Seem pass. 0655 soft start guns 0715 guns at full volume</p> <p>Record line 2192F1-180, > 190.5* Progressive Infill CDP 2185-2200, Sp's 1997-881, Wx S 14 kts / 1m seas Line complete</p> <p>Line change 1300 soft start guns</p> <p>Line change extended due to teardrop turn onto line. Seem pass. 1320 guns at full volume</p>

Date	Comments
	<p>Record line 2208F1-181, > 10.5* Progressive infill CDP 2201-2216, Sp's 1001-2117, Wx E 6 kts / 1m seas Line Complete</p> <p>Line change 1706 Entering "No Fire Zone" 1715 Pre-start whale watch 1758 Entering the "Fire Zone" 1845 Soft start guns. Whale watch complete</p> <p>Extended line change due to teardrop turn onto line. Seem pass 1905 guns at full volume.</p> <p>Record line 2192F2-182, > 190.5* Progressive Infill CDP 2185-2200, Sp's 1997-881, Wx WSW 14 kts/ 1m sea Line complete</p> <p>Line change Teardrop turn onto line. Seem pass</p>
7/3/2006	<p>Continue line change. 0045 soft start guns</p> <p>Line change extended due to teardrop turn. Seem Pass 0108 guns at full volume</p> <p>Record line 2208F2-183, > 10.5* Progressive Infill CDP 2201-2216, Sp's 1001-2117, Wx SW 16 kts / 1m sea Line complete</p> <p>Line Change 0545 soft start guns 0605 guns at full volume</p> <p>Record line 1652F2-184, > 190.5* Infill Zone 3-4 CDP 1945-1960, Sp 1997-1704, Wx ESE 8 kts /1m sea Line complete</p> <p>Line change 0845 soft start guns 0905 guns at full volume</p> <p>Overlap "A" shots 1811-1820</p> <p>Record line 2288P3-185, > 10.5* Partial Prime CDP 2281-2296, Sp's 1821-2117, Wx SE 12 kts / 1m seas Line complete.</p> <p>Line originally shot as Seq 129 due to weather and bad acoustic ranges, shot points 1821-2117 were DNP'd. This shot point range has already been charged for on seq 129. Line is a reshoot.</p> <p>Line change 1150 soft start guns 1303 guns at full volume</p> <p>Record line 2000F2-186, > 190.5* Progressive Infill CDP 1993-2008, Sp's 1997-1880, Wx SE 12 kts / 1.5 m sea Line complete</p> <p>Line originally shot as Seq 134, due to DMU lock-up, shot points 1997-1880 were DNP'd. This shot point range has already been charged for on seq 134. Line is a reshoot.</p> <p>Overlap "A" shots 1879-1730. 5km run out as per contract.</p> <p>Line change 1515 soft start guns 1535 guns at full volume</p> <p>Overlap "A" Shots 1634-1643</p>

Date	Comments
Vessel	SR/V Veritas Viking2
	<p>Record line 1696P2-187, > 10.5* Prime CDP 1689-1704, Sp's 1644-1676 Wx ENE 6 kts / 1m sea Line complete</p> <p>Line was originally shot as seq 076. A prime hole was left due to airleak on guns.</p> <p>Overlap "A" shots 1677-1901. 5 km run oas a per contract.</p> <p>Line change</p> <p>Line change extended due to fishing geer in the way. A different line had to be taken due to interference. 1835 soft start guns 1855 guns at full volume</p> <p>Record line 2032F2-188, > 190.5* Progressive infill CDP 2025-2040, Sp's 1997-1976, Wx Calm / 1m seas Line complete</p> <p>Line originally shot as Seq 142, hole left due to DMU lock up.</p> <p>Overlap "A" shots 1975-1730. %km run out per contract.</p> <p>Line change. 2305 soft start guns 2325 guns at full volume</p> <p>Record line 1728F3-189, > 10.5* Progressive Infill CDP 1721-1736, Sp's 1001-1215, Wx E 14 kts / 2.5 m swell Segment 1 of line is complete.</p> <p>Line is divided into two segments.</p>
7/4/2006	<p>Seismic gap. Move to segment 2 of line 1728F3</p> <p>Record Segment 2 of line 1728F3-189, > 10.5*, Prog Infill CDP 1721-1736, Sp's 1635-1725, Wx E 10 kts /2.5 m swell Line complete</p> <p>Line change 0106 Recover stbd mid gun array. 0126 guns onboard 0145 deploy guns 0205 guns in position 0245 toolbox meeting for heli-ops 0328 helicopter onboard 0332 helicopter away</p> <p>Unable to turn on to 2D line due to fishing gear. Line change extended to avoid gear. 0512 While sighted at 6.5 km from vessel 0526 Whale sighted with in the 3 km zone. Compliance gun deactivated. 0528 Whale sighted outside of 3 km. 0558 soft start guns 0618 guns at full volume</p> <p>Record line 001-190, > 283* 2D line using stbd source. Sp's 2167-881 Wx NE 10 kts / 1.5 m. Line complete</p> <p>Line change 1120 soft start 11400 guns at full voluem</p> <p>Record line 003-191, > 146* 2D line using stbd source. Sp's 1001-2141. Wx NE 10 kts / 2m swell. Line complete</p> <p>Line change 1445 recover stbd outer gun array. 1504 guns guns onboard 1615 deploy guns 1630 guns in position 1810 soft start guns 1830 guns at full volume</p>

Date	Comments
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Vessel	SR/V Veritas Viking2
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Record line 002-192, > 092* 2D line using stbd source. Sp's 1001-2083.
Wx W 6 kts/ 1.5 m swell. Line complete

Line change
2200 soft start guns
2220 guns at full volume

Overlap "A" shots 1850-1862

Record line 1440P3-193, > 10.5*
Prime CDP 1433-1448, Sp's 1863-2117
Wx E 15 kts / 1.5m swell Line complete

Partial Prime hole left from sequence 04 due to air leak on guns.

Line change
2321 Recover stbd inner guns
2335 guns onboard
2400 continue line change at end of day

7/5/2006

Continue line change
0005 deploy guns
0020 guns in position
0110 soft start guns
0130 guns at full volume

Record line 1792F1-194, > 190.5*
Zone 4 Infill CDP 1785-1800, Sp's 1997-881, Line complete, Wx W 6 kts / 2m sea

0345 Toolbox meeting held prior to launching workboat for TS-Dip
0406 Workboat launched
0425 Workboat back onboard.

Line change
0640 soft start guns
0700 guns at full volume

Record line 1344F2-195, > 10.5*
Zone 4 infill CDP 1337-1352, Sp's 1001-1306, Line complete. Wx NW 14 kts / 1.5m sea.

Line change
1100 soft start guns
1120 guns at full volume

Record line 2192F3-196, > 190.5*
Zone 4 infill CDP 2185-2200, Sp's 1300-926, Line complete, Wx WNW 20 kts/ 2.5 m seas

Line change
1510 soft start guns
1530 guns at full volume

Record line 1328F2-197, > 10.5*
Zone 2 infill CDP 1321-1336, Sp's 1300-1550, Line complete, Wx WNW 30 kts / 2.5 m seas

Line change
1900 soft start guns
1920 guns at full volume

Record line 1104F2-198, > 190.5*
Zone 1 infill CDP 1097-1112, SP's 1700-881, Line complete, Wx WSW 30 kts, 2.5 m seas

Line has random high frequency noise on all streamer due to seas condition.

End of Survey.
2129 toolbox meeting prior to recovery of all guns.
2133 recover guns.
2245 guns onboard
2329 start in on strm 5
2400 continue to recover all gear at end of day.

7/6/2006

Date	Comments
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Vessel	SR/V Veritas Viking2
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Survey complete. Recover all inwater gear. Guns onboard. Continue to recover Strm 5 at start of day

0023 start in on Strm 4
0035 headfloat 4 onboard
0050 strm 4-5 coming to surface due to direction of travel. continue to recover strm.
0100 Wx W 30 kts gust to 50 kts / seas 3-3.5m
0415 come in on Strm's 6-8 and vane
0441 Tailbuoy 5 onboard.
0450 TB 4 onboard
0457 in on Strm 6-8 and vane
0505 out on Strm 7-8 and vane. Coming in on strm 6.
0544 come in on Strm 1-3 and vane
0556 going out on strm 1-2 and vane. Coming in on strm 3
0602 Wx W 30 kts, gust to 50 /Seas 3 m
0646 come in on strm 7-8 and vane
0707 going out on strm 8 and vane. Recover Strm 3,6 and 7
1209 TB 6 onboard
1238 TB 3 onboard continue in on strm 7
1239 come in on strm 1-2 and vane
1254 out on strm 1 and vane. Come in on strm 2
1303 TB 7 onboard. Continue in on strm 2
1407 Wx WNW 35 kts, 3m seas
1605 smal turn to stbd in preparation to recover stbd vane
1627 come in on strm 8 and vane.
1646 Vane along side. recover strm 8
1648 small turn back to port in order to bring port vane on.
1659 TB 2 onboard
1722 Come in on strm 1 and vane.
1743 port van onboard. Continue in on strm 1 and 8
1944 TB 8 onboard.
2022 TB 1 onboard.
2043 recover ADP pole. All gear onboard.

2044 Swissco departs. V2 underway to Fremantle
2210 Wx WSW 35 kts / 3.5 m seas
2400 Wx WSW 35-38 kts / Seas 3.5-4 m
Current position 39°20'19" S and 146°01'59" E Speed of 11.5 kts

7/7/2006

Bream 3D survey complete. Enroute to Fremantle to DMob from survey.

0100 Reconfigure strm for next survey.
Wx WSW 35 kts seas 3.5 m
1330 Wx WSW 35 kts seas 4m
1720 WSW 35 kts seas 4 m
2200 WSW 35 kts seas 4.5 m
2400 WSW 35 kts seas 4.5 m

7/8/2006

Travel to Fremantle to demob from Esso Bream 3D survey.

0130 Wx W 30 kts / seas 4 m
Position Lat 38°26.78'S and Long 139° 33.48'E Boat speed 12.4 kts
0530 Wx W 30 kts / 4 m seas
0730 Wx WNW 30 kts / seas 3 m
1230 Wx WNW 35 kts / seas 3.5 m
1830 Wx WNW 40 kts / seas 5 m
2400 Wx NW 35 kts / Seas 5 m

7/9/2006

Date	Comments
	<p>Travel to Fremantle to demob from Esso Bream 3D survey.</p> <p>0000 Wx NW 35 kts seas 5.5 m position Lat 37°39.00'S Long 133°59.78'E 0400 Wx NW 36 kts seas 5 m 0800 Wx N 36 kts seas 4 m 1230 Wx NW 40 kts seas 4m 1700 Wx W 40 kts seas 6 m 2100 Wx W 40 kts seas 5 m 2400 Wx NW 35 kts seas 5 m Position Lat 36°45.47'S Long 124°00.13'E</p>
7/10/2006	<p>Travel to Fremantle to demob from Esso Bream 3D survey</p> <p>0000 Wx SW 36 kts / Seas 6.8 m Position Lat 36° 43.76'S Lon 127°53.73"E 0400 Wx SW 40 kts / Seas 5-6 m 1130 Wx SSW 40 kts / 7 m seas 1600 Wx WNW 40 kts / 7.2 m seas 2100 Wx S 26 kts / 7.8 seas 2400 Wx S 22 kts / 8.4 seas Lat 35°42.89'S Lon 122°26.68"E</p>
7/11/2006	<p>Travel to Fremantle to demob from Esso Bream 3D survey</p> <p>0000 Wx SE 12 kts 8.7 m seas 0400 Wx SE 20 kts 5 m seas 0915 Wx ESE 20 kts 4 m seas 1200 Wx S 25 kts 3.5 m seas 1645 Wx S 10 kts 4 m seas 2130 Wx lite winds 2.5 m swell 2400 Wx NW 15 kts 2-2.5 m swell</p>
7/12/2006	<p>Travel to Fremantle to demob from Esso Bream 3D survey.</p> <p>0000 WX SE 12 kts Seas 3 swell 0315 Wx N 14 kts seas 3 m swell 0715 Wx NE 12 kts 2 m swell 0915 Wx E 14 kts 1 m swell 2045 Wx E 16 m 1.5 m swell 2200 Fremantle Pilot onboard 2245 Dockside Fremantle. 2400 Alongside dock Taking on Fuel and stores.</p>
7/13/2006	<p>Portside in Fremantle taking on Fuel and supplies. 2000 Fuel and supplies loaded. Prepare to pick up gangway. 2018 gangway up 2030 all lines off. Away from dock 2400 Enroute to next survey.</p>



Navigation Definition 1

Esso Australia Pty Ltd – 2006 Bream 3D

**Veritas Geophysical
(Asia Pacific) Pte. Ltd.**

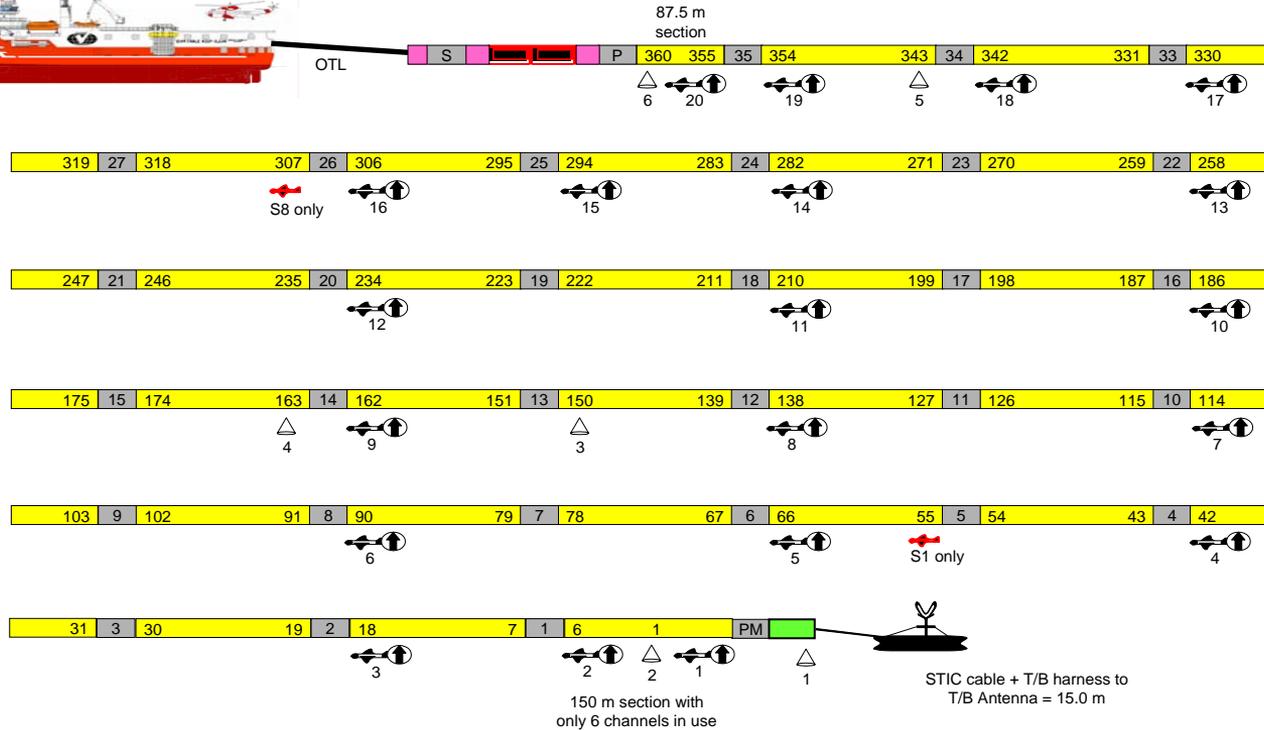
www.veritasdgc.com

Summary of changes

- **Initial setup**
- **Only in use on line G06A-1728P1-001 (subsequently DNP)**

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	1		Onboard Representative	NavDef #01
JOB # :	20323	TO SEQ :	1		Client: <i>Print</i> <i>Sign</i>	

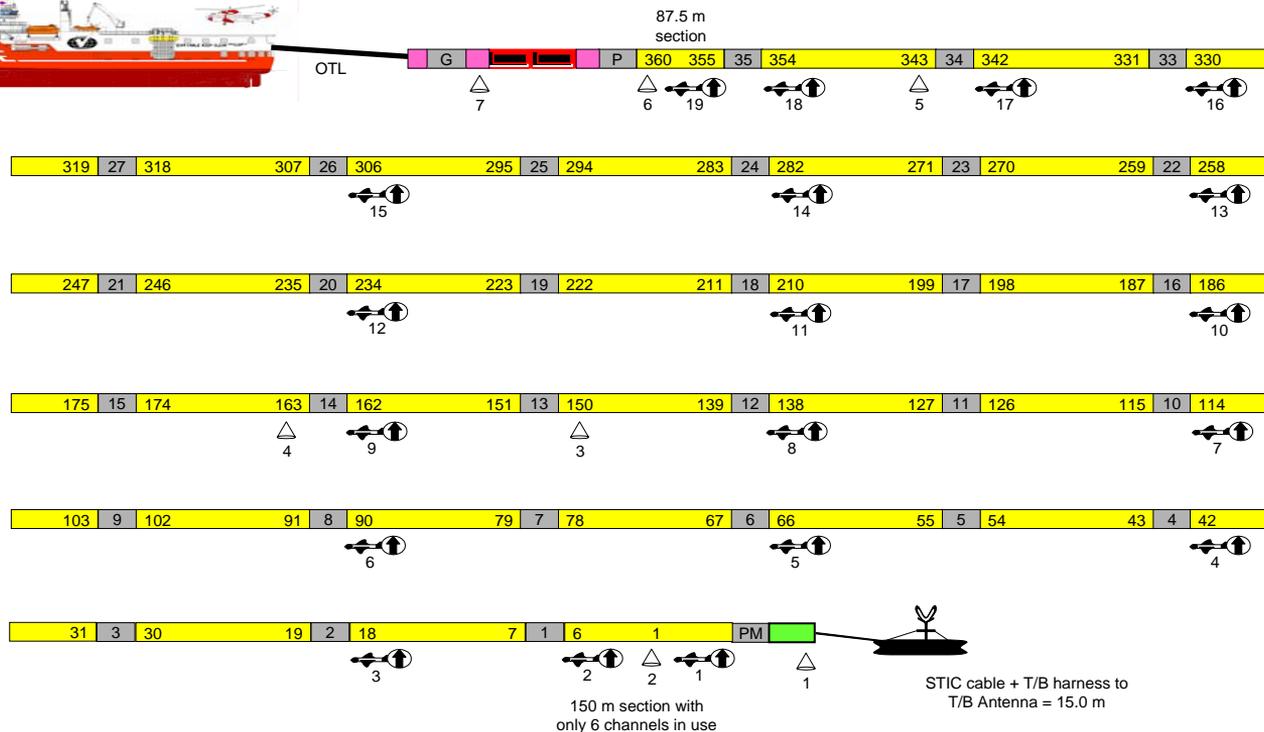
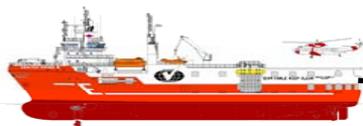
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	1		Onboard Representative	NavDef #01
JOB # :	20323	TO SEQ :	1		Client: <i>Print</i> <i>Sign</i>	

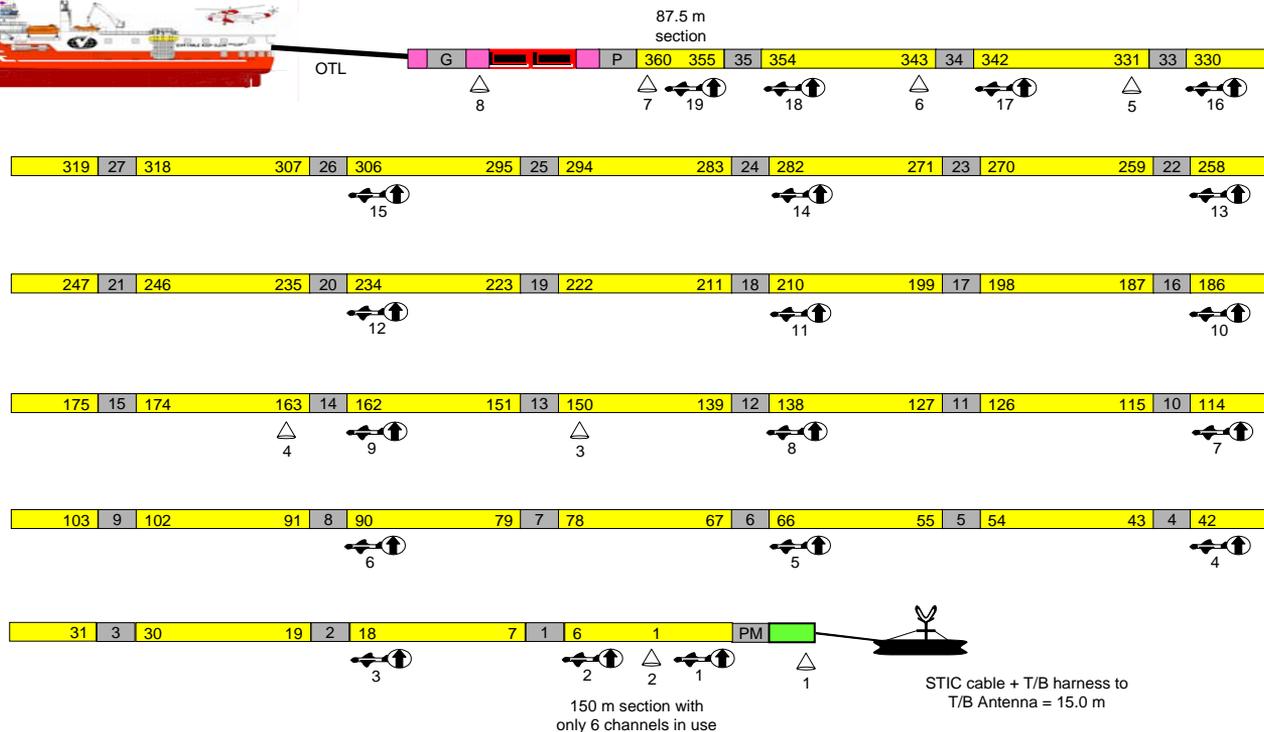
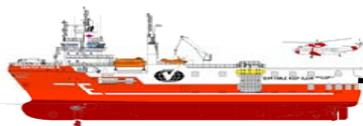
Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
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- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	<i>Not to scale</i> Measurements in metres	M Boon - Geo Supervisor	Page 3
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	1		Onboard Representative	NavDef #01
JOB # :	20323	TO SEQ :	1		Client: <i>Print</i> <i>Sign</i>	

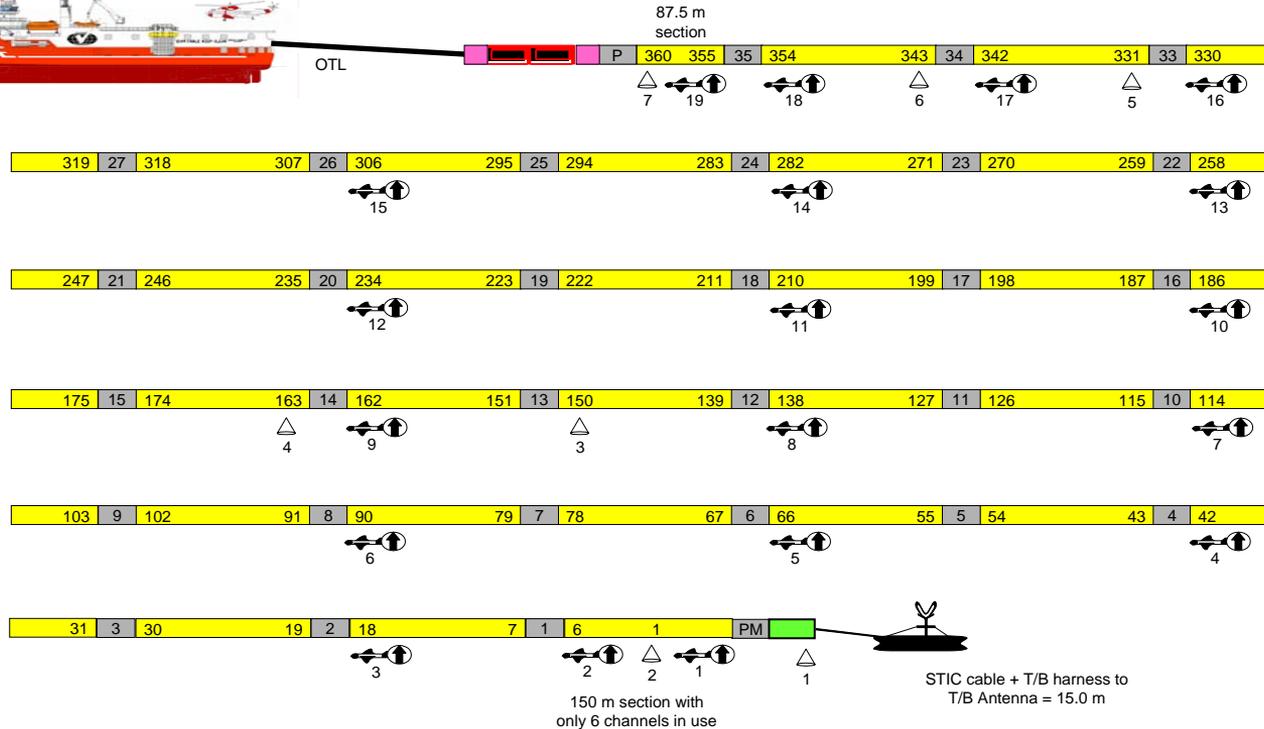
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
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- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	1		Onboard Representative	NavDef #01
JOB # :	20323	TO SEQ :	1		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

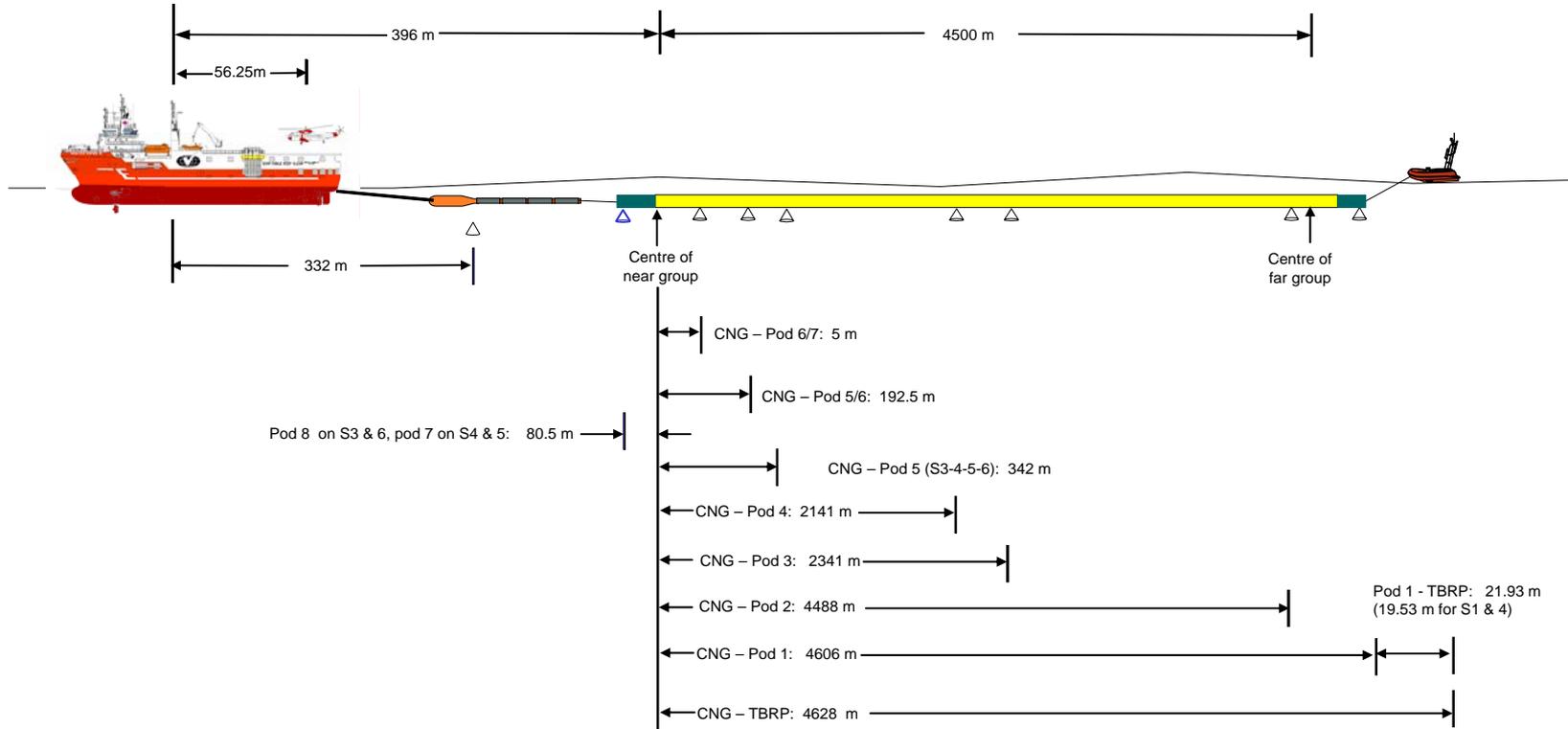


- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

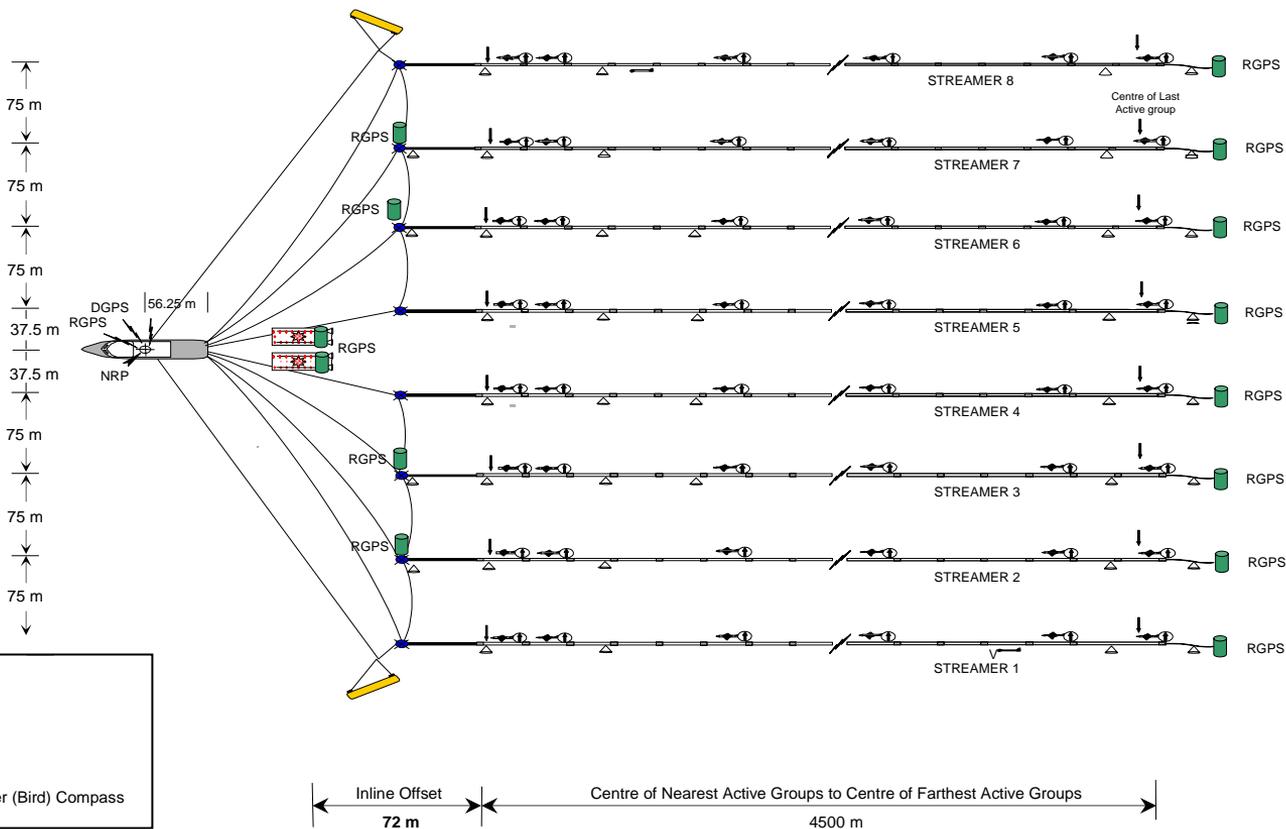
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 5
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	1		Onboard Representative	NavDef #01
JOB # :	20323	TO SEQ :	1		Client: <i>Print</i> <i>Sign</i>	

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	1		Onboard Representative	NavDef #01
JOB # :	20323	TO SEQ :	1		Client: <i>Print</i> <i>Sign</i>	



VESSEL : SR/V Veritas Viking 2

CLIENT : Esso Australia Pty. Ltd.

AREA : 2006 Greater Bream 3D

JOB # : 20323

FROM DATE : 10-MAY-2006

TO DATE : 10-MAY-2006

FROM SEQ : 1

TO SEQ : 1

Not to scale

Measurements
in metres

M Boon - Geo Supervisor

GS: *Print* *Sign*

Onboard Representative

Client: *Print* *Sign*

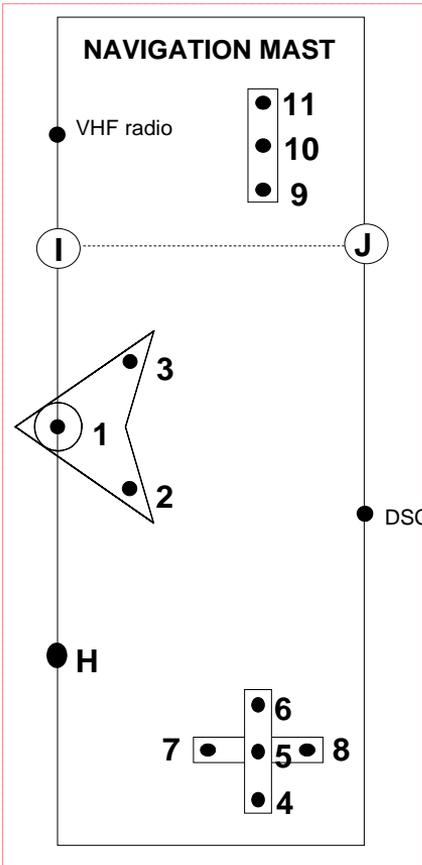
Page 7

Created: 14-MAY-06

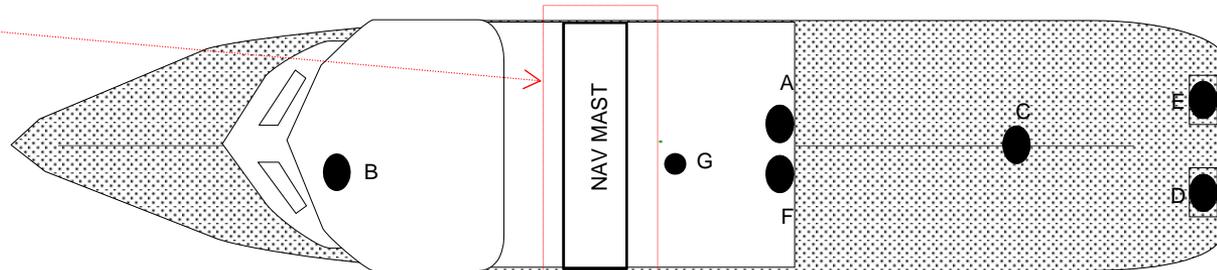
NavDef #01

Antenna Offsets

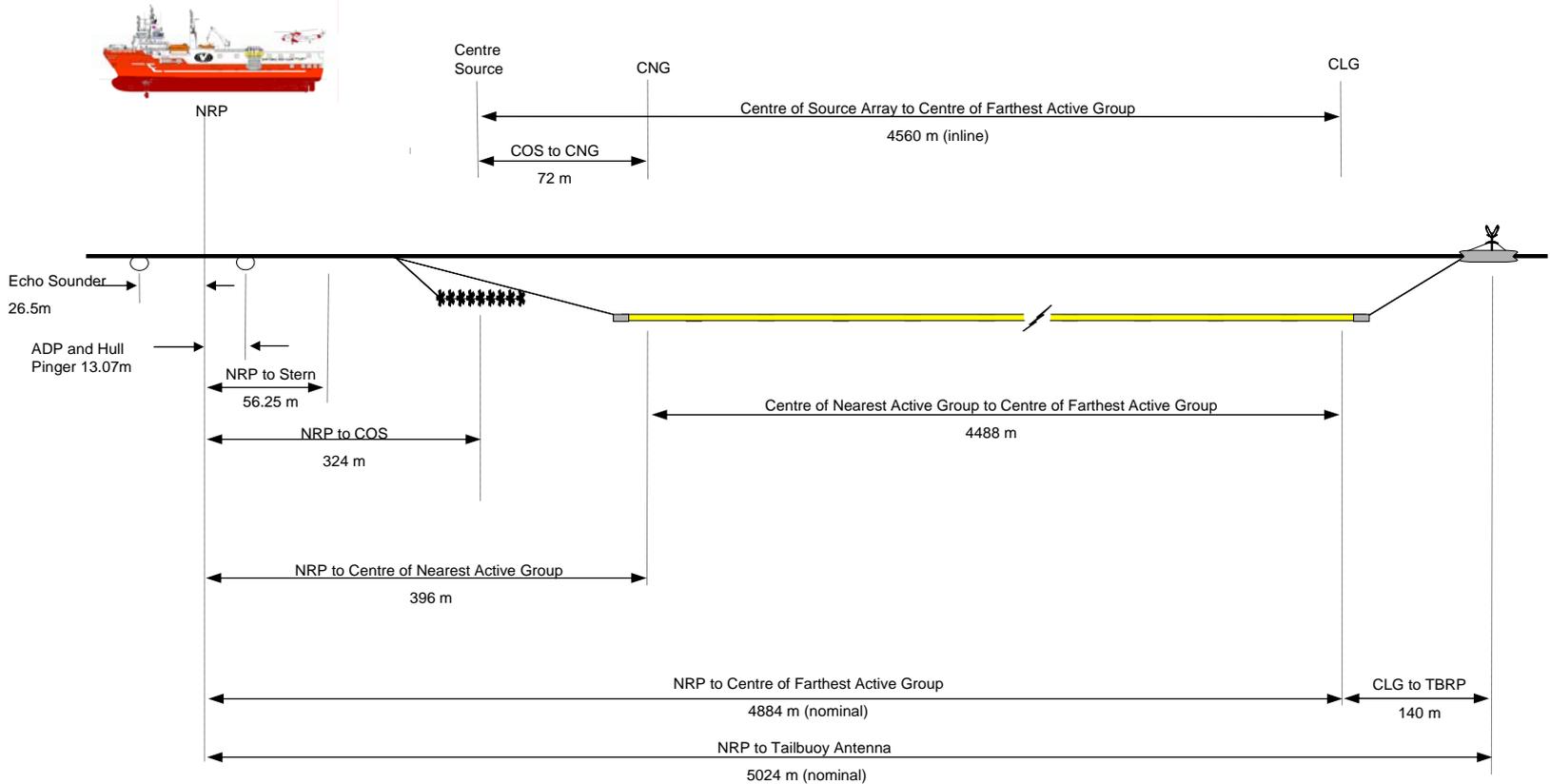
Esso Australia Pty Ltd – 2006 Bream 3D



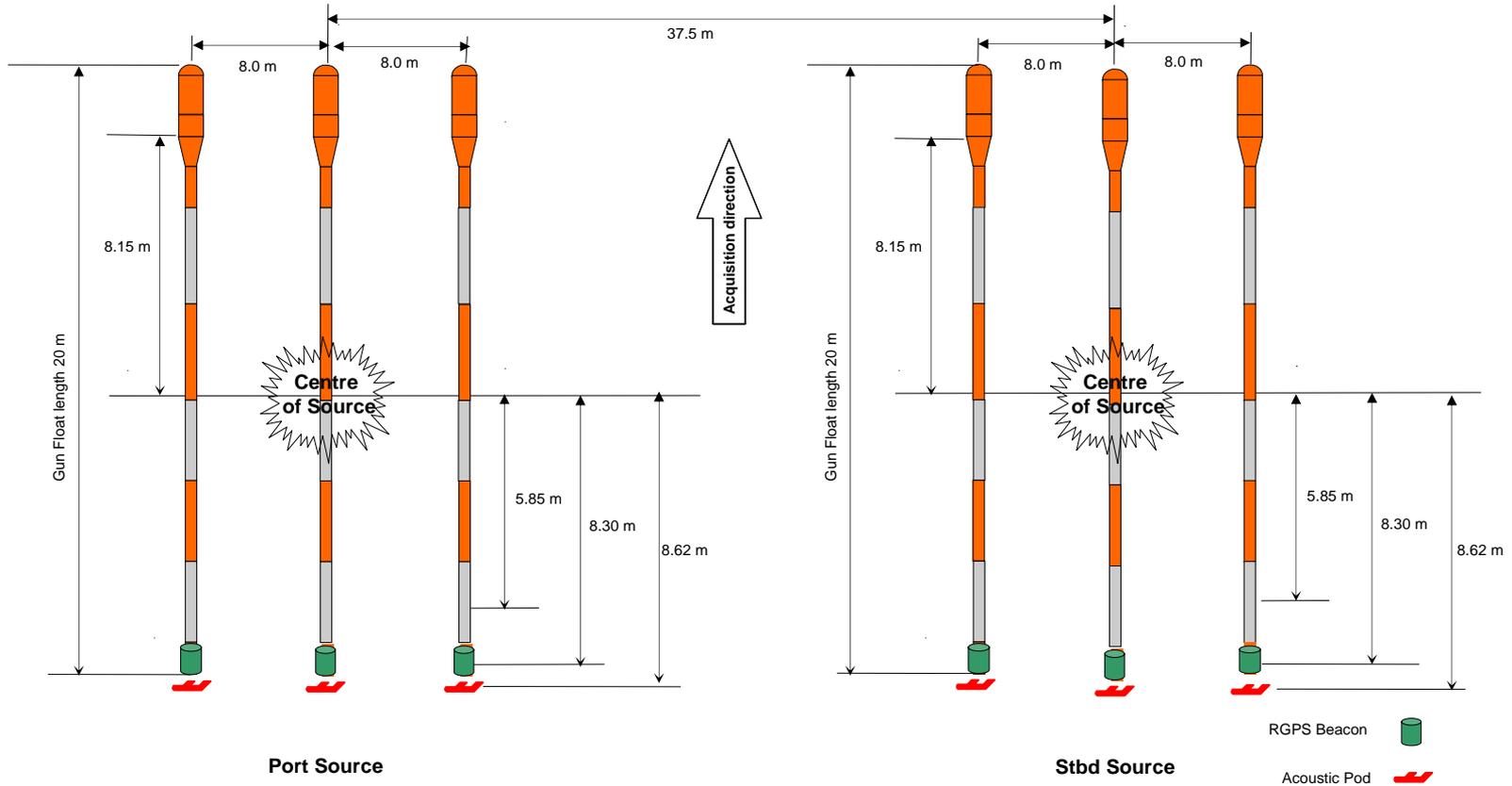
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	1		Onboard Representative	
JOB # :	20323	TO SEQ :	1		Client: <i>Print</i> <i>Sign</i>	NavDef #01



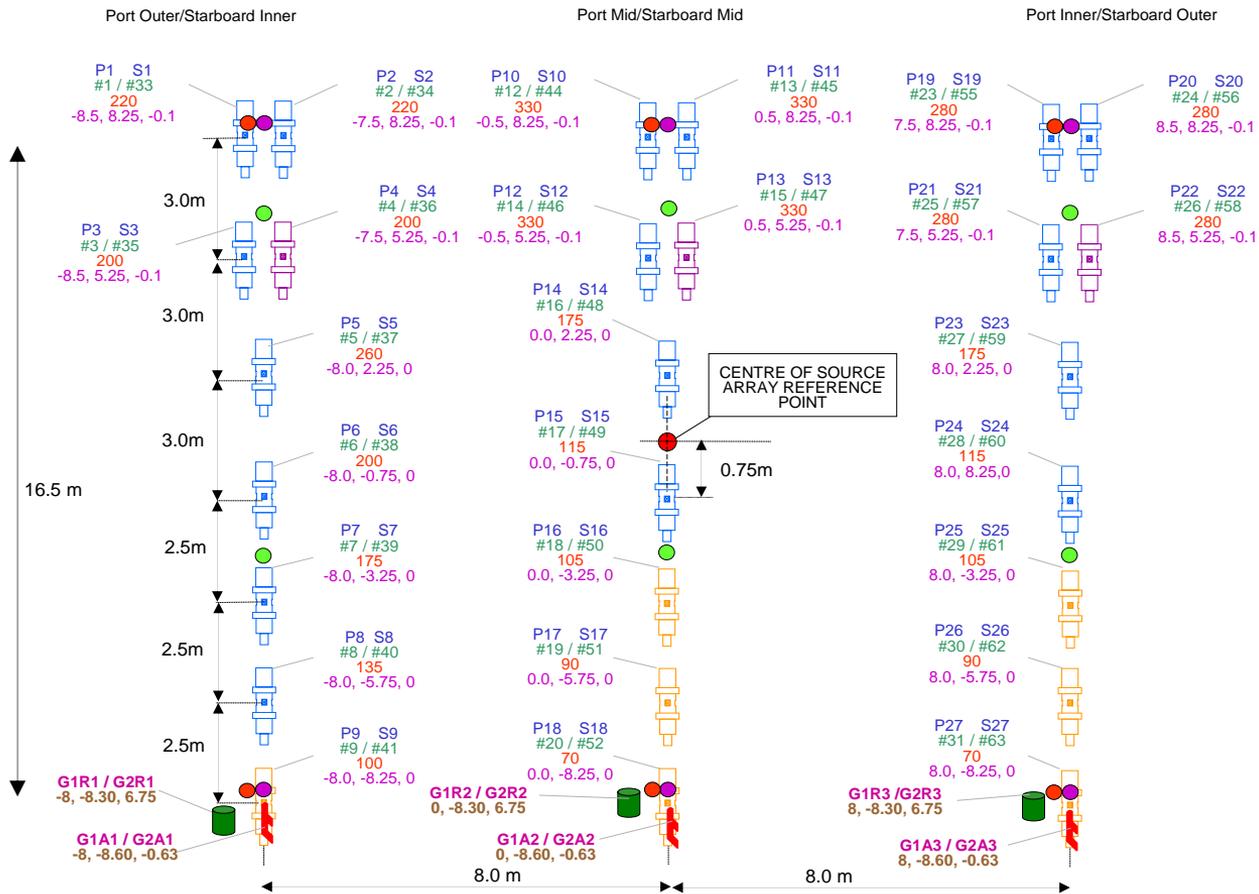
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	1		Onboard Representative	NavDef #01
JOB # :	20323	TO SEQ :	1		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	1		Onboard Representative	NavDef #01
JOB # :	20323	TO SEQ :	1		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

-  Depth
-  Pressure
-  Near Field Hydrophone

-  rGPS Pod
-  Acoustic Pod

Gun Detail

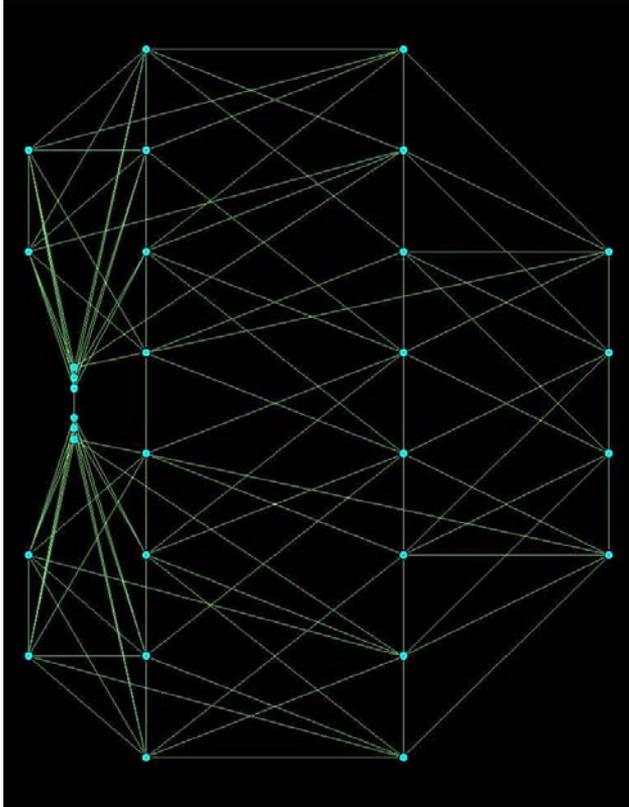
Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

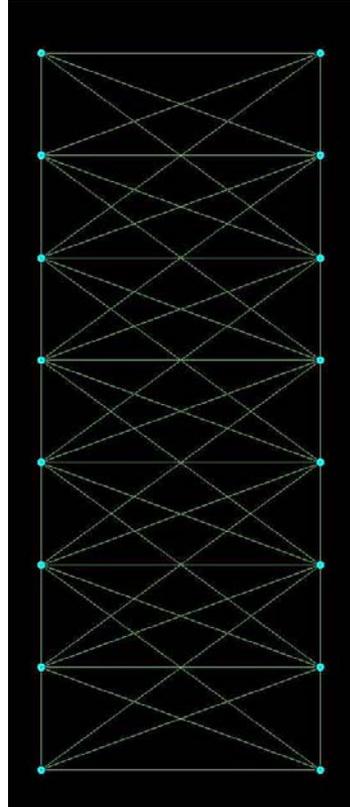
-  1500LL – Active
-  1500LL – Spare
-  1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	1		Onboard Representative	NavDef #01
JOB # :	20323	TO SEQ :	1		Client: <i>Print</i> <i>Sign</i>	

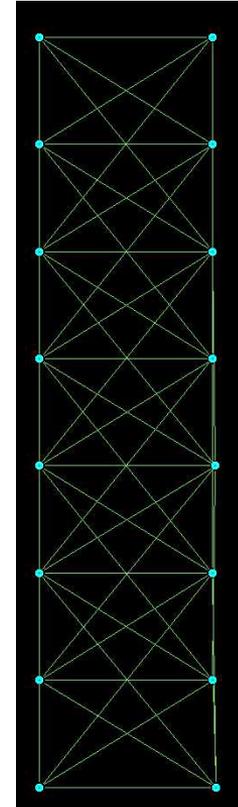
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	1		Onboard Representative	NavDef #01
JOB # :	20323	TO SEQ :	1		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 2

Esso Australia Pty Ltd – 2006 Bream 3D

**Veritas Geophysical
(Asia Pacific) Pte. Ltd.**

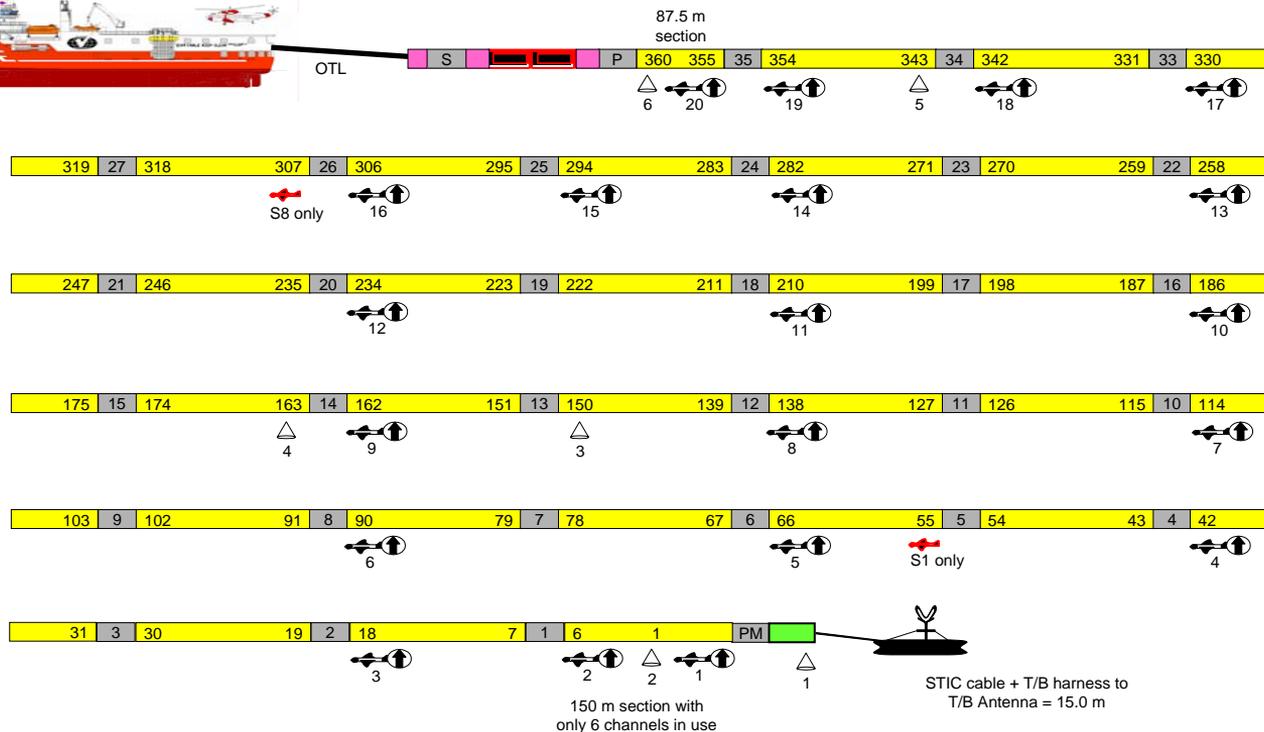
www.veritasdgc.com

Summary of changes

- **Changed mapping of UDO pressure ID sensors**
- **Only in use on line G06A-1440P1-002 (subsequently DNP)**

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	2		Onboard Representative	NavDef #02
JOB # :	20323	TO SEQ :	2		Client: <i>Print</i> <i>Sign</i>	

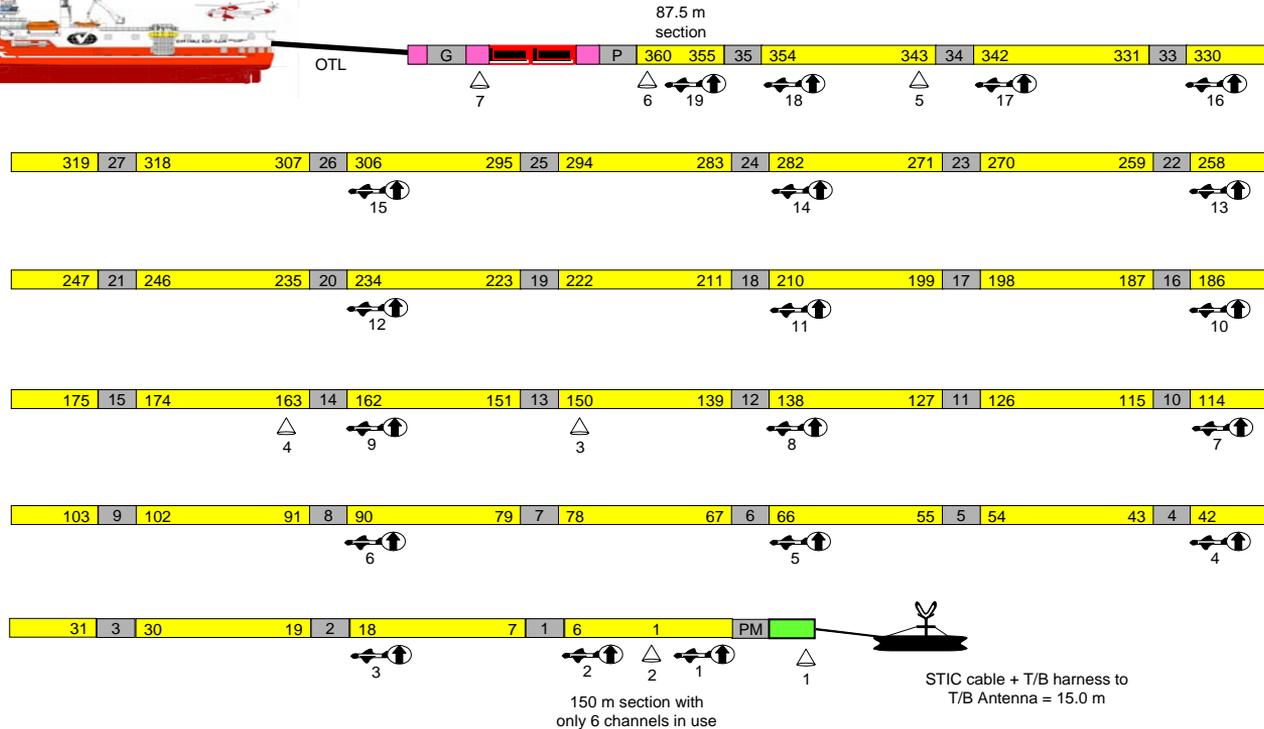
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	2		Onboard Representative	NavDef #02
JOB # :	20323	TO SEQ :	2		Client: <i>Print</i> <i>Sign</i>	

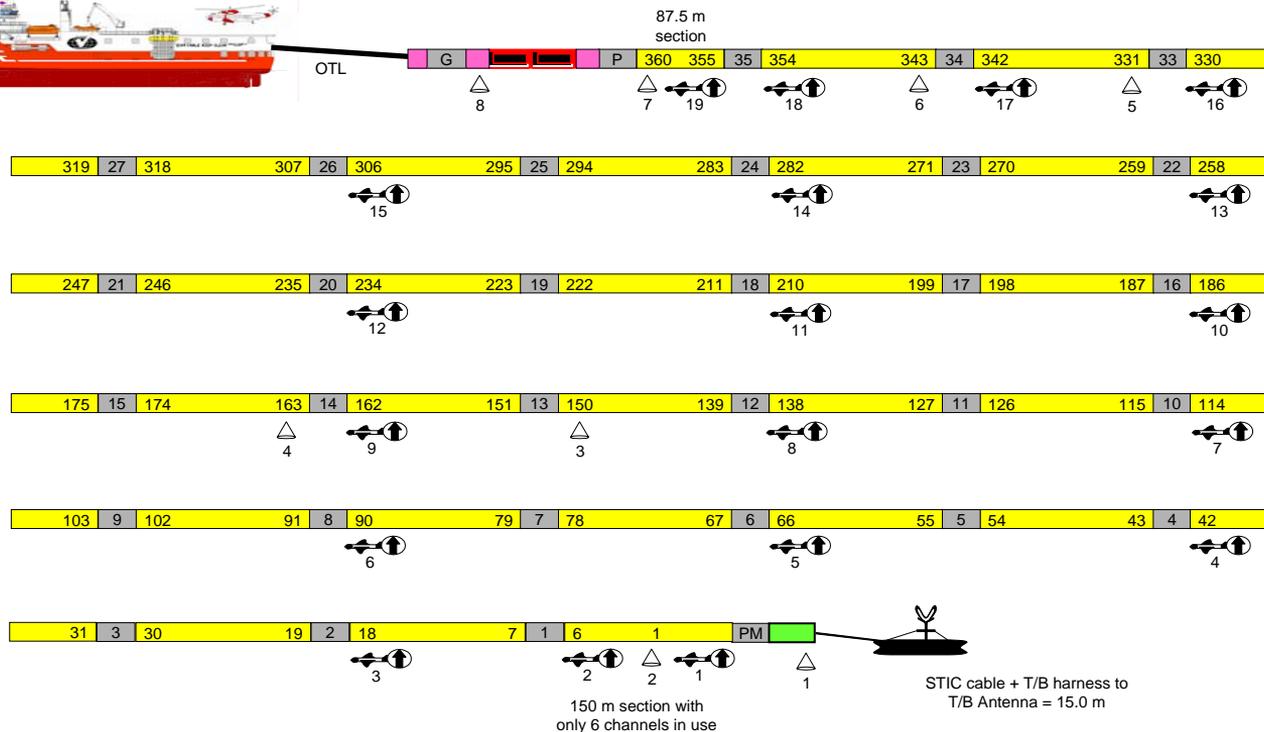
Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 3
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	2		Onboard Representative	NavDef #02
JOB # :	20323	TO SEQ :	2		Client: <i>Print</i> <i>Sign</i>	

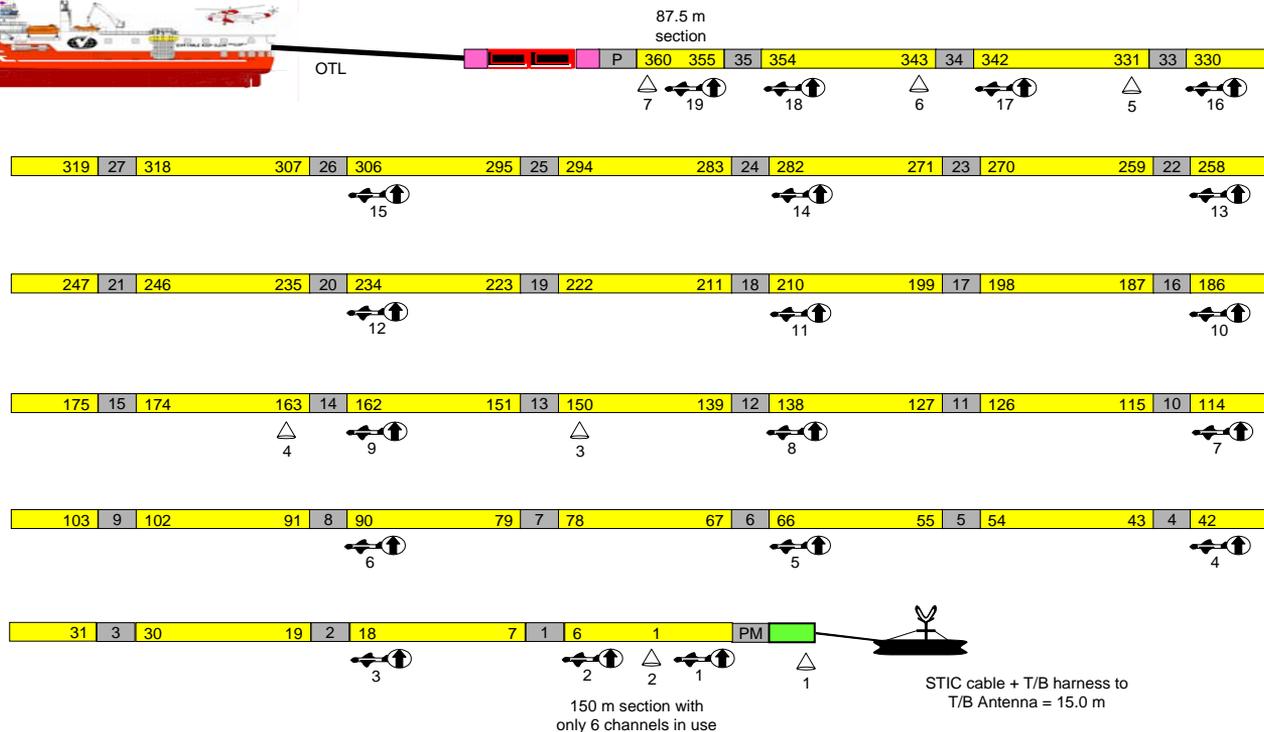
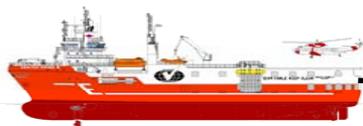
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	2		Onboard Representative	NavDef #02
JOB # :	20323	TO SEQ :	2		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

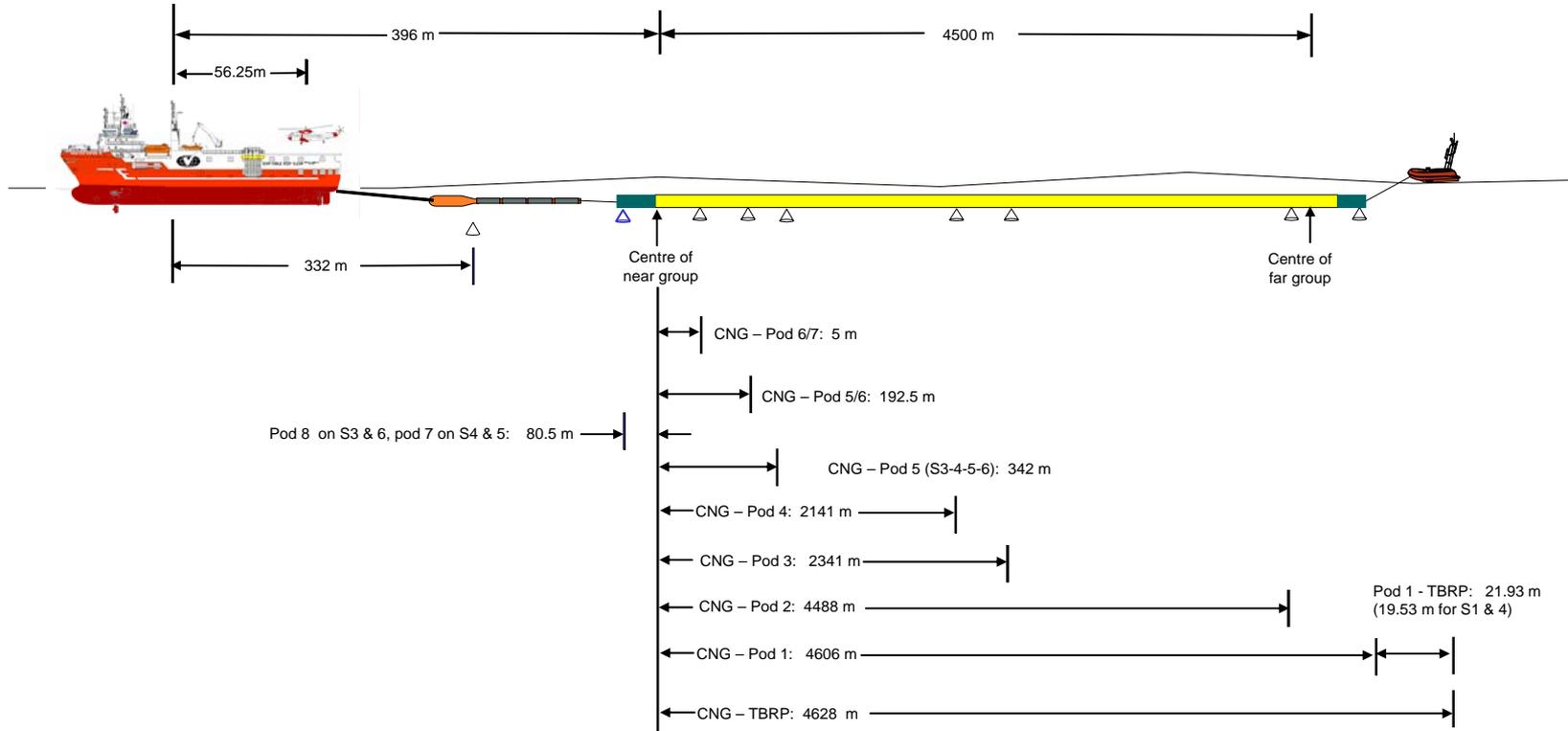


- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

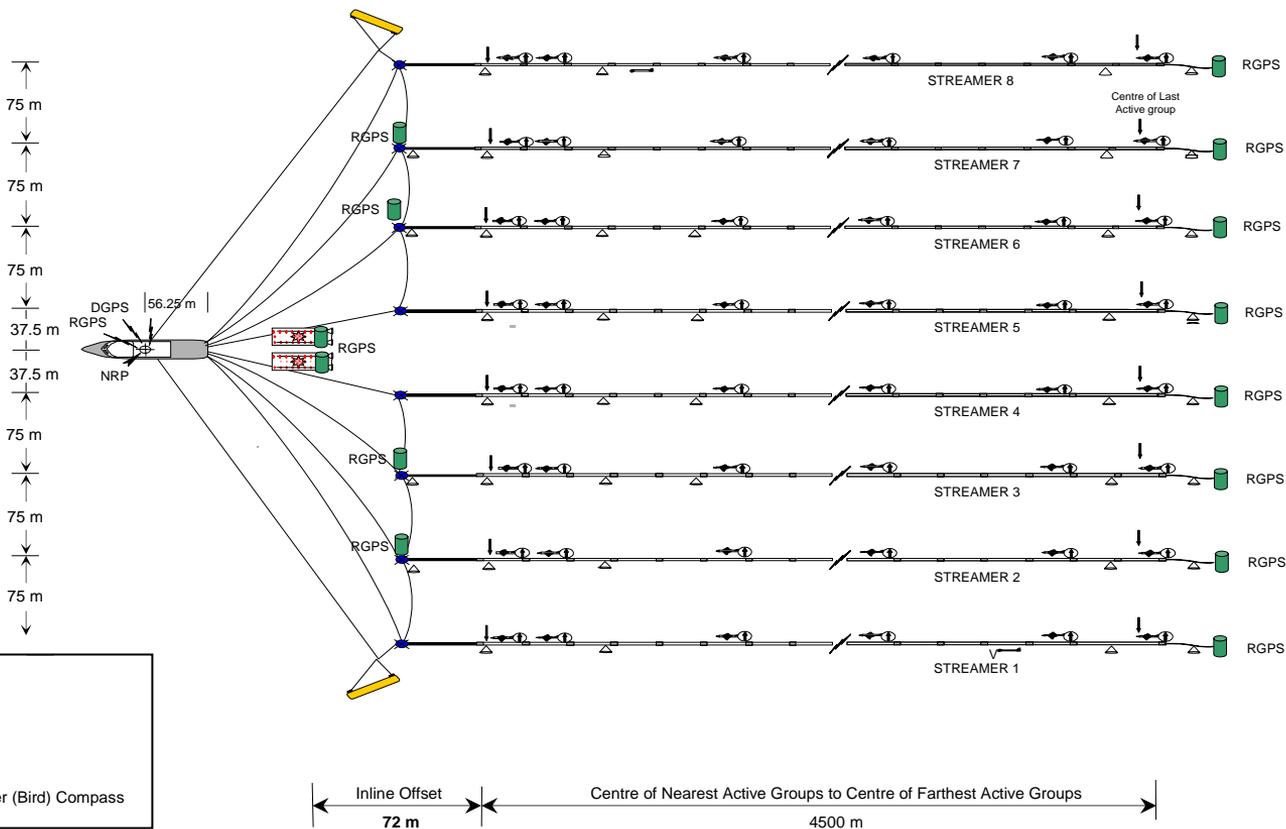
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 5
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	2		Onboard Representative	NavDef #02
JOB # :	20323	TO SEQ :	2		Client: <i>Print</i> <i>Sign</i>	

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	2		Onboard Representative	NavDef #02
JOB # :	20323	TO SEQ :	2		Client: <i>Print</i> <i>Sign</i>	



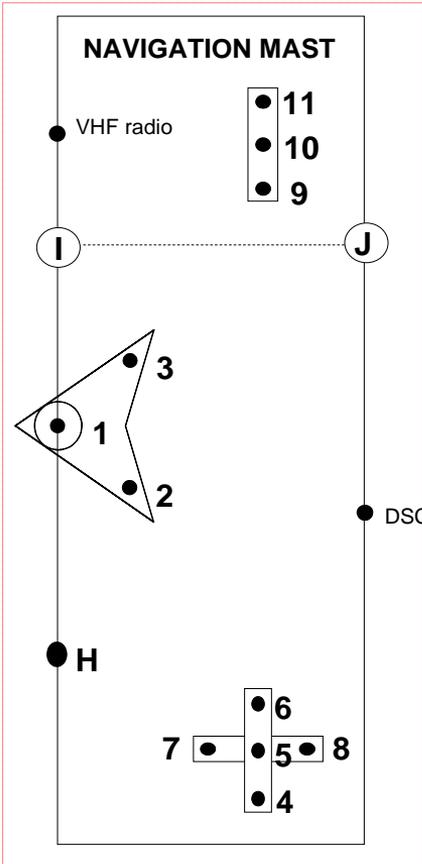
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006
AREA :	2006 Greater Bream 3D	FROM SEQ :	2
JOB # :	20323	TO SEQ :	2

Not to scale
Measurements in metres

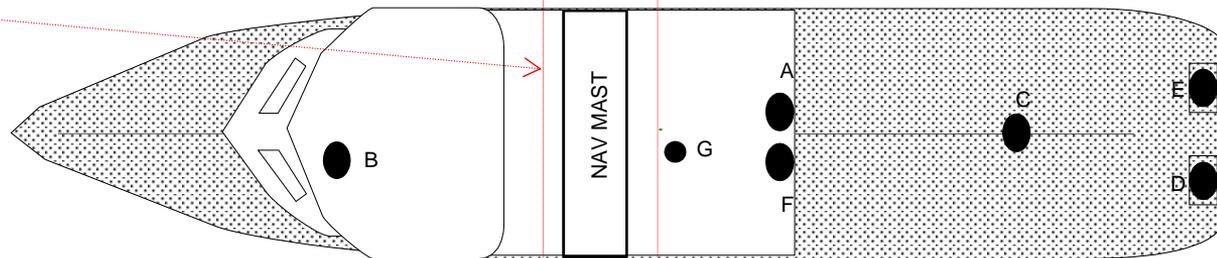
M Boon - Geo Supervisor
GS: <i>Print</i> <i>Sign</i>
Onboard Representative
Client: <i>Print</i> <i>Sign</i>

Antenna Offsets

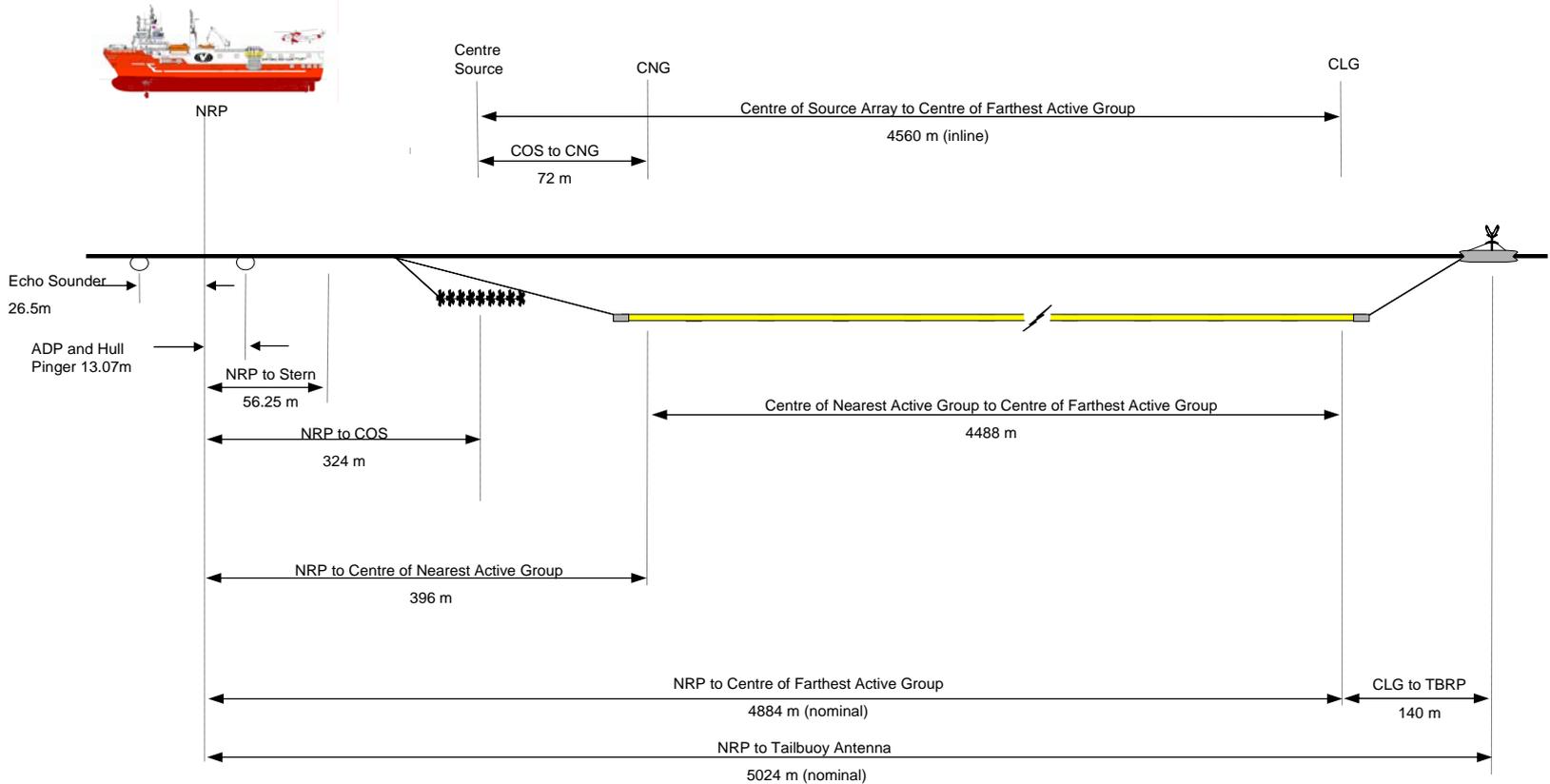
Esso Australia Pty Ltd – 2006 Bream 3D



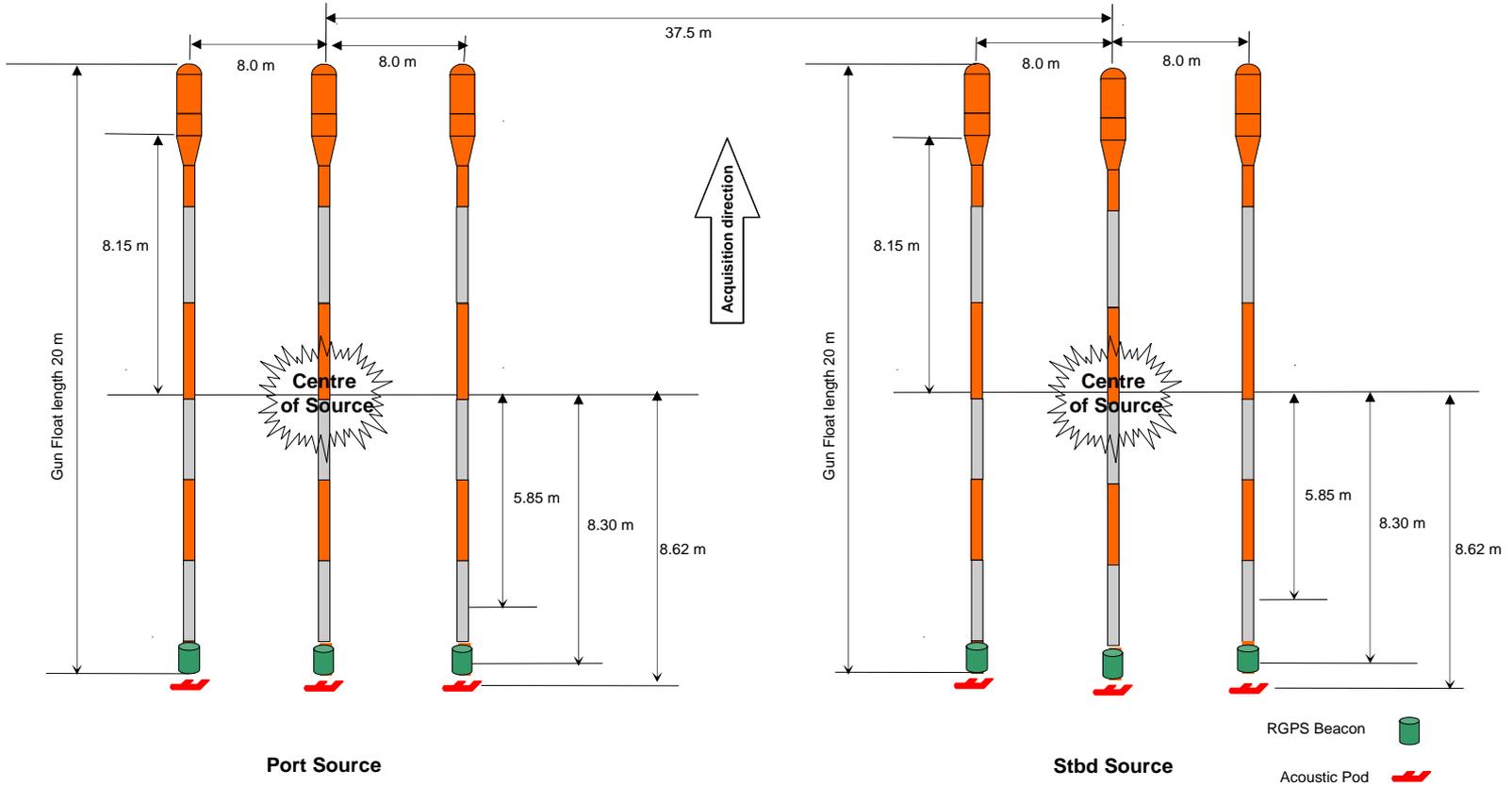
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	2		Onboard Representative	NavDef #02
JOB # :	20323	TO SEQ :	2		Client: <i>Print</i> <i>Sign</i>	



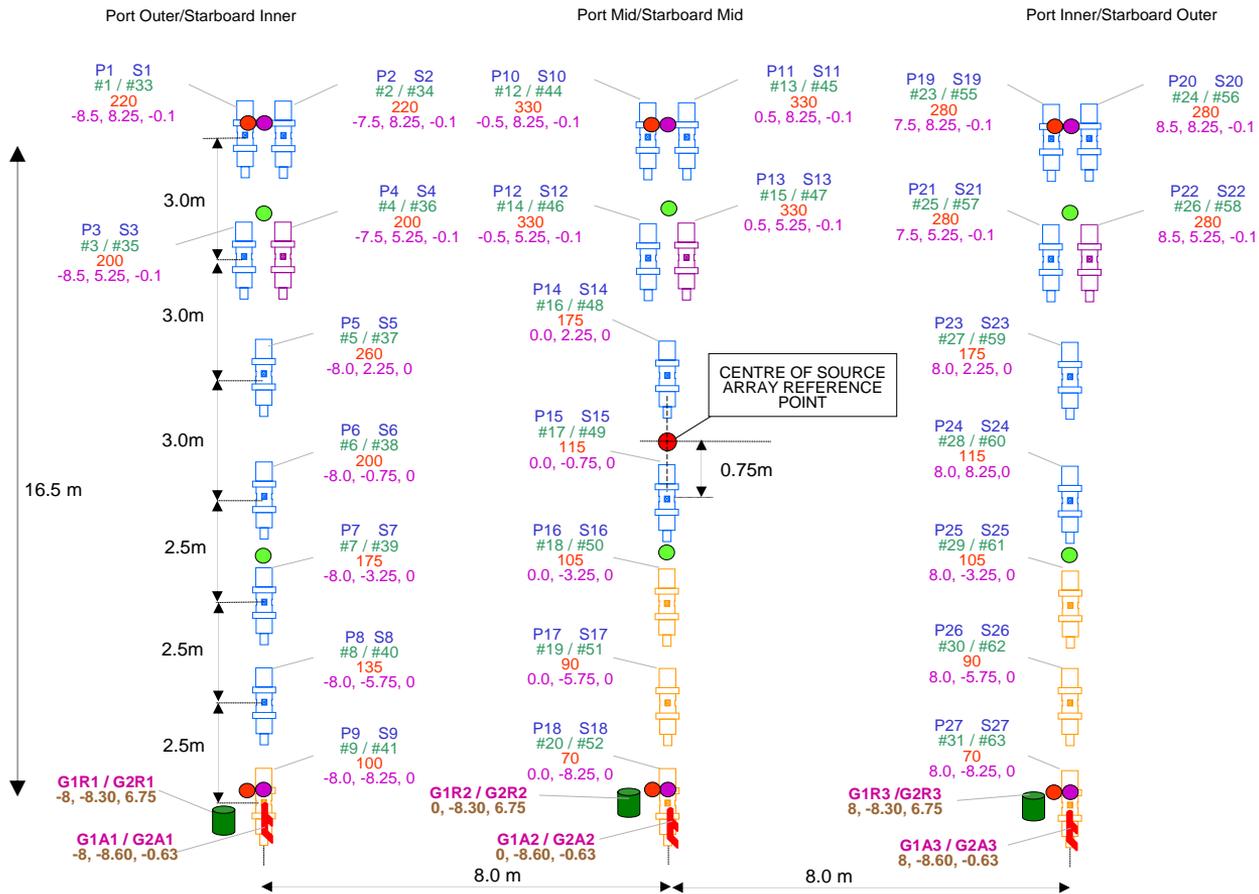
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	2		Onboard Representative	NavDef #02
JOB # :	20323	TO SEQ :	2		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	2		Onboard Representative	NavDef #02
JOB # :	20323	TO SEQ :	2		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

- Depth
- Pressure
- Near Field Hydrophone

- rGPS Pod
- Acoustic Pod

Gun Detail

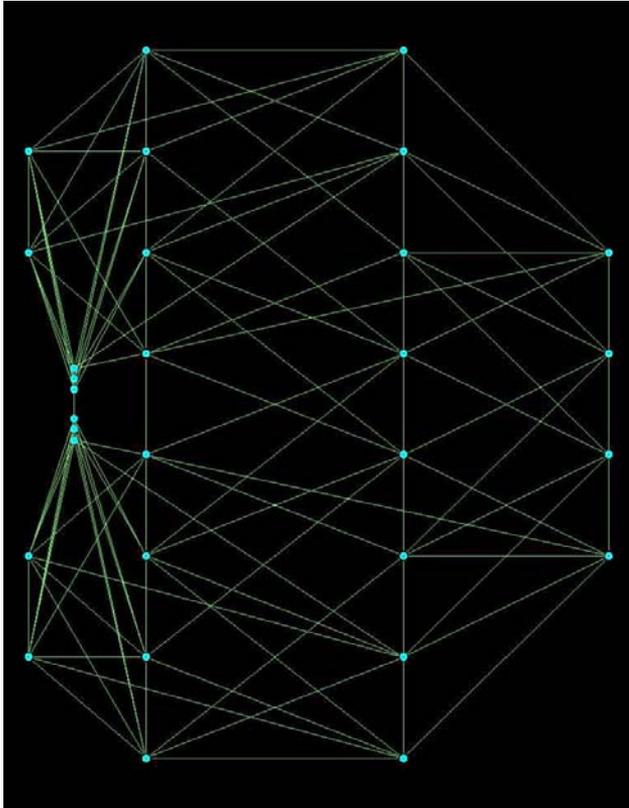
Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

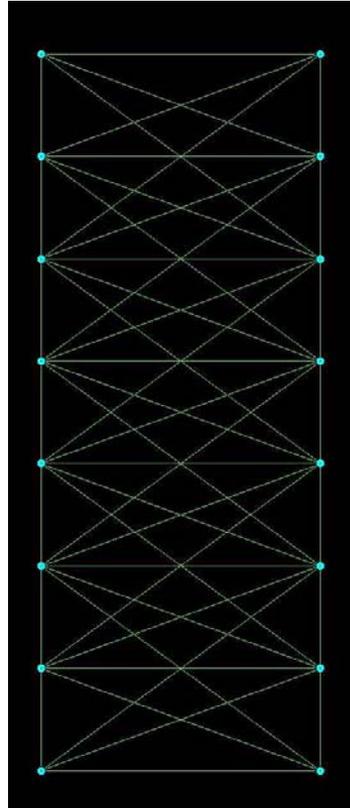
- 1500LL – Active
- 1500LL – Spare
- 1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	2		Onboard Representative	NavDef #02
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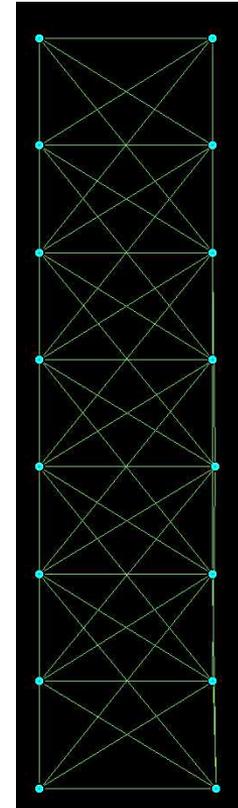
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	10-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	2		Onboard Representative	NavDef #02
JOB # :	20323	TO SEQ :	2		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 3

Esso Australia Pty Ltd – 2006 Bream 3D

**Veritas Geophysical
(Asia Pacific) Pte. Ltd.**

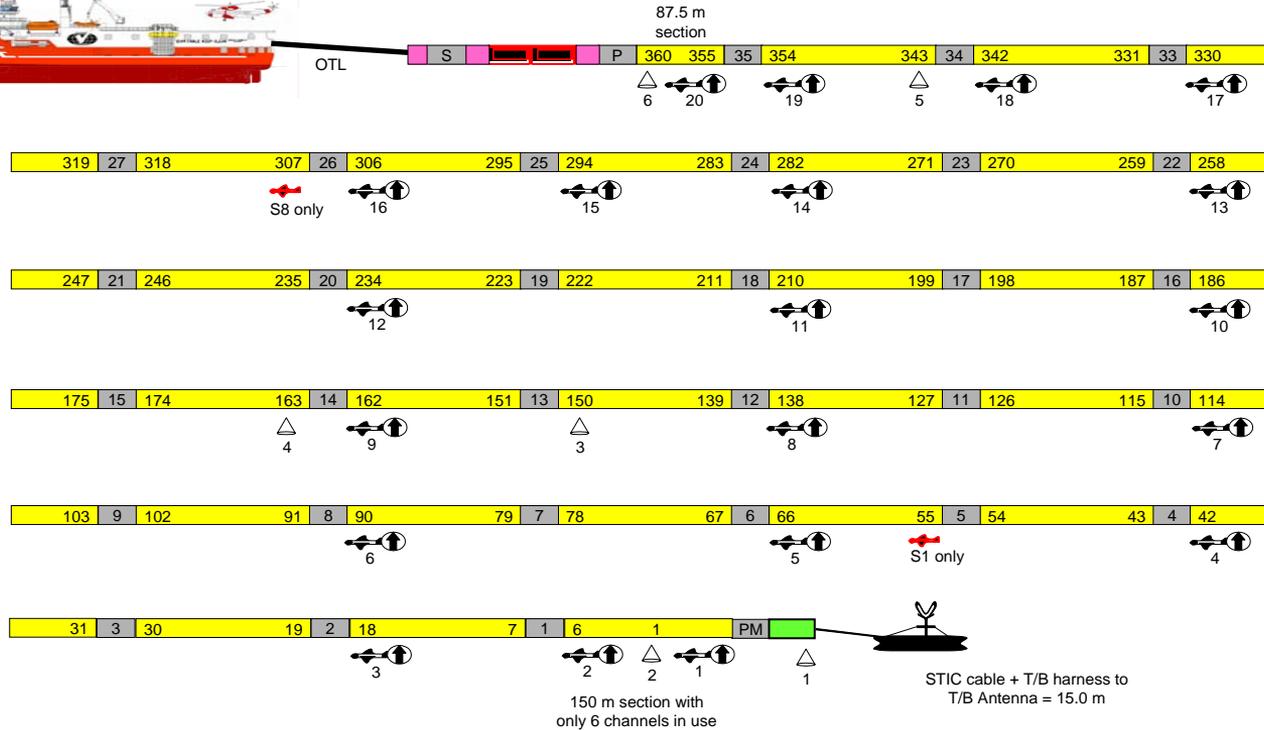
www.veritasdgc.com

Summary of changes

- **Changed mapping of UDO source depth ID sensors**
- **Acoustic SD changed from 2.0 to 0.7**

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	11-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	3		Onboard Representative	NavDef #03
JOB # :	20323	TO SEQ :	5		Client: <i>Print</i> <i>Sign</i>	

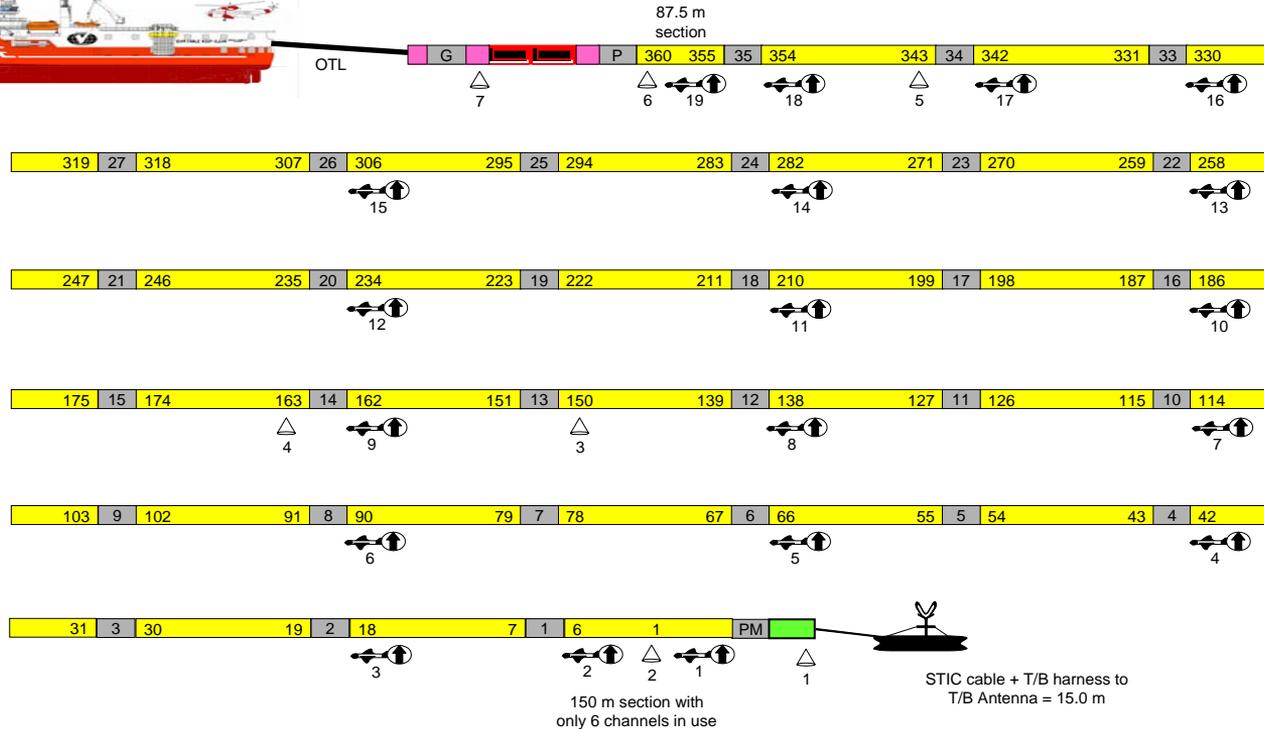
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
- Velocimeter
- Depth controller, depth transducer & compass
- Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	11-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	3		Onboard Representative	NavDef #03
JOB # :	20323	TO SEQ :	5		Client: <i>Print</i> <i>Sign</i>	

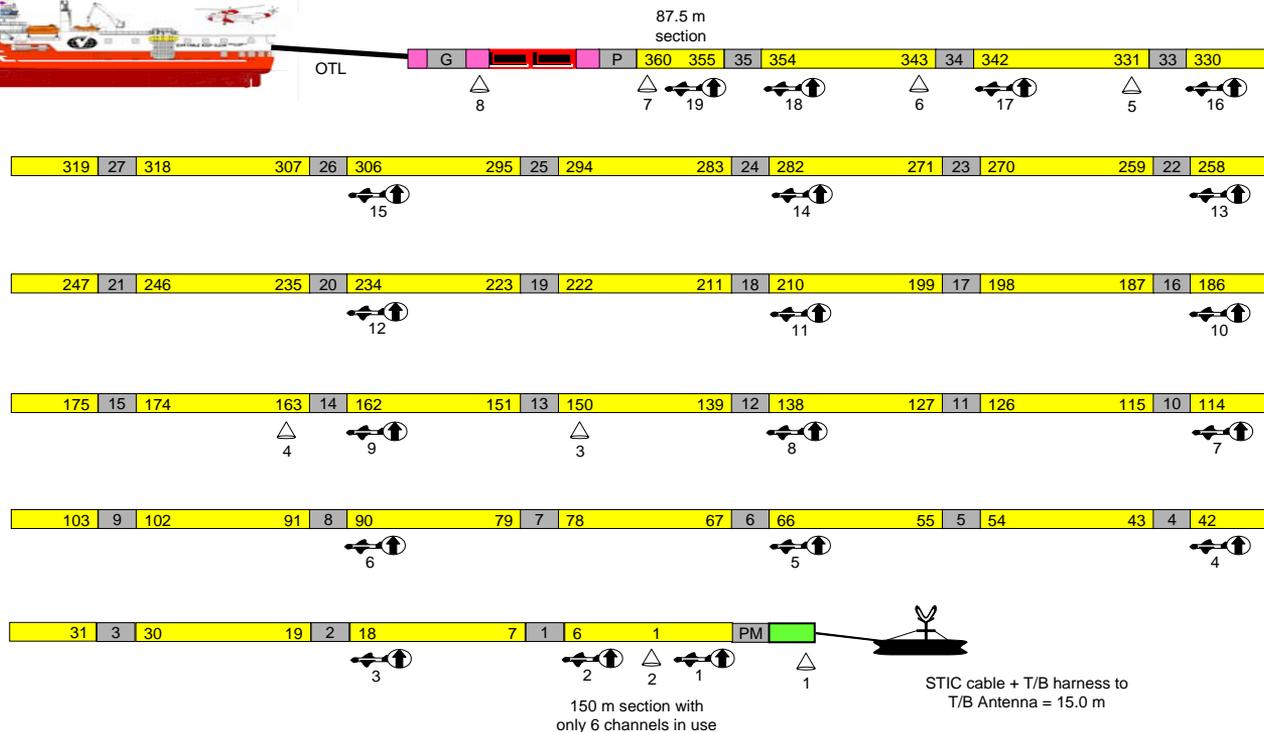
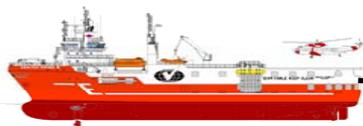
Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 3
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	11-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	3		Onboard Representative	NavDef #03
JOB # :	20323	TO SEQ :	5		Client: <i>Print</i> <i>Sign</i>	

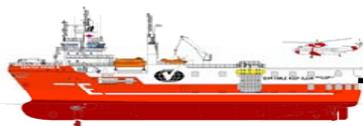
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

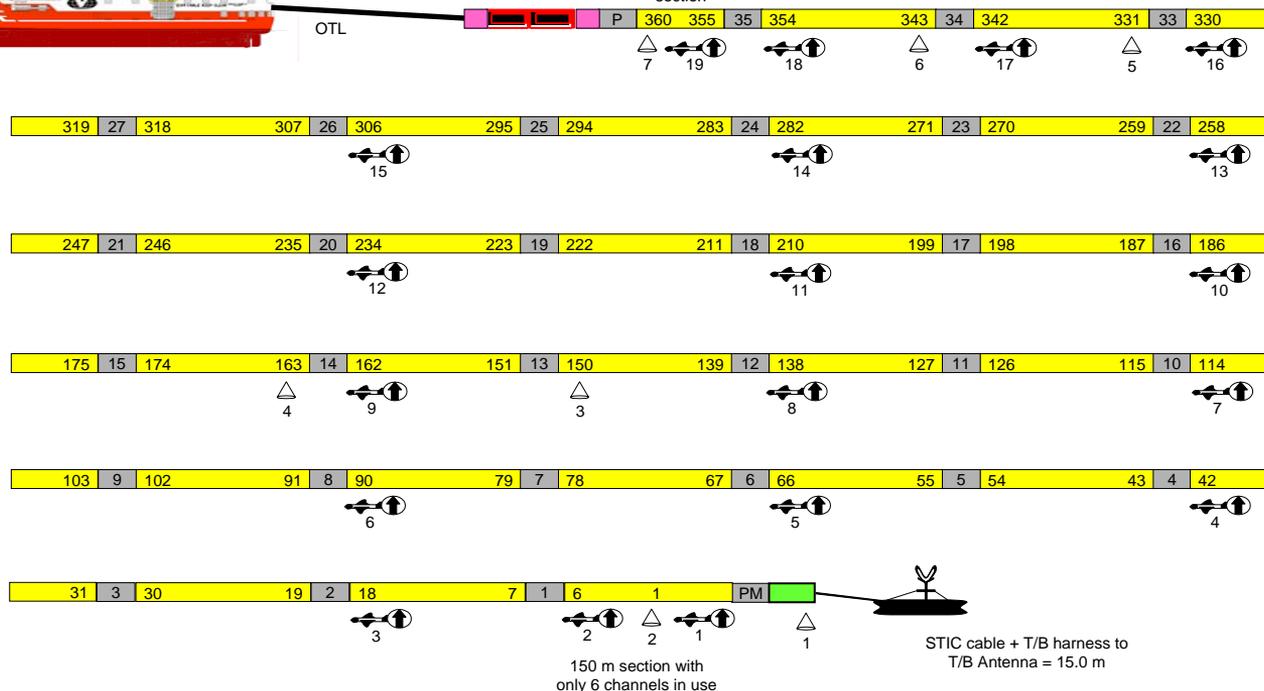
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	11-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	3		Onboard Representative	NavDef #03
JOB # :	20323	TO SEQ :	5		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



OTL

87.5 m
section



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	11-MAY-2006
AREA :	2006 Greater Bream 3D	FROM SEQ :	3
JOB # :	20323	TO SEQ :	5

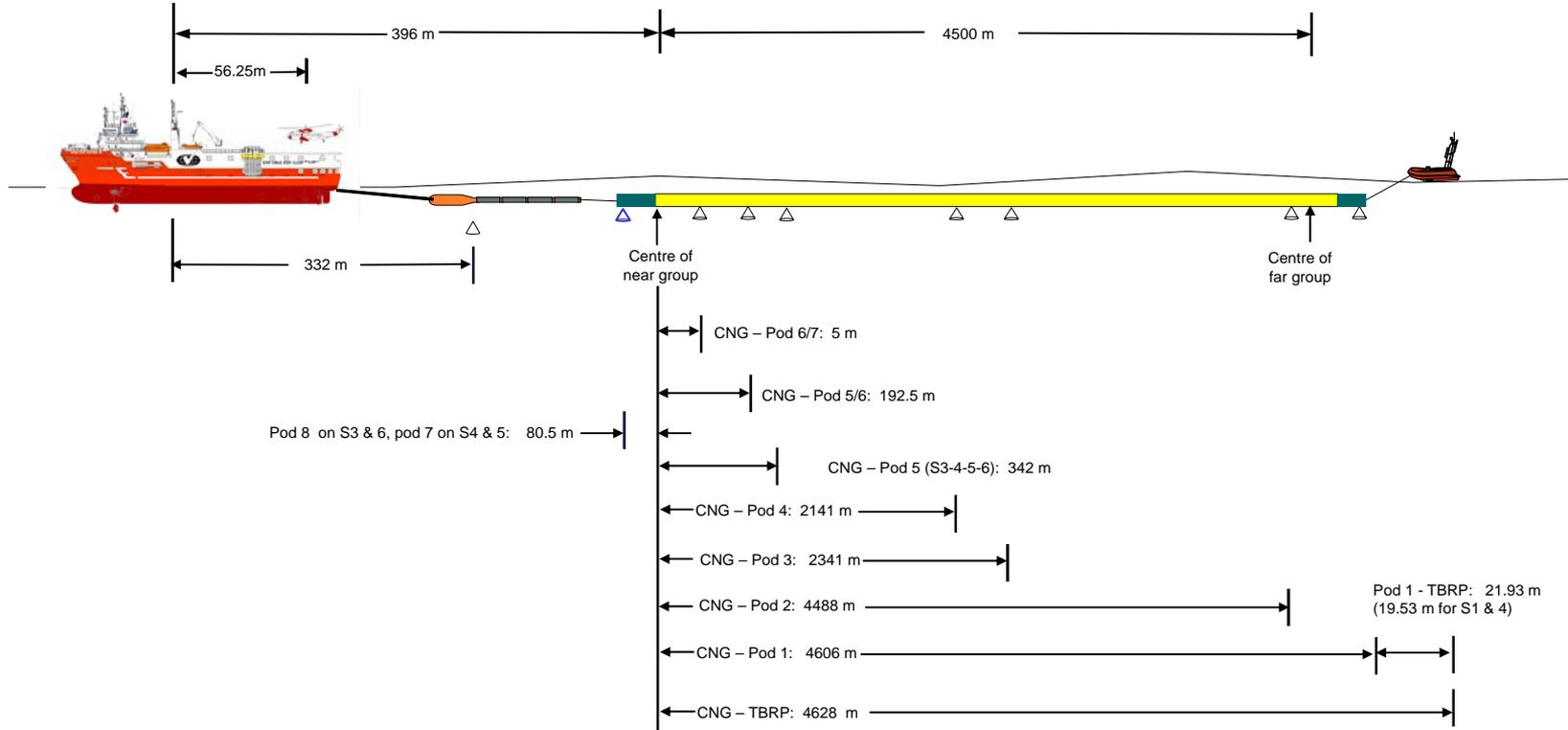
Not to scale
Measurements
in metres

M Boon - Geo Supervisor	
GS: <i>Print</i>	<i>Sign</i>
Onboard Representative	
Client: <i>Print</i>	<i>Sign</i>

Page 5
Created: 14-MAY-06
NavDef #03

Nominal Inline Acoustic Offsets

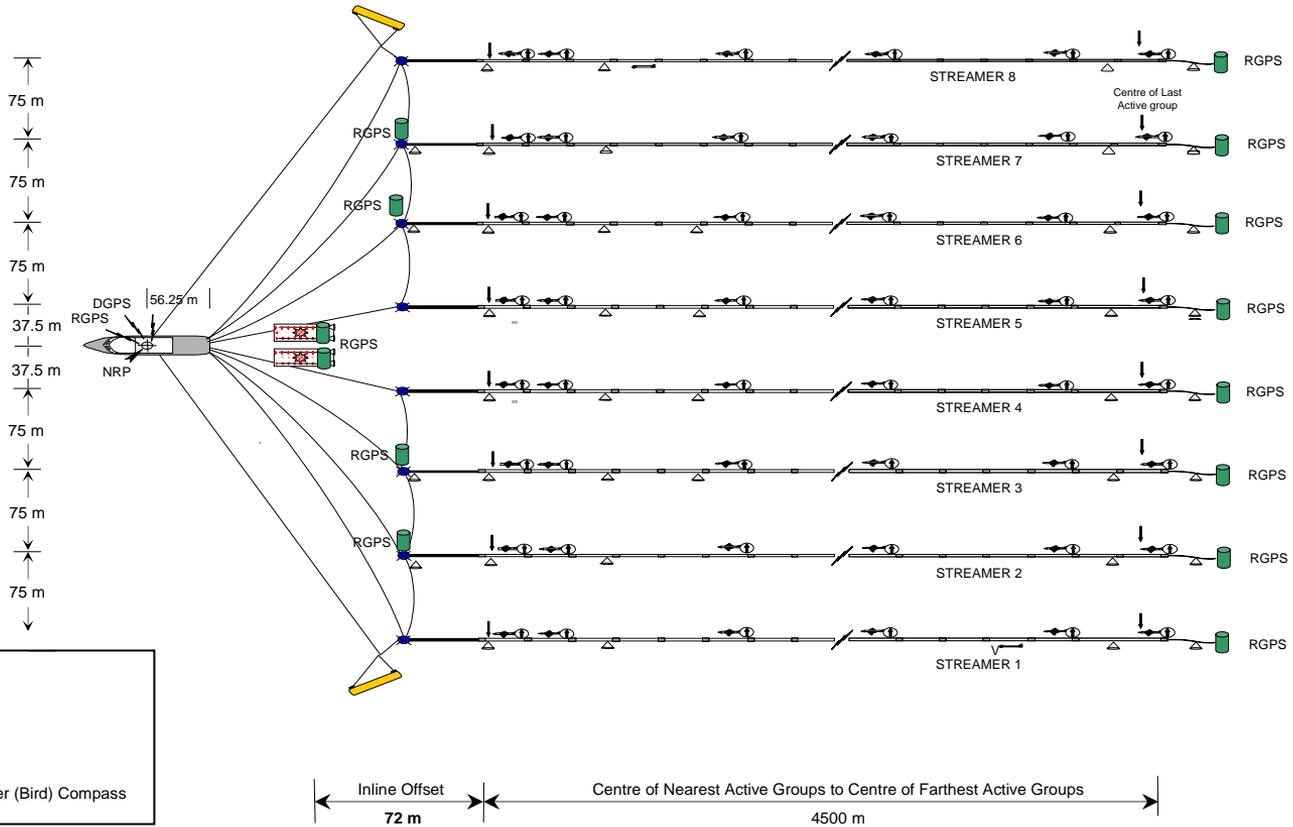
Esso Australia Pty Ltd – 2006 Bream 3D



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	11-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	3		Onboard Representative	NavDef #03
JOB # :	20323	TO SEQ :	5		Client: <i>Print</i> <i>Sign</i>	

Schematic Plan View

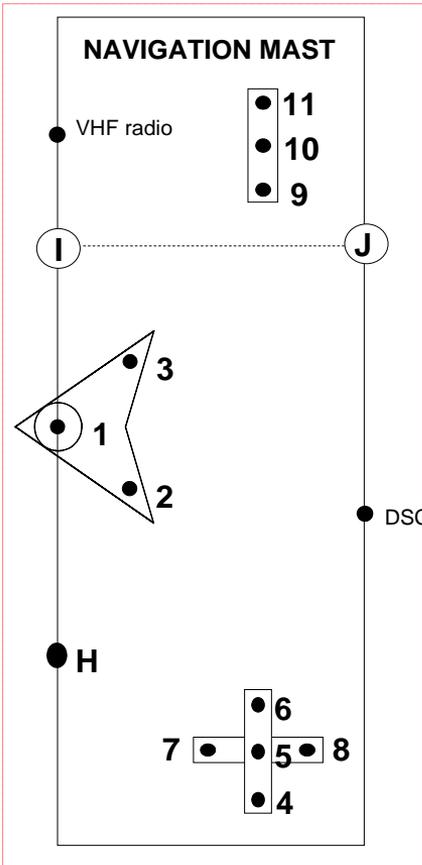
Esso Australia Pty Ltd – 2006 Bream 3D



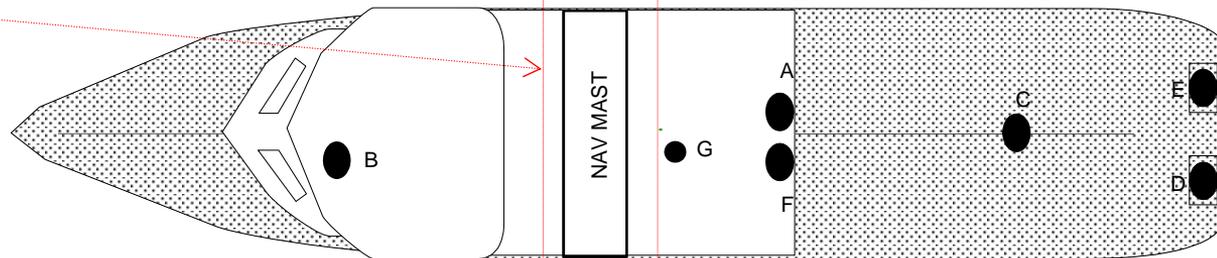
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 7
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	11-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	3		Onboard Representative	
JOB # :	20323	TO SEQ :	5		Client: <i>Print</i> <i>Sign</i>	NavDef #03

Antenna Offsets

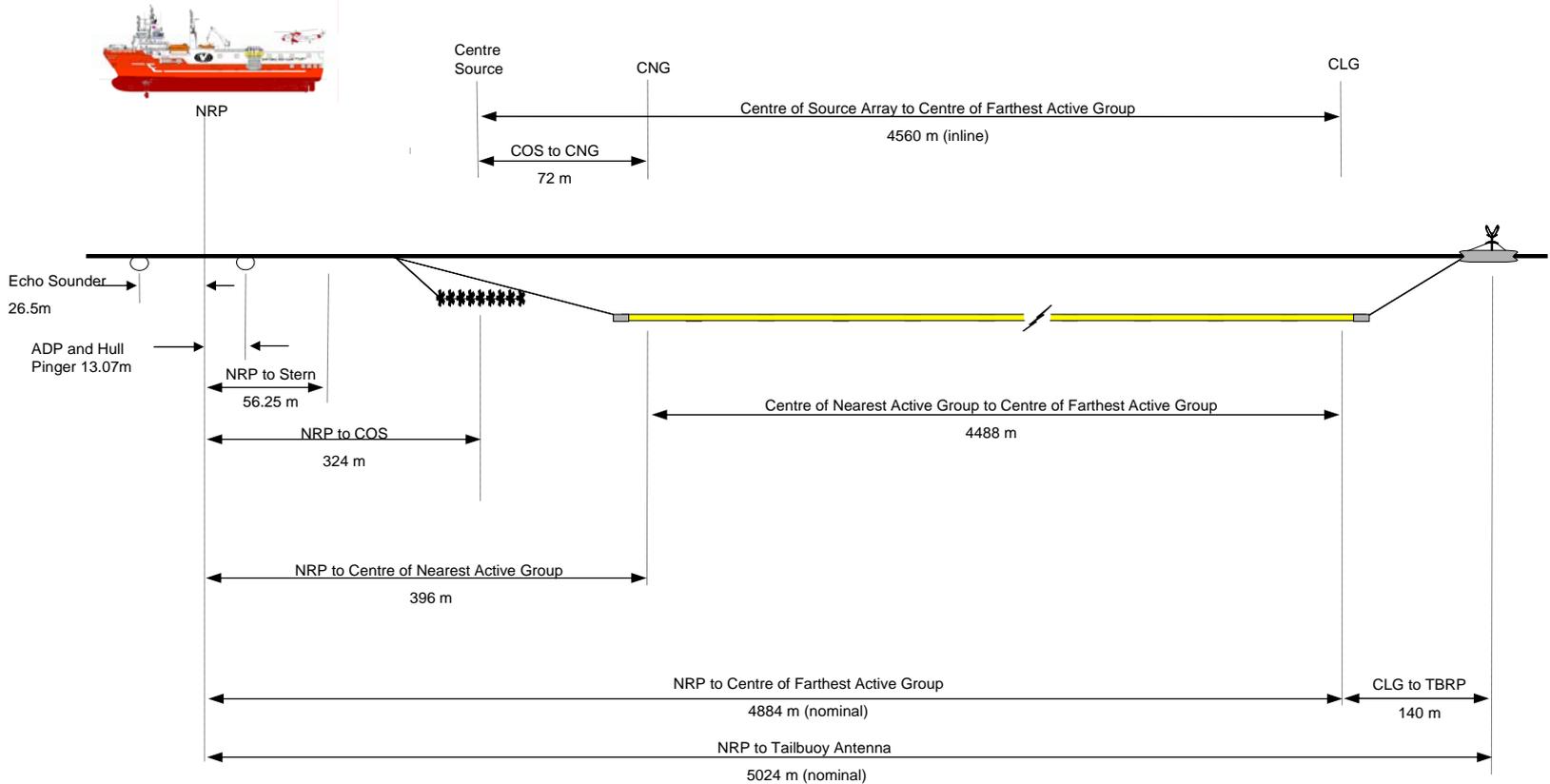
Esso Australia Pty Ltd – 2006 Bream 3D



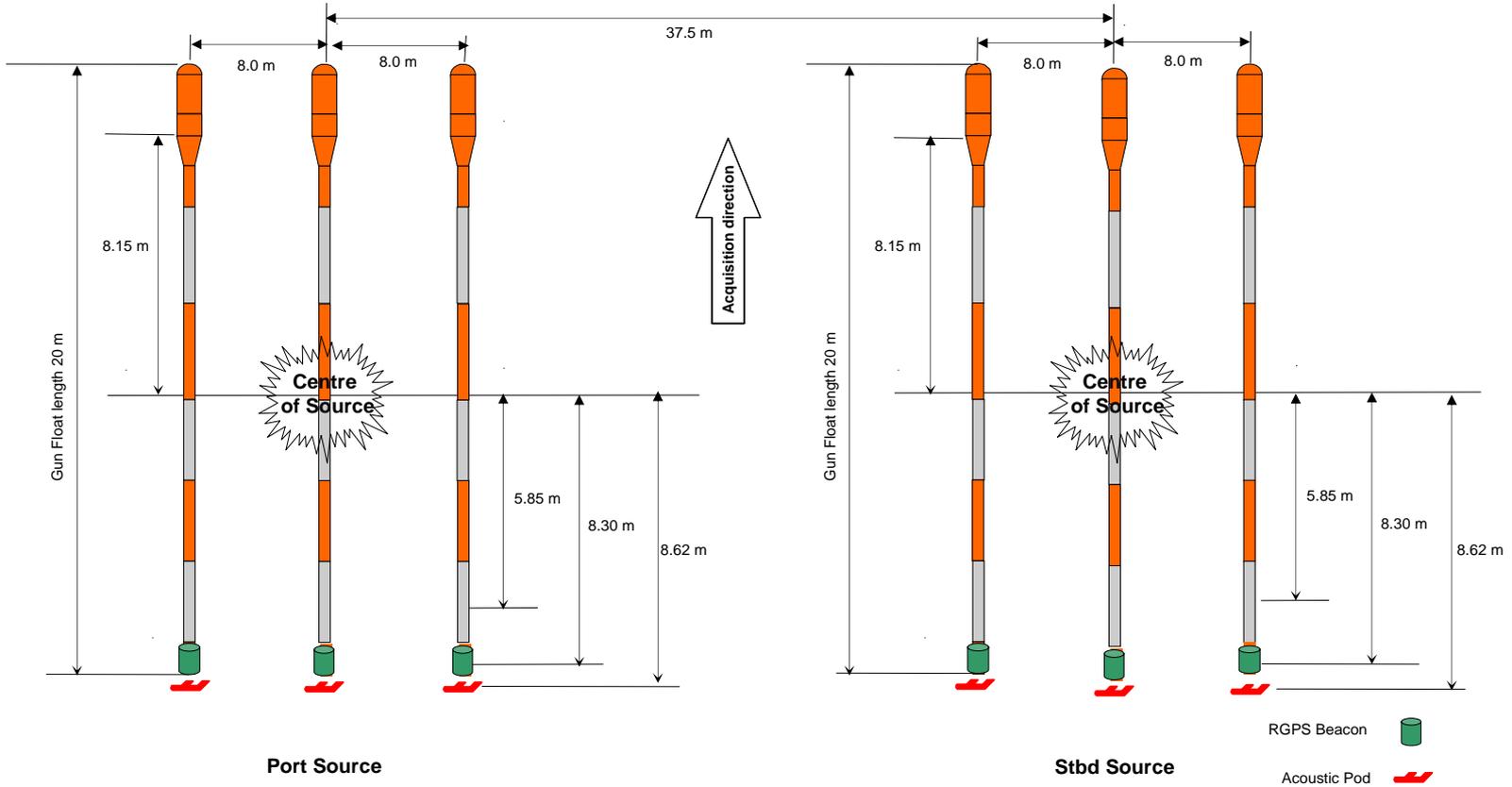
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	11-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	3		Onboard Representative	NavDef #03
JOB # :	20323	TO SEQ :	5		Client: <i>Print</i> <i>Sign</i>	



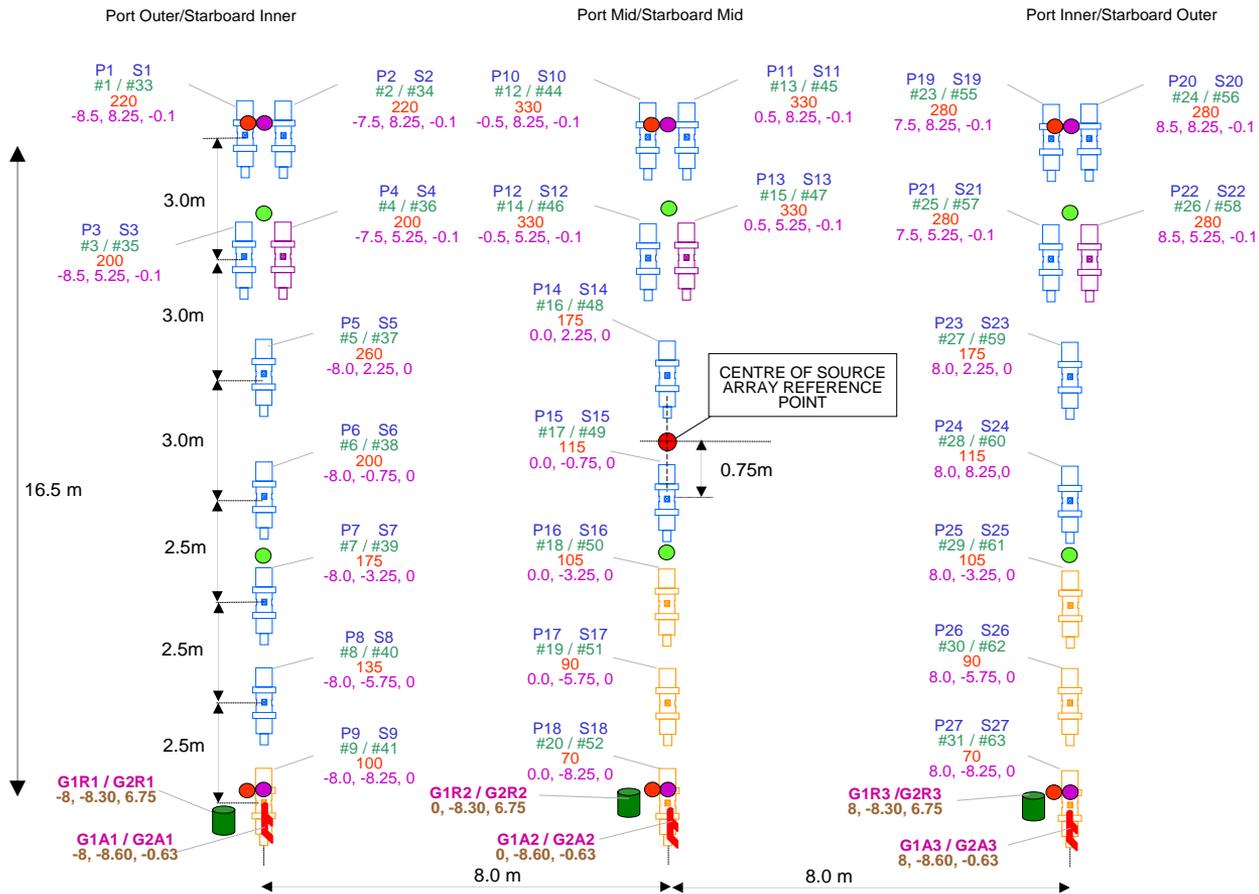
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	11-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	3		Onboard Representative	NavDef #03
JOB # :	20323	TO SEQ :	5		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	11-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	3		Onboard Representative	NavDef #03
JOB # :	20323	TO SEQ :	5		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

- Depth
- Pressure
- Near Field Hydrophone

- rGPS Pod
- Acoustic Pod

Gun Detail

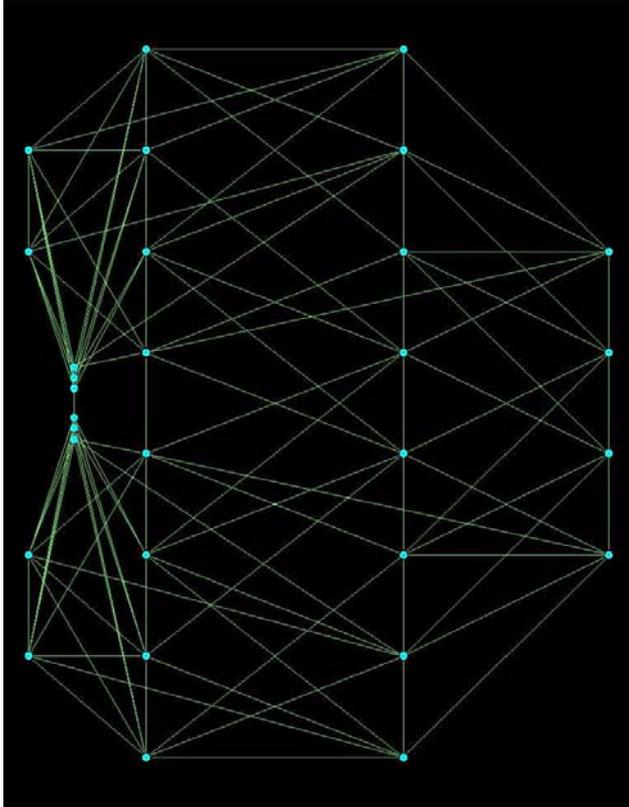
Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

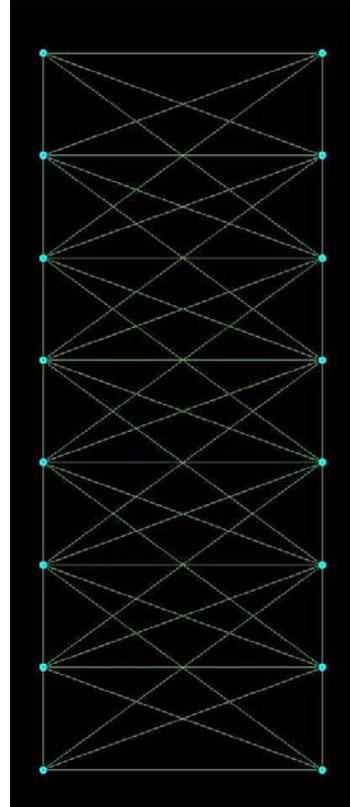
- 1500LL – Active
- 1500LL – Spare
- 1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	11-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	3		Onboard Representative	NavDef #03
JOB # :	20323	TO SEQ :	5		Client: <i>Print</i> <i>Sign</i>	

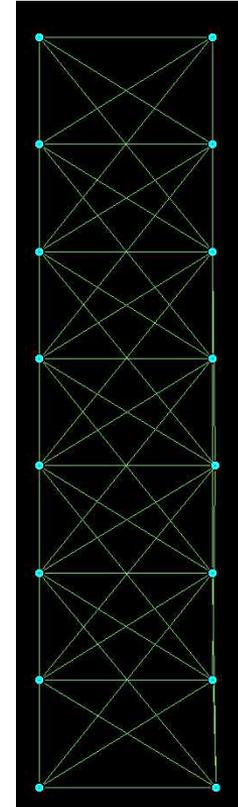
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	10-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	11-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	3		Onboard Representative	
JOB # :	20323	TO SEQ :	5		Client: <i>Print</i> <i>Sign</i>	NavDef #03



Navigation Definition 4

Esso Australia Pty Ltd – 2006 Bream 3D

**Veritas Geophysical
(Asia Pacific) Pte. Ltd.**

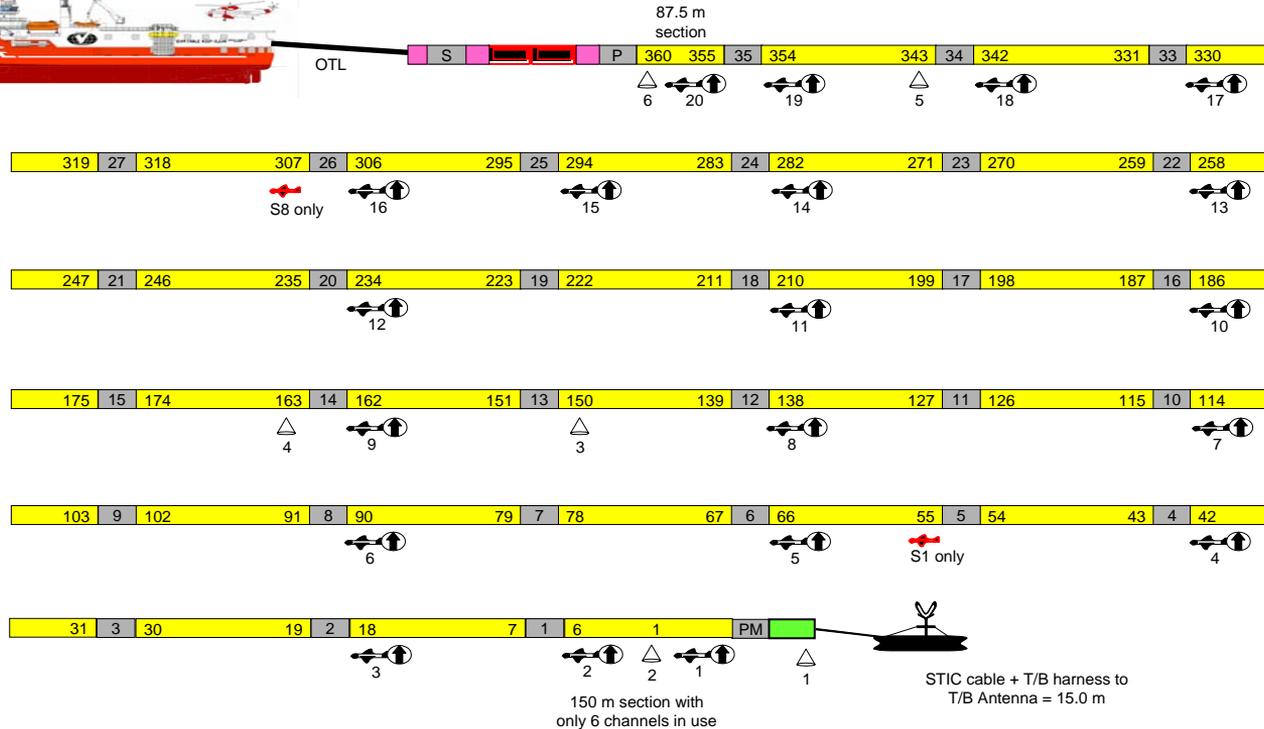
www.veritasdgc.com

Summary of changes

- **Front acoustics net change**
- **Adjusted offsets and shot layback**
- **Inline offset decreased to 66 m**

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	11-MAY-2006	<i>Not to scale</i> Measurements in metres	M Boon - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	16-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 16-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	6		Onboard Representative	NavDef #04
JOB # :	20323	TO SEQ :	19	Client: <i>Print</i> <i>Sign</i>		

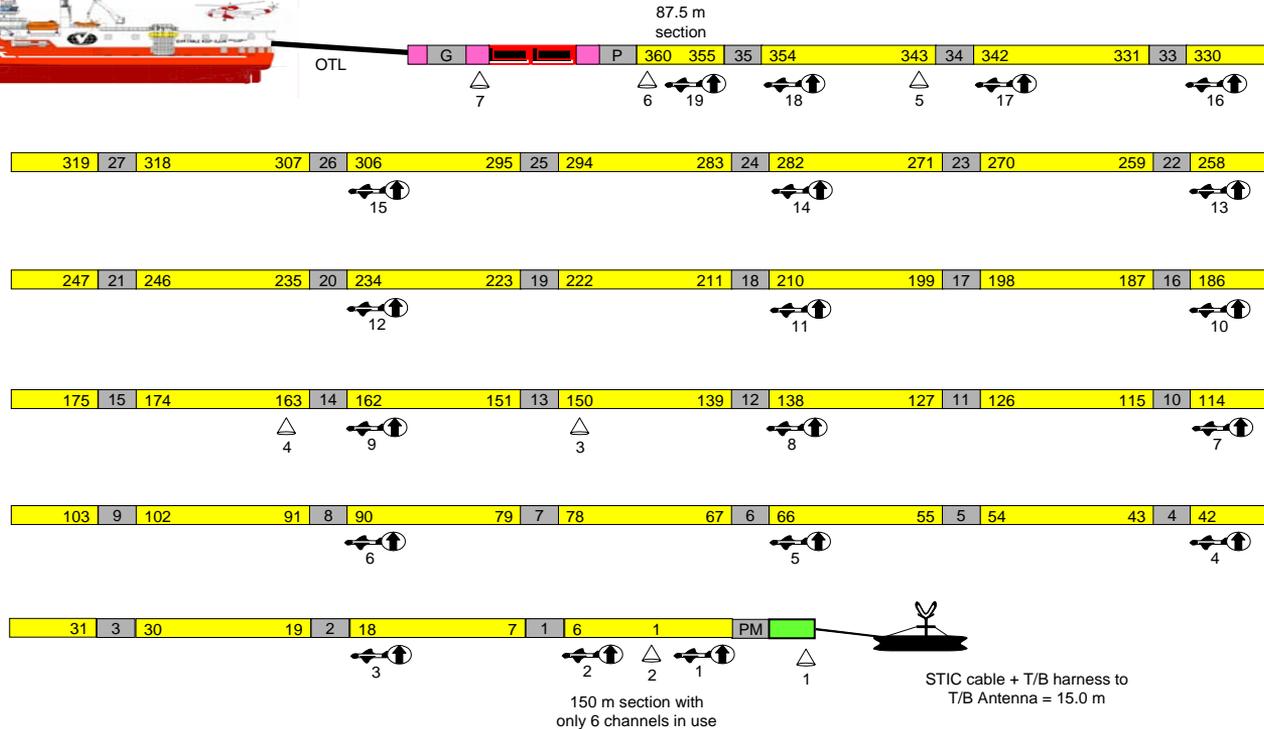
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



-  TAP can (0.35m)
-  Streamer tension unit, STU (0.35m)
-  Passive Module (0.35m)
-  Power Module (0.35m)
-  Active Module (0.35m)
-  RVIM Stretch section (25m static)
-  Solid active (150m)
- 109 Group/trace number
-  Stretch (50m static)
-  Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	11-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	16-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 16-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	6		Onboard Representative	NavDef #04
JOB # :	20323	TO SEQ :	19		Client: <i>Print</i> <i>Sign</i>	

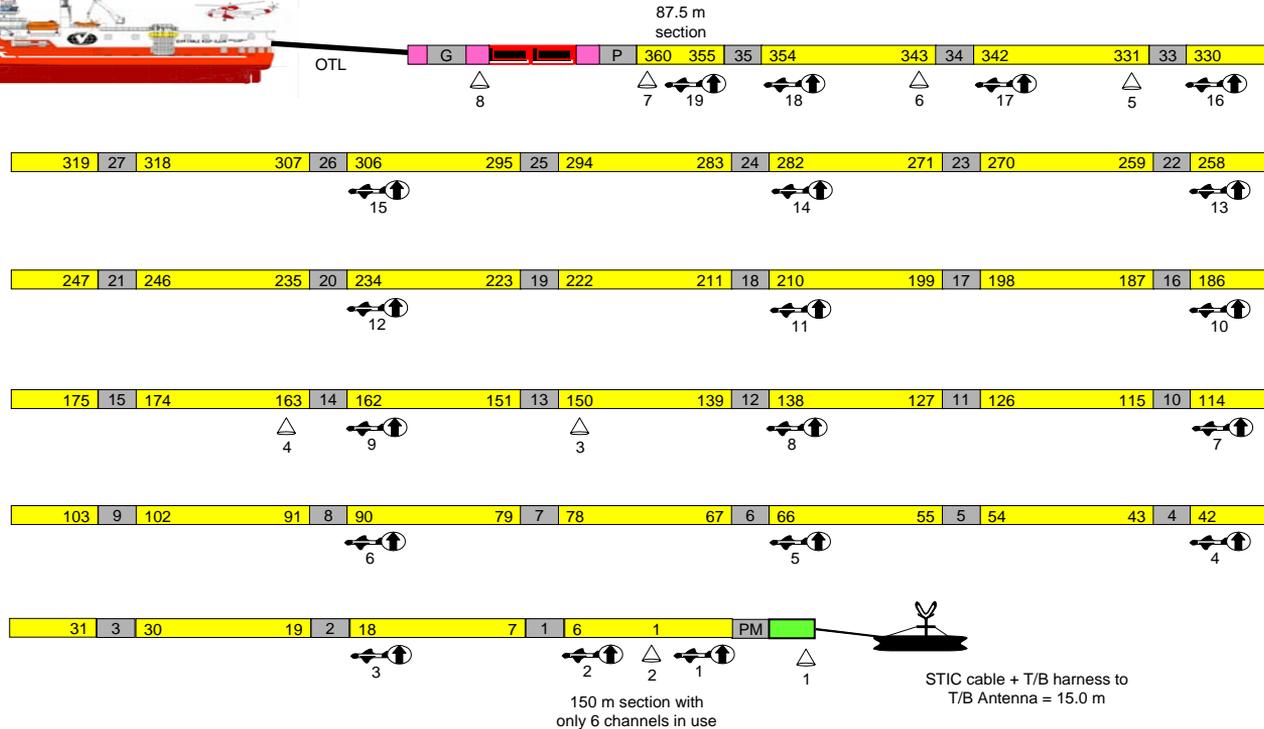
Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL : SR/V Veritas Viking 2	FROM DATE : 11-MAY-2006	<i>Not to scale</i> Measurements in metres	M Boon - Geo Supervisor	Page 3
CLIENT : Esso Australia Pty. Ltd.	TO DATE : 16-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 16-MAY-06
AREA : 2006 Greater Bream 3D	FROM SEQ : 6		Onboard Representative	NavDef #04
JOB # : 20323	TO SEQ : 19		Client: <i>Print</i> <i>Sign</i>	

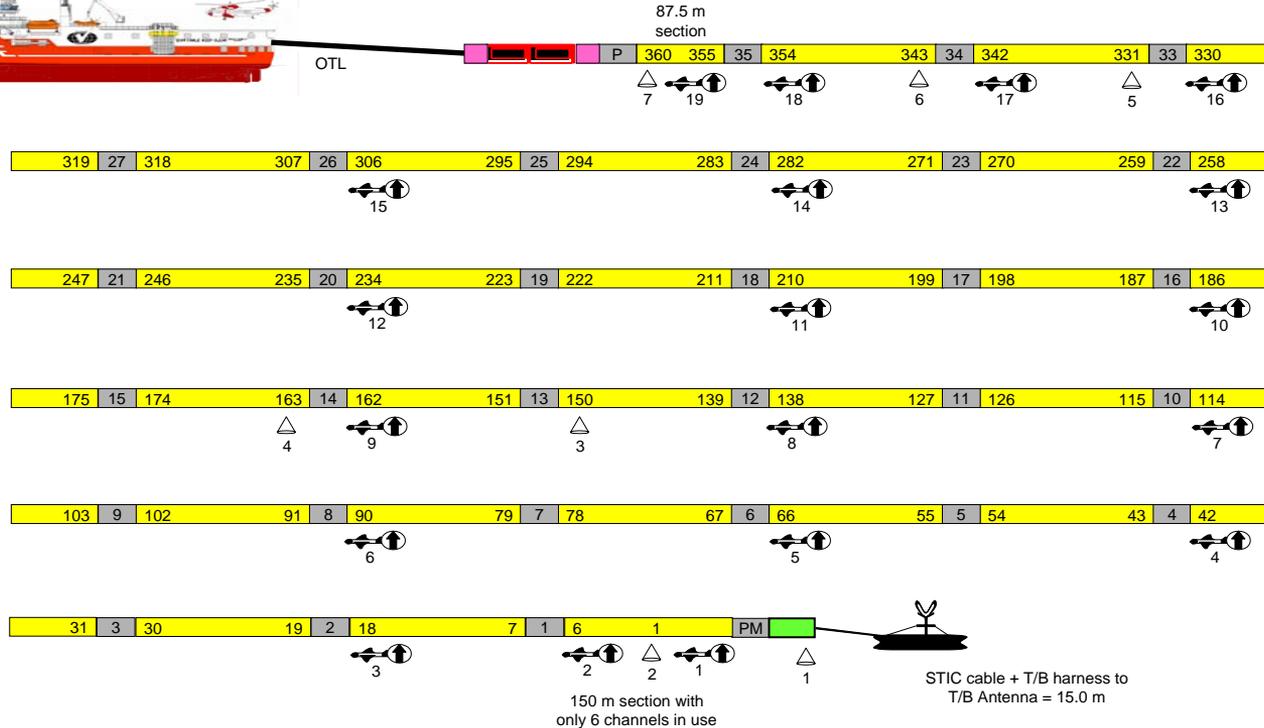
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	11-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	16-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 16-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	6		Onboard Representative	NavDef #04
JOB # :	20323	TO SEQ :	19		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

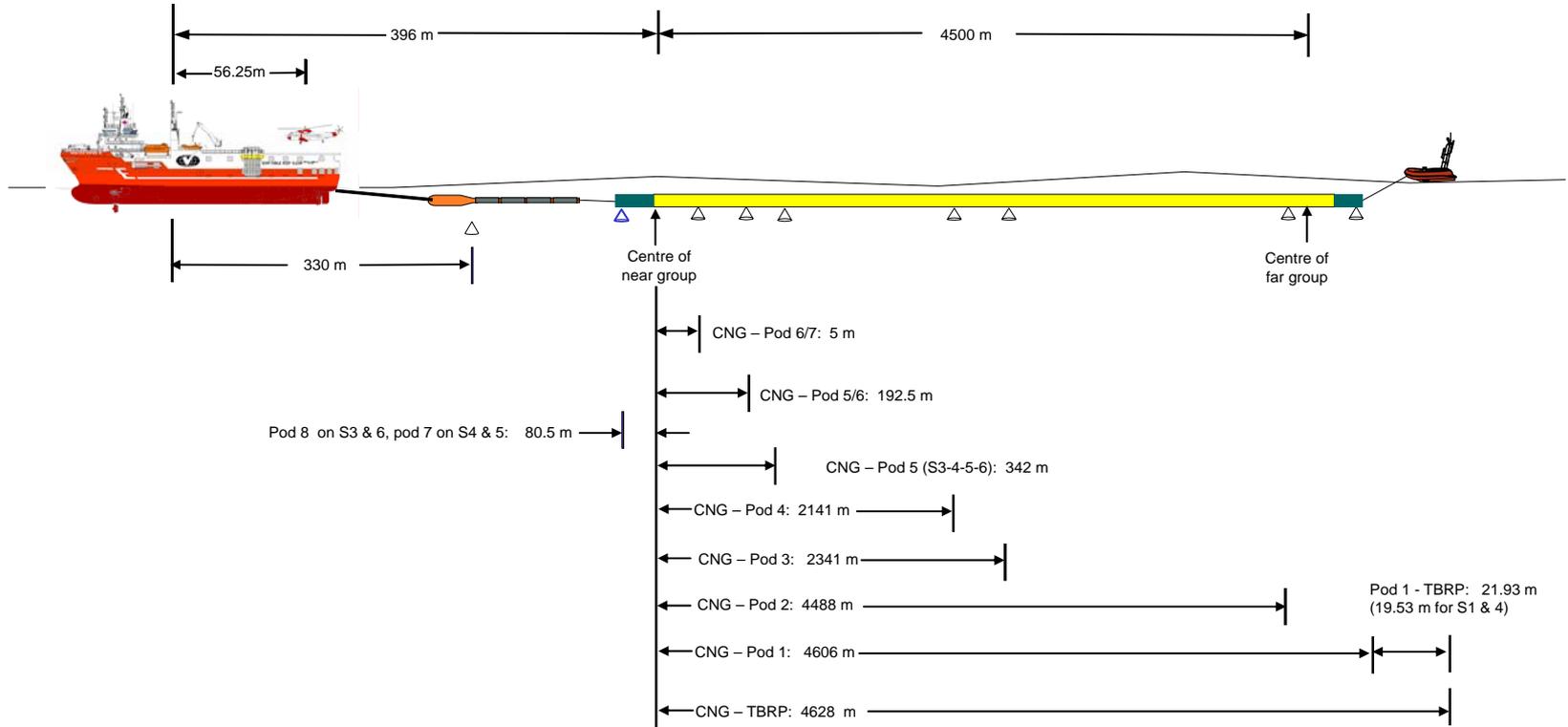


- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

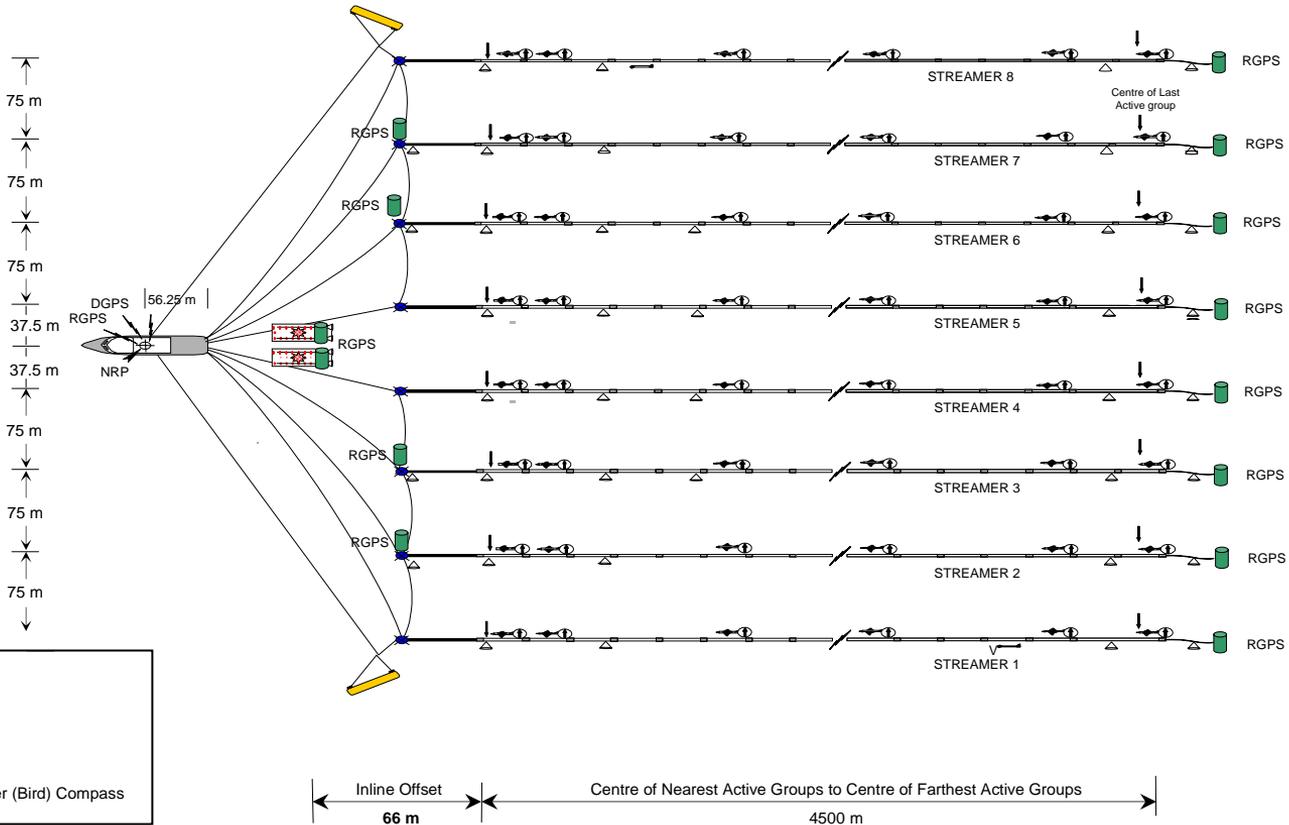
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AREA : 2006 Greater Bream 3D	FROM SEQ : 6		Onboard Representative	NavDef #04
JOB # : 20323	TO SEQ : 19		Client: <i>Print</i> <i>Sign</i>	

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



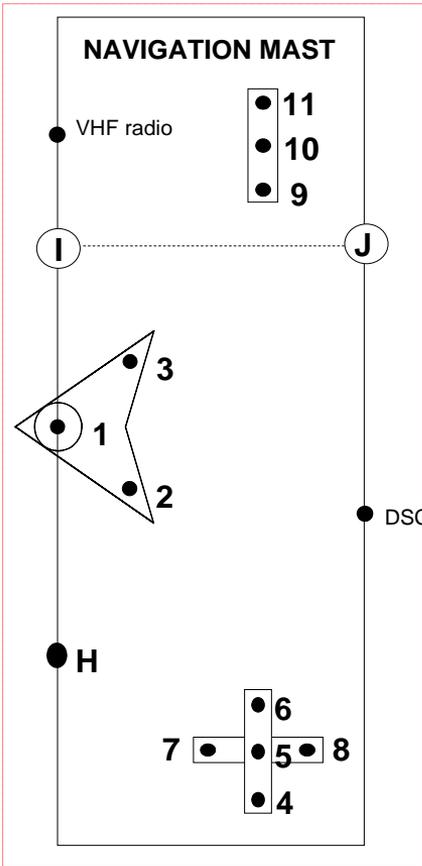
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CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	16-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 16-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	6		Onboard Representative	NavDef #04
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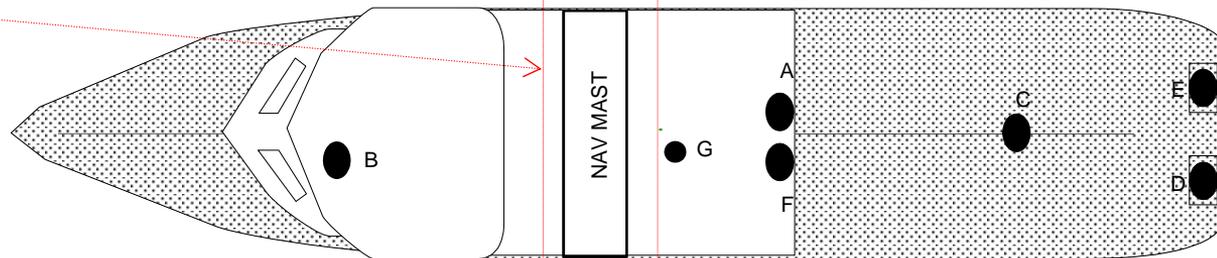
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	11-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 7
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AREA :	2006 Greater Bream 3D	FROM SEQ :	6		Onboard Representative	NavDef #04
JOB # :	20323	TO SEQ :	19		Client: <i>Print</i> <i>Sign</i>	

Antenna Offsets

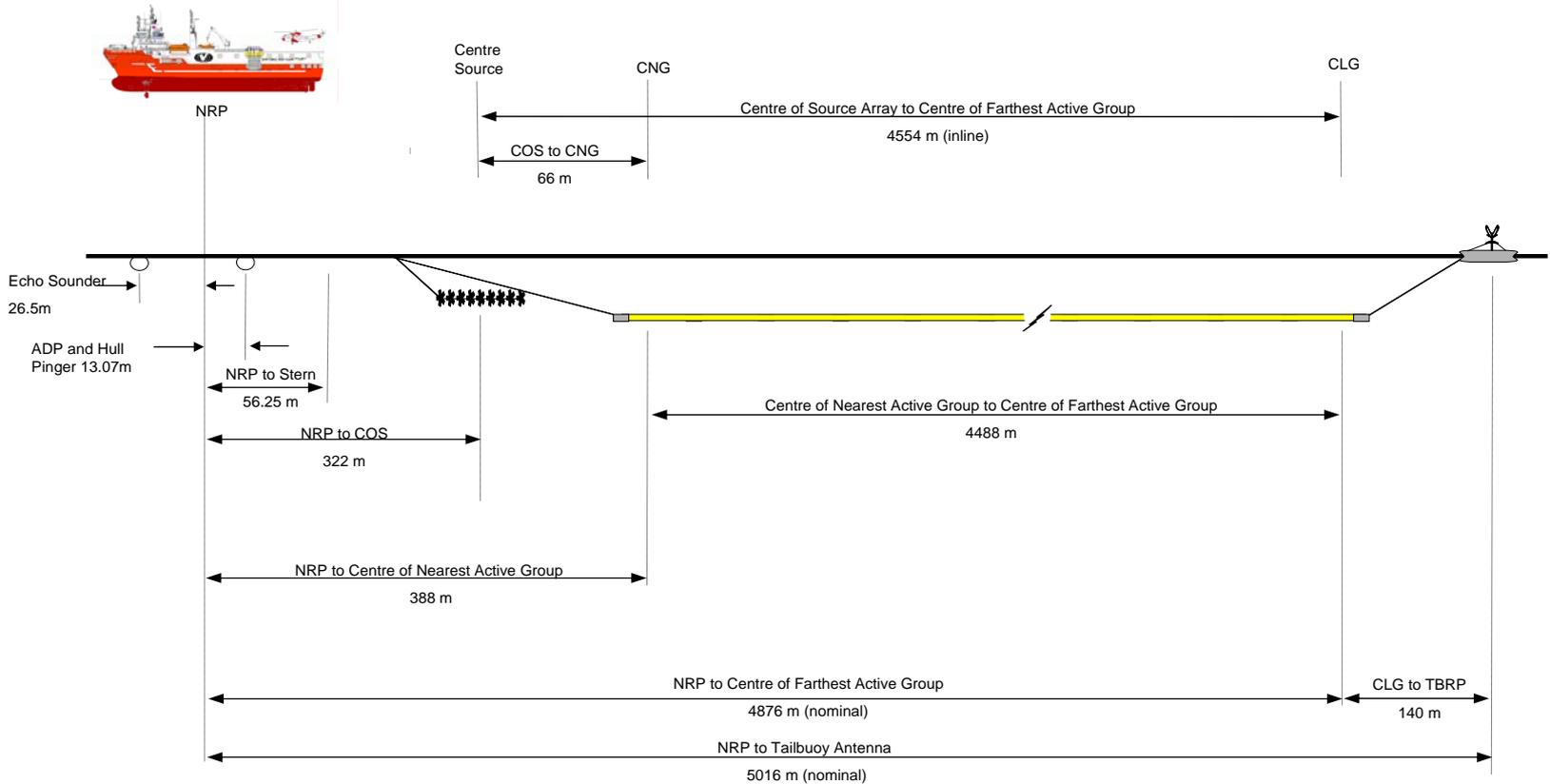
Esso Australia Pty Ltd – 2006 Bream 3D



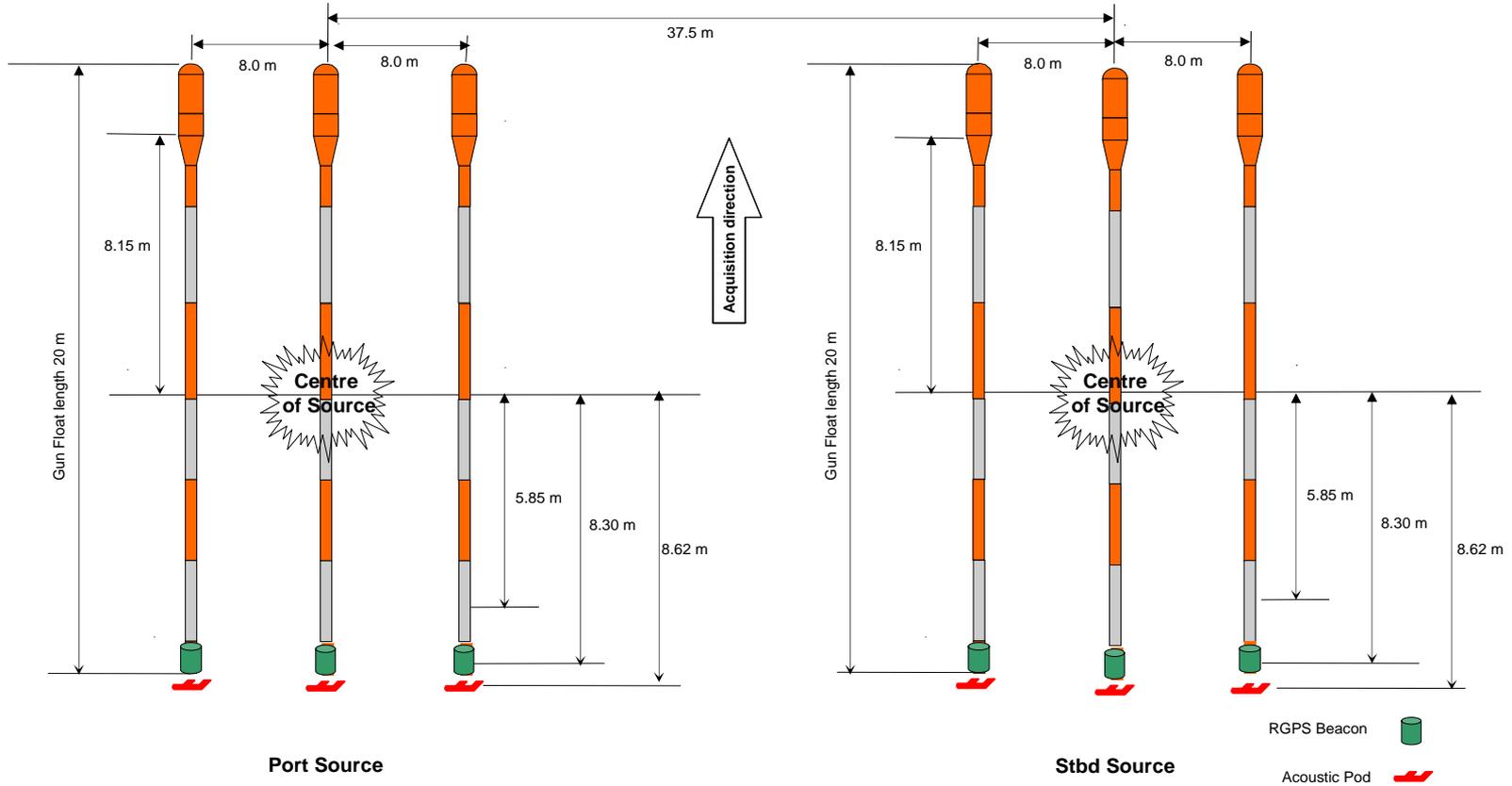
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	11-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	16-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 16-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	6		Onboard Representative	
JOB # :	20323	TO SEQ :	19	Client: <i>Print</i> <i>Sign</i>	NavDef #04	



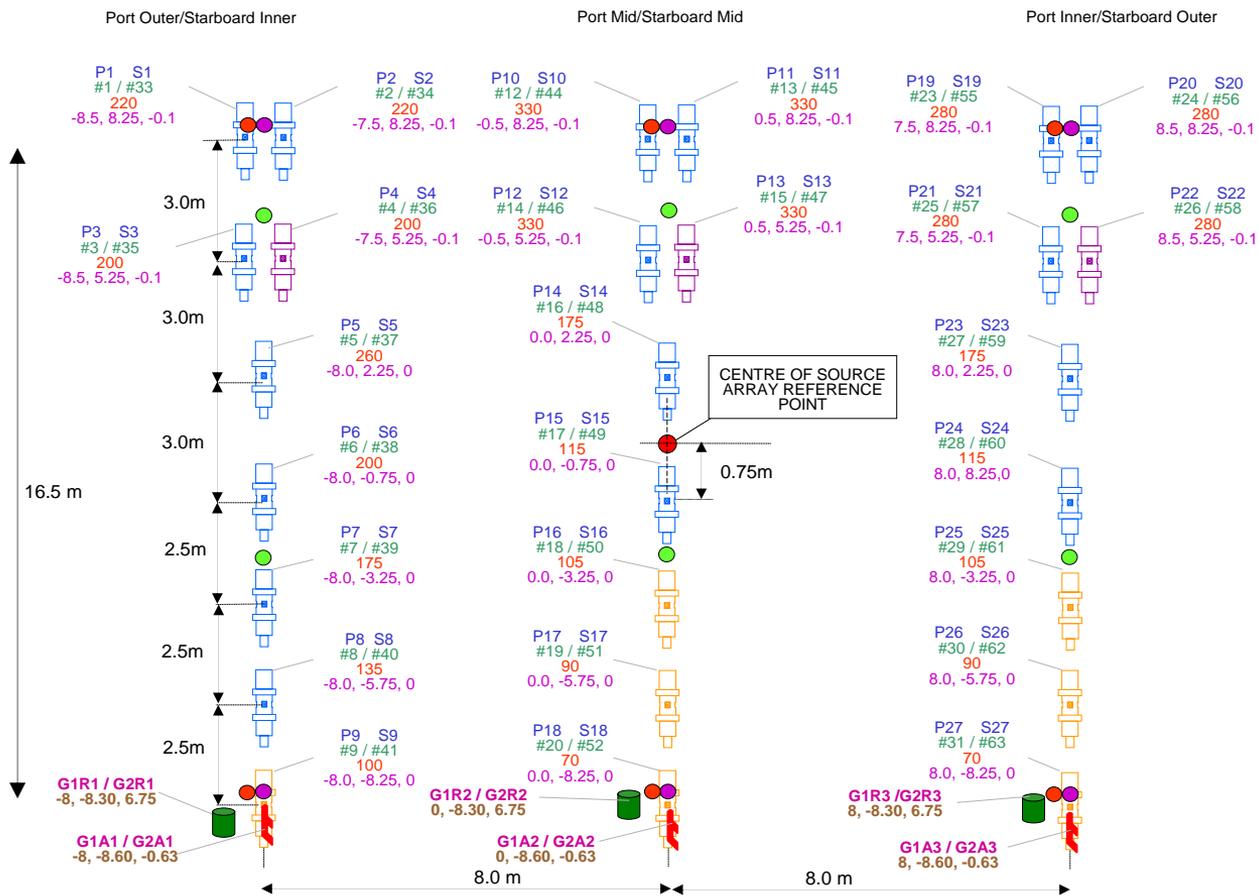
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	11-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	16-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 16-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	6		Onboard Representative	NavDef #04
JOB # :	20323	TO SEQ :	19		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	11-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	16-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 16-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	6		Onboard Representative	NavDef #04
JOB # :	20323	TO SEQ :	19		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

- Depth
- Pressure
- Near Field Hydrophone

- rGPS Pod
- Acoustic Pod

Gun Detail

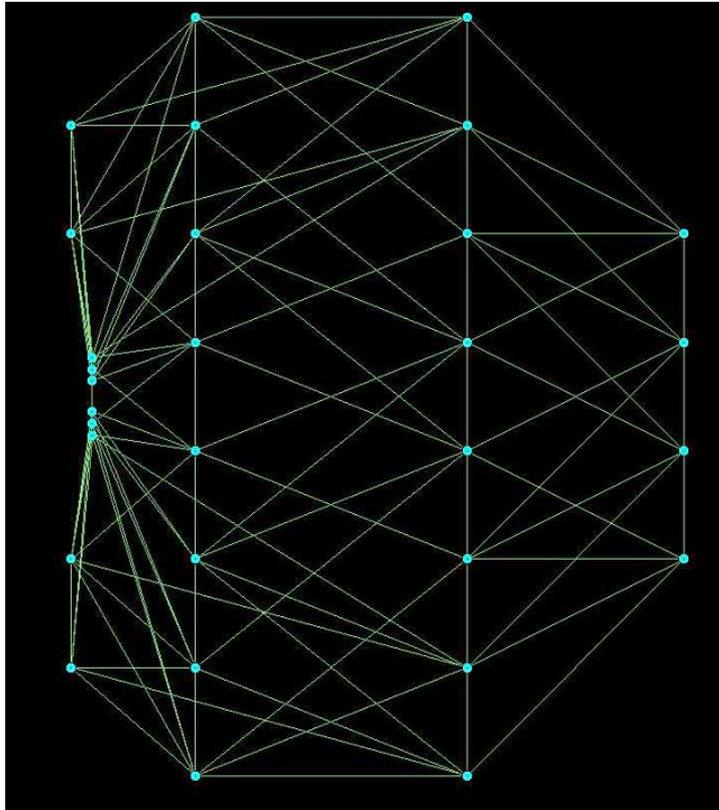
Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

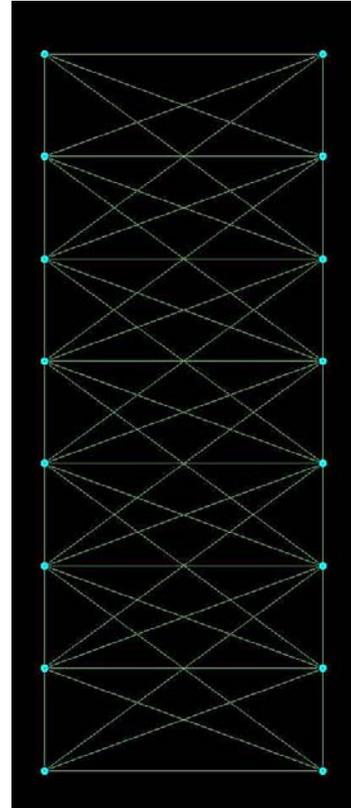
- 1500LL – Active
- 1500LL – Spare
- 1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	11-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	16-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 16-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	6		Onboard Representative	NavDef #04
JOB # :	20323	TO SEQ :	19		Client: <i>Print</i> <i>Sign</i>	

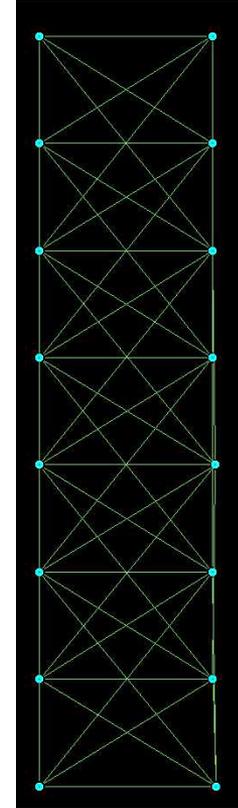
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	11-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	16-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 16-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	6		Onboard Representative	NavDef #04
JOB # :	20323	TO SEQ :	19		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 5

Esso Australia Pty Ltd – 2006 Bream 3D

Veritas Geophysical
(Asia Pacific) Pte. Ltd.

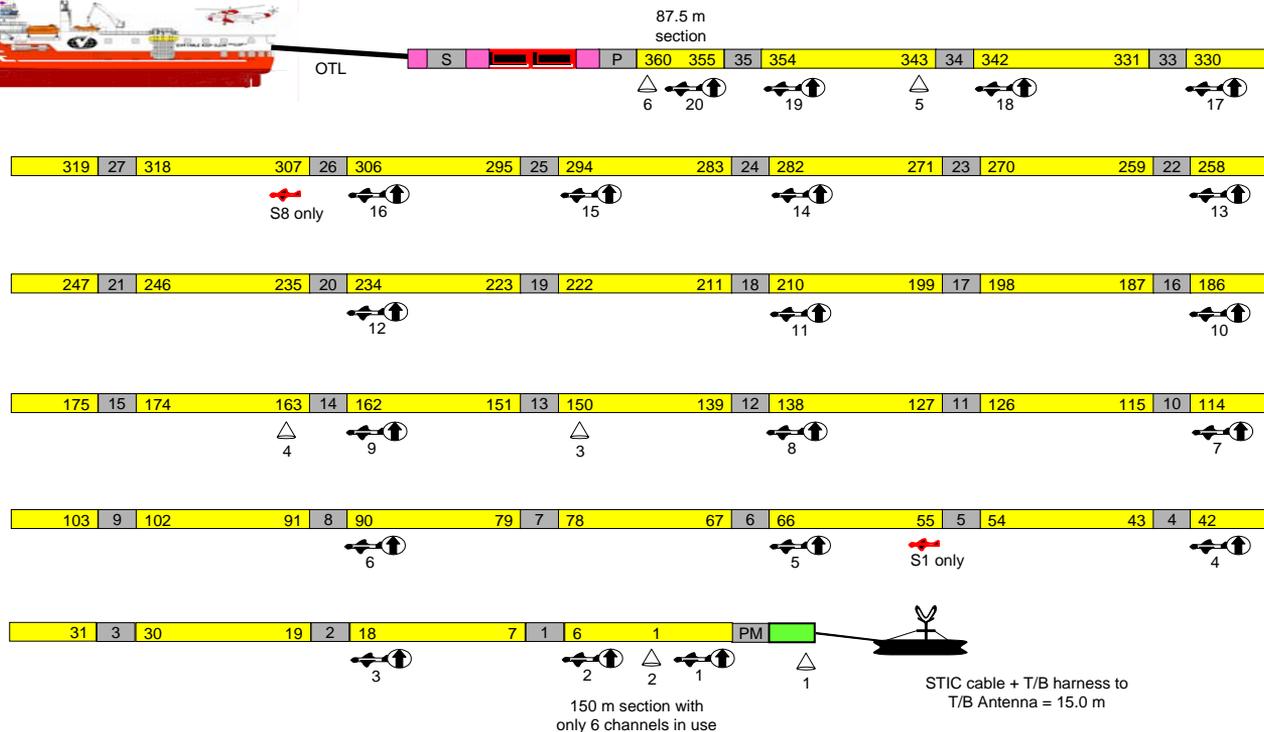
www.veritasdgc.com

Summary of changes

- Distance to paravane increased
- Adjusted offsets and shot layback
- Inline offset increased to 75 m

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	16-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor GS: <i>Print</i> <i>Sign</i>	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	20-MAY-2006		Onboard Representative Client: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	20			NavDef #05
JOB # :	20323	TO SEQ :	31			

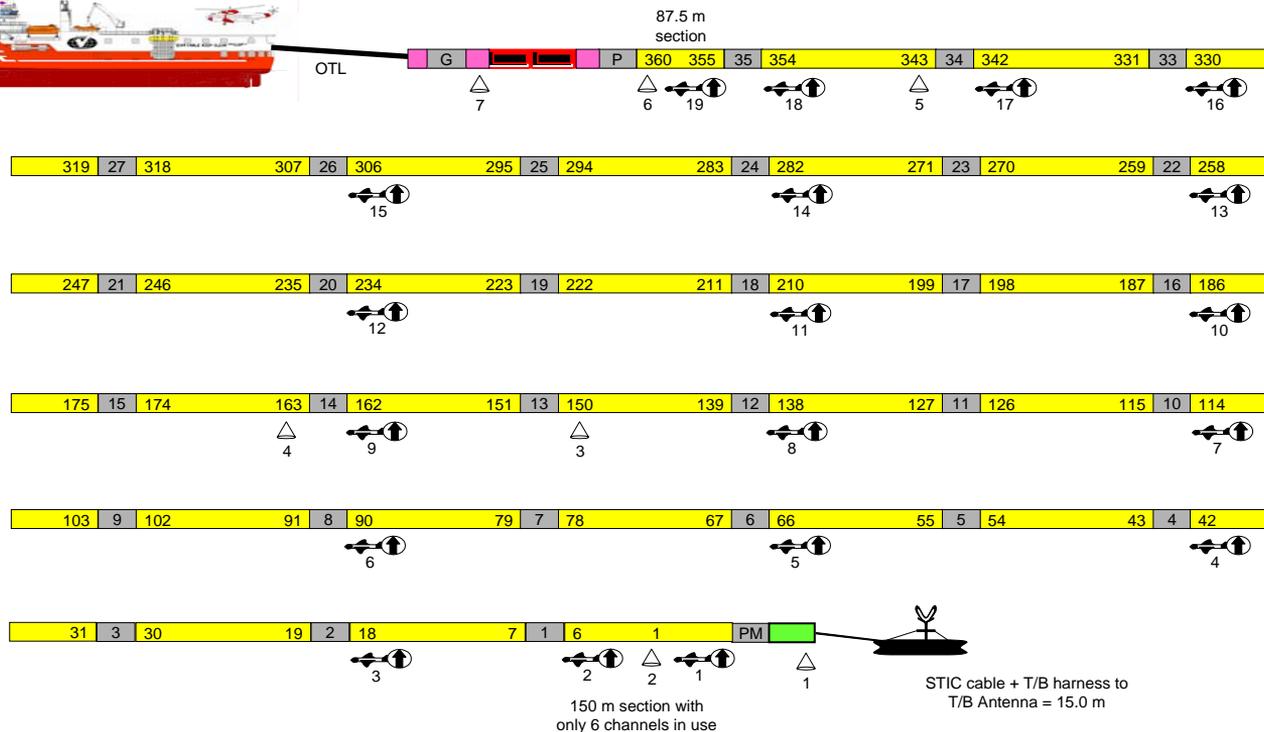
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	16-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	20-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	20		Onboard Representative	NavDef #05
JOB # :	20323	TO SEQ :	31		Client: <i>Print</i> <i>Sign</i>	

Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

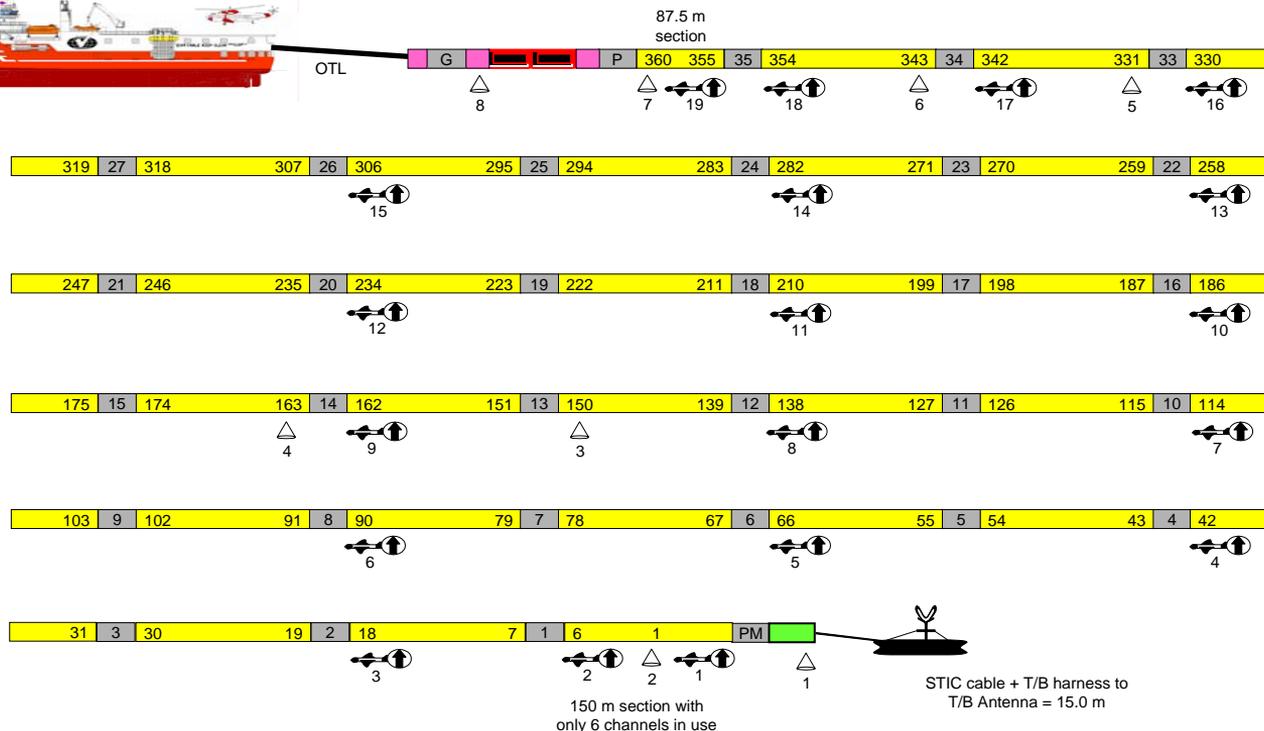
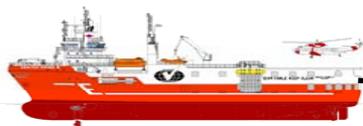
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	16-MAY-2006
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	20-MAY-2006
AREA :	2006 Greater Bream 3D	FROM SEQ :	20
JOB # :	20323	TO SEQ :	31

Not to scale

Measurements in metres

M Boon - Geo Supervisor
GS: <i>Print</i> <i>Sign</i>
Onboard Representative
Client: <i>Print</i> <i>Sign</i>

Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



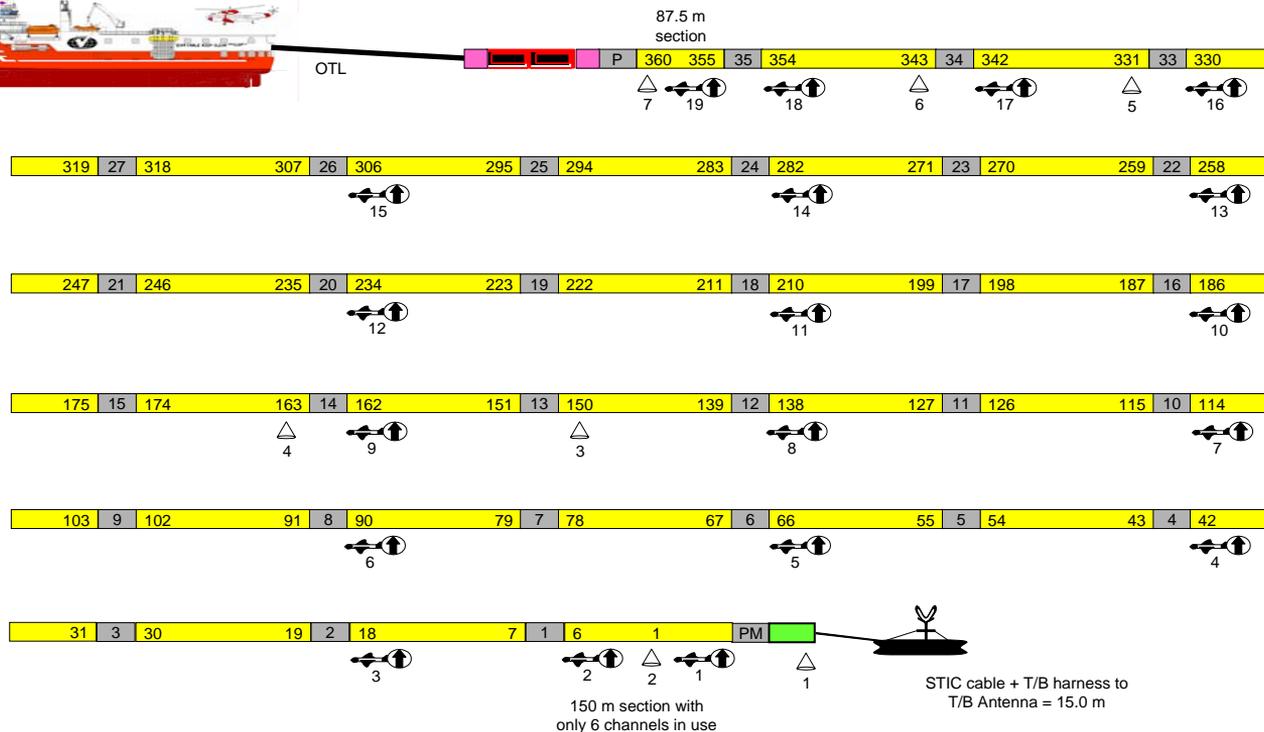
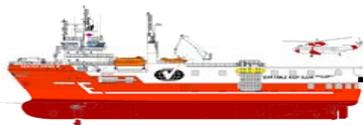
	TAP can (0.35m)
	Streamer tension unit, STU (0.35m)
	Passive Module (0.35m)
	Power Module (0.35m)
	Active Module (0.35m)
	RVIM Stretch section (25m static)
	Solid active (150m)
109	Group/trace number
	Stretch (50m static)
	Insert section (1m)
	Velocimeter
	Depth controller, depth transducer & compass
	Acoustic pod
6	

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	16-MAY-2006
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	20-MAY-2006
AREA :	2006 Greater Bream 3D	FROM SEQ :	20
JOB # :	20323	TO SEQ :	31

Not to scale
Measurements in metres

M Boon - Geo Supervisor	
GS: <i>Print</i>	<i>Sign</i>
Onboard Representative	
Client: <i>Print</i>	<i>Sign</i>

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

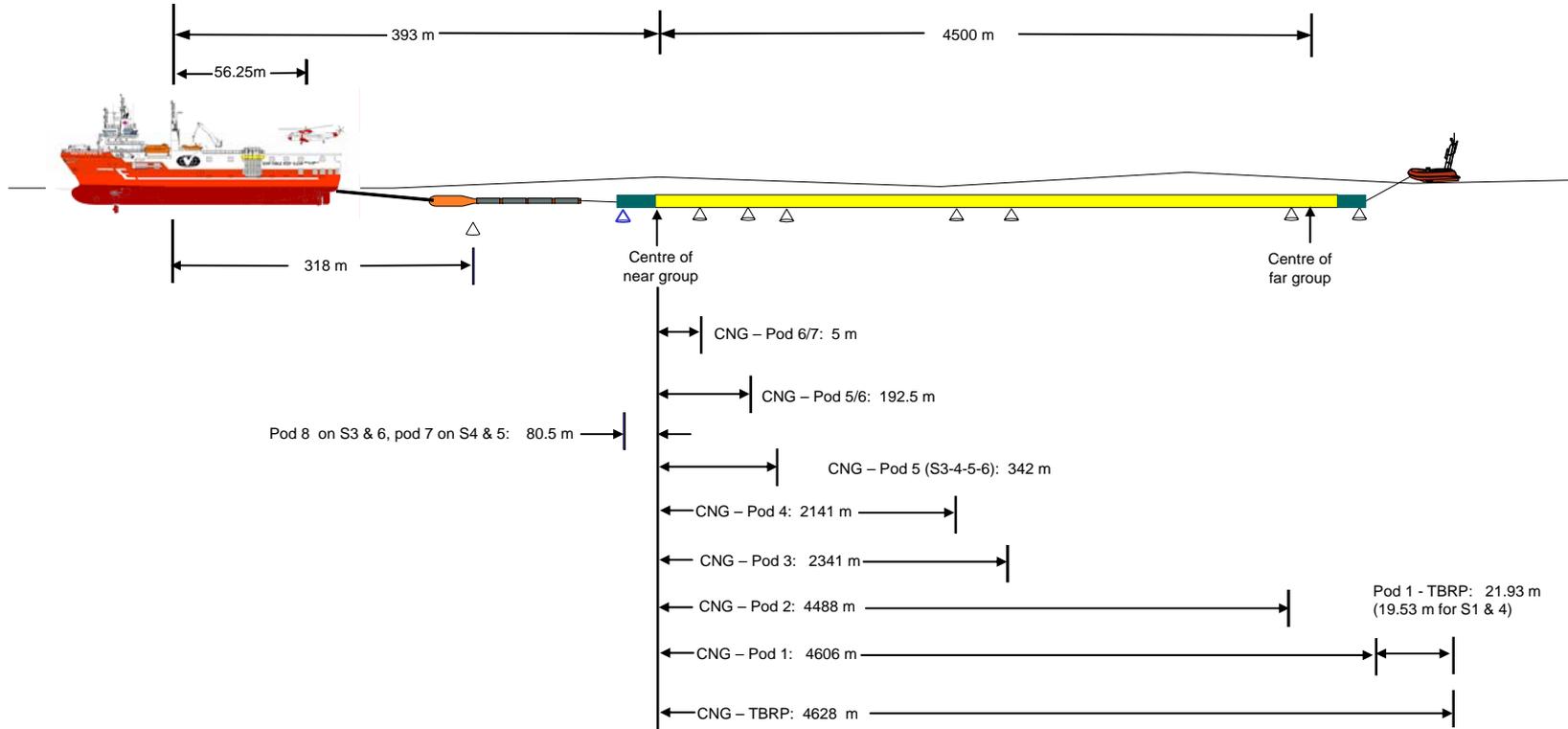


- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

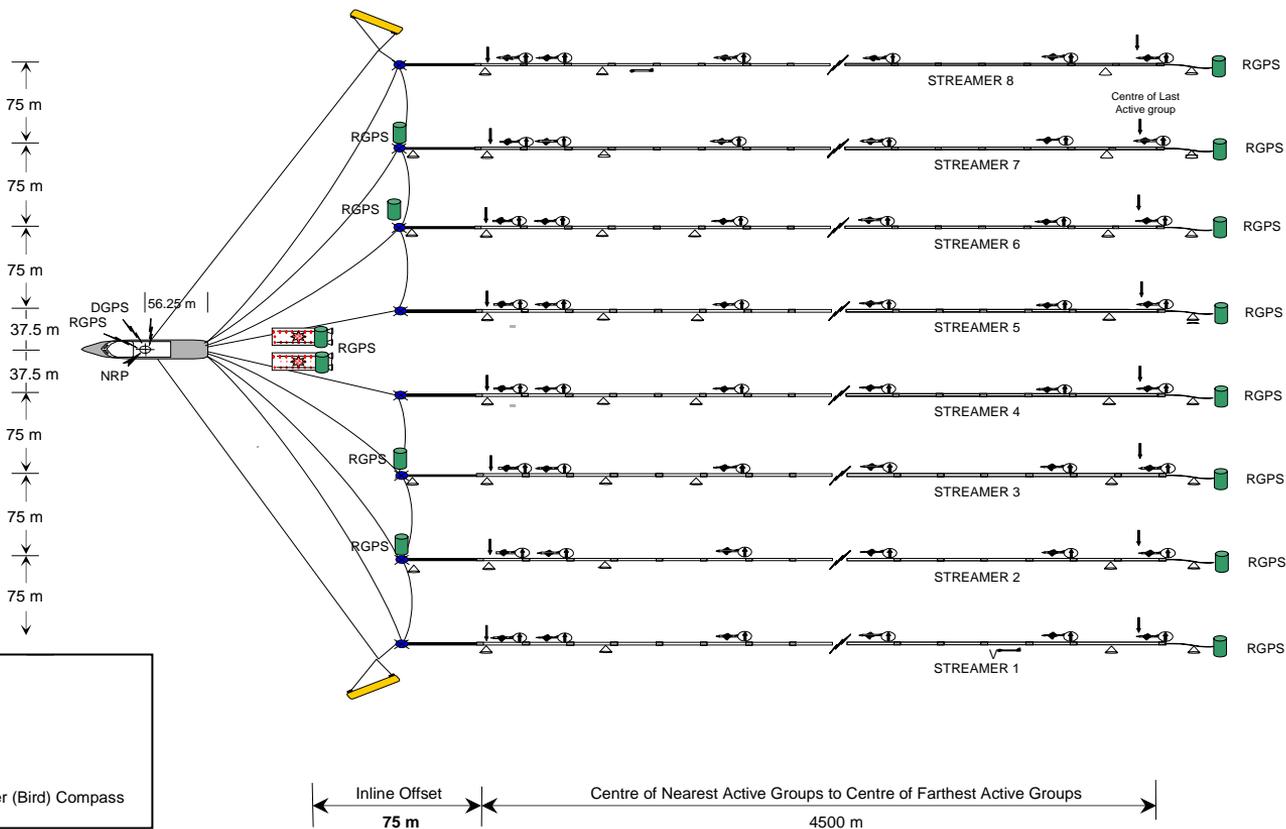
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	16-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 5
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	20-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	20		Onboard Representative	NavDef #05
JOB # :	20323	TO SEQ :	31		Client: <i>Print</i> <i>Sign</i>	

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	16-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	20-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	20		Onboard Representative	NavDef #05
JOB # :	20323	TO SEQ :	31		Client: <i>Print</i> <i>Sign</i>	



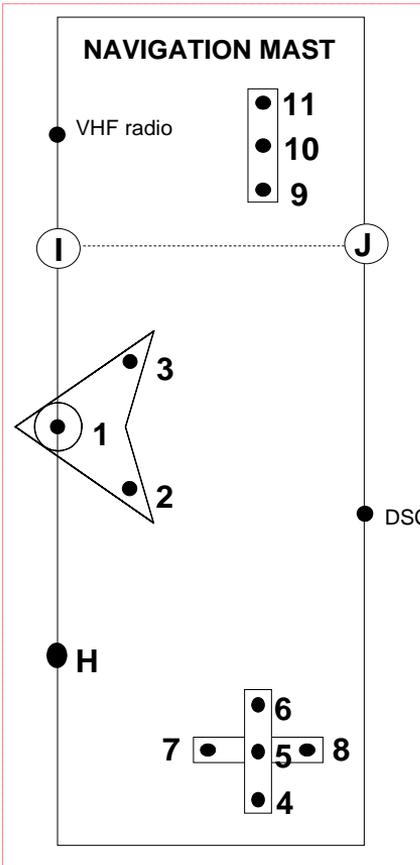
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	16-MAY-2006
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	20-MAY-2006
AREA :	2006 Greater Bream 3D	FROM SEQ :	20
JOB # :	20323	TO SEQ :	31

Not to scale
Measurements in metres

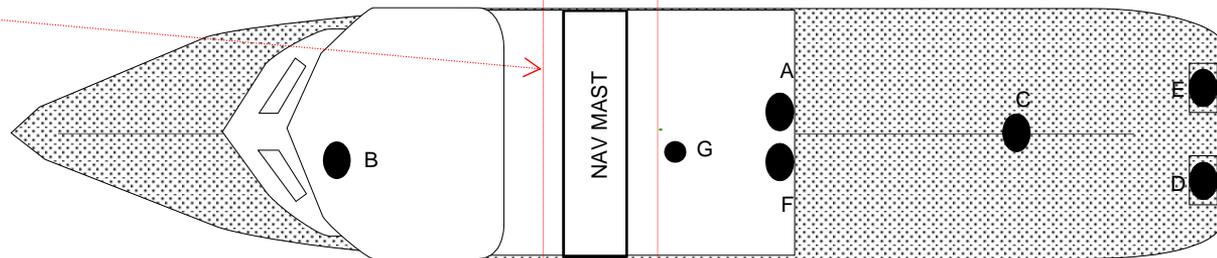
M Boon - Geo Supervisor
GS: <i>Print</i> <i>Sign</i>
Onboard Representative
Client: <i>Print</i> <i>Sign</i>

Antenna Offsets

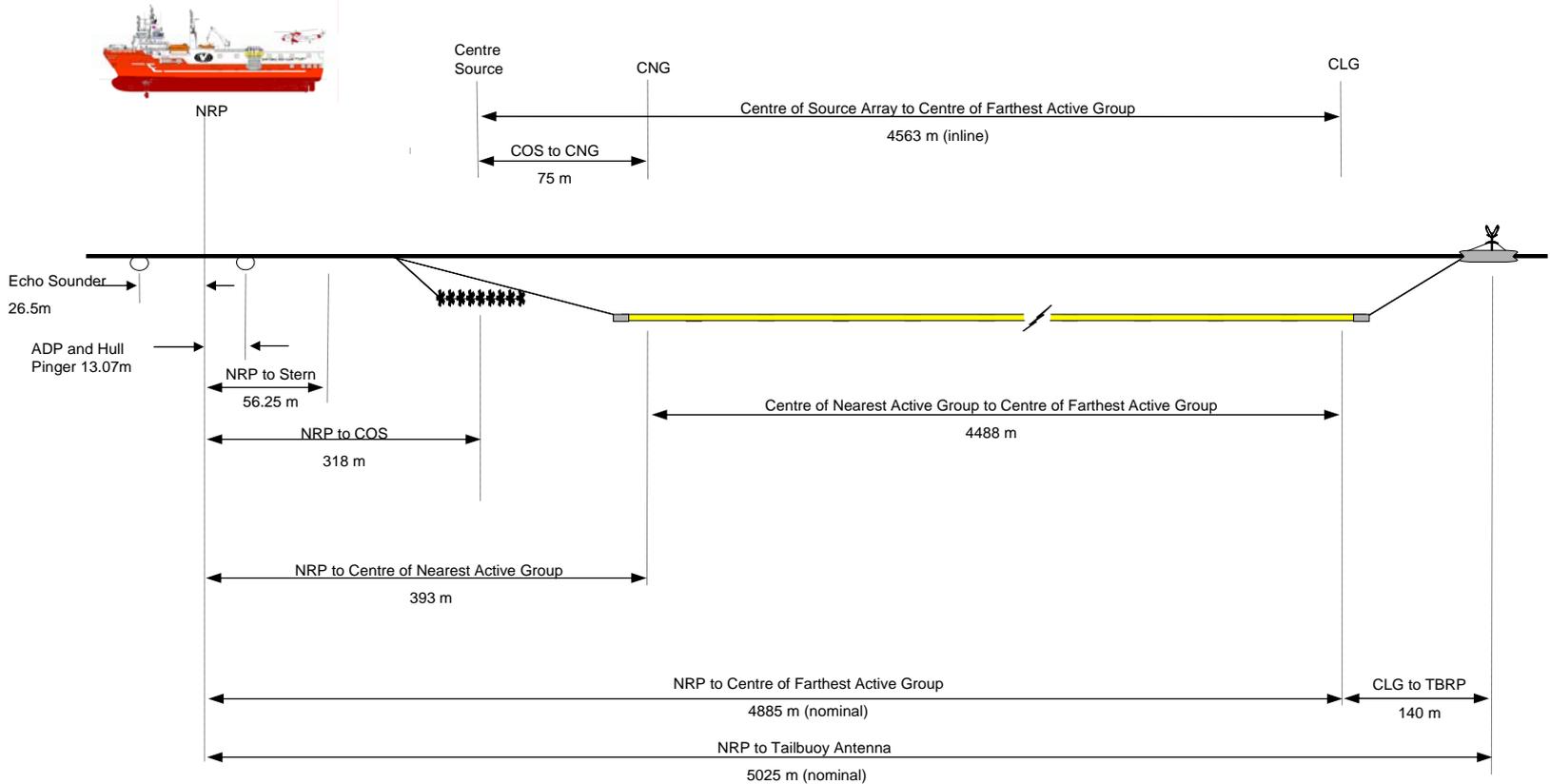
Esso Australia Pty Ltd – 2006 Bream 3D



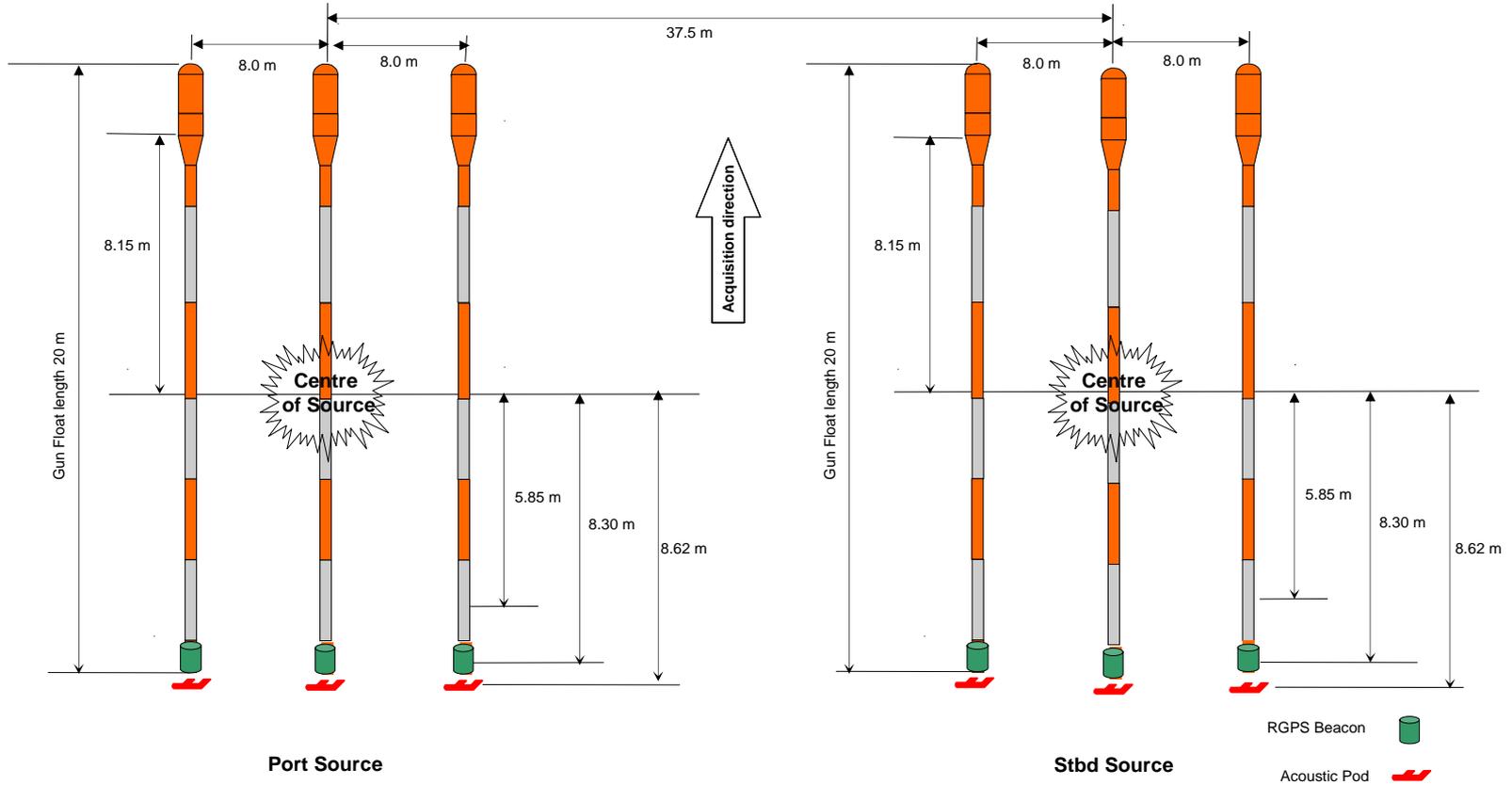
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	16-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	20-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	20		Onboard Representative	NavDef #05
JOB # :	20323	TO SEQ :	31		Client: <i>Print</i> <i>Sign</i>	



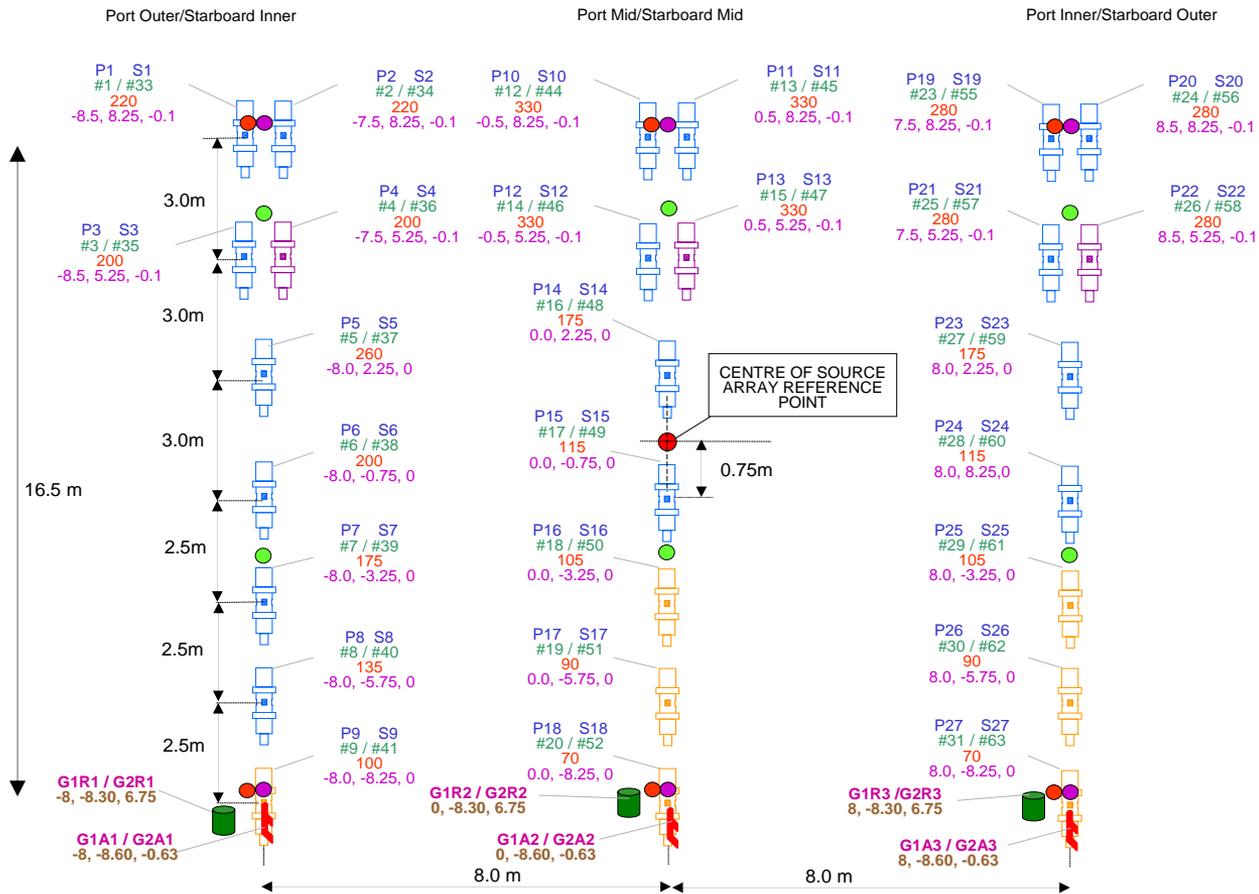
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	16-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	20-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	20		Onboard Representative	NavDef #05
JOB # :	20323	TO SEQ :	31		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	16-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	20-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	20		Onboard Representative	NavDef #05
JOB # :	20323	TO SEQ :	31		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

- Array Sensors**
- Depth
 - Pressure
 - Near Field Hydrophone

- rGPS Pod
- Acoustic Pod

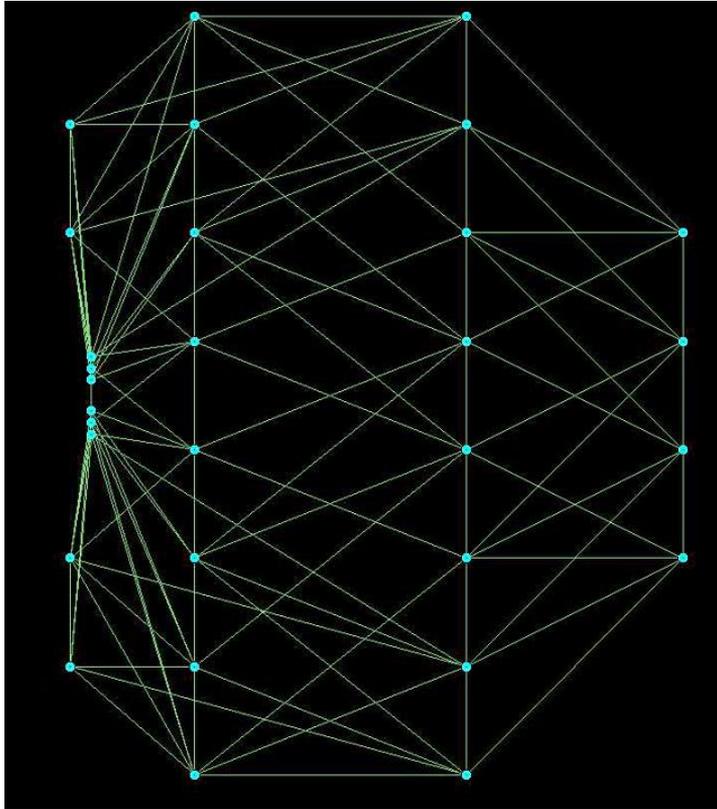
Gun Detail

Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

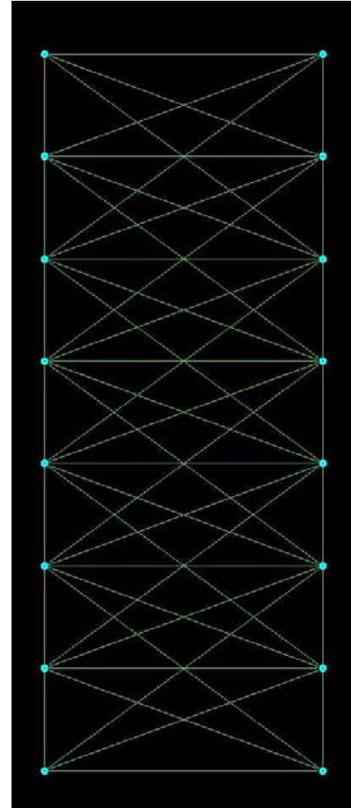
- Bolt Gun Model, and Status**
- 1500LL – Active
 - 1500LL – Spare
 - 1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	16-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	20-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	20		Onboard Representative	NavDef #05
JOB # :	20323	TO SEQ :	31		Client: <i>Print</i> <i>Sign</i>	

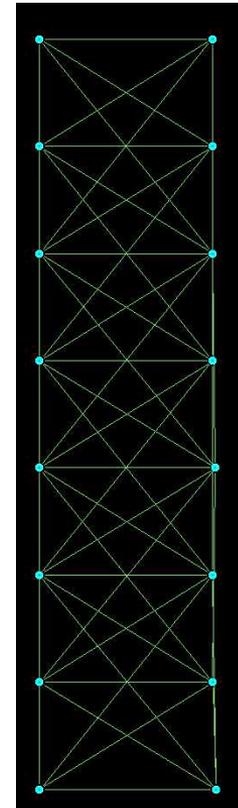
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	16-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	20-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	20		Onboard Representative	NavDef #05
JOB # :	20323	TO SEQ :	31		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 1U Esso Australia Pty Ltd – 2006 Bream 3D

**Veritas Geophysical
(Asia Pacific) Pte. Ltd.**

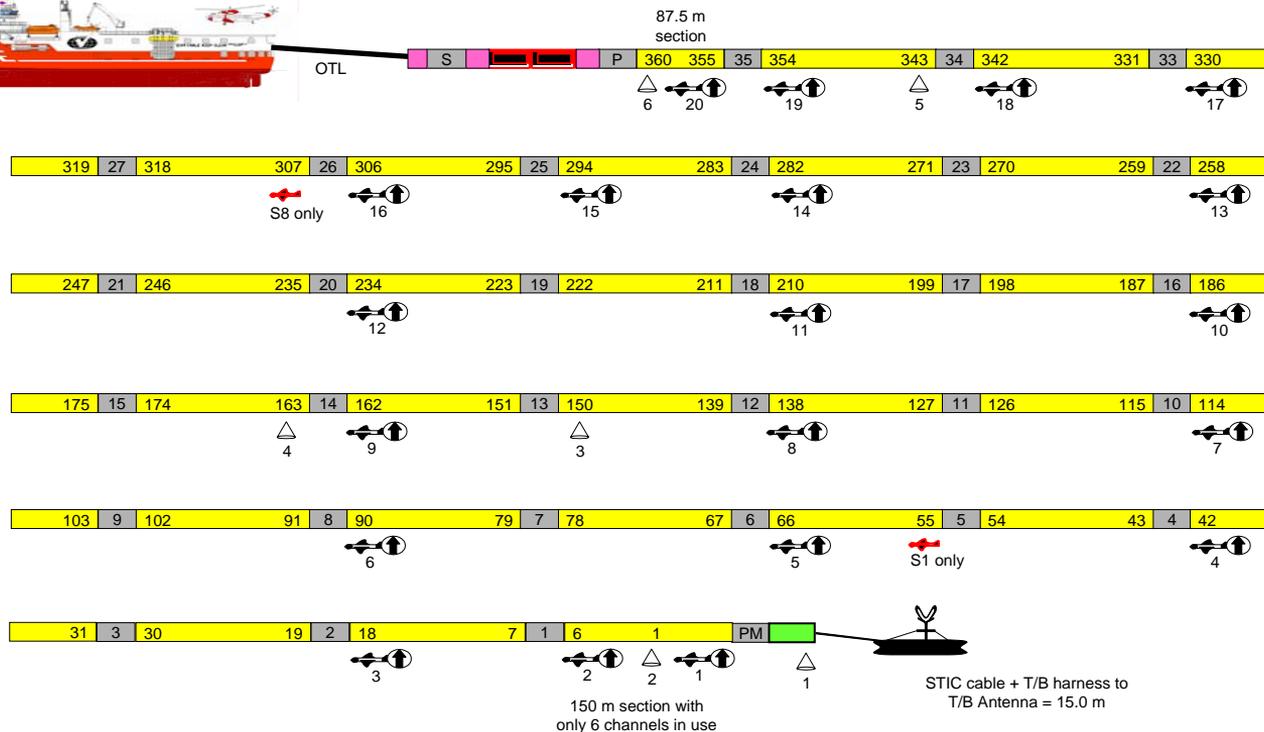
www.veritasdgc.com

Summary of changes

- Initial set up for 2 vessel undershoot

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	32		Onboard Representative	
JOB # :	20323	TO SEQ :	32		Client: <i>Print</i> <i>Sign</i>	NavDef #01U

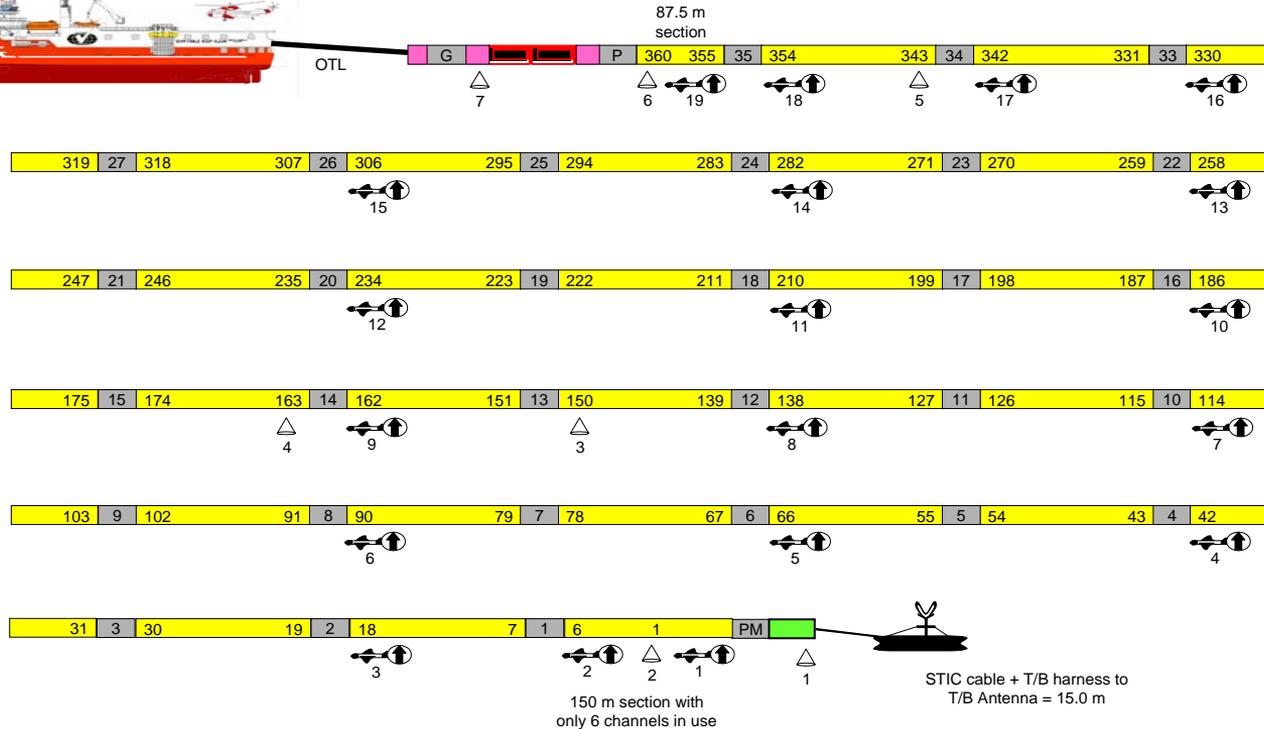
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



-  TAP can (0.35m)
-  Streamer tension unit, STU (0.35m)
-  Passive Module (0.35m)
-  Power Module (0.35m)
-  Active Module (0.35m)
-  RVIM Stretch section (25m static)
-  Solid active (150m)
- 109 Group/trace number
-  Stretch (50m static)
-  Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	32		Onboard Representative	NavDef #01U
JOB # :	20323	TO SEQ :	32		Client: <i>Print</i> <i>Sign</i>	

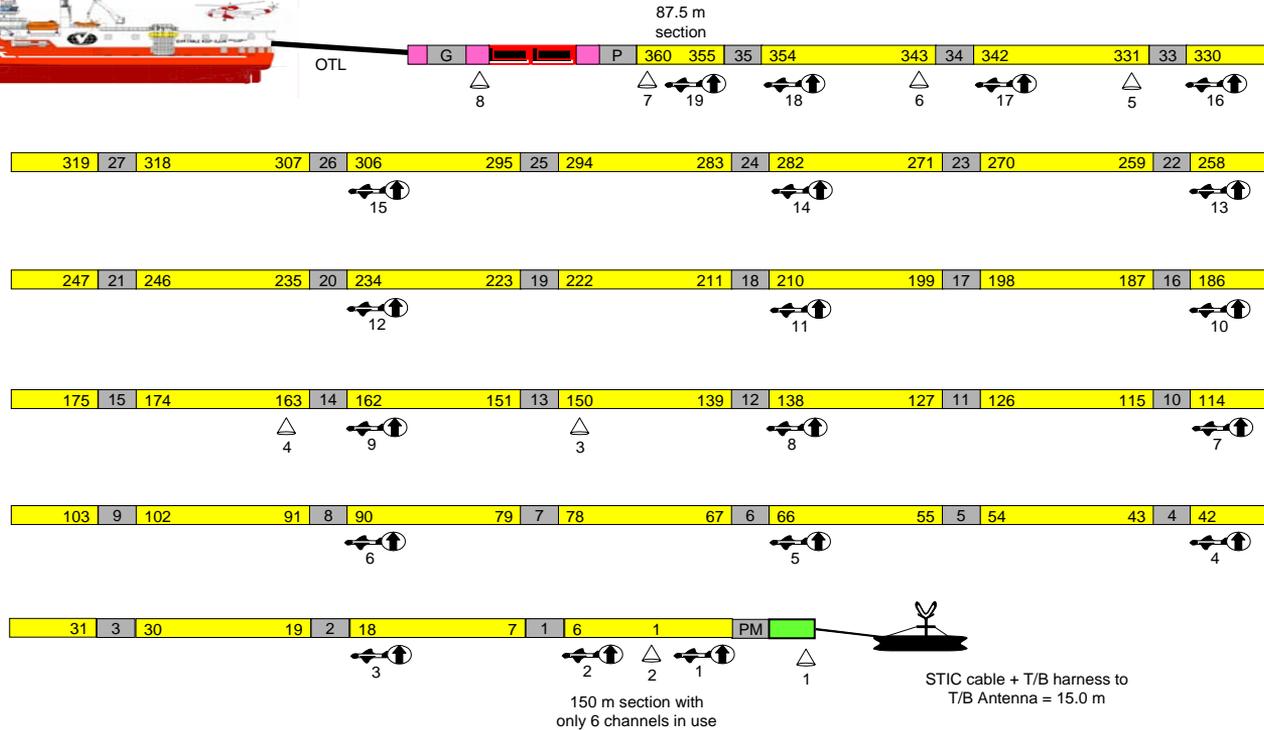
Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
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- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
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- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 3
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	32		Onboard Representative	NavDef #01U
JOB # :	20323	TO SEQ :	32		Client: <i>Print</i> <i>Sign</i>	

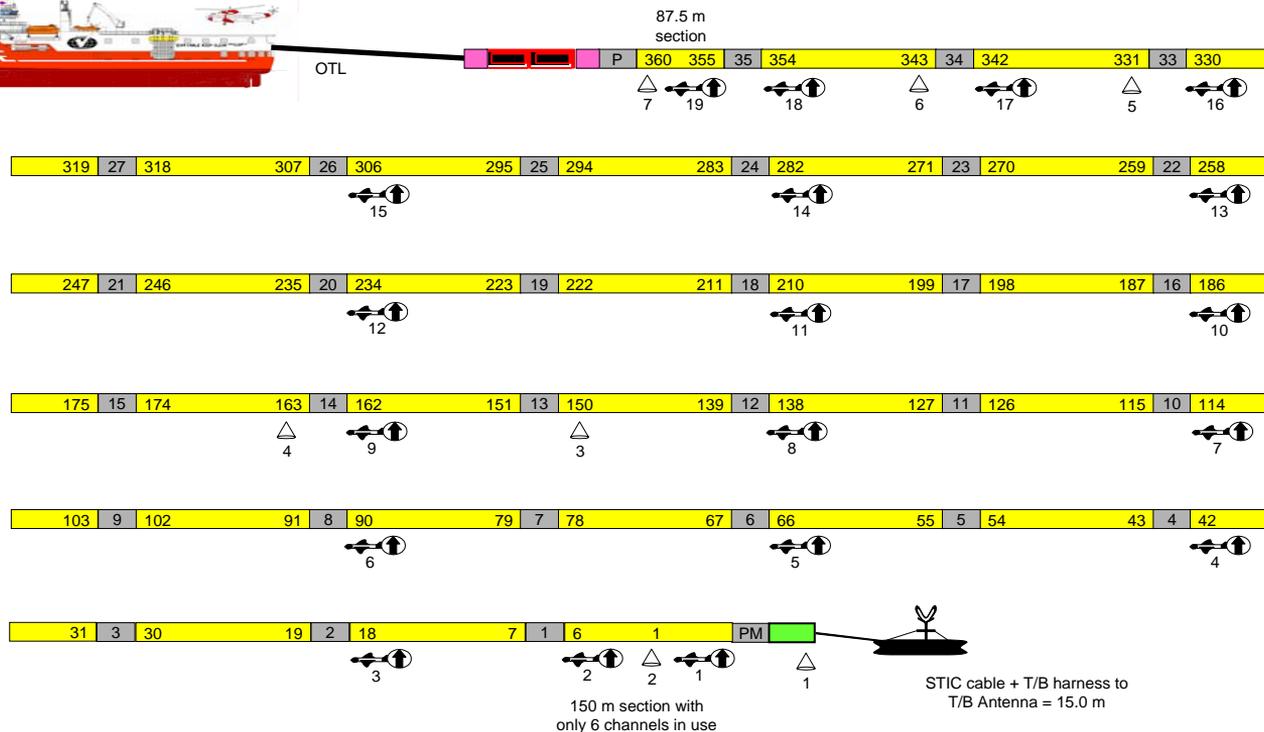
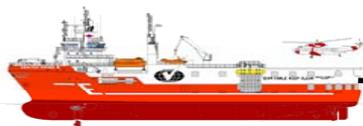
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	32		Onboard Representative	NavDef #01U
JOB # :	20323	TO SEQ :	32		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

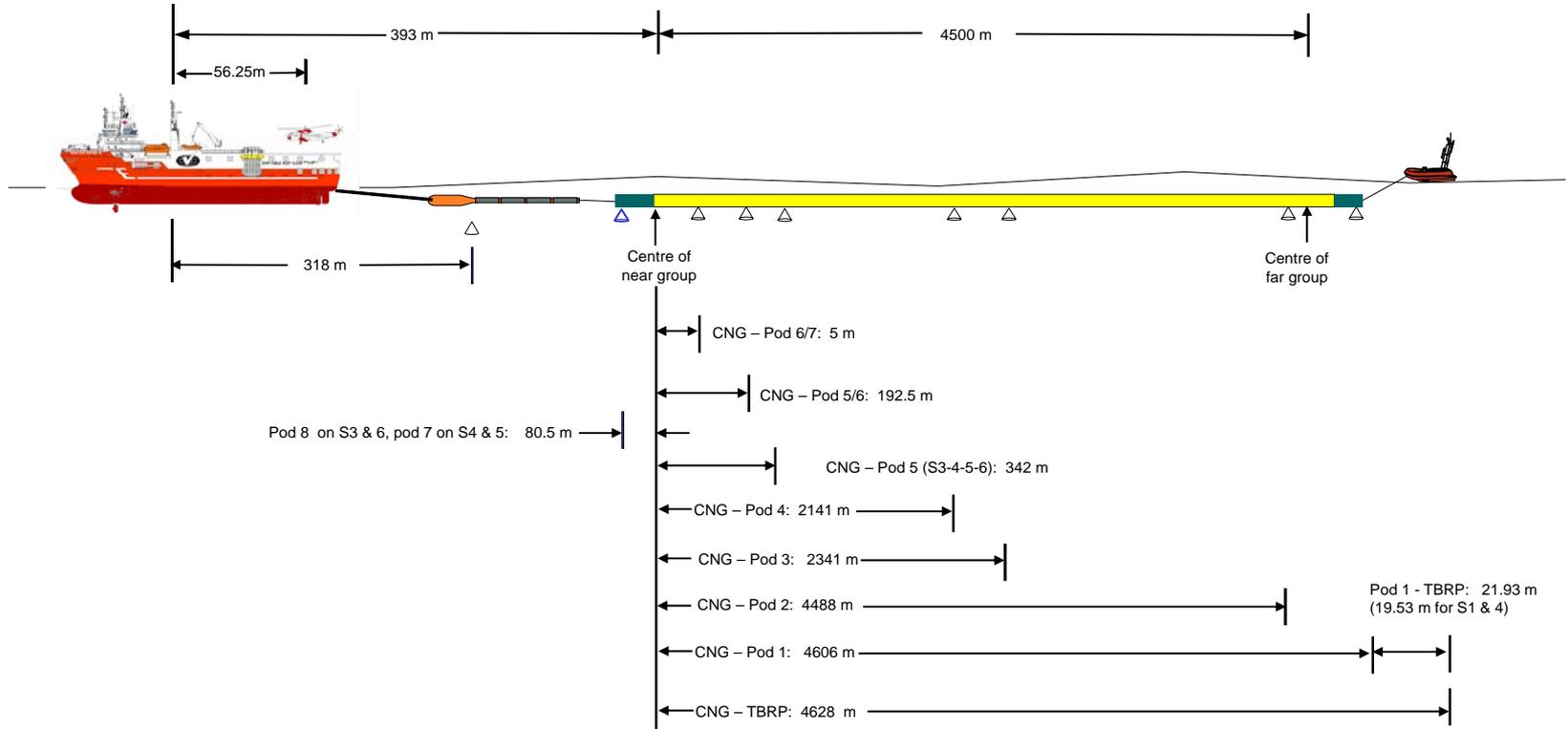


- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

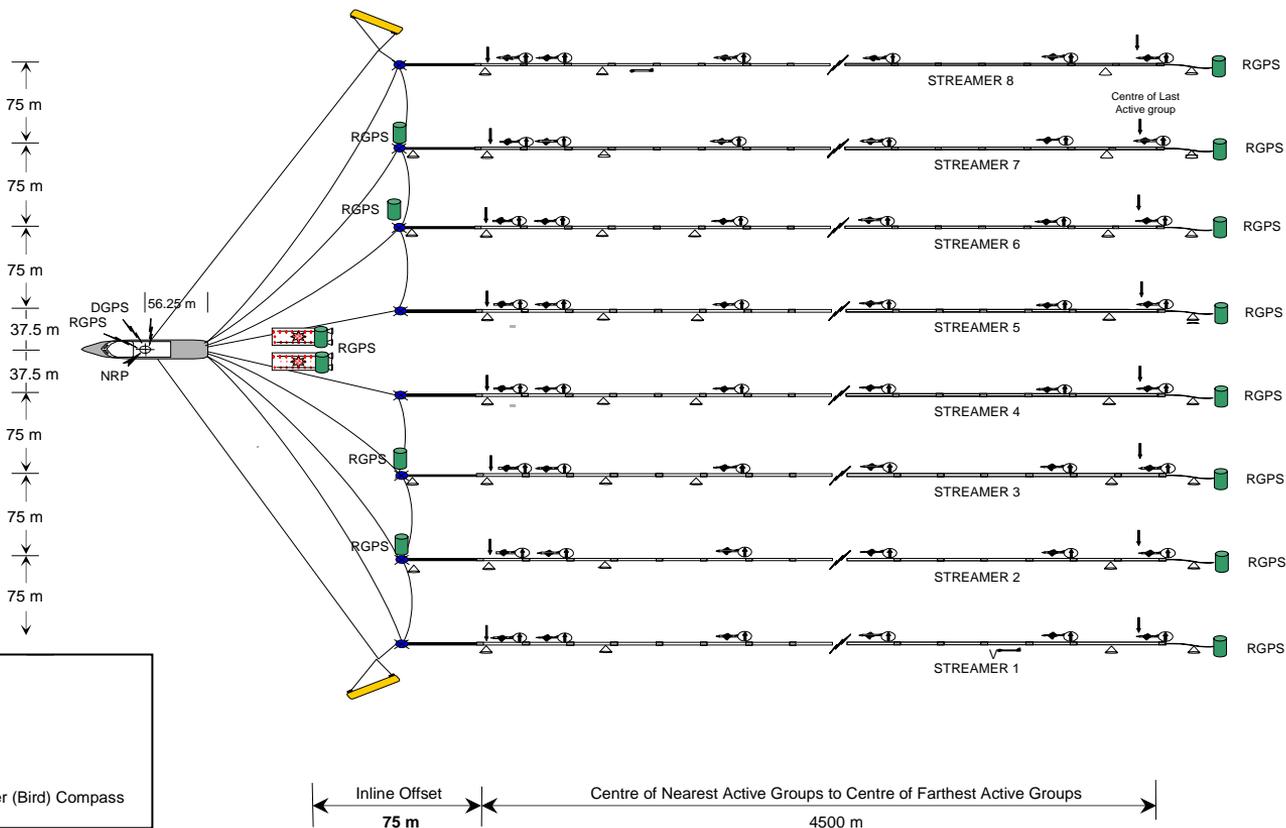
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 5
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	32		Onboard Representative	NavDef #01U
JOB # :	20323	TO SEQ :	32		Client: <i>Print</i> <i>Sign</i>	

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



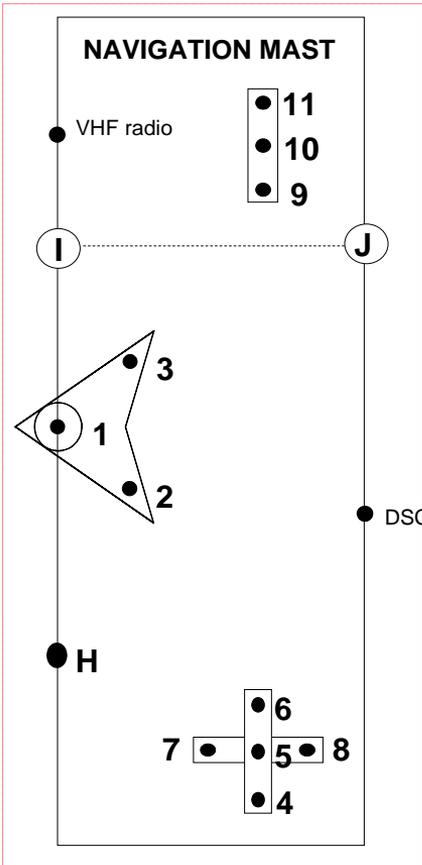
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	32		Onboard Representative	
JOB # :	20323	TO SEQ :	32		Client: <i>Print</i> <i>Sign</i>	NavDef #01U



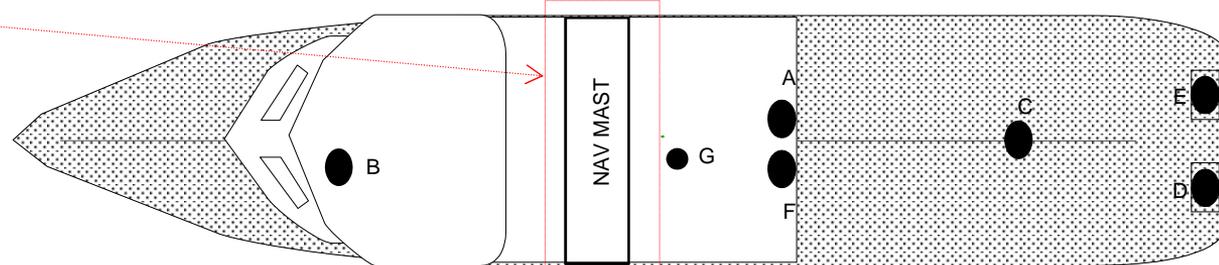
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 7
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	32		Onboard Representative	NavDef #01U
JOB # :	20323	TO SEQ :	32		Client: <i>Print</i> <i>Sign</i>	

Antenna Offsets – Viking 2

Esso Australia Pty Ltd – 2006 Bream 3D



KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	32		Onboard Representative	
JOB # :	20323	TO SEQ :	32		Client: <i>Print</i> <i>Sign</i>	NavDef #01U

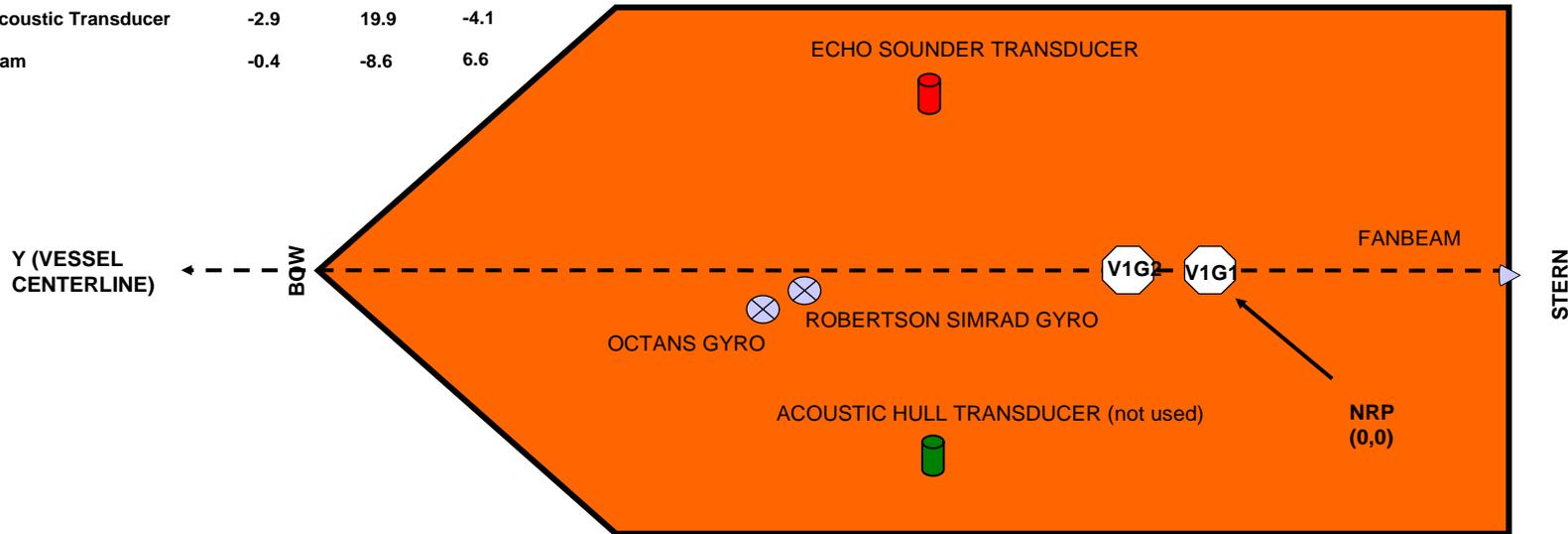


Antenna Offsets – Pacific Sword Esso Australia Pty Ltd – 2006 Bream

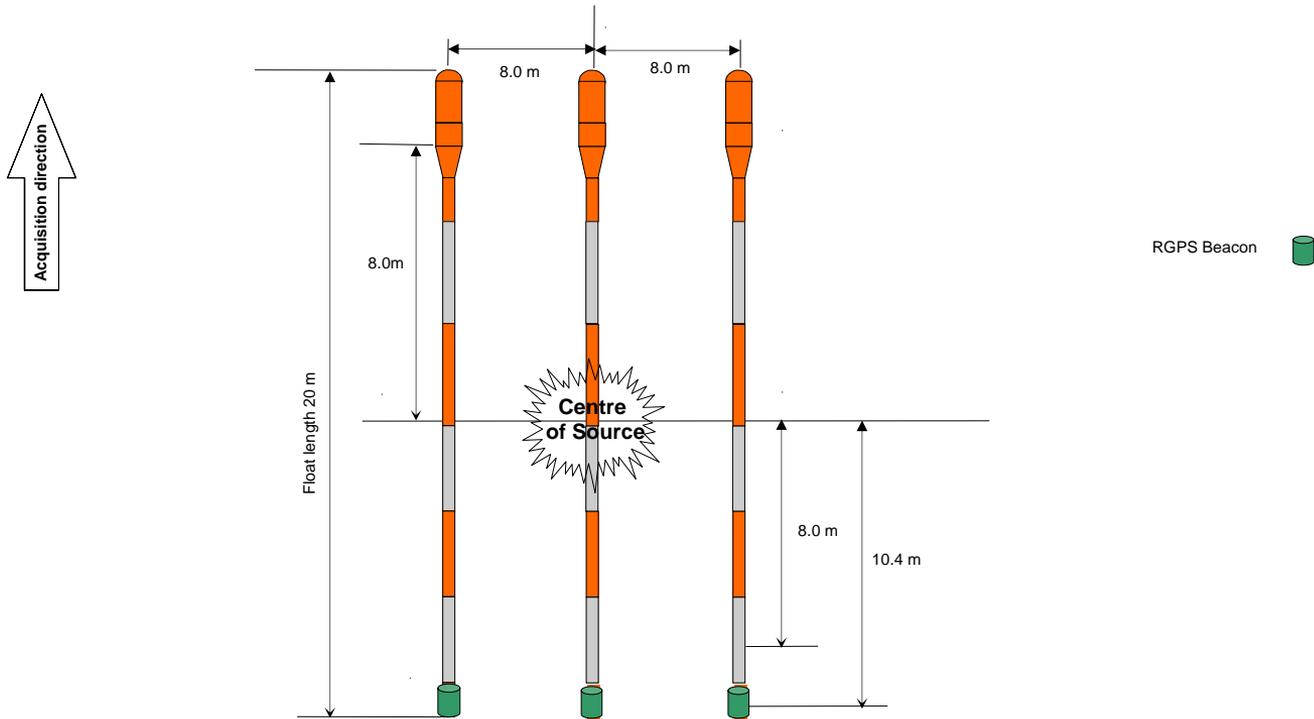
Veritas Geophysical
(Asia Pacific) Pte. Ltd.

www.veritasdgc.com

<u>NAME</u>	<u>X</u>	<u>Y</u>	<u>Z</u>
NRP	0.0	0.0	0.0
V1G1 / V1G3	0.0	0.0	12.3
V1G2	0.0	0.8	12.3
Octans Gyro	-1.25	24.3	2.1
Robertson Simrad Gyro	-0.8	23.5	2.1
Echo Sounder Transducer	4.6	19.9	-3.9
Hull Acoustic Transducer	-2.9	19.9	-4.1
Fanbeam	-0.4	-8.6	6.6



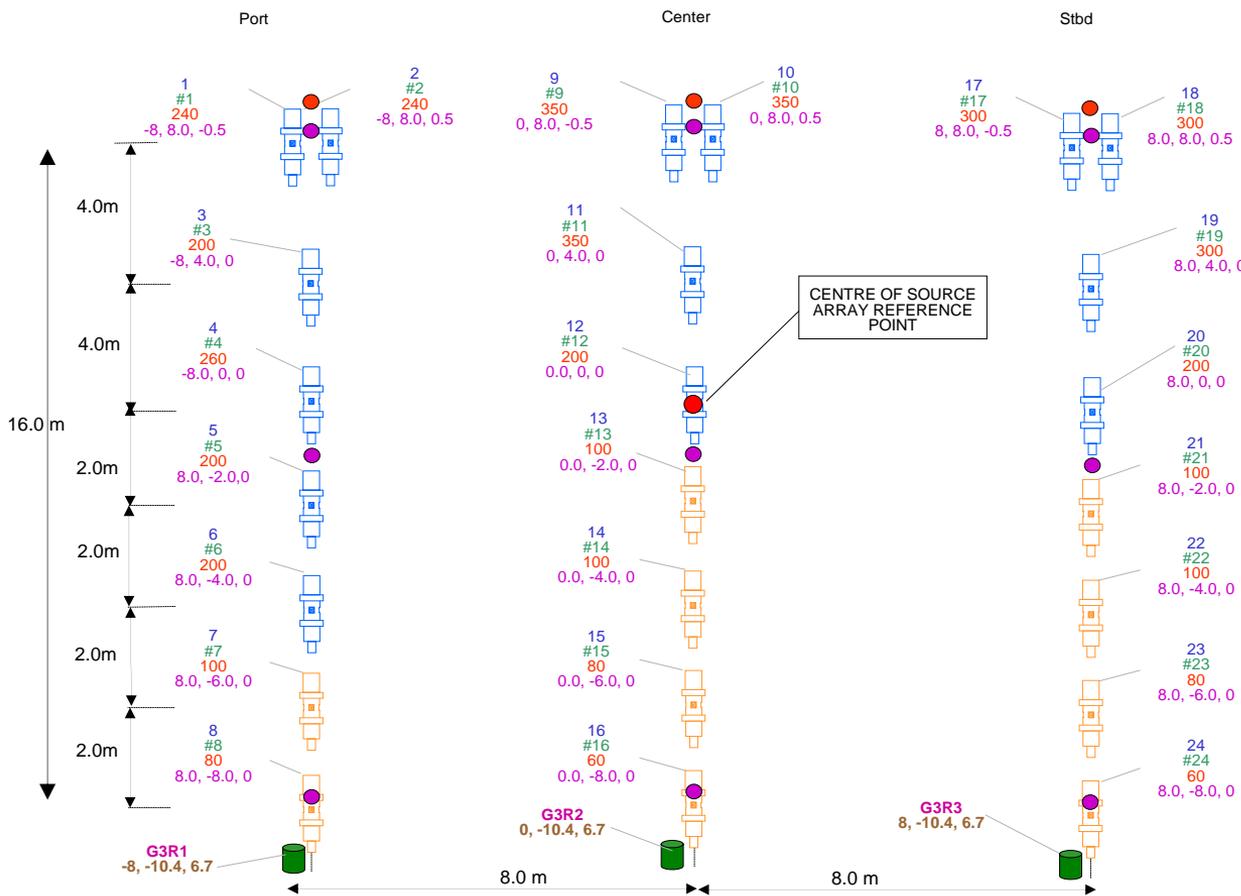
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	32		Onboard Representative	NavDef #01U
JOB # :	20323	TO SEQ :	32		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	32		Onboard Representative	NavDef #01U
JOB # :	20323	TO SEQ :	32		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4550 cu in

Array Sensors

- Depth
- Pressure
- Near Field Hydrophone

-  rGPS Pod
-  Acoustic Pod

Gun Detail

Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

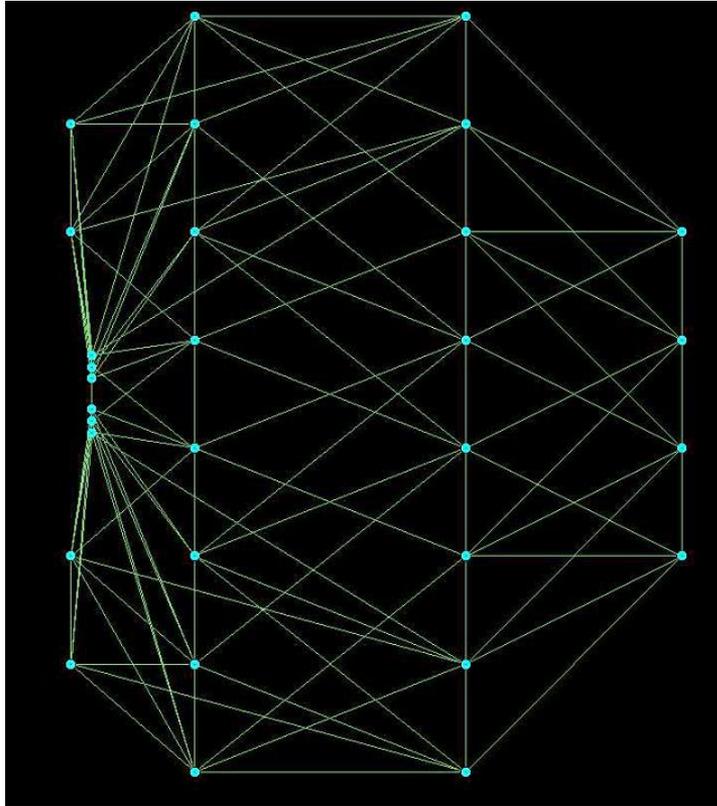
-  1500LL – Active
-  1500LL – Spare
-  1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006
AREA :	2006 Greater Bream 3D	FROM SEQ :	32
JOB # :	20323	TO SEQ :	32

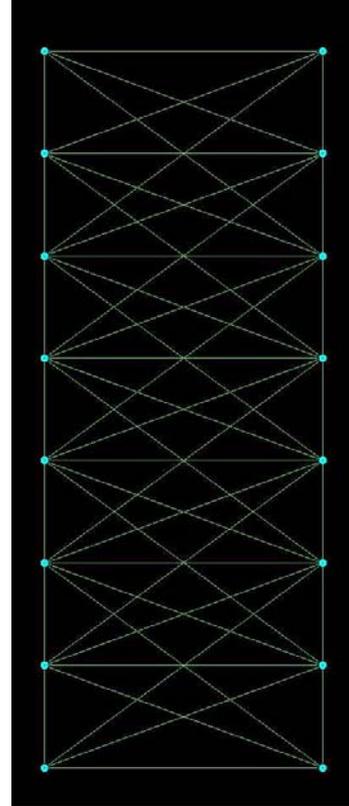
Not to scale Measurements in metres	M Boon - Geo Supervisor	
	GS: <i>Print</i>	<i>Sign</i>
Onboard Representative		
Client: <i>Print</i>	<i>Sign</i>	

Page 11
Created: 20-MAY-06
NavDef #01U

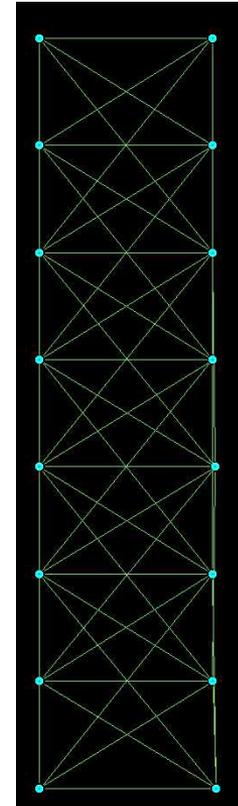
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	32		Onboard Representative	NavDef #01U
JOB # :	20323	TO SEQ :	32		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 2U

Esso Australia Pty Ltd – 2006 Bream 3D

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(Asia Pacific) Pte. Ltd.

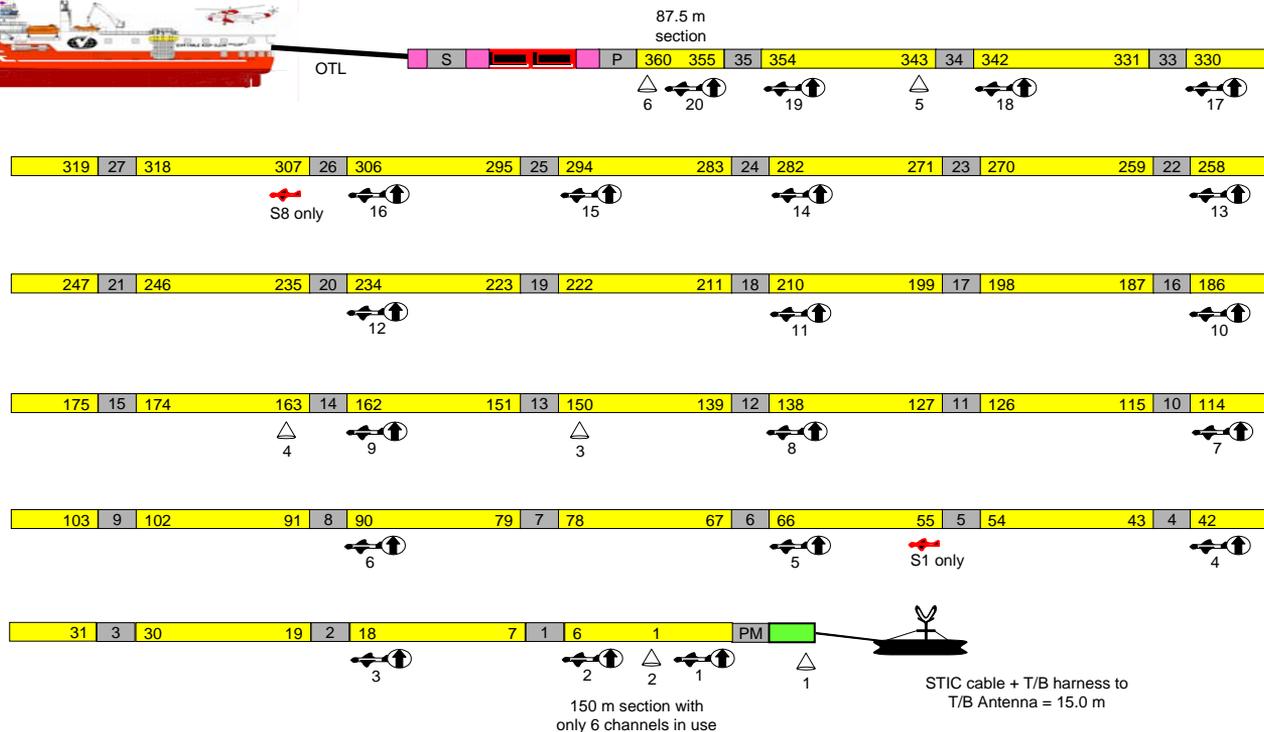
www.veritasdgc.com

Summary of changes

- Pacific Sword C-Nav removed
- No physical changes to set up

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor GS: <i>Print</i> <i>Sign</i>	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		Onboard Representative Client: <i>Print</i> <i>Sign</i>	Created: XX-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	33			
JOB # :	20323	TO SEQ :	34			NavDef #02U

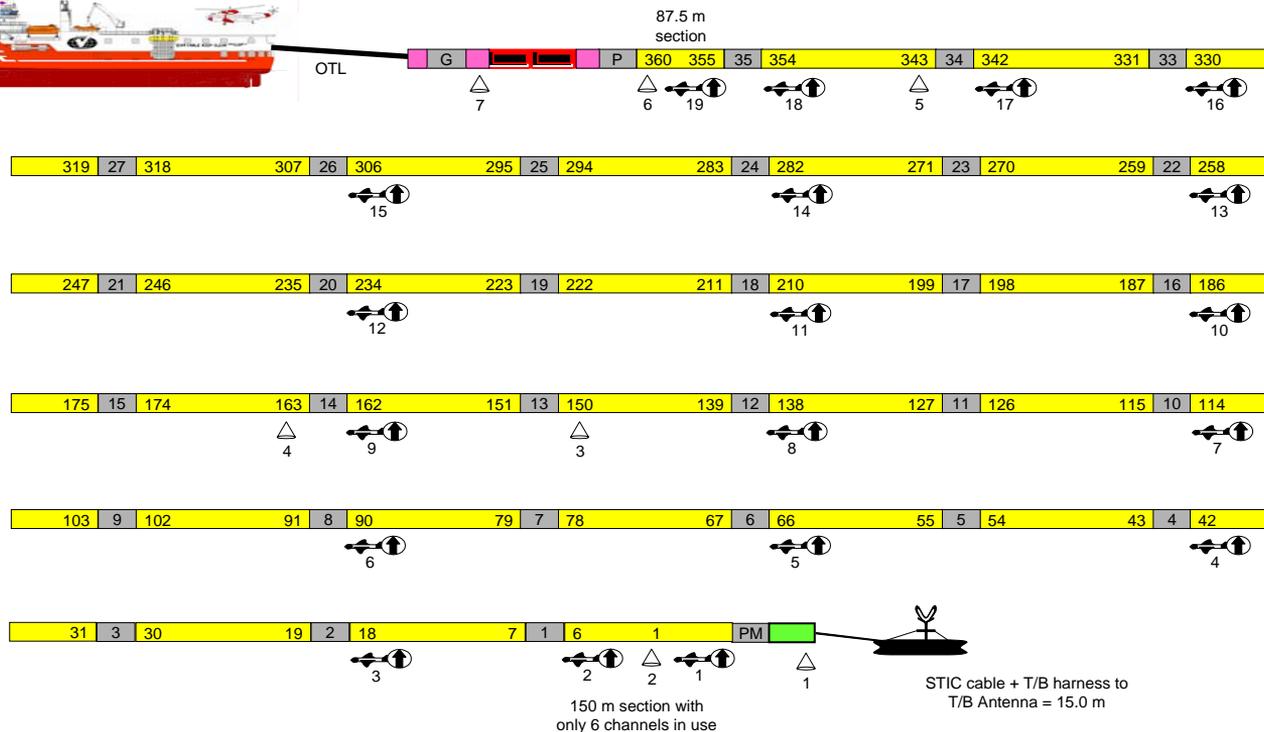
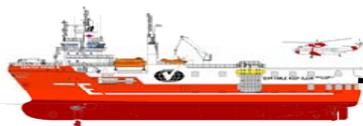
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



-  TAP can (0.35m)
-  Streamer tension unit, STU (0.35m)
-  Passive Module (0.35m)
-  Power Module (0.35m)
-  Active Module (0.35m)
-  RVIM Stretch section (25m static)
-  Solid active (150m)
- 109 Group/trace number
-  Stretch (50m static)
-  Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: XX-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	33		Onboard Representative	NavDef #02U
JOB # :	20323	TO SEQ :	34		Client: <i>Print</i> <i>Sign</i>	

Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

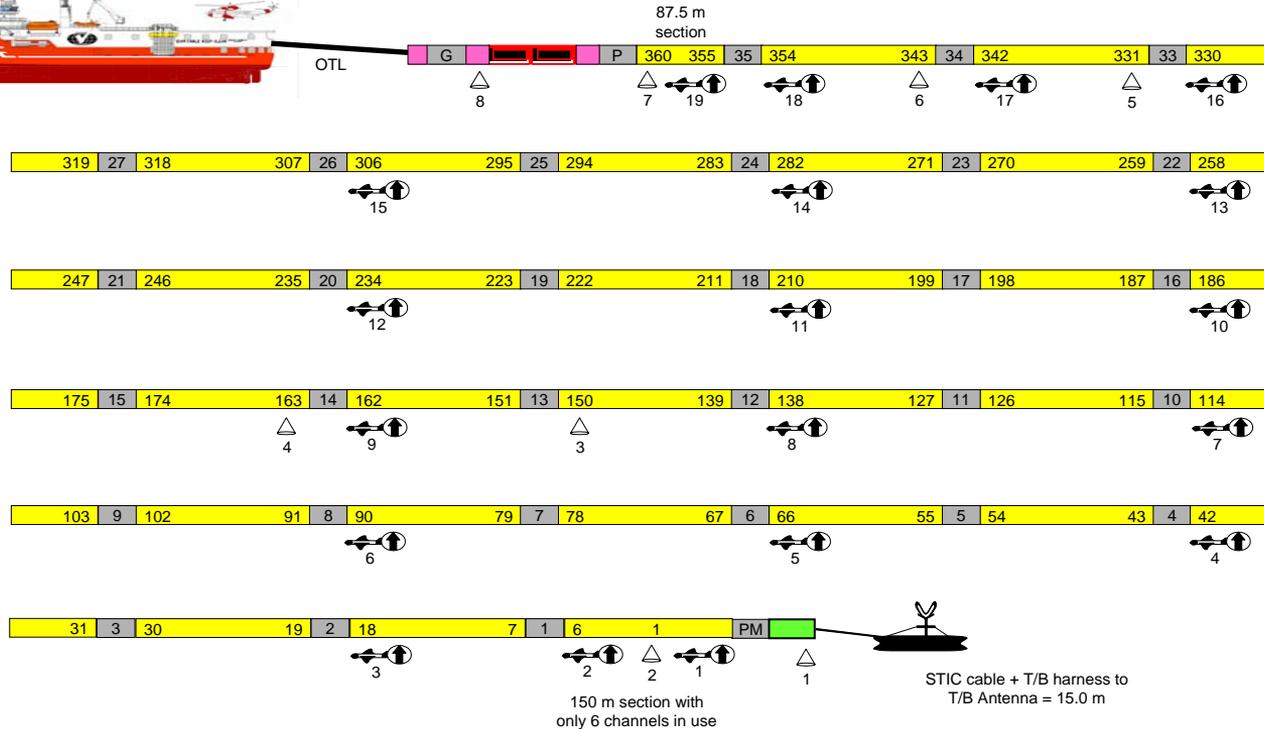
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CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006
AREA :	2006 Greater Bream 3D	FROM SEQ :	33
JOB # :	20323	TO SEQ :	34

Not to scale

Measurements in metres

M Boon - Geo Supervisor	
GS: <i>Print</i>	<i>Sign</i>
Onboard Representative	
Client: <i>Print</i>	<i>Sign</i>

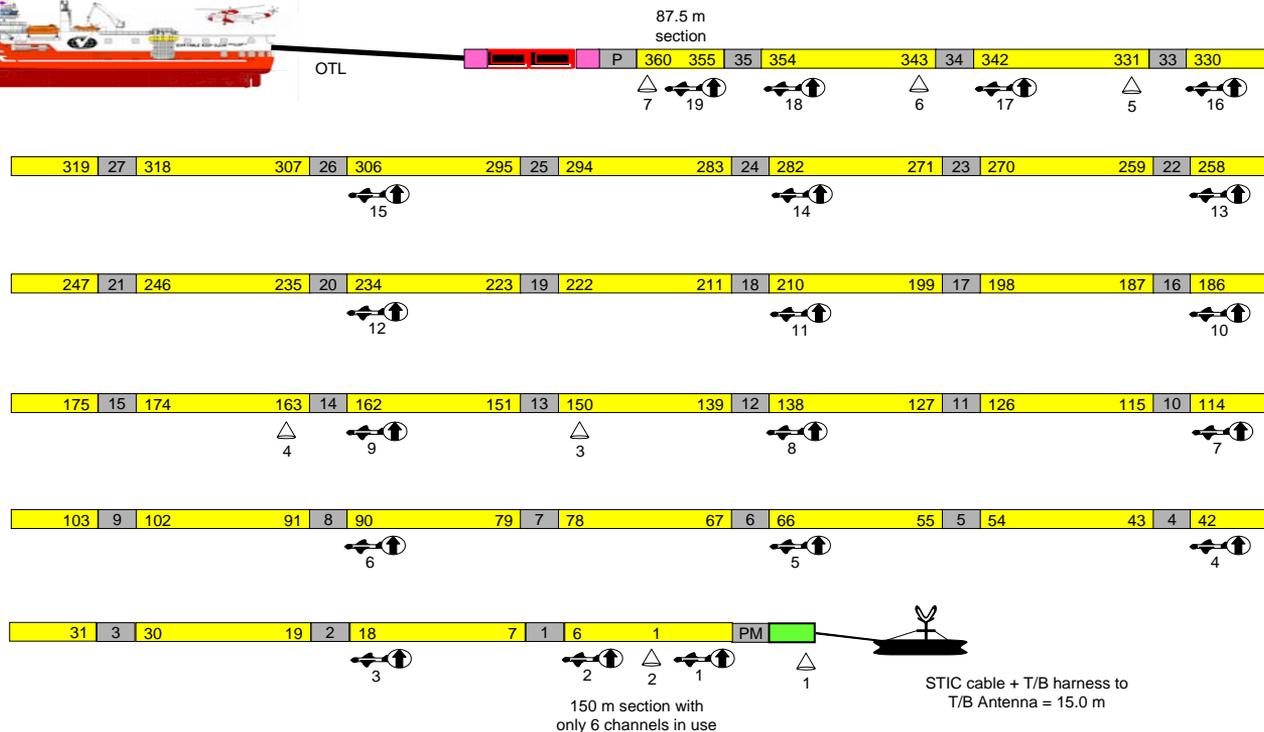
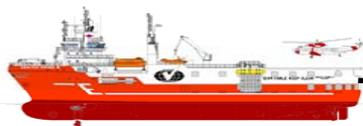
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: XX-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	33		Onboard Representative	NavDef #02U
JOB # :	20323	TO SEQ :	34		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006
AREA :	2006 Greater Bream 3D	FROM SEQ :	33
JOB # :	20323	TO SEQ :	34

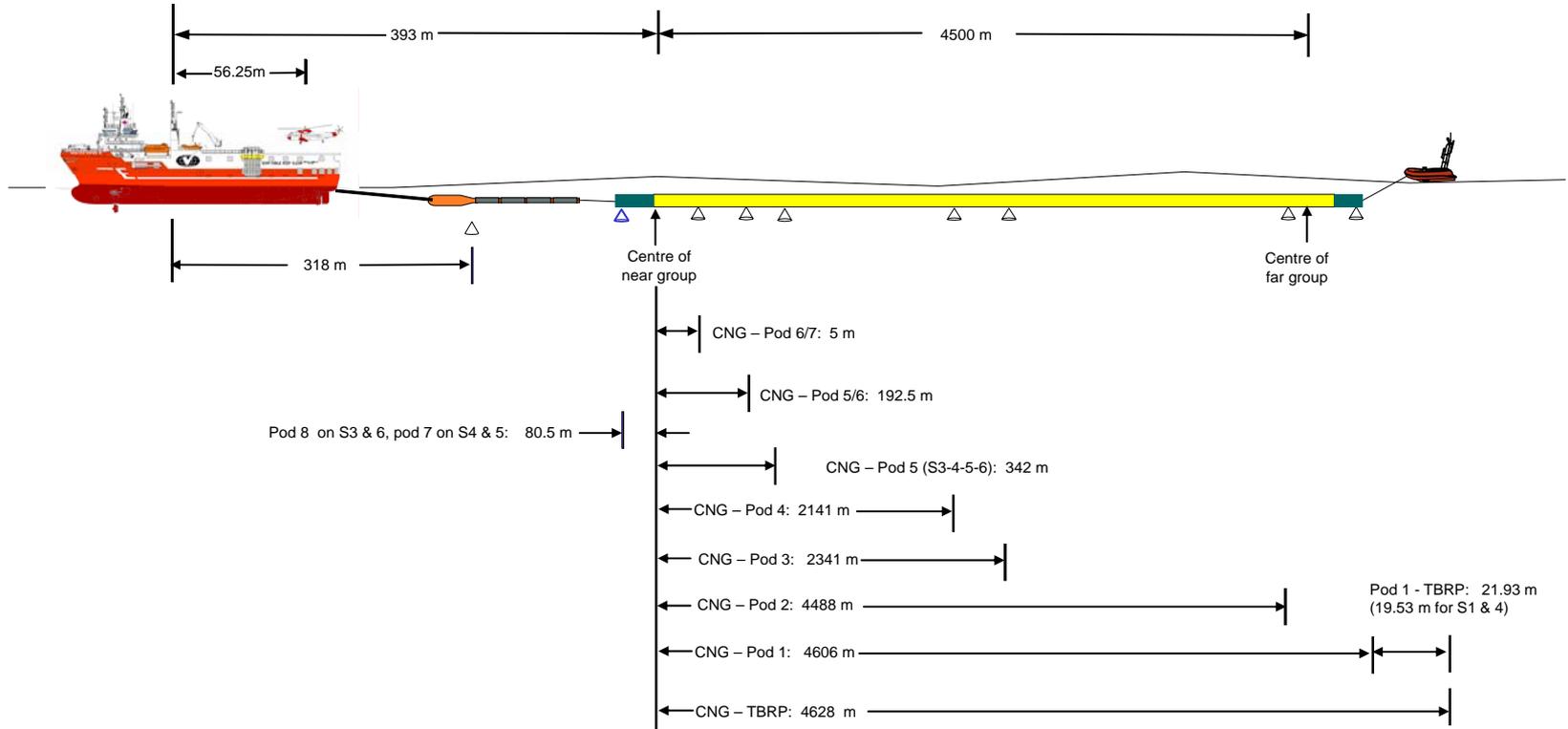
Not to scale
Measurements in metres

M Boon - Geo Supervisor
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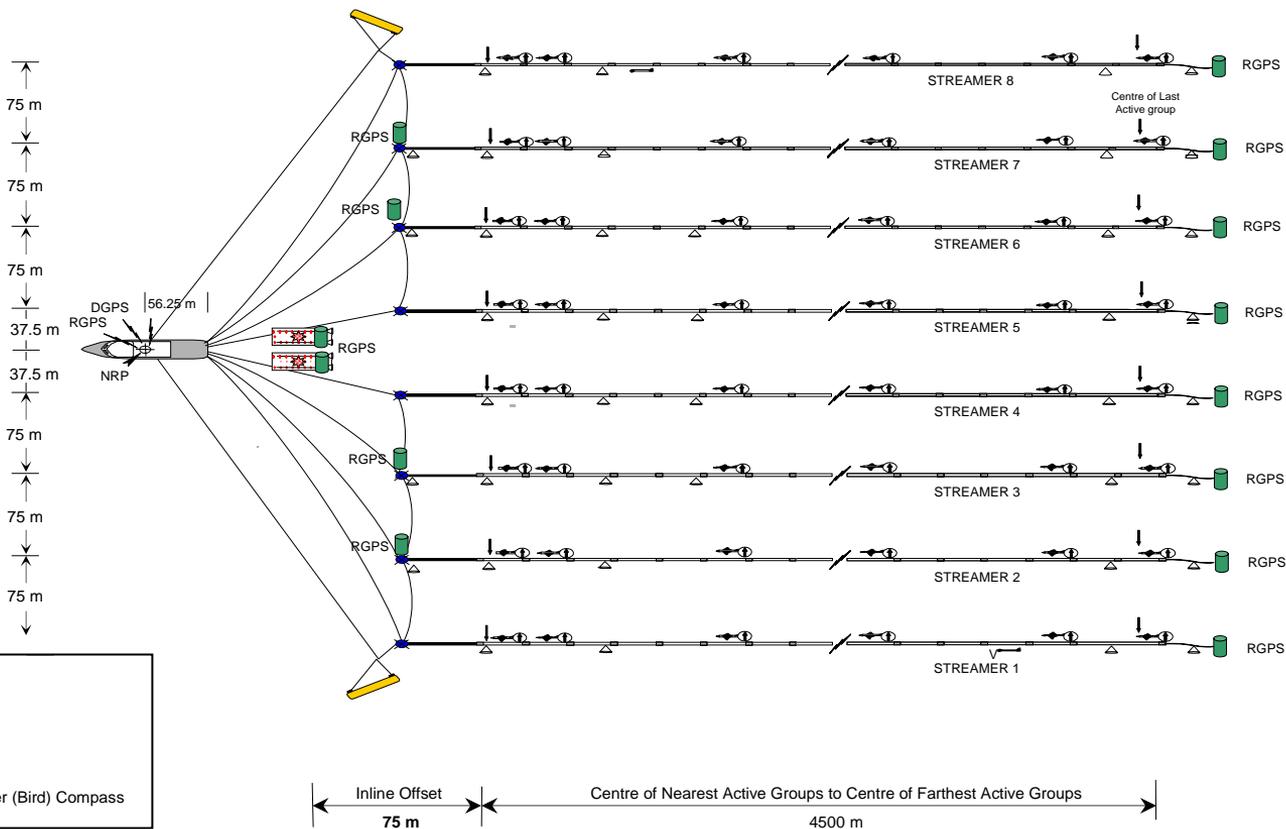
Page 5
Created: XX-MAY-06
NavDef #02U

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: XX-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	33		Onboard Representative	NavDef #02U
JOB # :	20323	TO SEQ :	34		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2
CLIENT :	Esso Australia Pty. Ltd.
AREA :	2006 Greater Bream 3D
JOB # :	20323

FROM DATE :	19-MAY-2006
TO DATE :	19-MAY-2006
FROM SEQ :	33
TO SEQ :	34

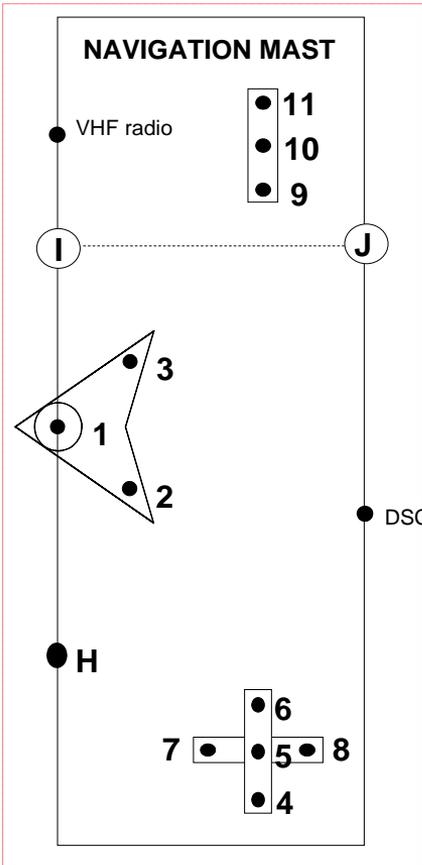
Not to scale
Measurements
in metres

M Boon - Geo Supervisor
GS: <i>Print</i> <i>Sign</i>
Onboard Representative
Client: <i>Print</i> <i>Sign</i>

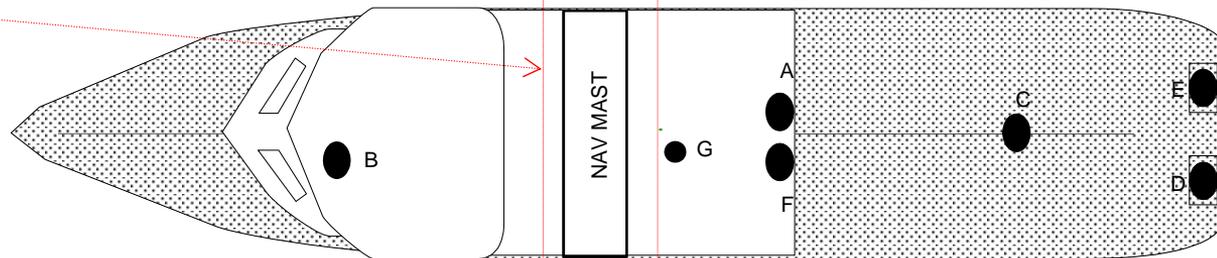
Page 7
Created: XX-MAY-06
NavDef #02U

Antenna Offsets – Viking 2

Esso Australia Pty Ltd – 2006 Bream 3D



KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: XX-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	33		Onboard Representative	NavDef #02U
JOB # :	20323	TO SEQ :	34		Client: <i>Print</i> <i>Sign</i>	

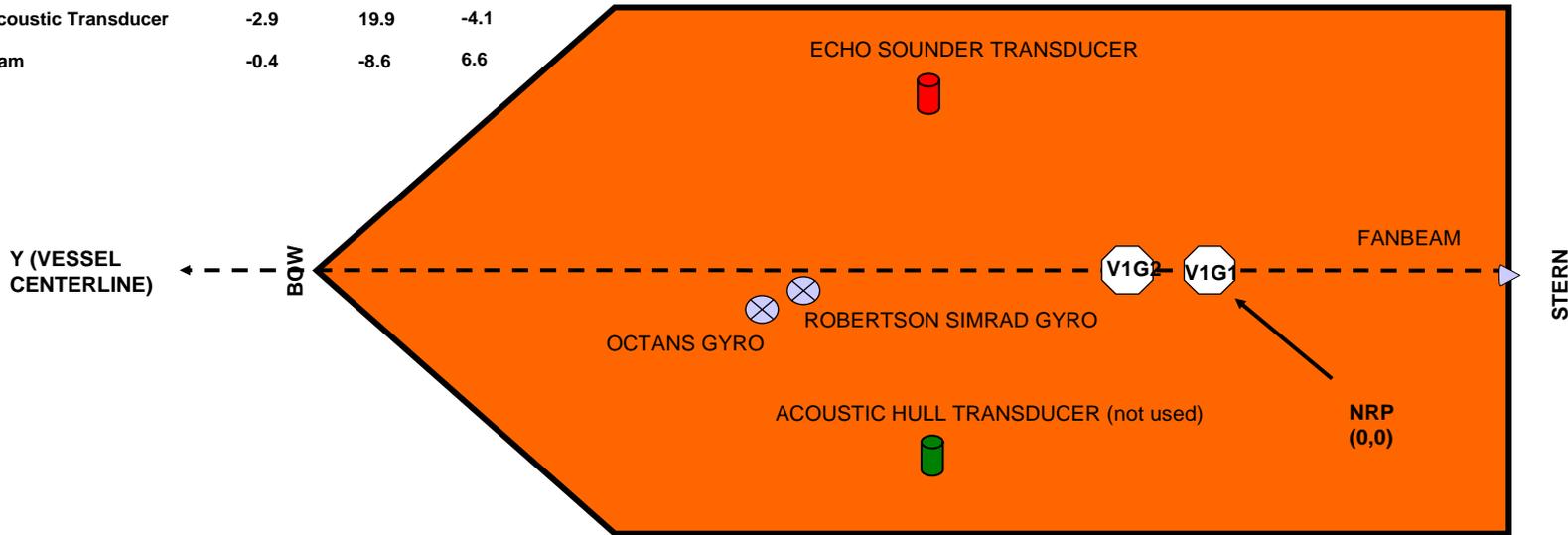


Antenna Offsets – Pacific Sword Esso Australia Pty Ltd – 2006 Bream

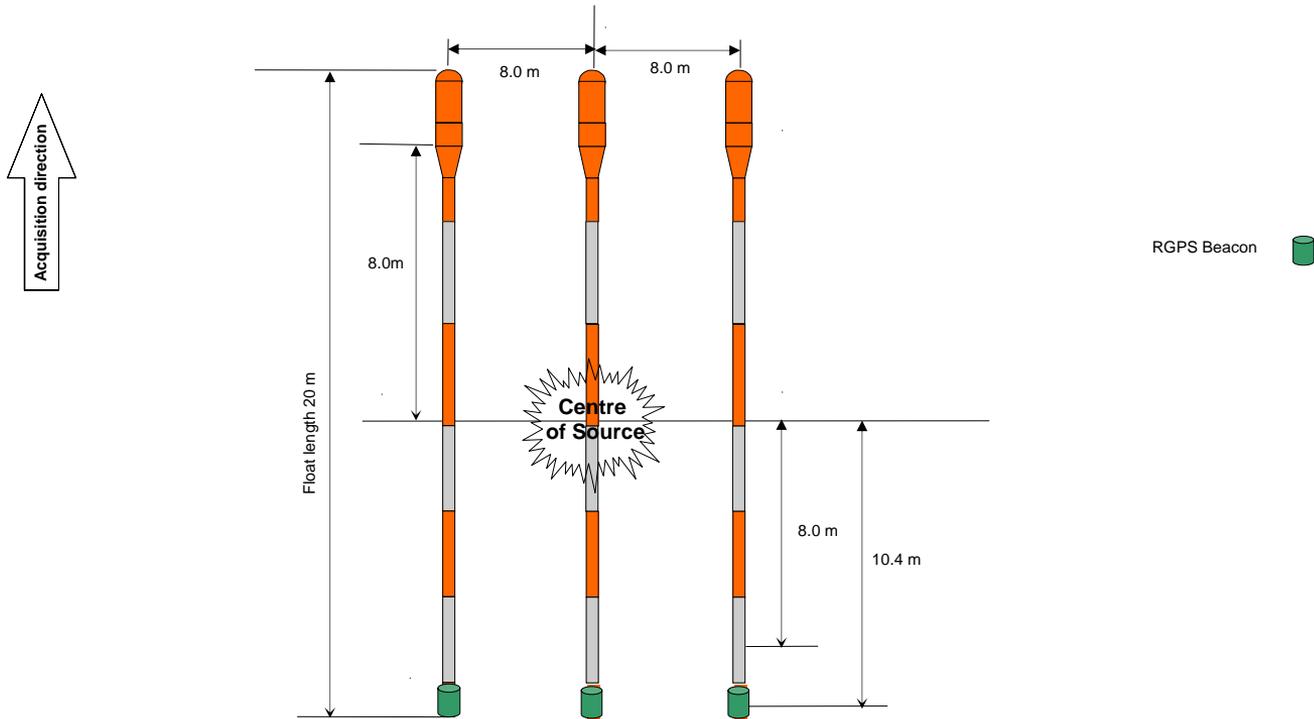
Veritas Geophysical
(Asia Pacific) Pte. Ltd.

www.veritasdgc.com

NAME	X	Y	Z
NRP	0.0	0.0	0.0
V1G1 / V1G3	0.0	0.0	12.3
V1G2	0.0	0.8	12.3
Octans Gyro	-1.25	24.3	2.1
Robertson Simrad Gyro	-0.8	23.5	2.1
Echo Sounder Transducer	4.6	19.9	-3.9
Hull Acoustic Transducer	-2.9	19.9	-4.1
Fanbeam	-0.4	-8.6	6.6



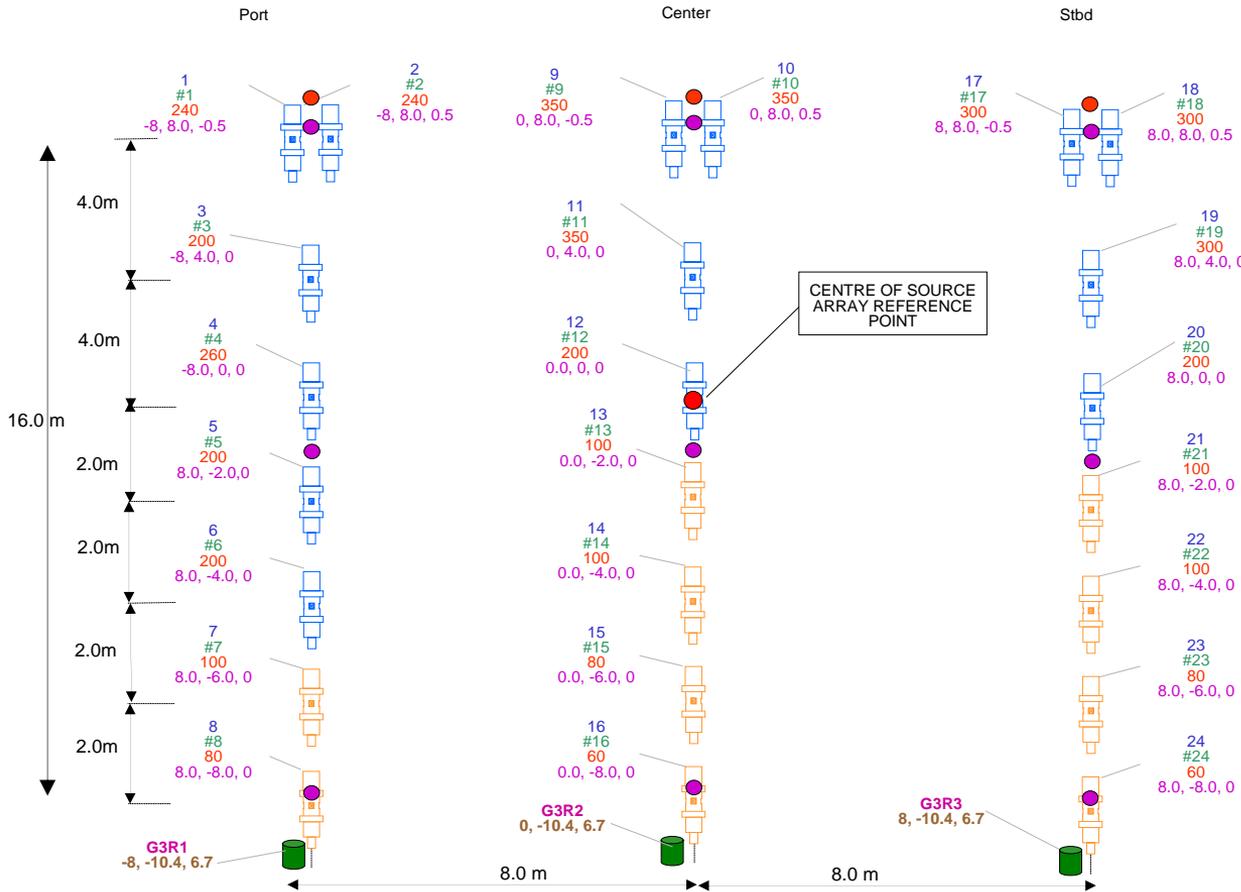
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: XX-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	33		Onboard Representative	NavDef #02U
JOB # :	20323	TO SEQ :	34		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: XX-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	33		Onboard Representative	NavDef #02U
JOB # :	20323	TO SEQ :	34		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4550 cu in

Array Sensors

- Depth
- Pressure
- Near Field Hydrophone

 rGPS Pod

 Acoustic Pod

Gun Detail

Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

-  1500LL – Active
-  1500LL – Spare
-  1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006
AREA :	2006 Greater Bream 3D	FROM SEQ :	33
JOB # :	20323	TO SEQ :	34

Not to scale
Measurements in metres

M Boon - Geo Supervisor	
GS: <i>Print</i>	<i>Sign</i>
Onboard Representative	
Client: <i>Print</i>	<i>Sign</i>

Page 11
Created: XX-MAY-06
NavDef #02U



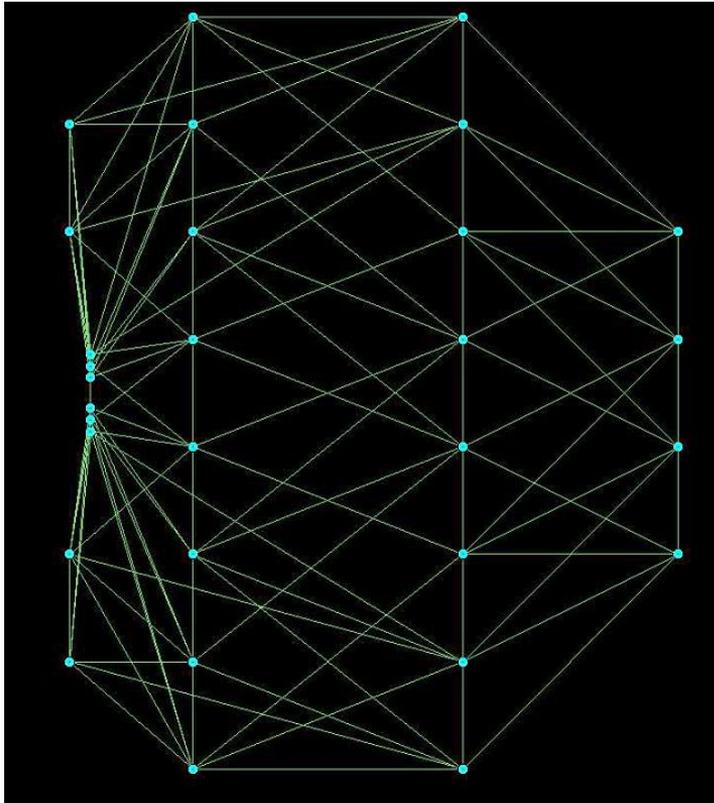
Acoustic Networks

Esso Australia Pty Ltd – 2006 Bream 3D

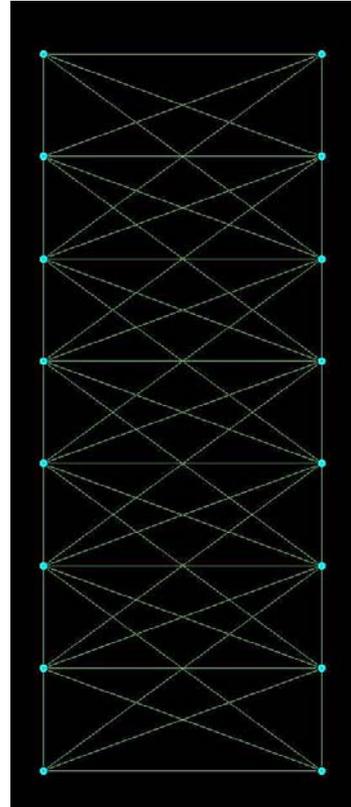
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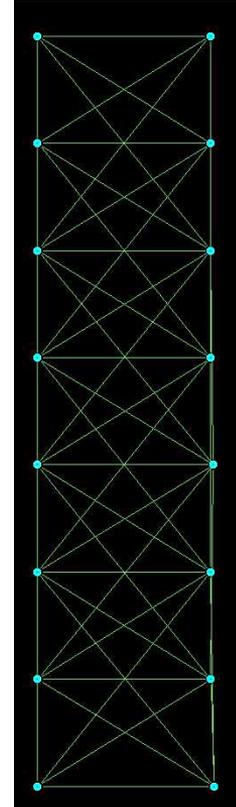
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	19-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	19-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: XX-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	33		Onboard Representative	NavDef #02U
JOB # :	20323	TO SEQ :	34		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 3U Esso Australia Pty Ltd – 2006 Bream 3D

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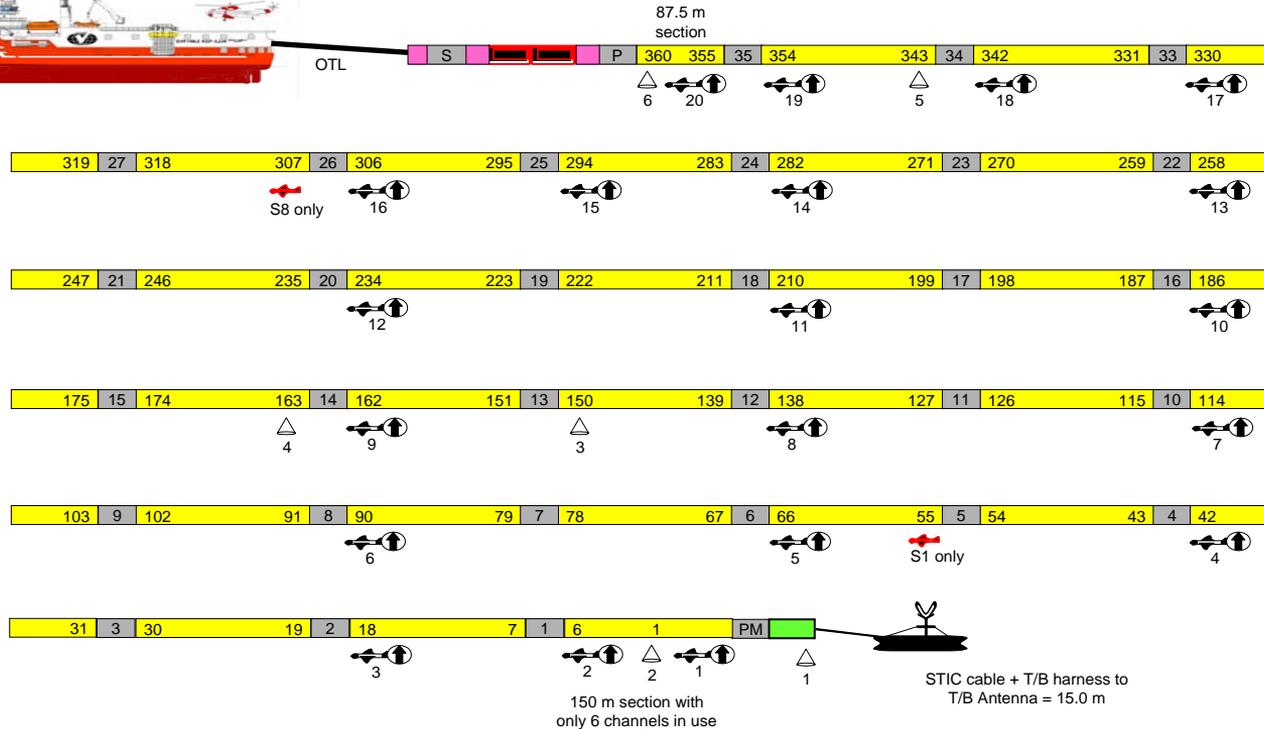
www.veritasdgc.com

Summary of changes

- Pacific Sword rGPS pod reversal corrected

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	20-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor GS: <i>Print</i> <i>Sign</i>	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	30-MAY-2006		Onboard Representative Client: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	35			
JOB # :	20323	TO SEQ :	49, 55-57			NavDef #03U

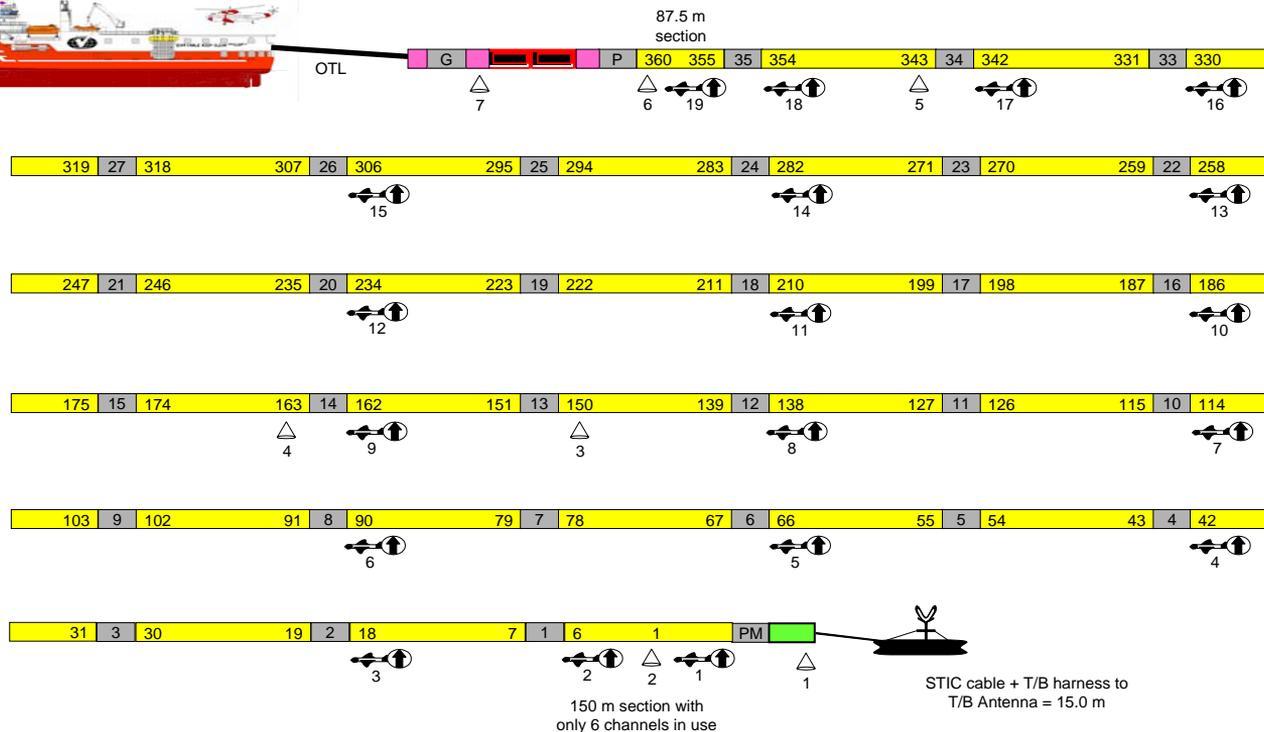
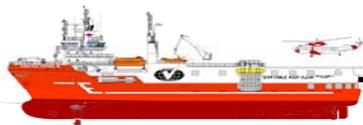
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



-  TAP can (0.35m)
-  Streamer tension unit, STU (0.35m)
-  Passive Module (0.35m)
-  Power Module (0.35m)
-  Active Module (0.35m)
-  RVIM Stretch section (25m static)
-  Solid active (150m)
- 109 Group/trace number
-  Stretch (50m static)
-  Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	20-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	30-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	35		Onboard Representative	NavDef #03U
JOB # :	20323	TO SEQ :	49, 55-57		Client: <i>Print</i> <i>Sign</i>	

Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
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- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

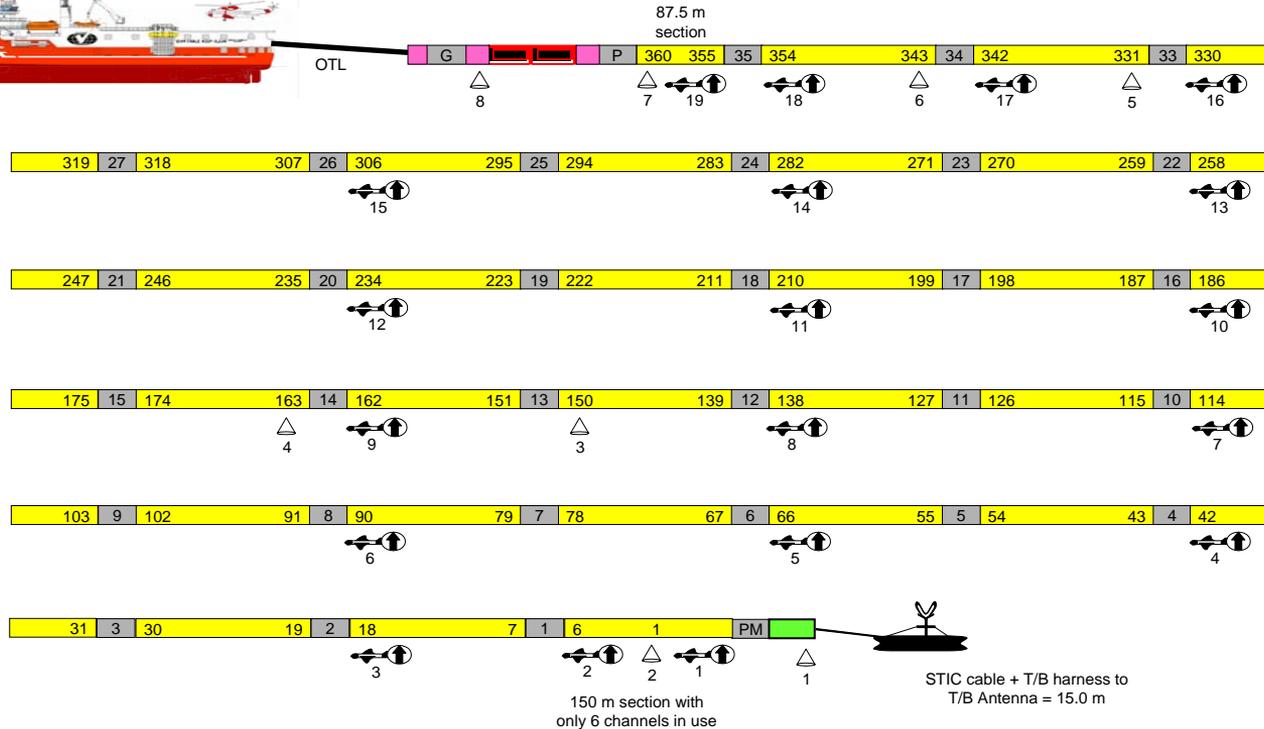
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	20-MAY-2006
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	30-MAY-2006
AREA :	2006 Greater Bream 3D	FROM SEQ :	35
JOB # :	20323	TO SEQ :	49, 55-57

Not to scale

Measurements in metres

M Boon - Geo Supervisor	
GS: <i>Print</i>	<i>Sign</i>
Onboard Representative	
Client: <i>Print</i>	<i>Sign</i>

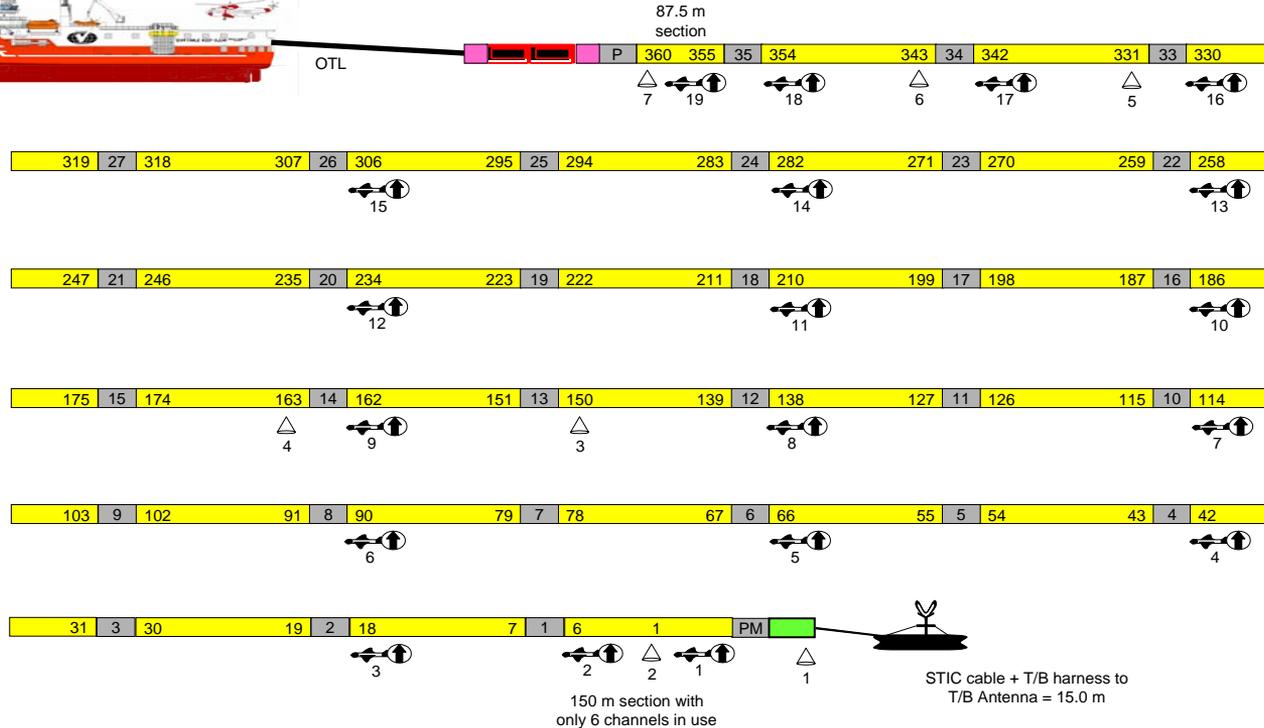
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	20-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	30-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	35		Onboard Representative	NavDef #03U
JOB # :	20323	TO SEQ :	49, 55-57		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

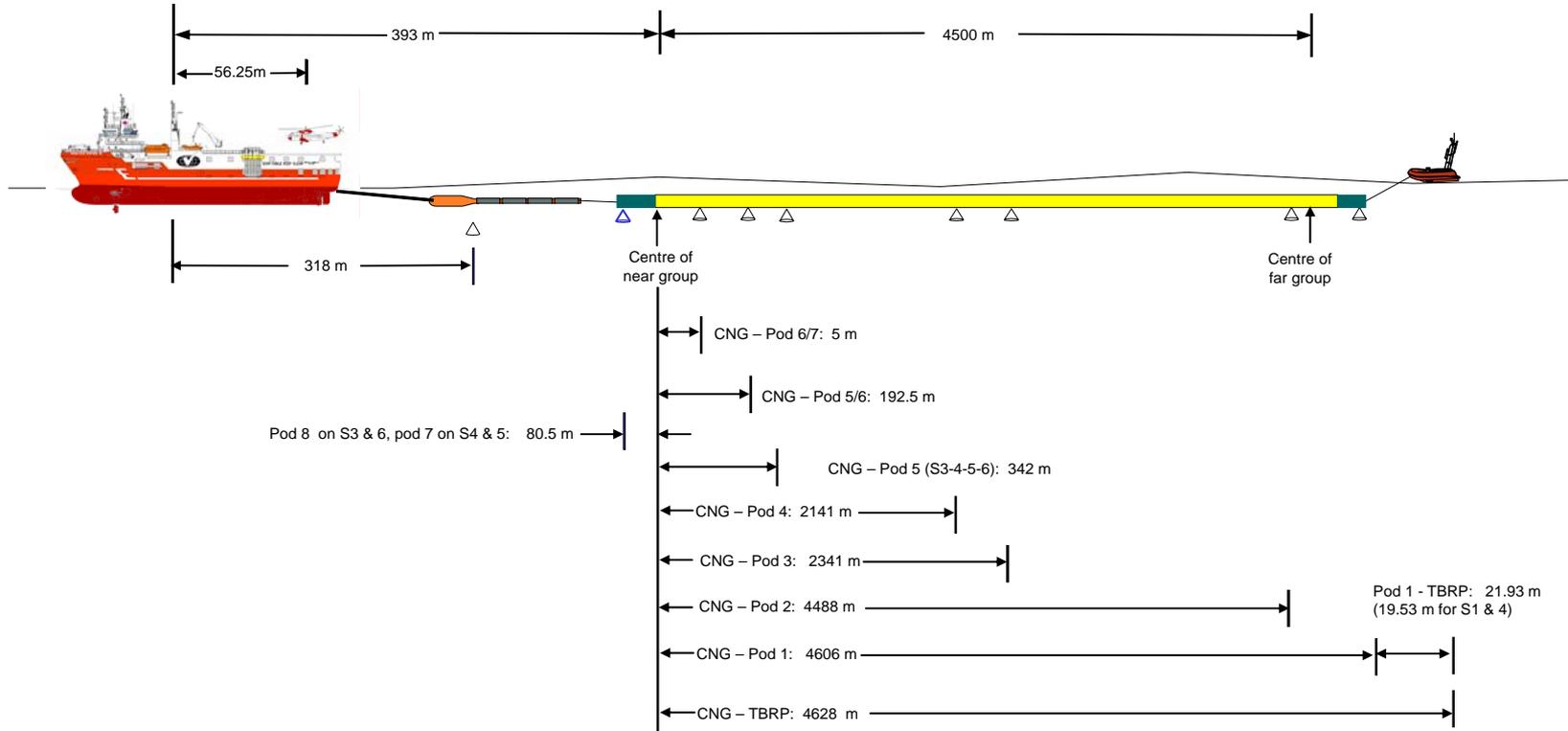


	TAP can (0.35m)
	Streamer tension unit, STU (0.35m)
	Passive Module (0.35m)
	Power Module (0.35m)
	Active Module (0.35m)
	RVIM Stretch section (25m static)
	Solid active (150m)
109	Group/trace number
	Stretch (50m static)
	Insert section (1m)
	Velocimeter
	Depth controller, depth transducer & compass
	Acoustic pod
6	

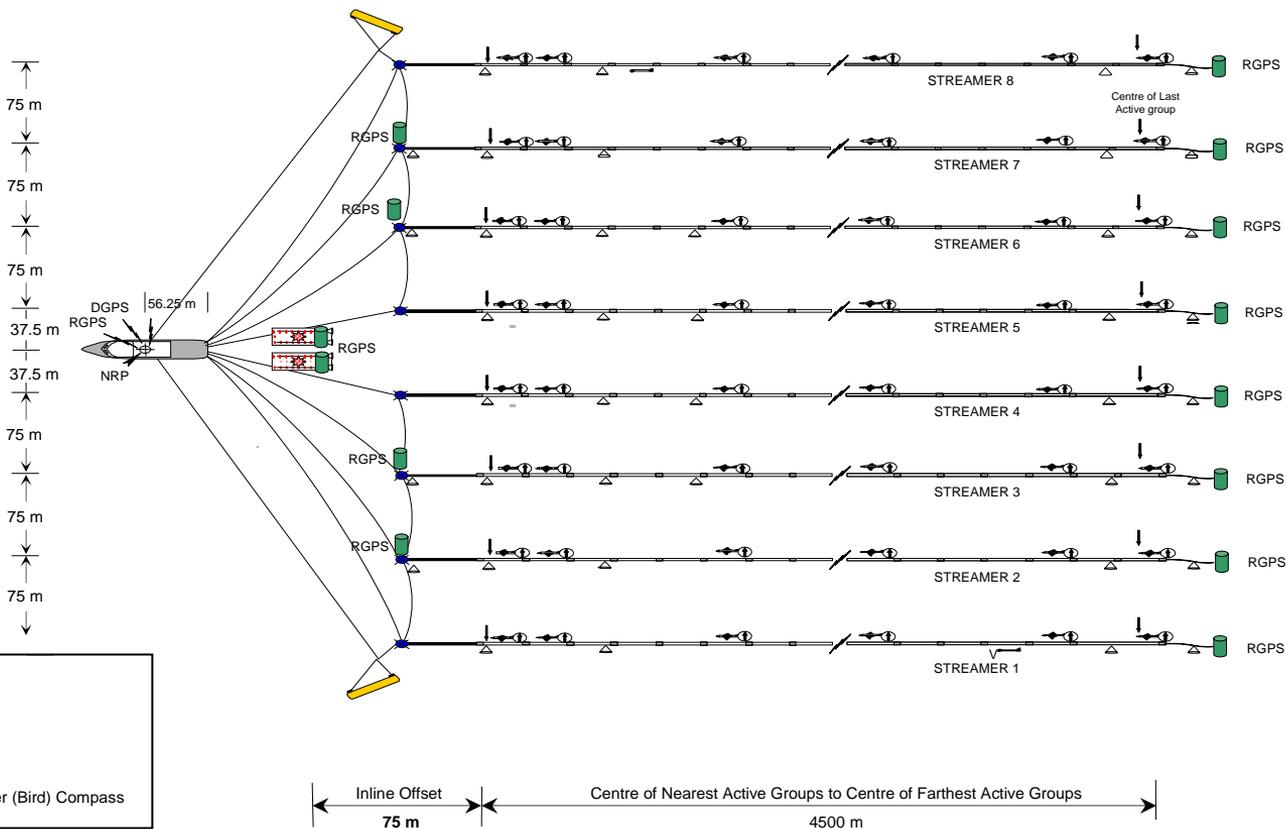
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	20-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 5
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	30-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	35		Onboard Representative	NavDef #03U
JOB # :	20323	TO SEQ :	49, 55-57		Client: <i>Print</i> <i>Sign</i>	

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



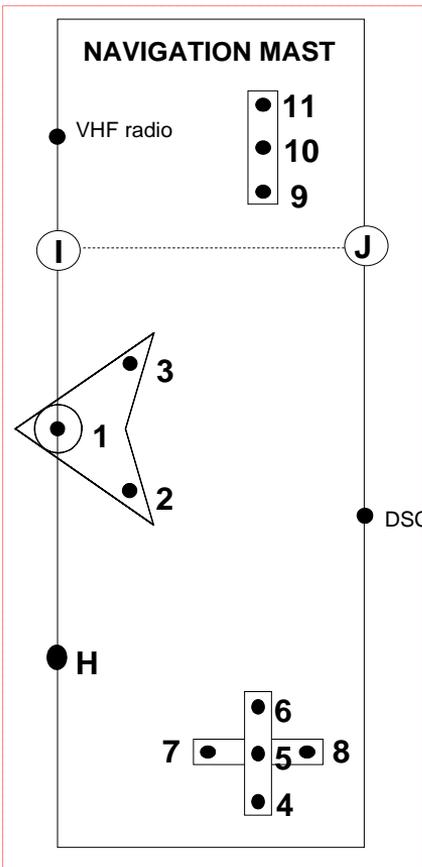
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	20-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	30-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	35		Onboard Representative	NavDef #03U
JOB # :	20323	TO SEQ :	49, 55-57		Client: <i>Print</i> <i>Sign</i>	



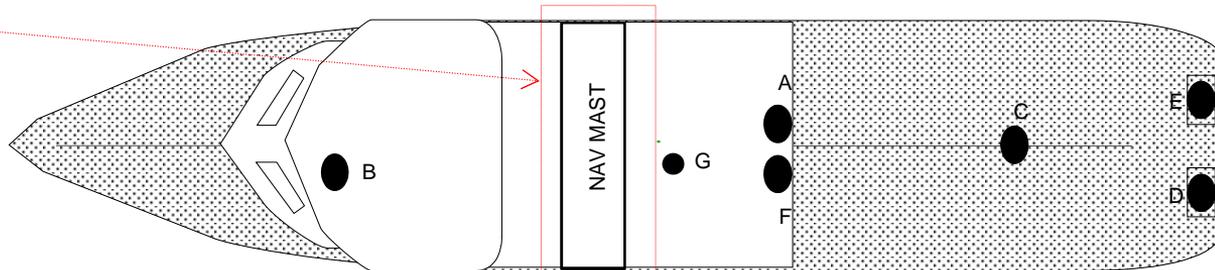
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	20-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 7
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	30-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	35		Onboard Representative	NavDef #03U
JOB # :	20323	TO SEQ :	49, 55-57		Client: <i>Print</i> <i>Sign</i>	

Antenna Offsets – Viking 2

Esso Australia Pty Ltd – 2006 Bream 3D



KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	20-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	30-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	35		Onboard Representative	NavDef #03U
JOB # :	20323	TO SEQ :	49, 55-57		Client: <i>Print</i> <i>Sign</i>	

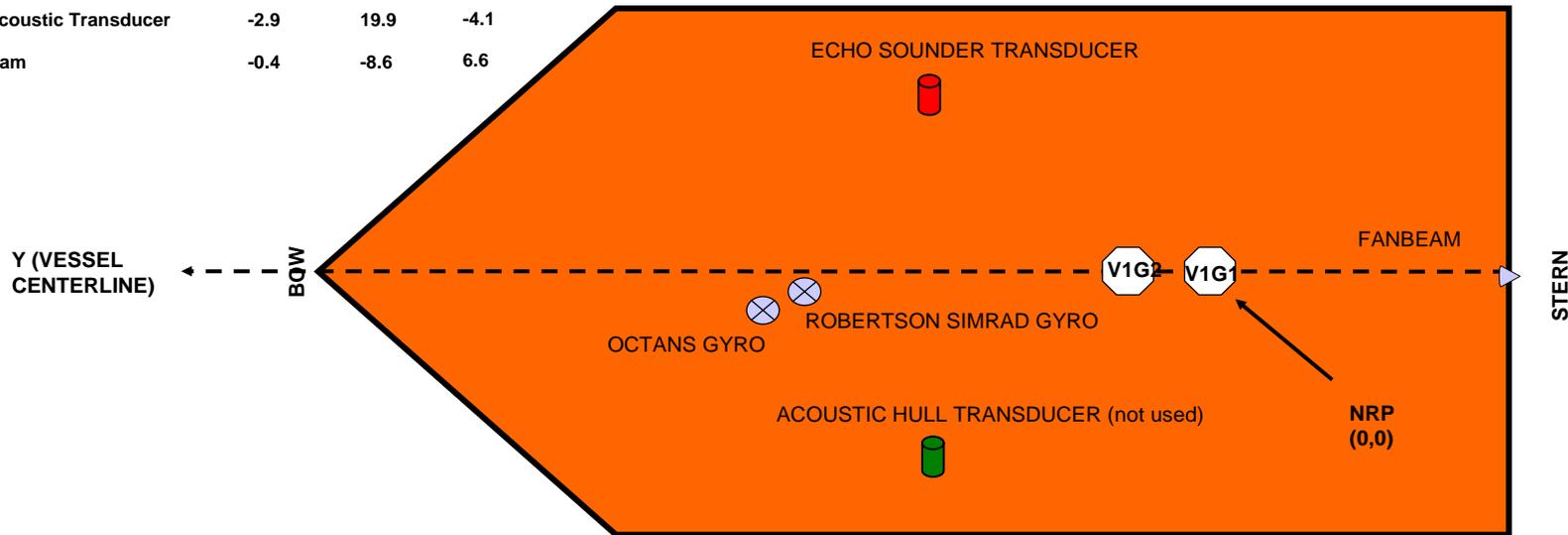


Antenna Offsets – Pacific Sword Esso Australia Pty Ltd – 2006 Bream

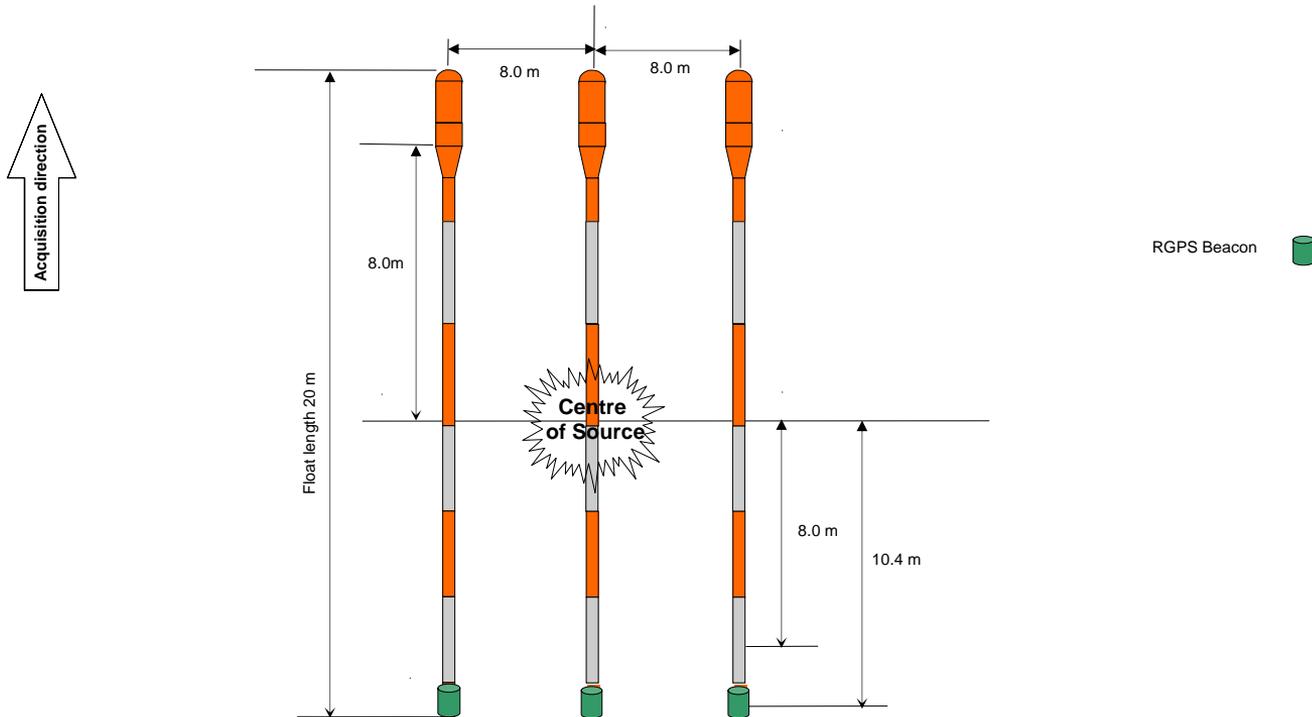
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<u>NAME</u>	<u>X</u>	<u>Y</u>	<u>Z</u>
NRP	0.0	0.0	0.0
V1G1 / V1G3	0.0	0.0	12.3
V1G2	0.0	0.8	12.3
Octans Gyro	-1.25	24.3	2.1
Robertson Simrad Gyro	-0.8	23.5	2.1
Echo Sounder Transducer	4.6	19.9	-3.9
Hull Acoustic Transducer	-2.9	19.9	-4.1
Fanbeam	-0.4	-8.6	6.6



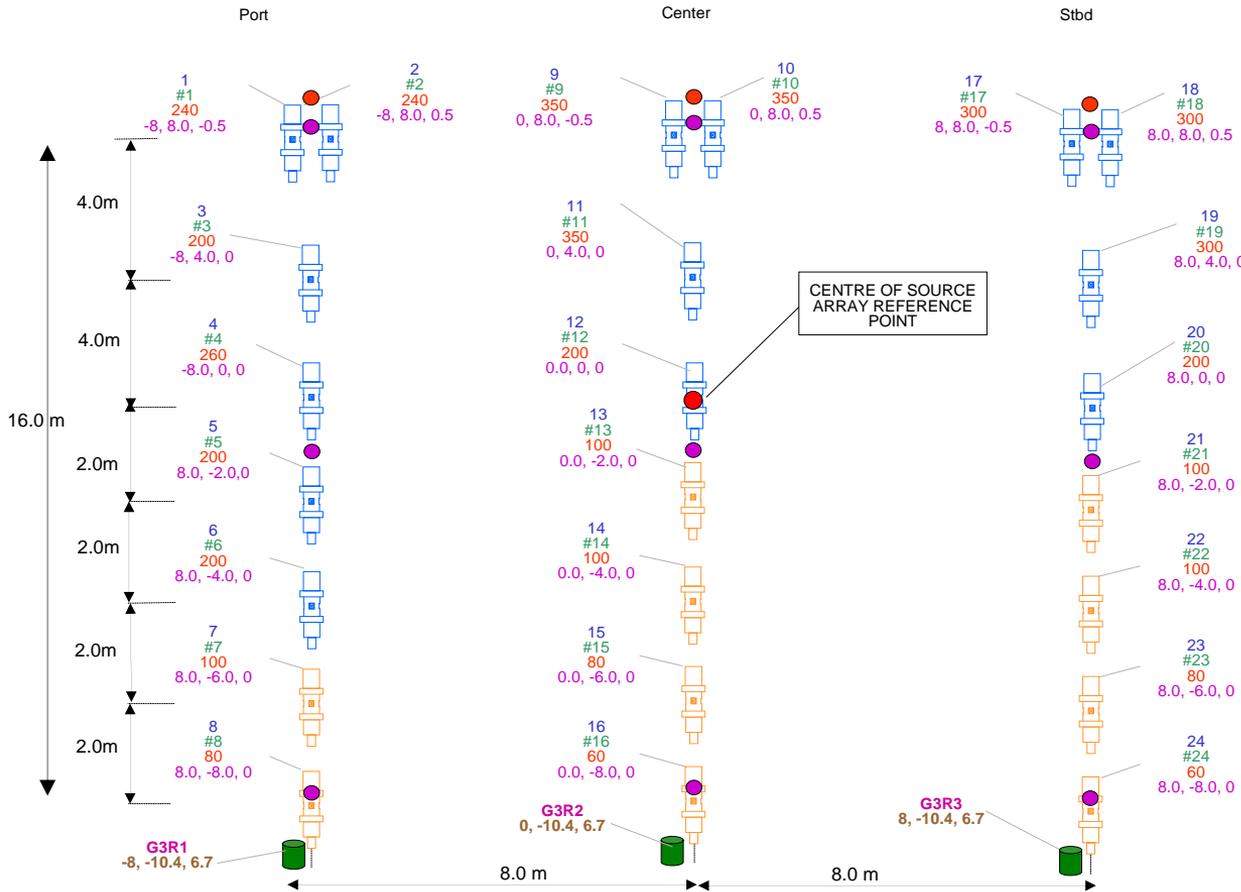
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	20-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	30-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	35		Onboard Representative	NavDef #03U
JOB # :	20323	TO SEQ :	49, 55-57		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	20-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	30-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	35		Onboard Representative	NavDef #03U
JOB # :	20323	TO SEQ :	49, 55-57		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4550 cu in

Array Sensors

- Depth
- Pressure
- Near Field Hydrophone

-  rGPS Pod
-  Acoustic Pod

Gun Detail

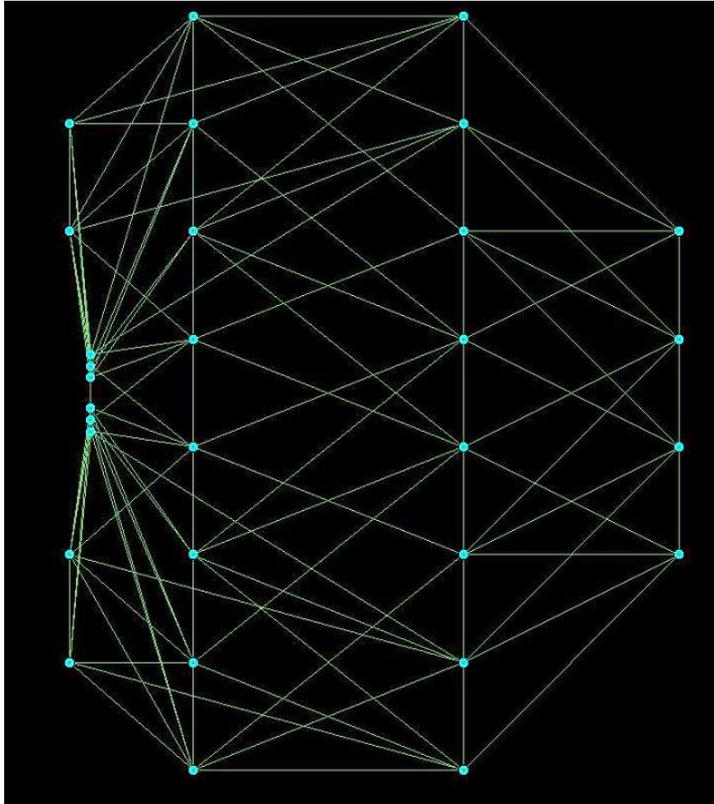
Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

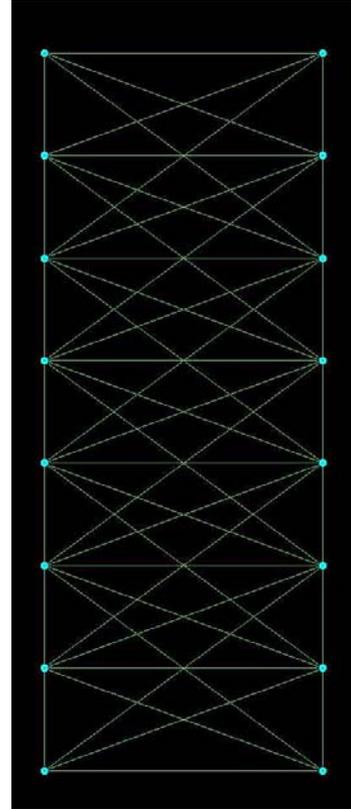
-  1500LL – Active
-  1500LL – Spare
-  1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	20-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	30-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	35		Onboard Representative	NavDef #03U
JOB # :	20323	TO SEQ :	49, 55-57		Client: <i>Print</i> <i>Sign</i>	

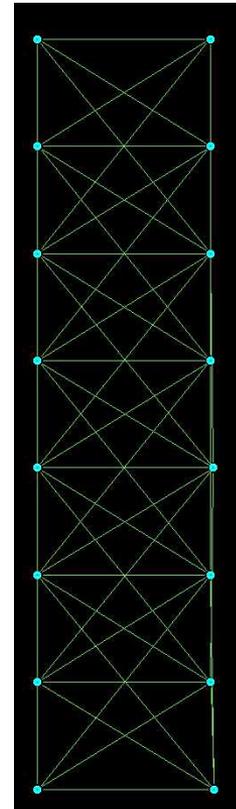
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	20-MAY-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	30-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 20-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	35		Onboard Representative	NavDef #03U
JOB # :	20323	TO SEQ :	49, 55-57		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 6

Esso Australia Pty Ltd – 2006 Bream 3D

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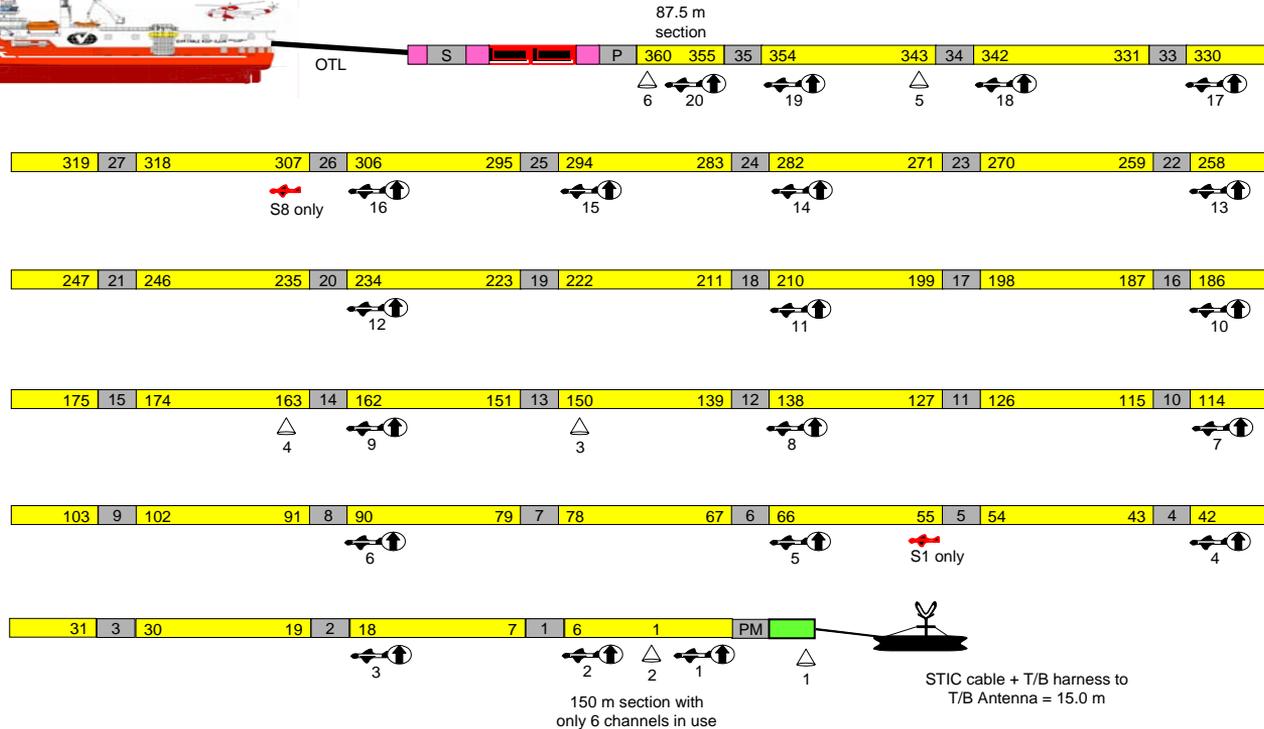
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Summary of changes

- **Water velocity changed to 1508 m/s**
- **No physical changes in set up**

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	27-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	31-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 31-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	50		Onboard Representative	NavDef #06
JOB # :	20323	TO SEQ :	60		Client: <i>Print</i> <i>Sign</i>	

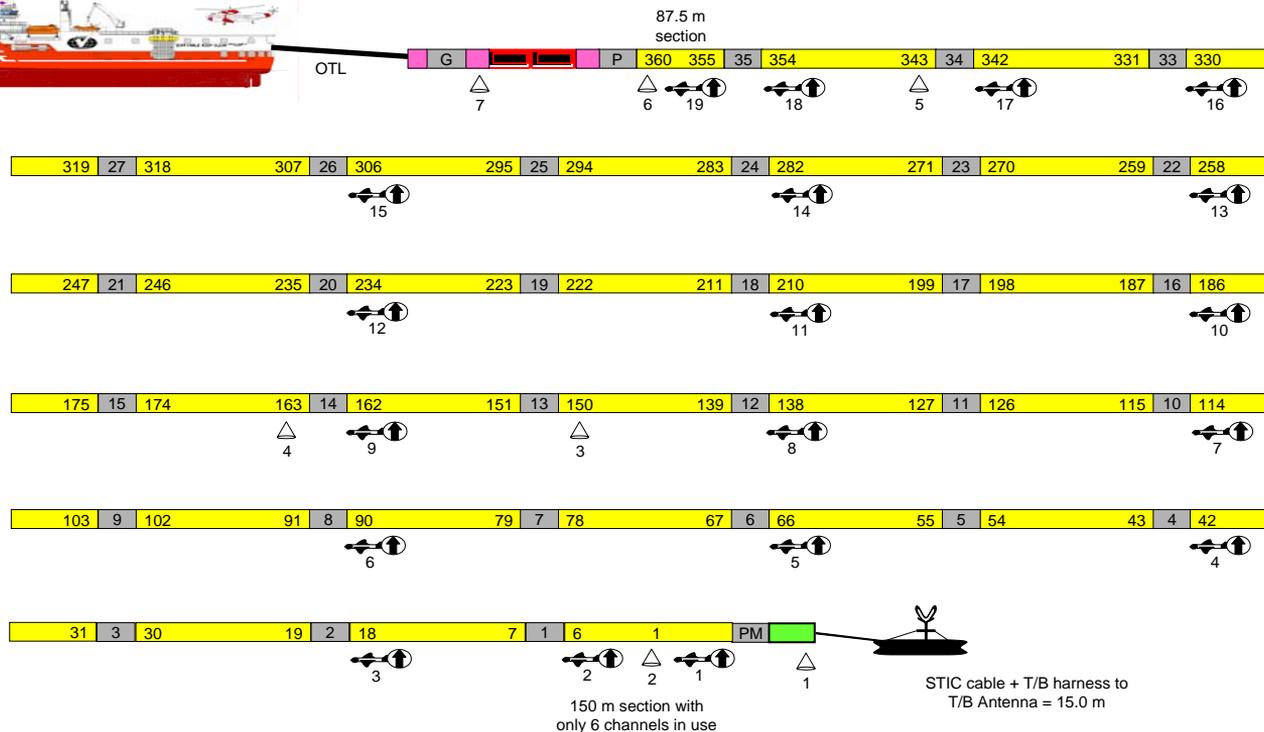
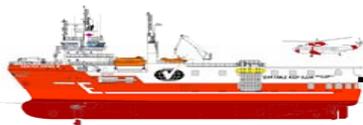
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	27-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	31-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 31-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	50		Onboard Representative	NavDef #06
JOB # :	20323	TO SEQ :	60		Client: <i>Print</i> <i>Sign</i>	

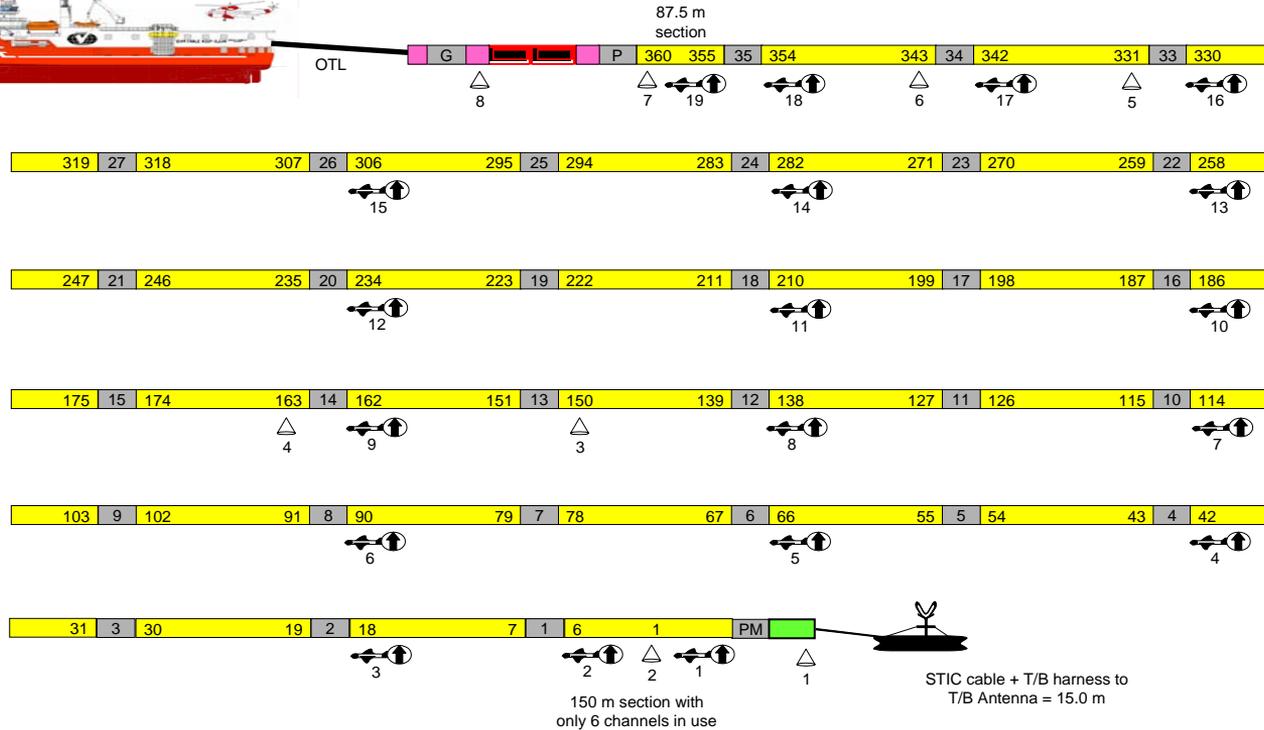
Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	27-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 3
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	31-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 31-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	50		Onboard Representative	NavDef #06
JOB # :	20323	TO SEQ :	60		Client: <i>Print</i> <i>Sign</i>	

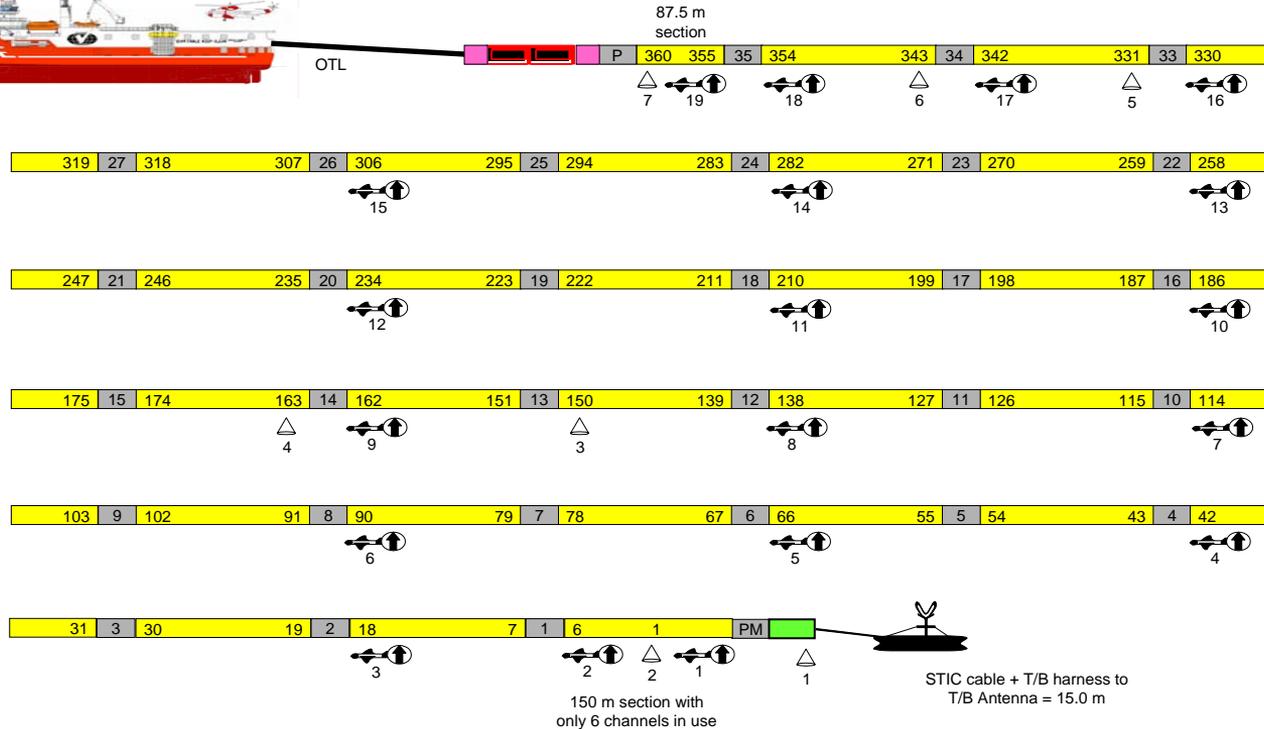
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	27-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	31-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 31-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	50		Onboard Representative	
JOB # :	20323	TO SEQ :	60		Client: <i>Print</i> <i>Sign</i>	NavDef #06

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

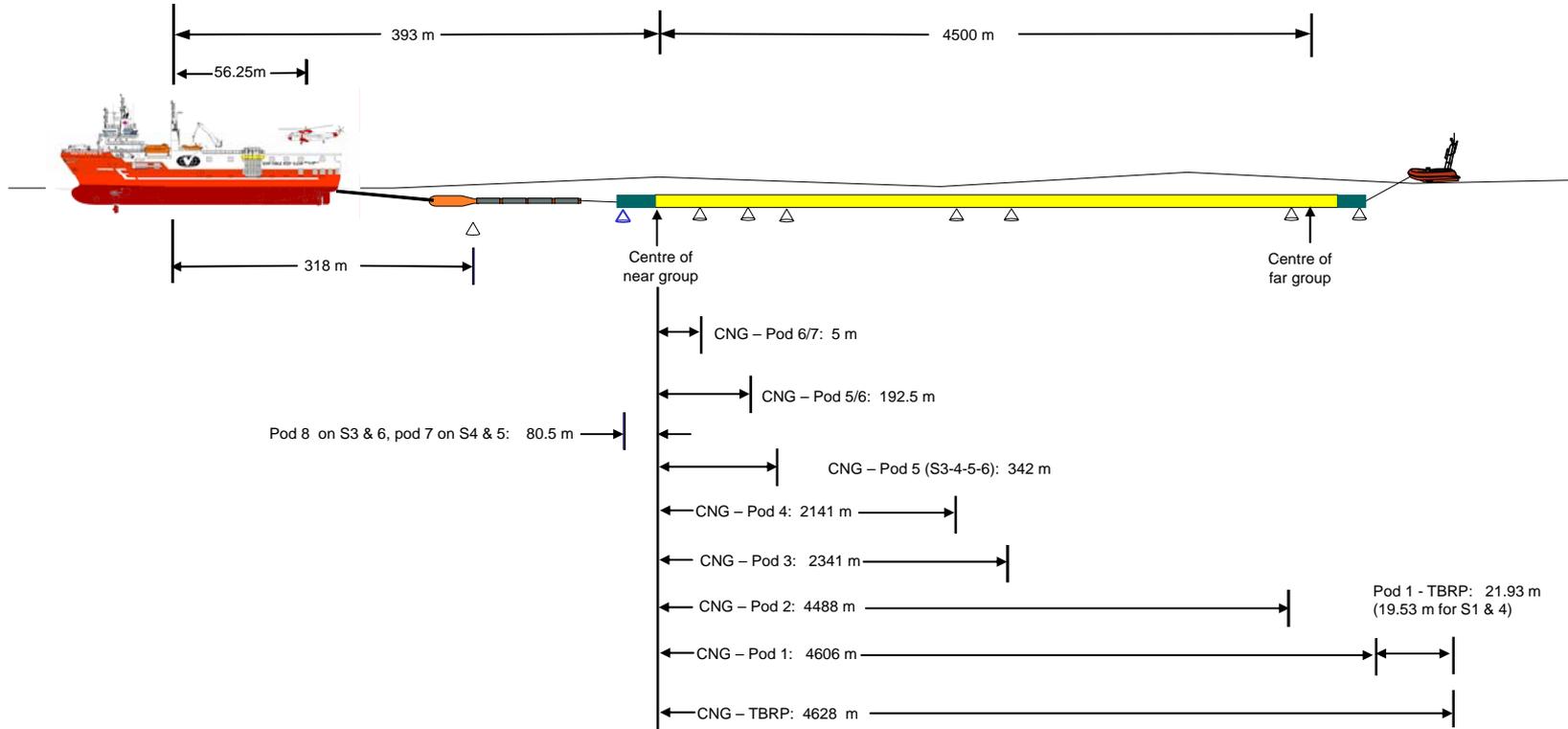


- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

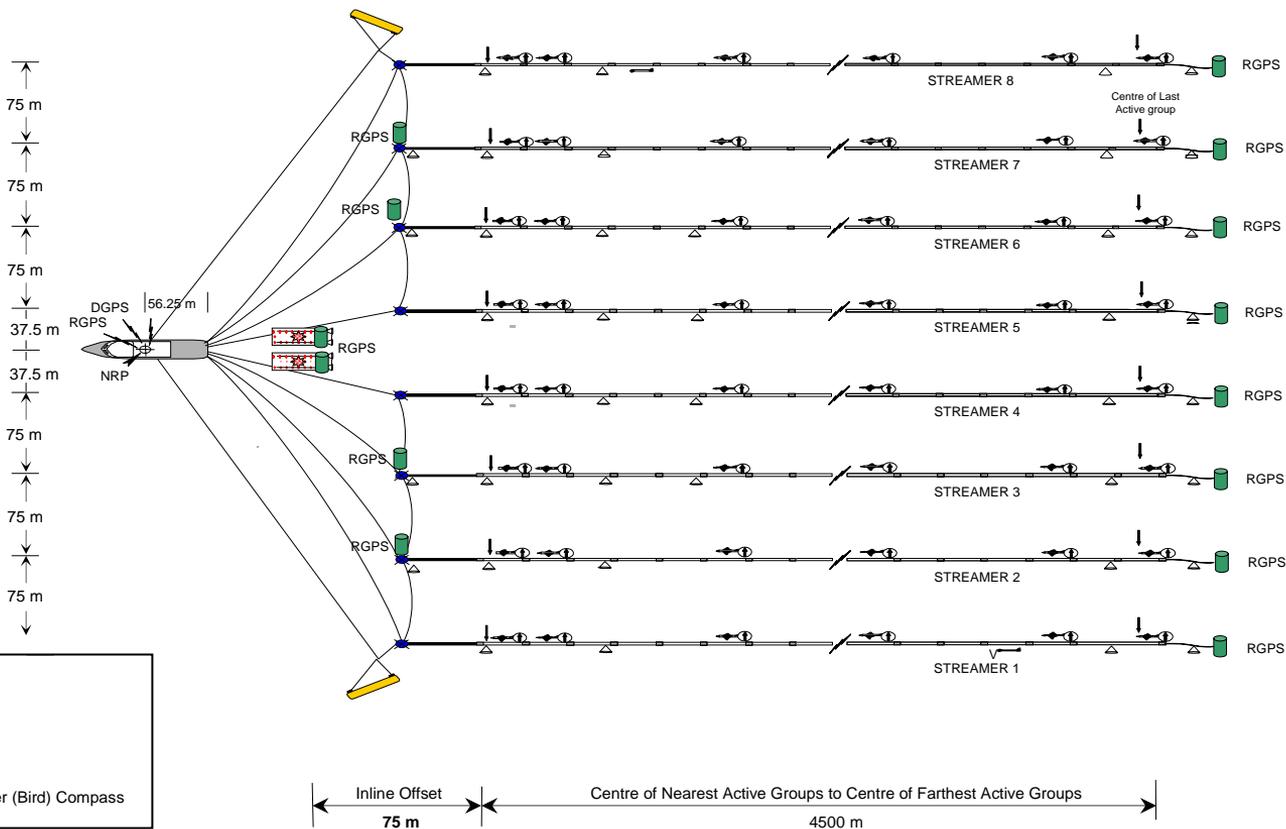
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	27-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 5
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	31-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 31-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	50		Onboard Representative	NavDef #06
JOB # :	20323	TO SEQ :	60		Client: <i>Print</i> <i>Sign</i>	

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	27-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	31-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 31-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	50		Onboard Representative	NavDef #06
JOB # :	20323	TO SEQ :	60		Client: <i>Print</i> <i>Sign</i>	



VESSEL : SR/V Veritas Viking 2

CLIENT : Esso Australia Pty. Ltd.

AREA : 2006 Greater Bream 3D

JOB # : 20323

FROM DATE : 27-MAY-2006

TO DATE : 31-MAY-2006

FROM SEQ : 50

TO SEQ : 60

Not to scale

Measurements
in metres

M Bell - Geo Supervisor

GS: *Print* *Sign*

Onboard Representative

Client: *Print* *Sign*

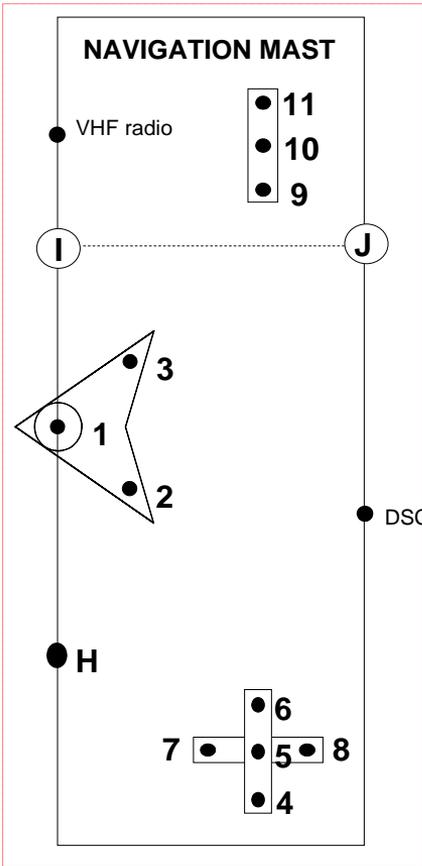
Page 7

Created: 31-MAY-06

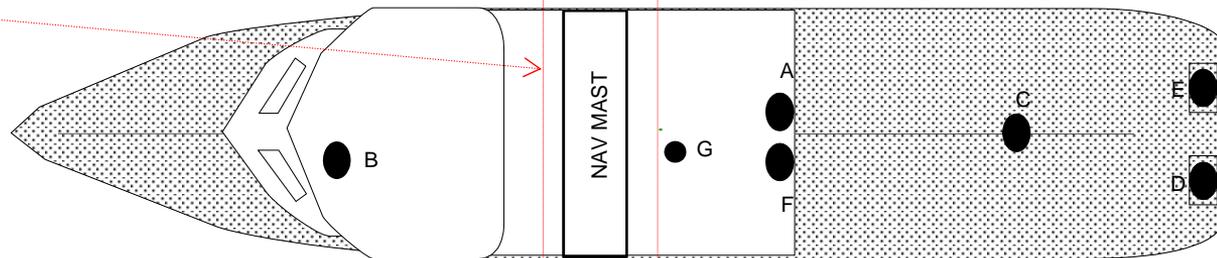
NavDef #06

Antenna Offsets

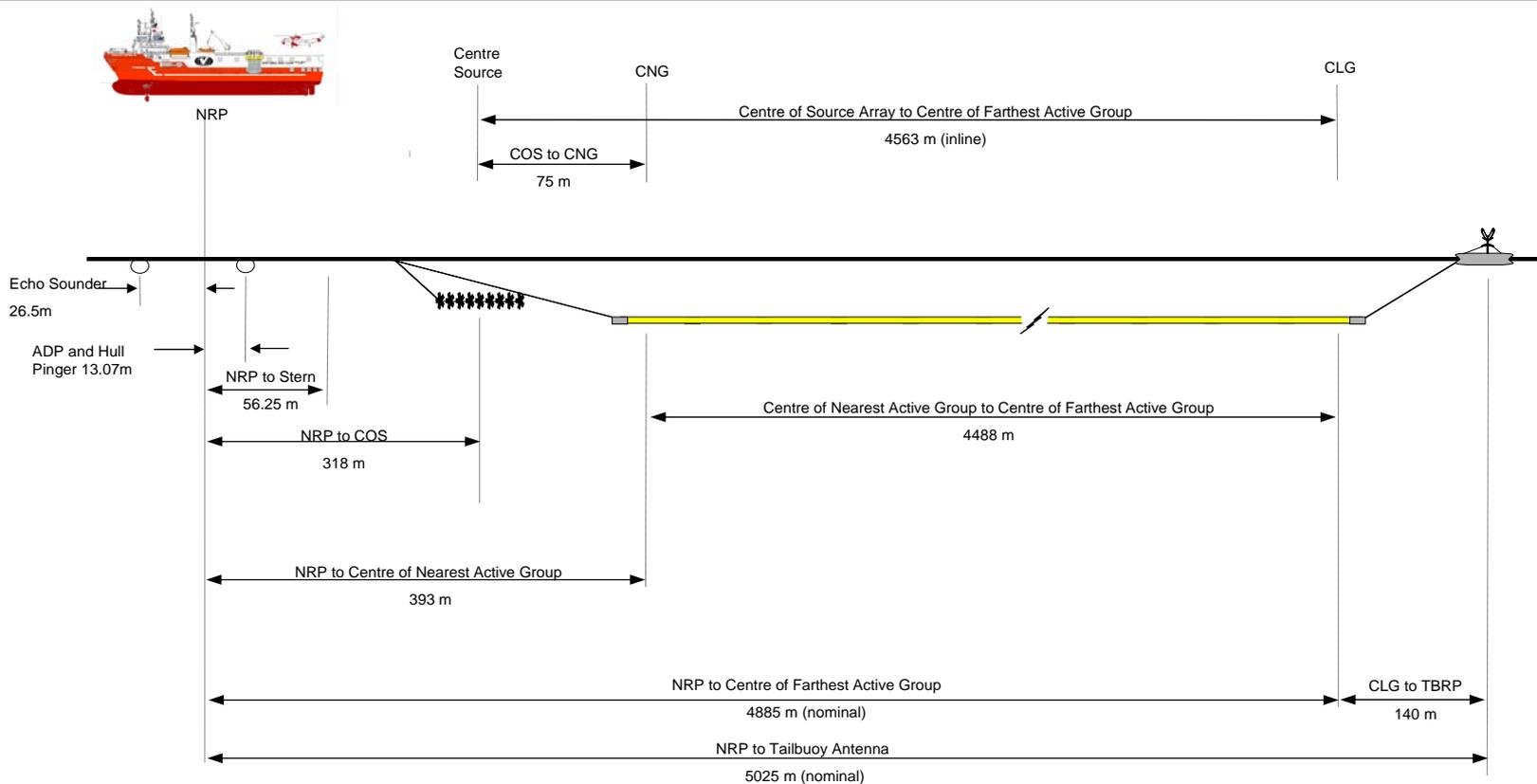
Esso Australia Pty Ltd – 2006 Bream 3D



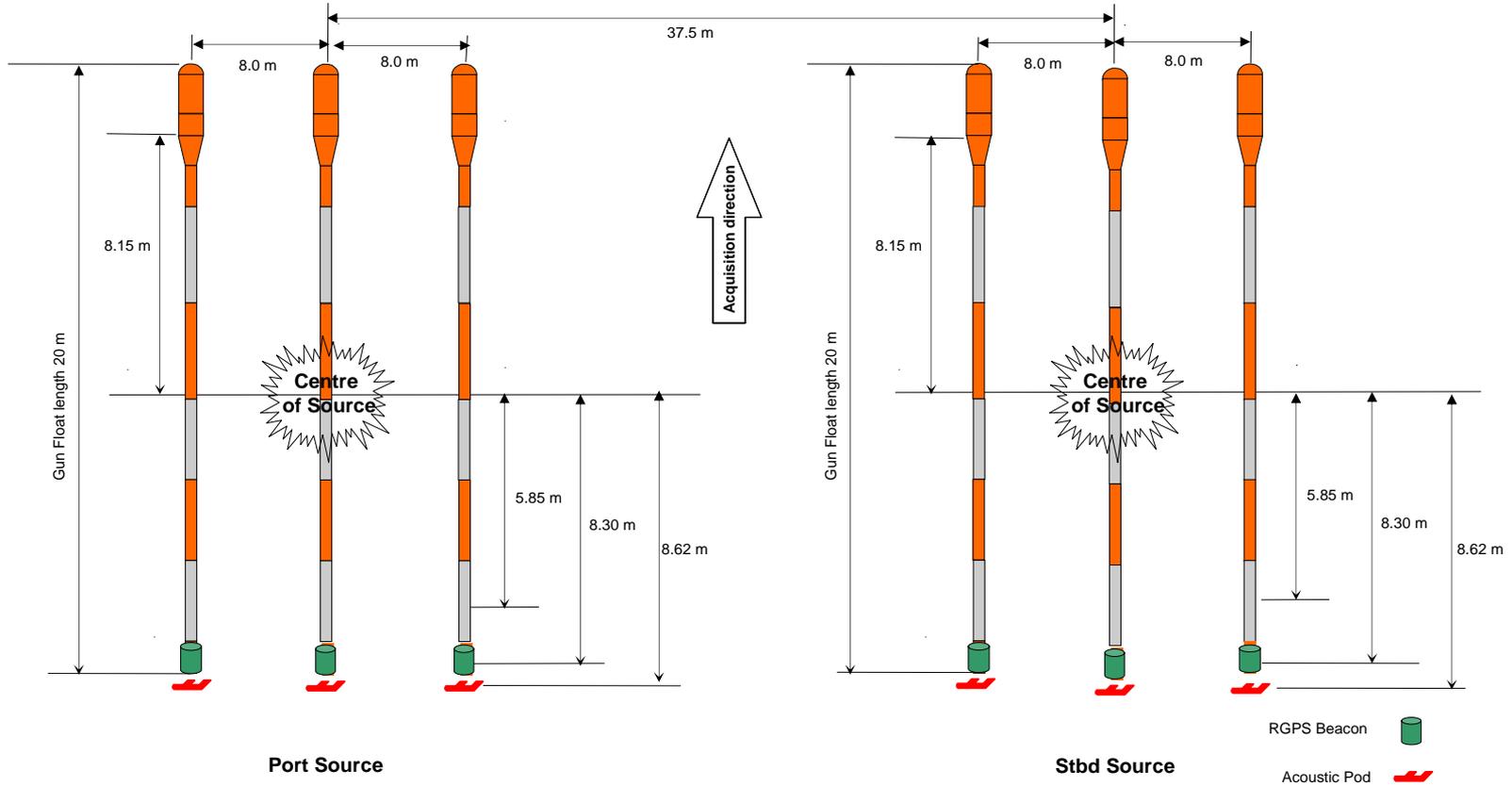
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	27-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	31-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 31-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	50		Onboard Representative	
JOB # :	20323	TO SEQ :	60		Client: <i>Print</i> <i>Sign</i>	NavDef #06



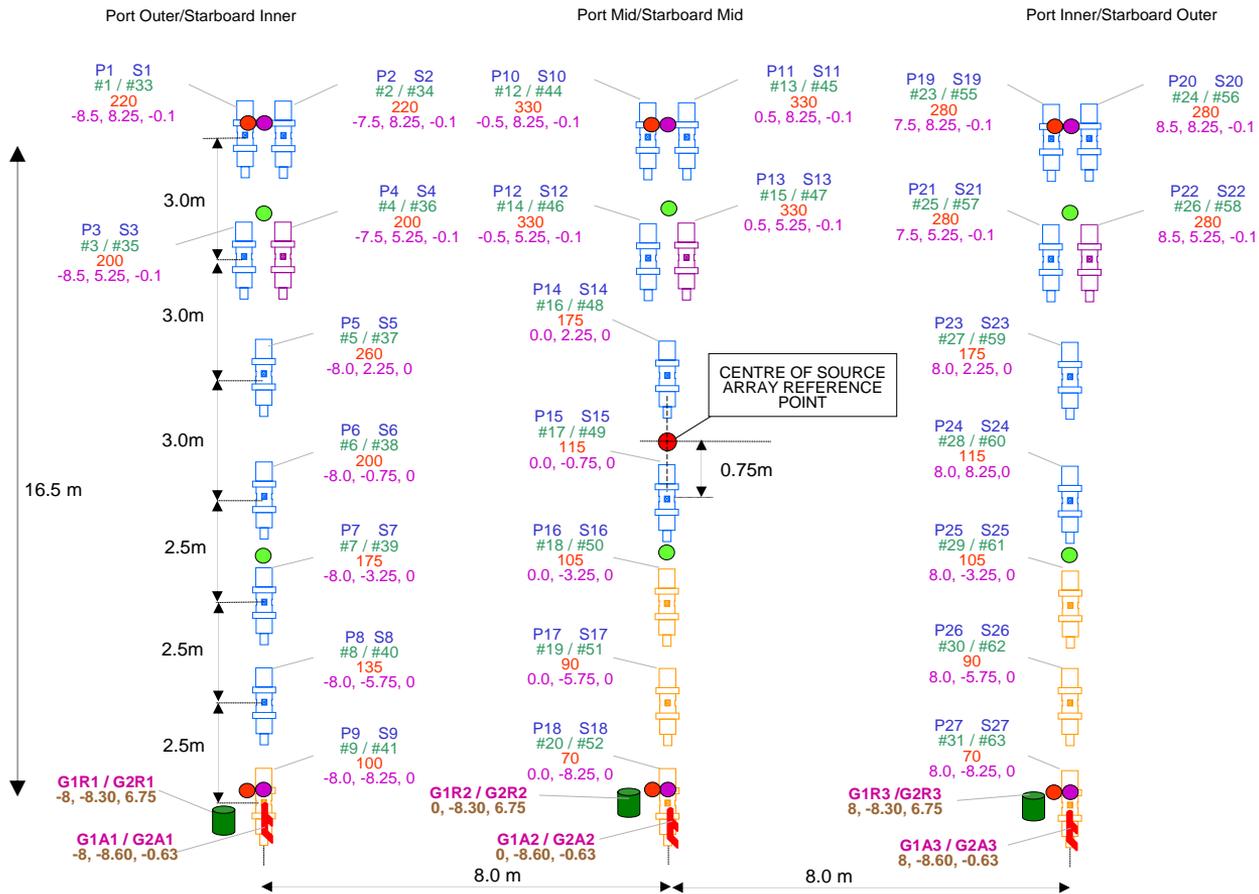
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	27-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	31-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 31-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	50		Onboard Representative	NavDef #06
JOB # :	20323	TO SEQ :	60		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	27-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	31-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 31-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	50		Onboard Representative	NavDef #06
JOB # :	20323	TO SEQ :	60		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

-  Depth
-  Pressure
-  Near Field Hydrophone

-  rGPS Pod
-  Acoustic Pod

Gun Detail

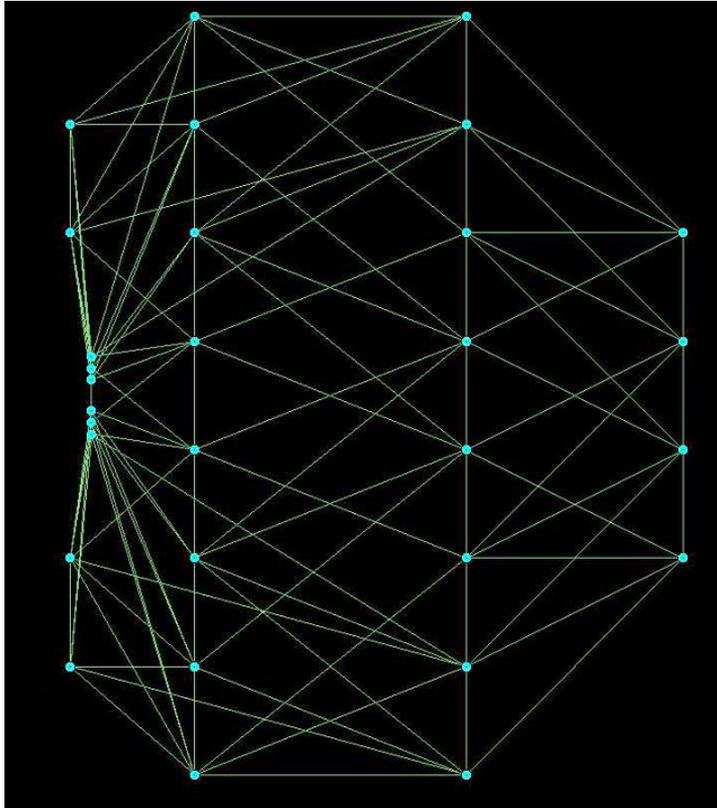
Name as in dropout spec
 Gun Controller ID
 Gun Volume
 Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

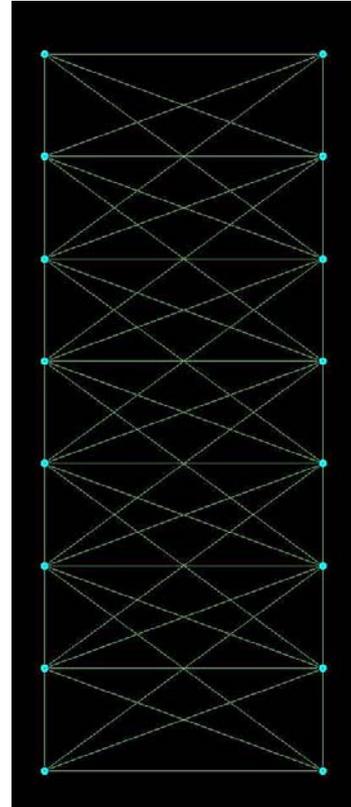
-  1500LL – Active
-  1500LL – Spare
-  1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	27-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	31-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 31-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	50		Onboard Representative	NavDef #06
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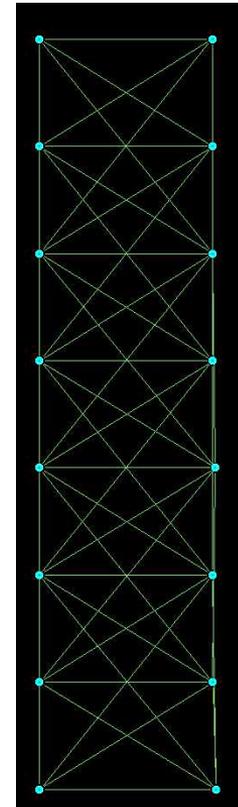
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	27-MAY-2006	<i>Not to scale</i> Measurements in metres	M Bell - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	31-MAY-2006		GS: <i>Print</i> <i>Sign</i>	Created: 31-MAY-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	50		Onboard Representative	NavDef #06
JOB # :	20323	TO SEQ :	60		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 7

Esso Australia Pty Ltd – 2006 Bream 3D

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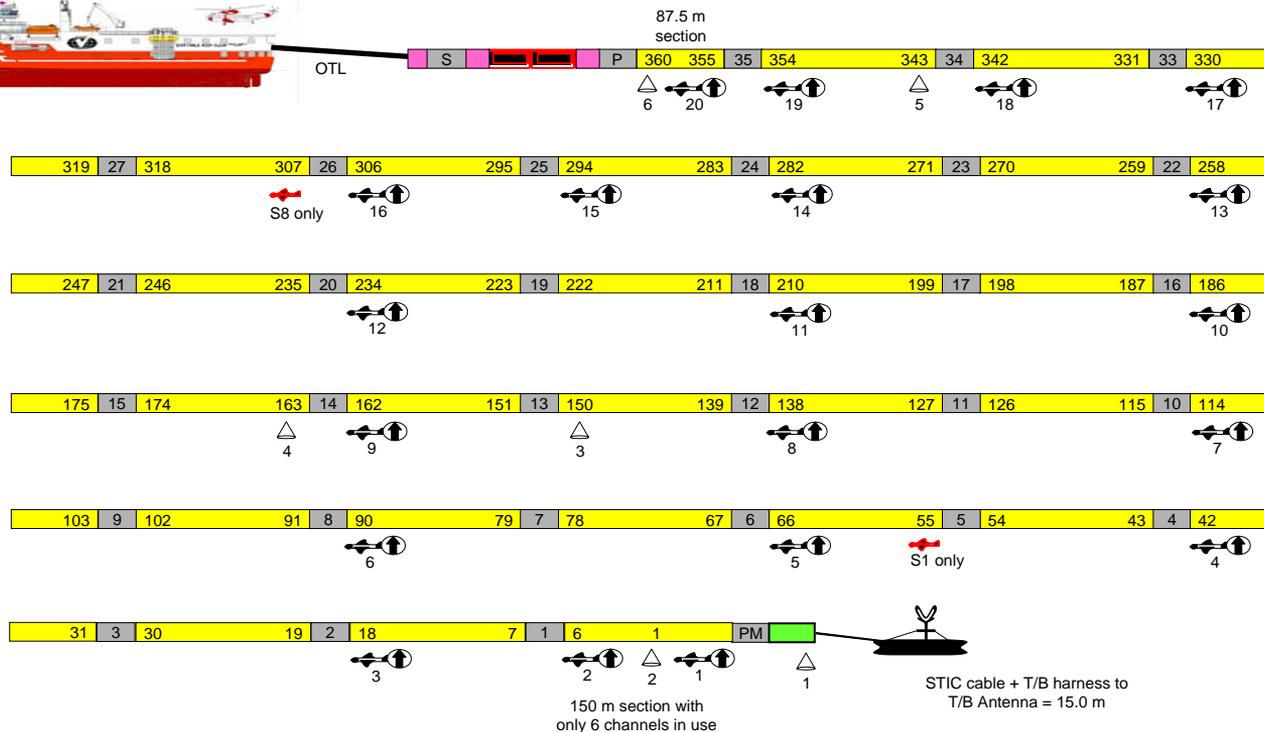
www.veritasdgc.com

Summary of changes

- **Bird 4 on Streamer 5 moved to new coil position**

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	31-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	02-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 03-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	61		Onboard Representative	NavDef #07
JOB # :	20323	TO SEQ :	69		Client: <i>Print</i> <i>Sign</i>	

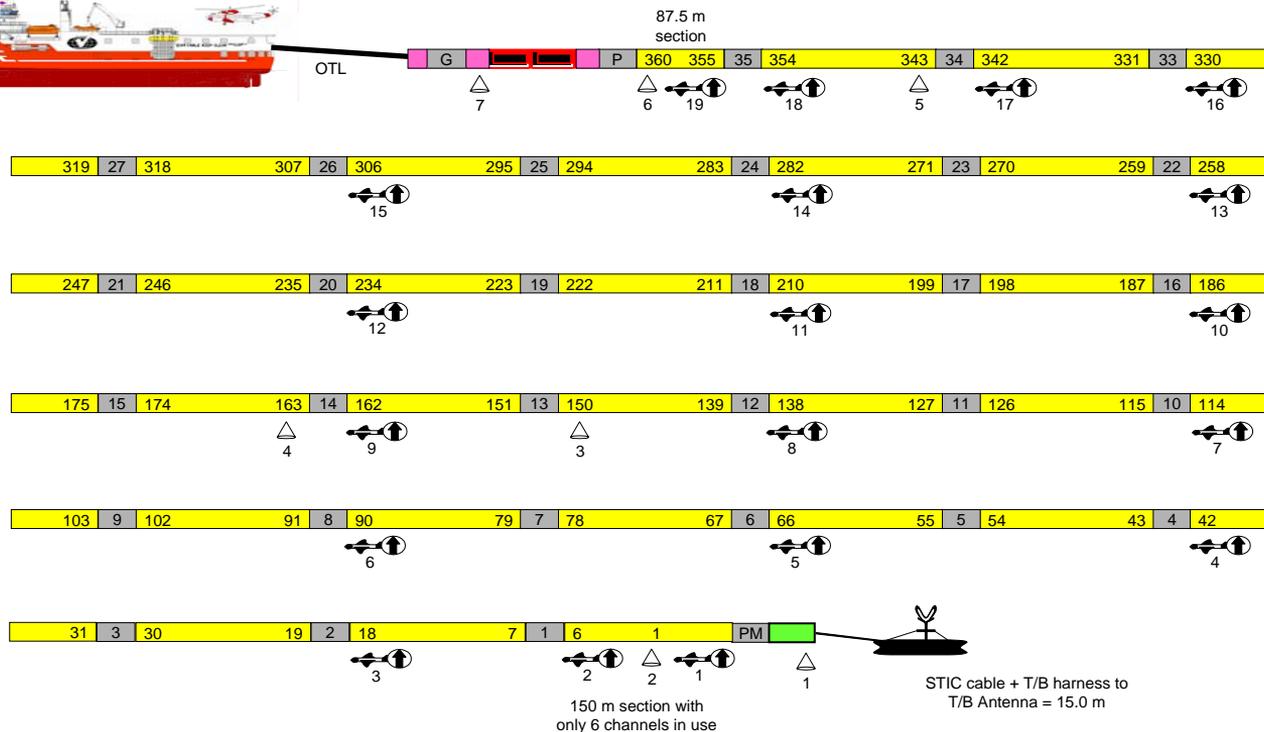
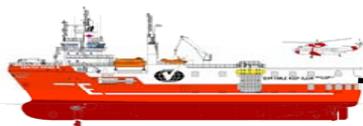
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
- Velocimeter
- Depth controller, depth transducer & compass
- Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	31-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	02-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 03-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	61		Onboard Representative	
JOB # :	20323	TO SEQ :	69		Client: <i>Print</i> <i>Sign</i>	NavDef #07

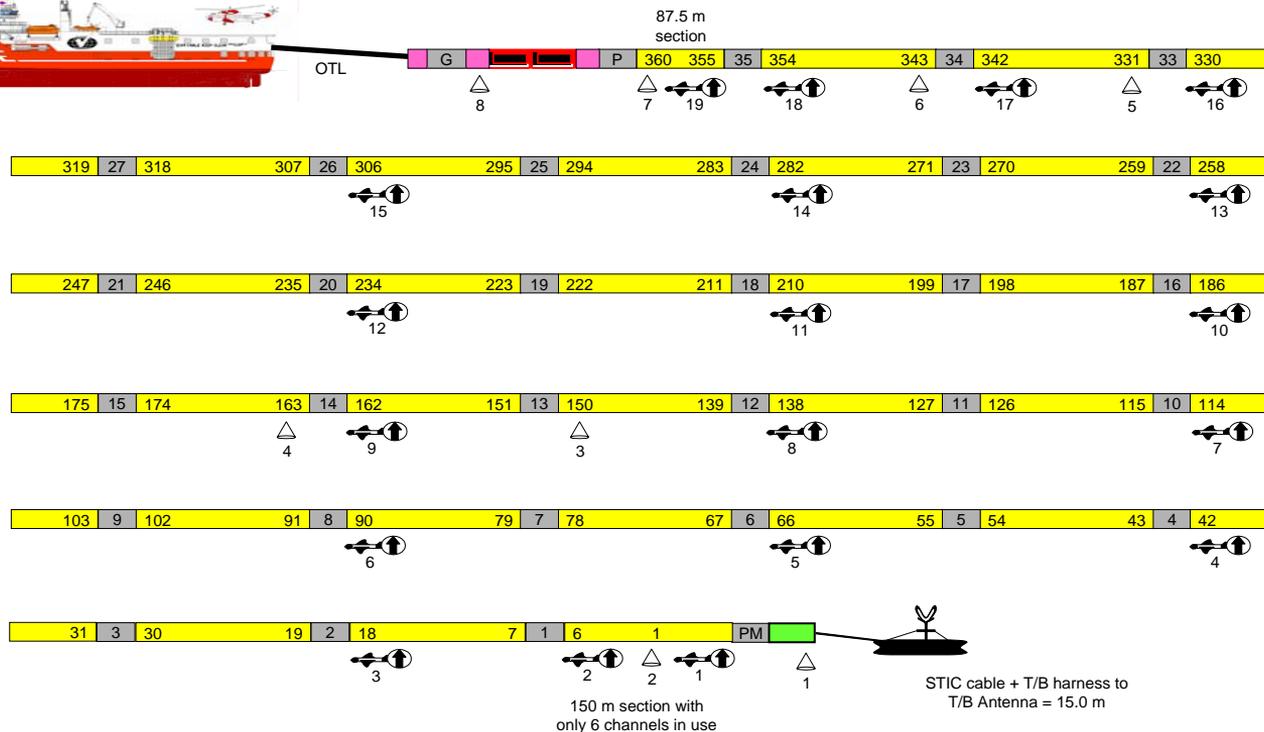
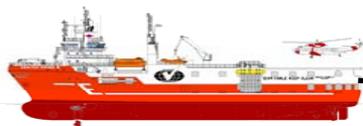
Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



-  TAP can (0.35m)
-  Streamer tension unit, STU (0.35m)
-  Passive Module (0.35m)
-  Power Module (0.35m)
-  Active Module (0.35m)
-  RVIM Stretch section (25m static)
-  Solid active (150m)
- 109 Group/trace number
-  Stretch (50m static)
-  Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	31-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 3
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	02-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 03-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	61		Onboard Representative	NavDef #07
JOB # :	20323	TO SEQ :	69		Client: <i>Print</i> <i>Sign</i>	

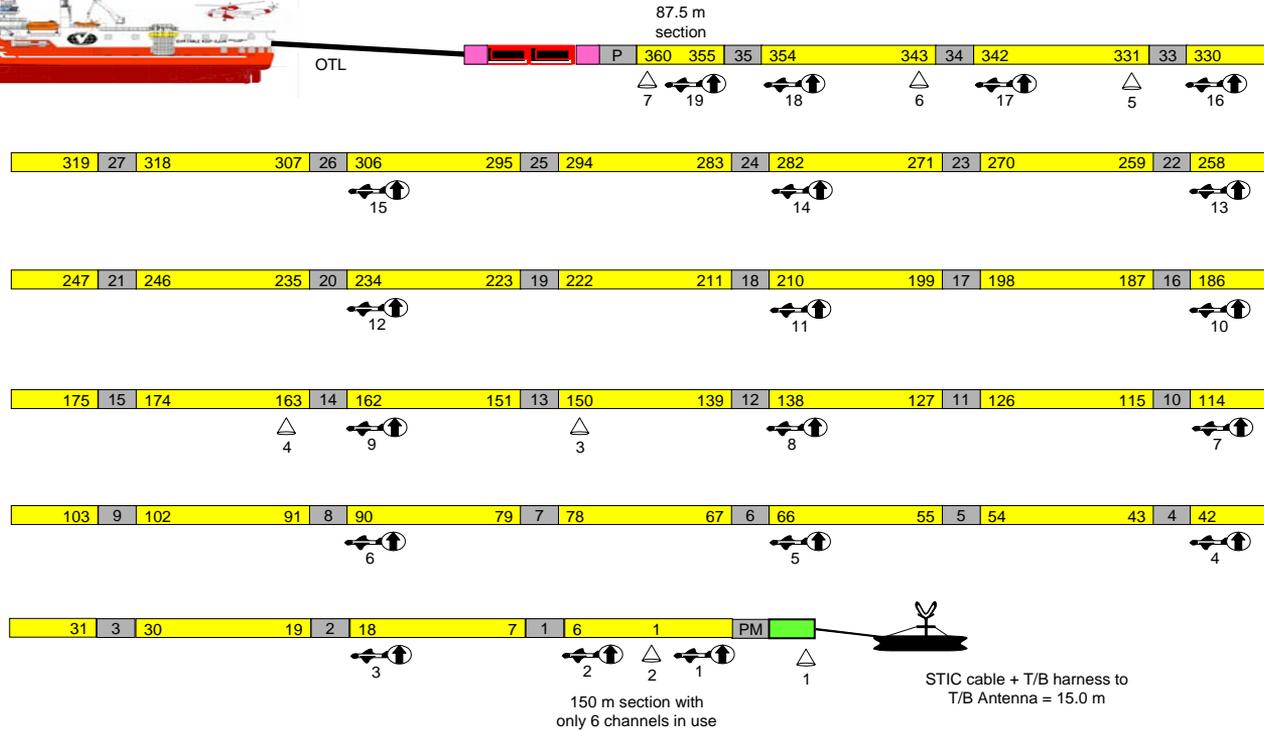
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	31-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	02-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 03-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	61		Onboard Representative	NavDef #07
JOB # :	20323	TO SEQ :	69		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

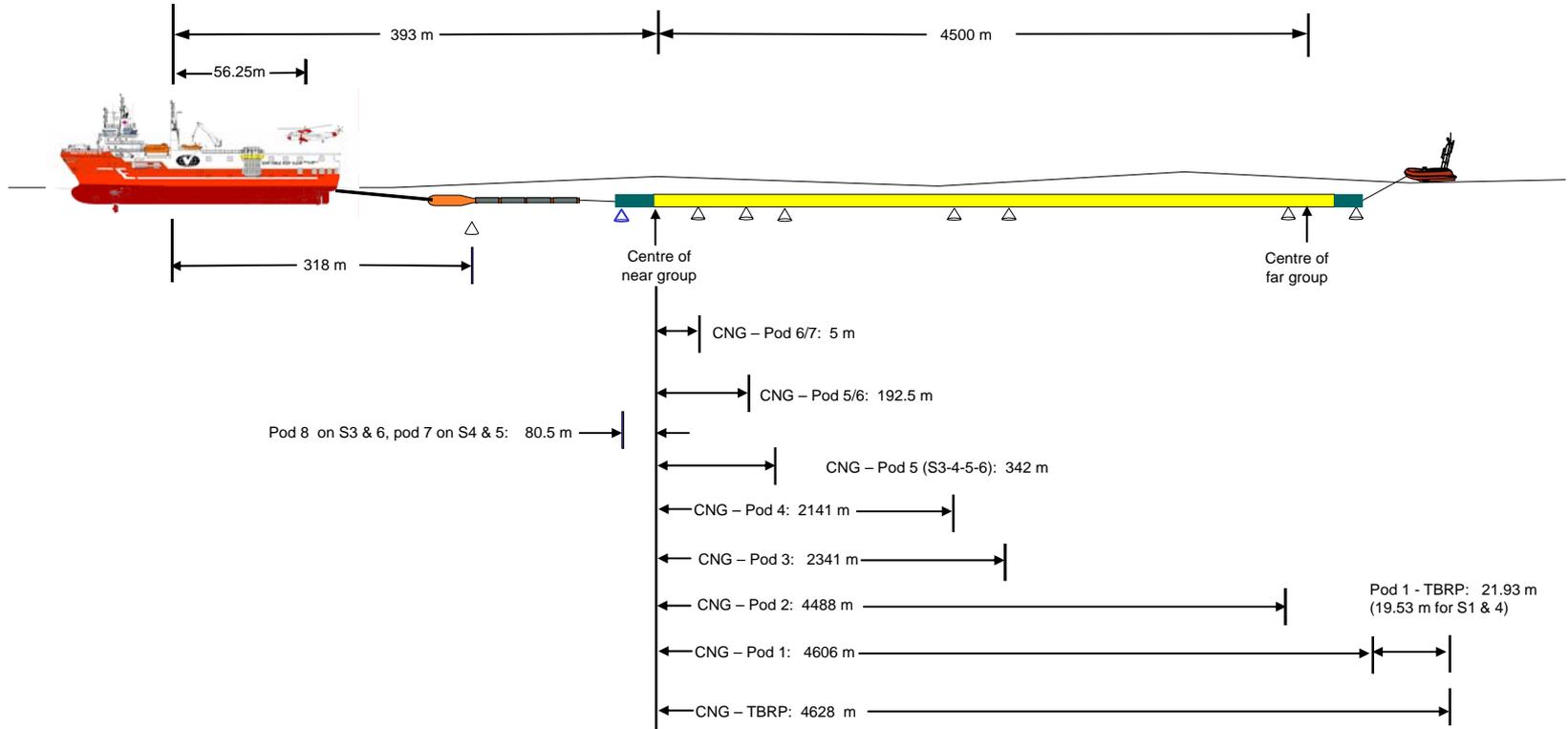


- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

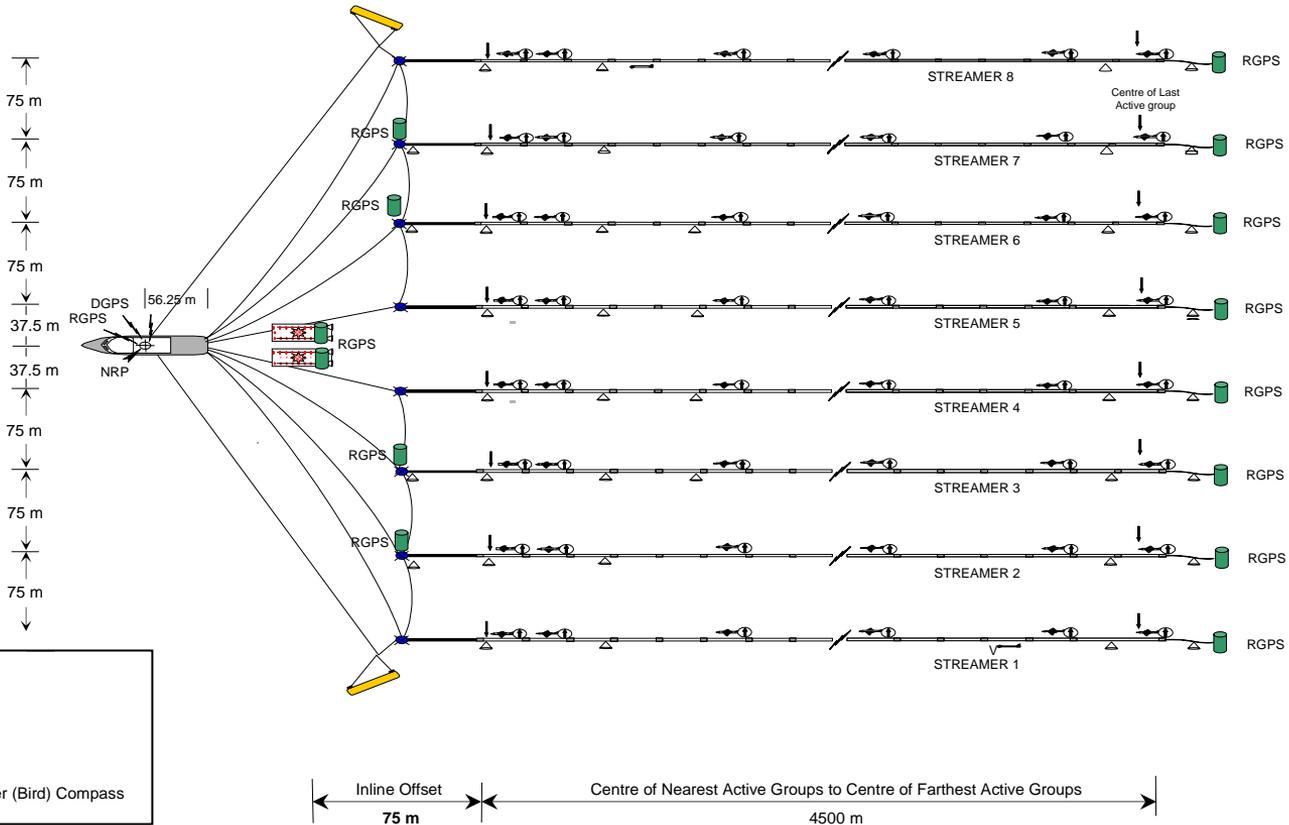
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	31-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 5
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	02-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 03-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	61		Onboard Representative	
JOB # :	20323	TO SEQ :	69		Client: <i>Print</i> <i>Sign</i>	NavDef #07

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



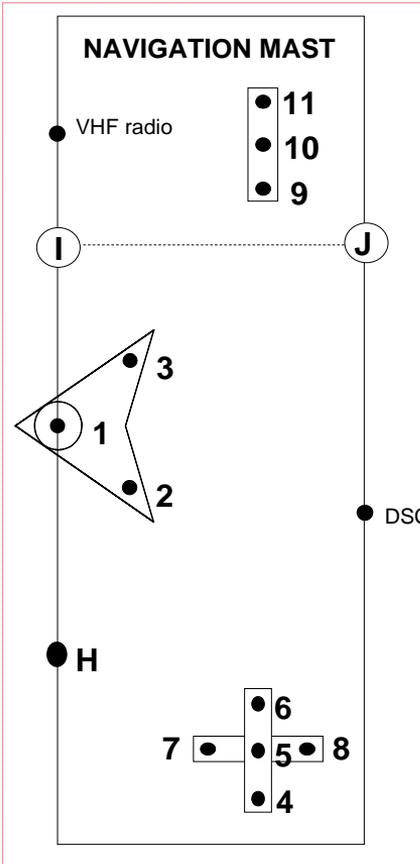
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	31-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	02-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 03-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	61		Onboard Representative	NavDef #07
JOB # :	20323	TO SEQ :	69		Client: <i>Print</i> <i>Sign</i>	



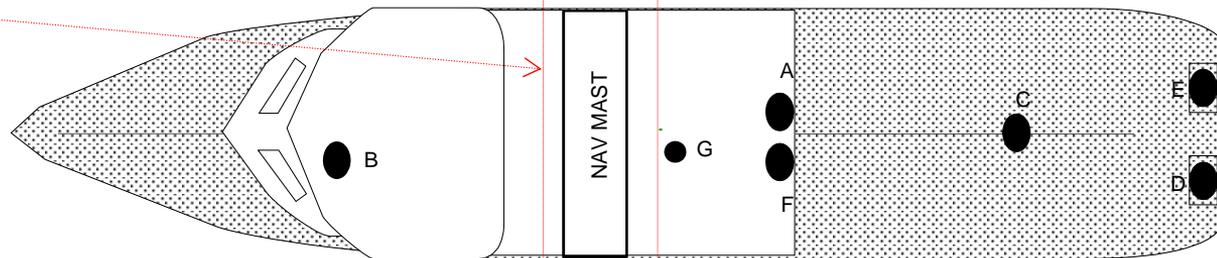
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	31-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 7
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AREA :	2006 Greater Bream 3D	FROM SEQ :	61		Onboard Representative	NavDef #07
JOB # :	20323	TO SEQ :	69		Client: <i>Print</i> <i>Sign</i>	

Antenna Offsets

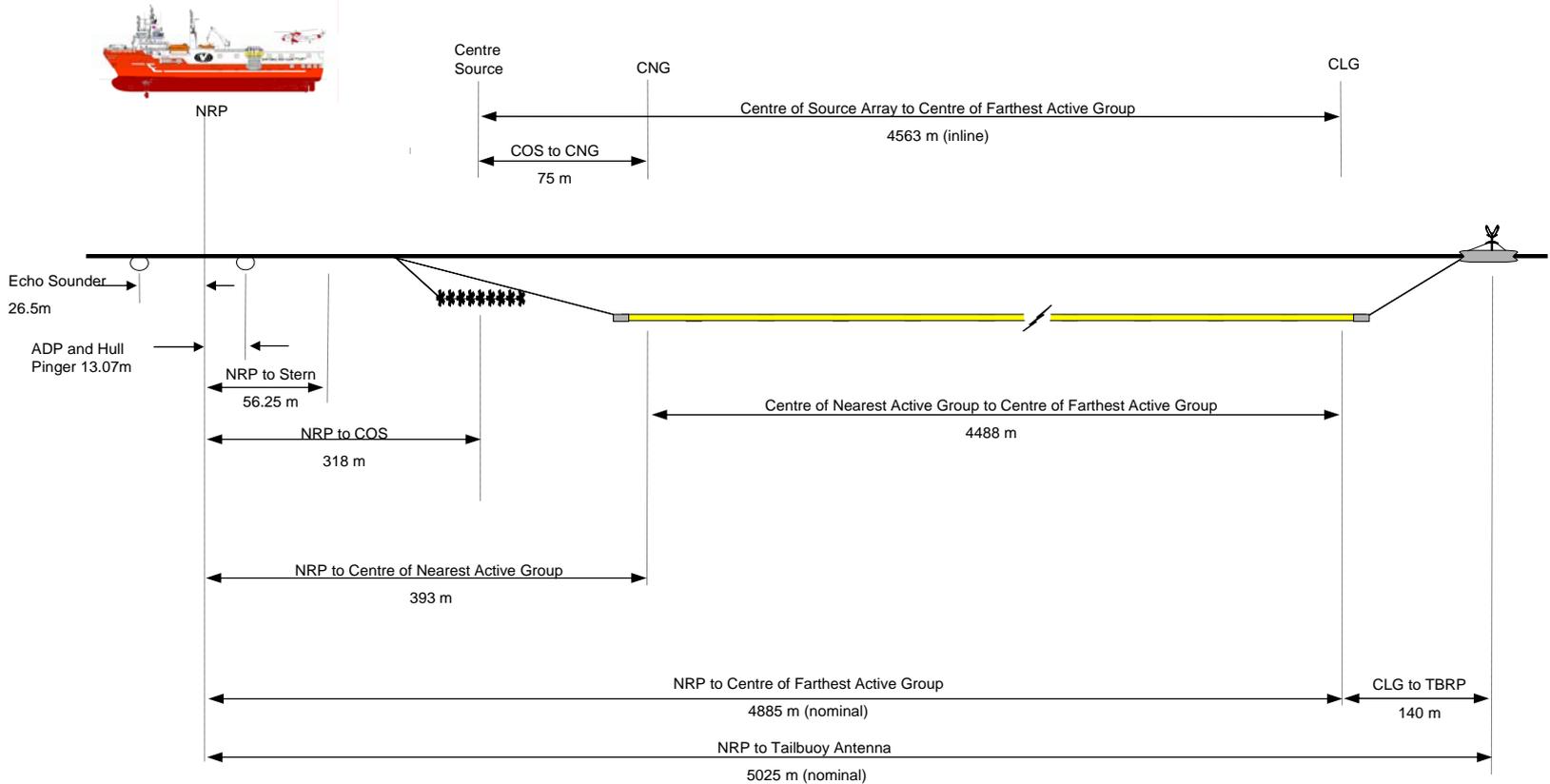
Esso Australia Pty Ltd – 2006 Bream 3D



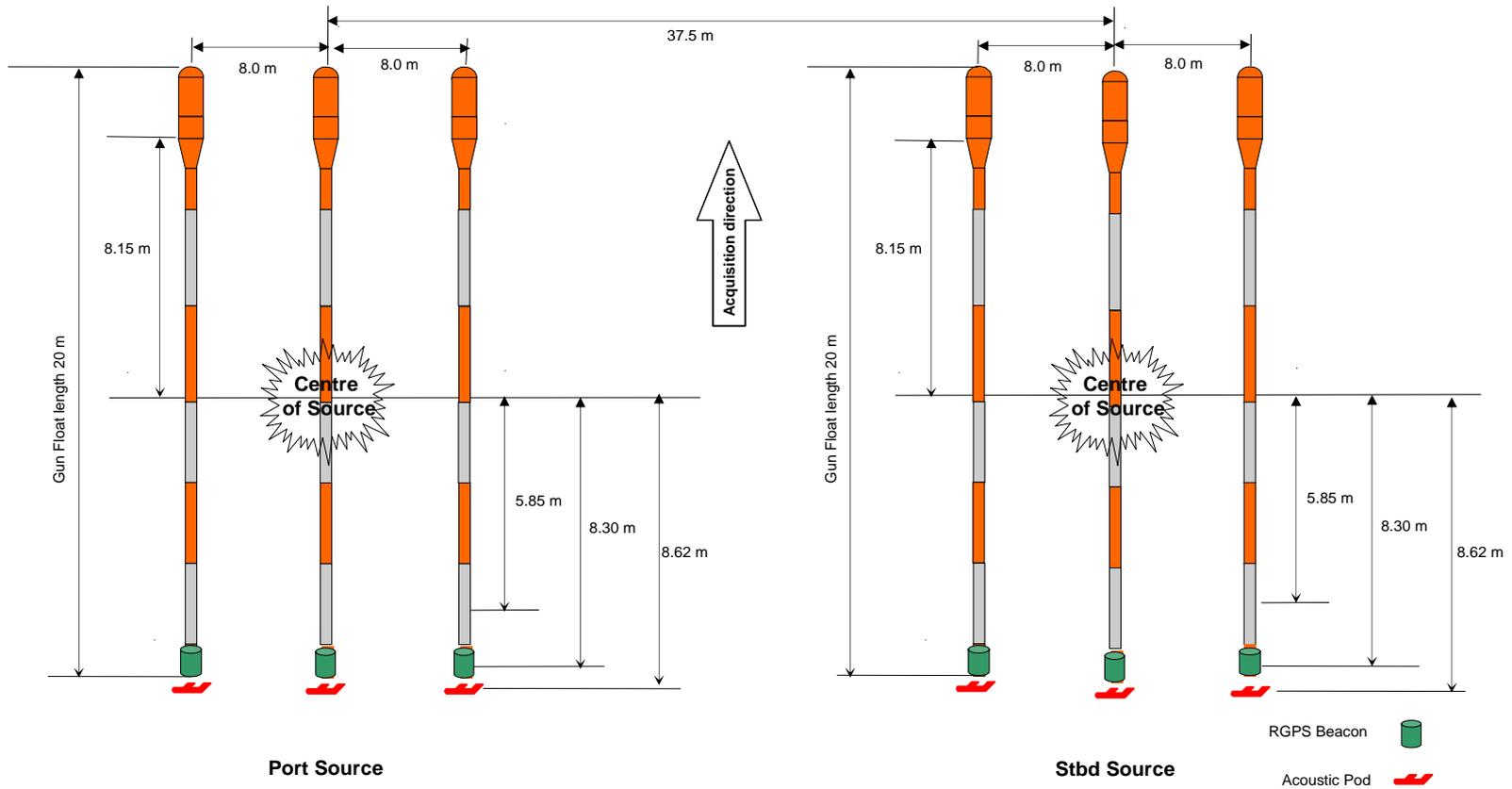
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	31-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	02-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 03-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	61		Onboard Representative	
JOB # :	20323	TO SEQ :	69		Client: <i>Print</i> <i>Sign</i>	NavDef #07



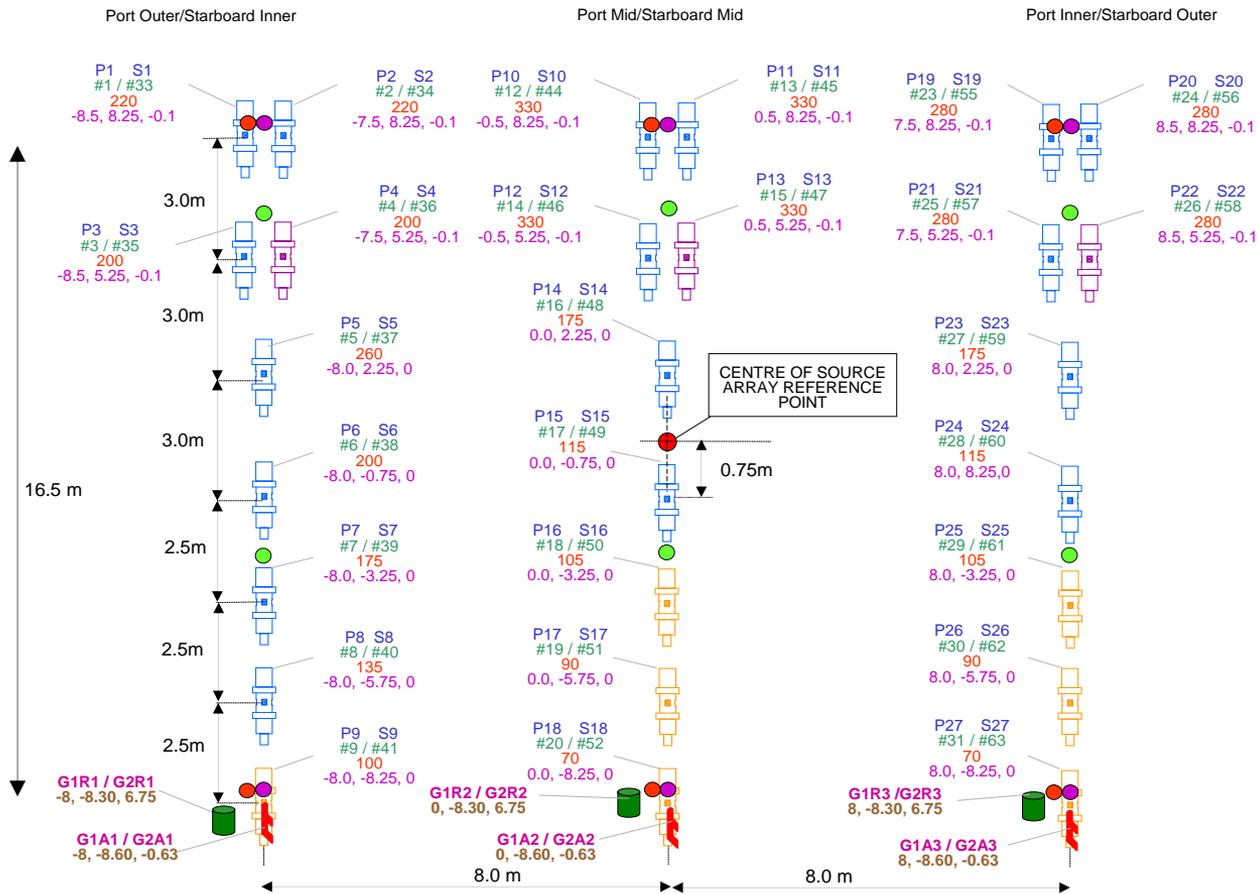
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	31-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	02-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 03-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	61		Onboard Representative	NavDef #07
JOB # :	20323	TO SEQ :	69		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	31-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	02-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 03-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	61		Onboard Representative	NavDef #07
JOB # :	20323	TO SEQ :	69		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

-  Depth
-  Pressure
-  Near Field Hydrophone

-  rGPS Pod
-  Acoustic Pod

Gun Detail

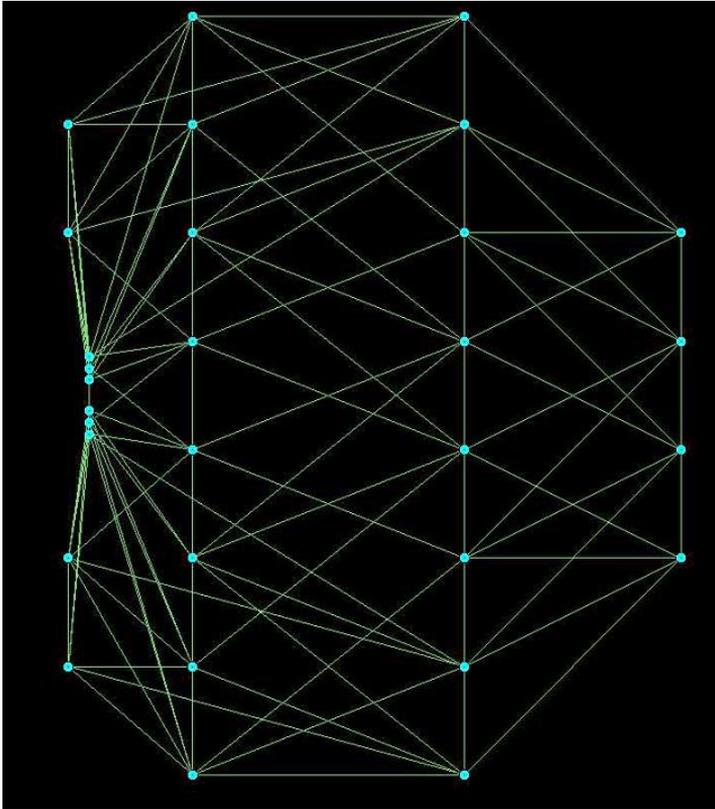
Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

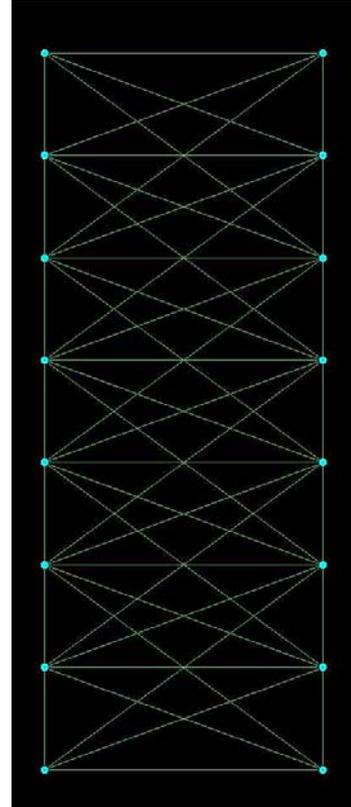
-  1500LL – Active
-  1500LL – Spare
-  1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	31-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	02-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 03-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	61		Onboard Representative	NavDef #07
JOB # :	20323	TO SEQ :	69		Client: <i>Print</i> <i>Sign</i>	

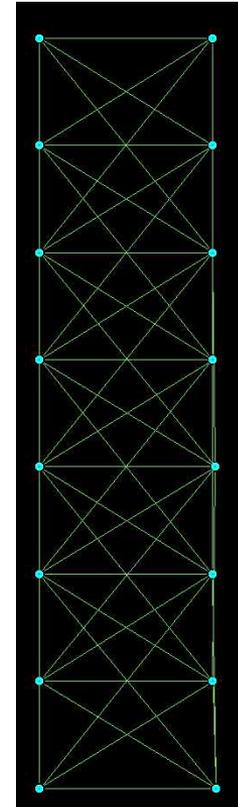
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	31-MAY-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	02-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 03-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	61		Onboard Representative	NavDef #07
JOB # :	20323	TO SEQ :	69		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 8

Esso Australia Pty Ltd – 2006 Bream 3D

**Veritas Geophysical
(Asia Pacific) Pte. Ltd.**

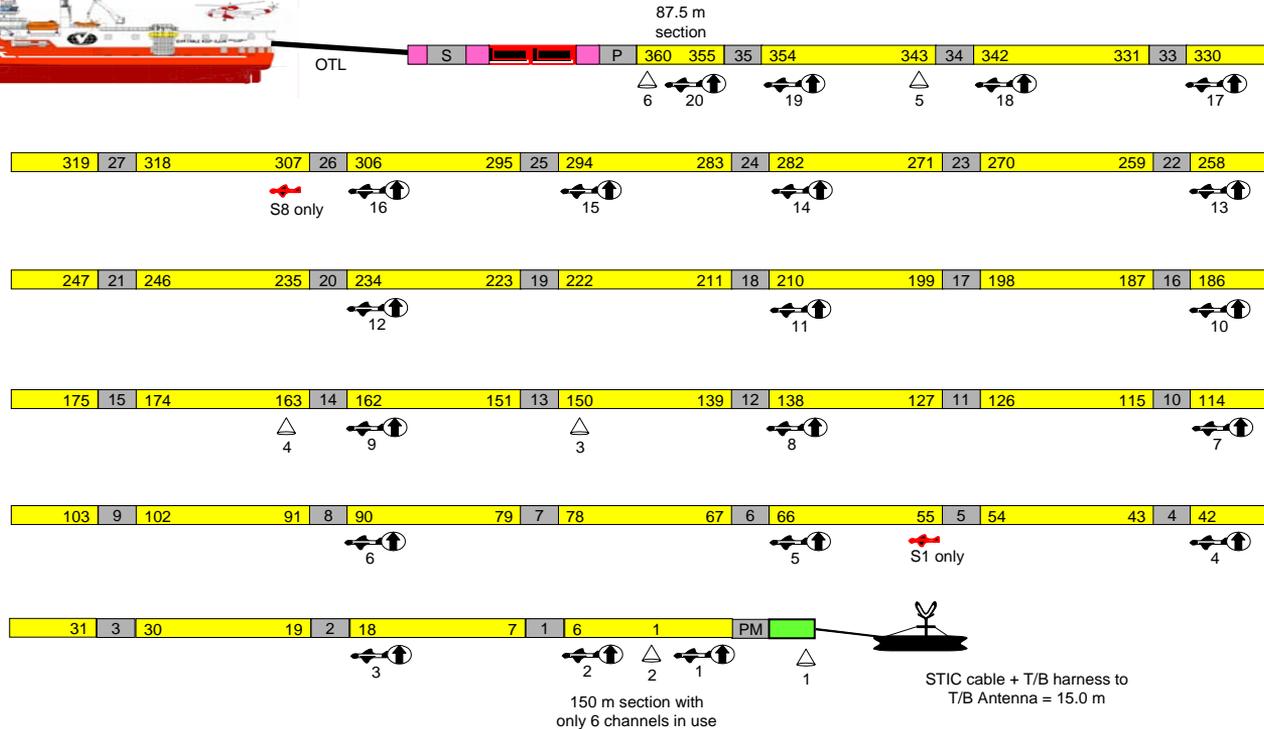
www.veritasdgc.com

Summary of changes

- **Bird 4 on Streamer 5 moved back to original coil position**

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	14-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 15-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	70		Onboard Representative	NavDef #08
JOB # :	20323	TO SEQ :	108		Client: <i>Print</i> <i>Sign</i>	

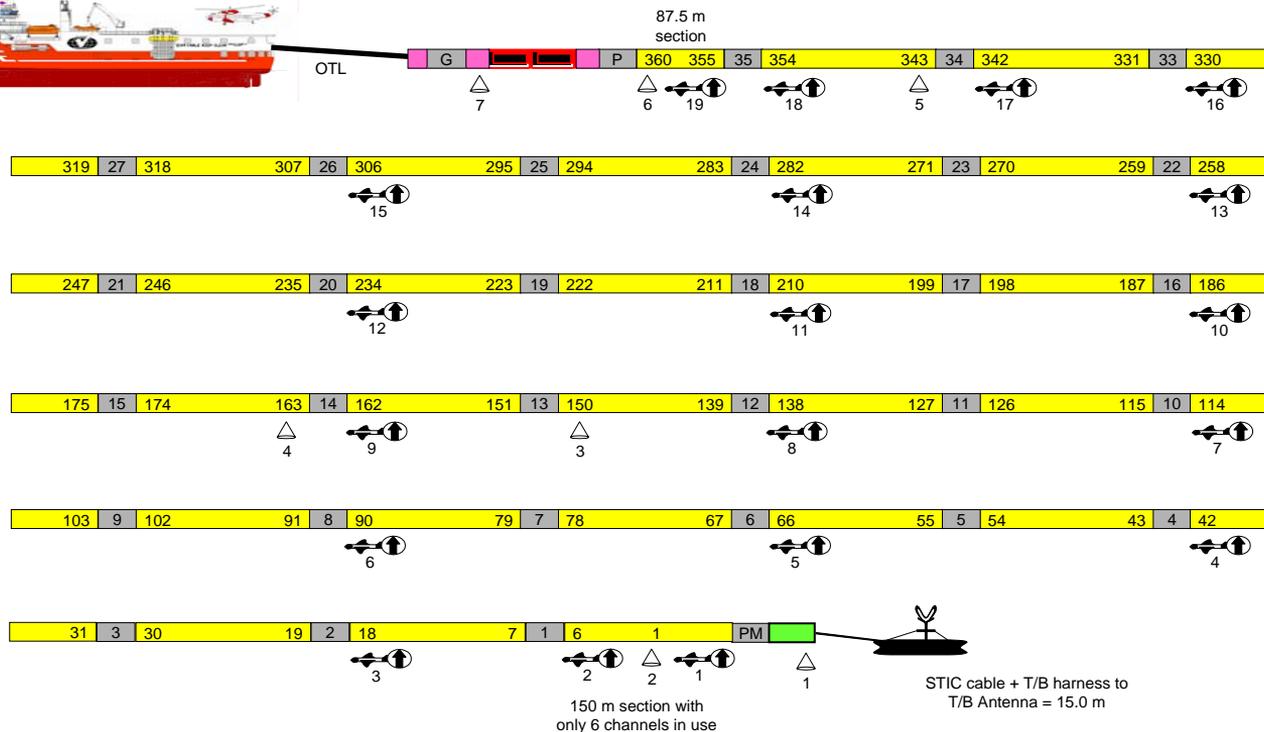
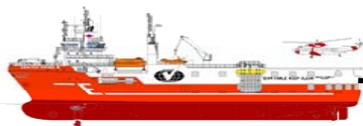
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



-  TAP can (0.35m)
-  Streamer tension unit, STU (0.35m)
-  Passive Module (0.35m)
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-  Active Module (0.35m)
-  RVIM Stretch section (25m static)
-  Solid active (150m)
- 109 Group/trace number
-  Stretch (50m static)
-  Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	14-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 15-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	70		Onboard Representative	NavDef #08
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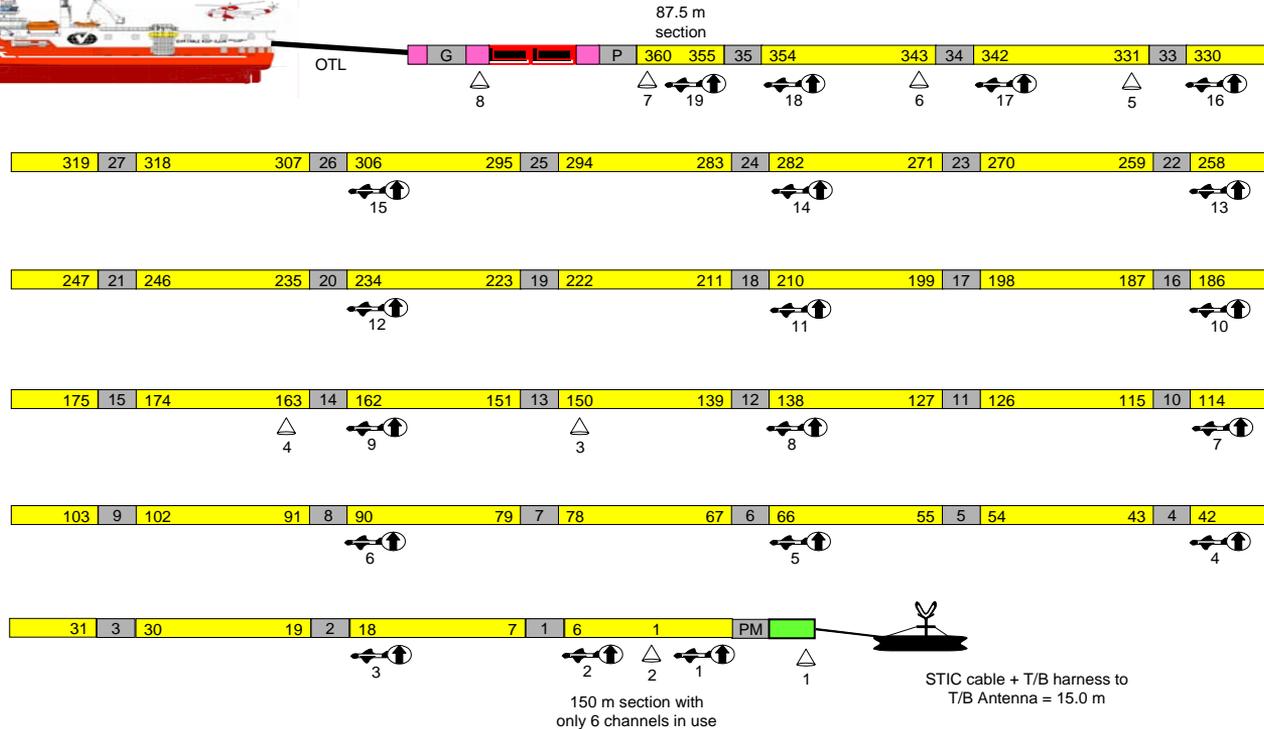
Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
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- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 3
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	14-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 15-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	70		Onboard Representative	NavDef #08
JOB # :	20323	TO SEQ :	108		Client: <i>Print</i> <i>Sign</i>	

Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

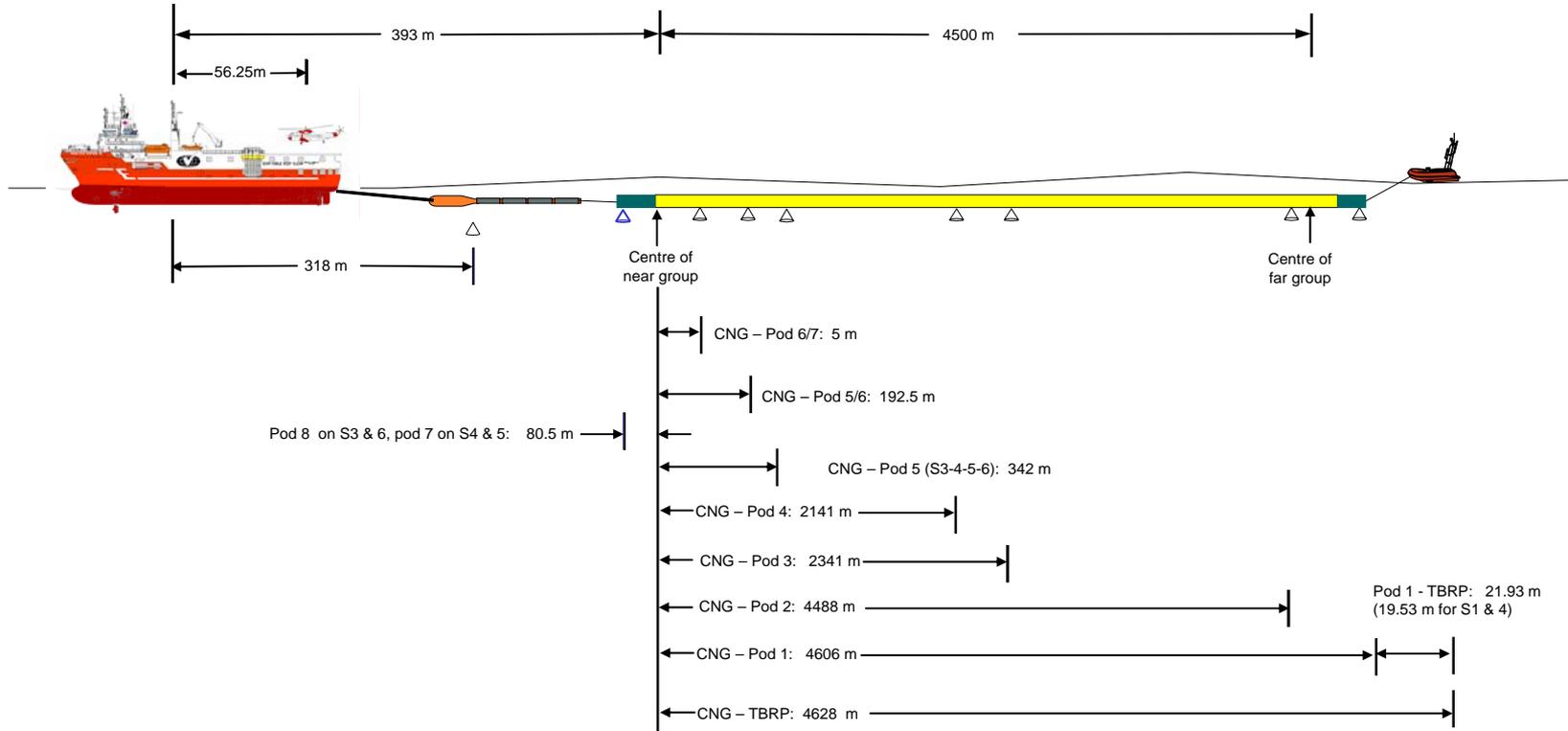


-  TAP can (0.35m)
-  Streamer tension unit, STU (0.35m)
-  Passive Module (0.35m)
-  Power Module (0.35m)
-  Active Module (0.35m)
-  RVIM Stretch section (25m static)
-  Solid active (150m)
- 109 Group/trace number
-  Stretch (50m static)
-  Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

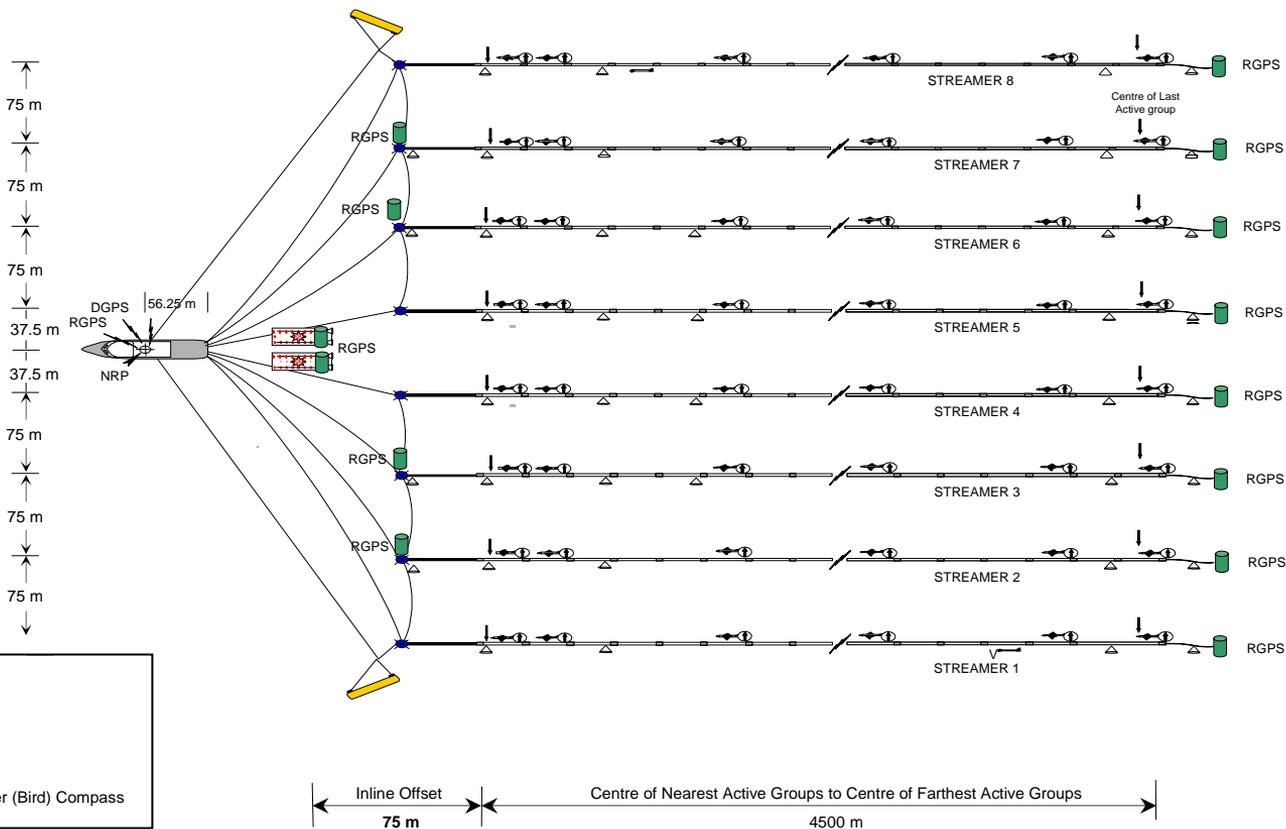
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	14-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 15-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	70		Onboard Representative	NavDef #08
JOB # :	20323	TO SEQ :	108		Client: <i>Print</i> <i>Sign</i>	

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



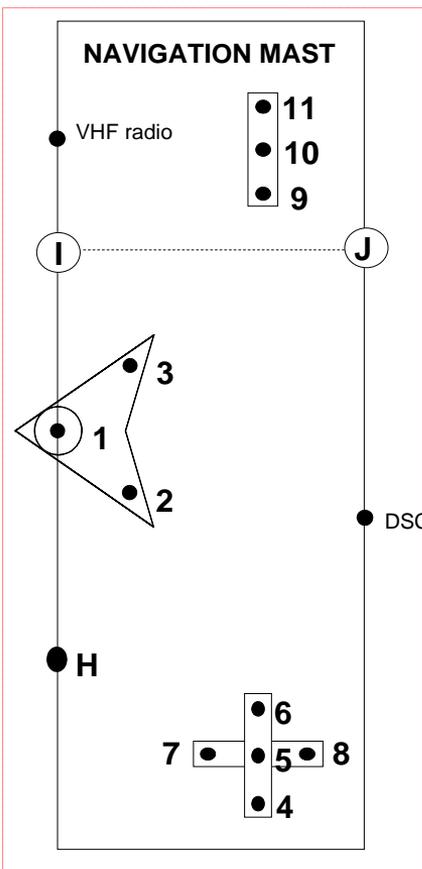
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AREA :	2006 Greater Bream 3D	FROM SEQ :	70		Onboard Representative	NavDef #08
JOB # :	20323	TO SEQ :	108		Client: <i>Print</i> <i>Sign</i>	



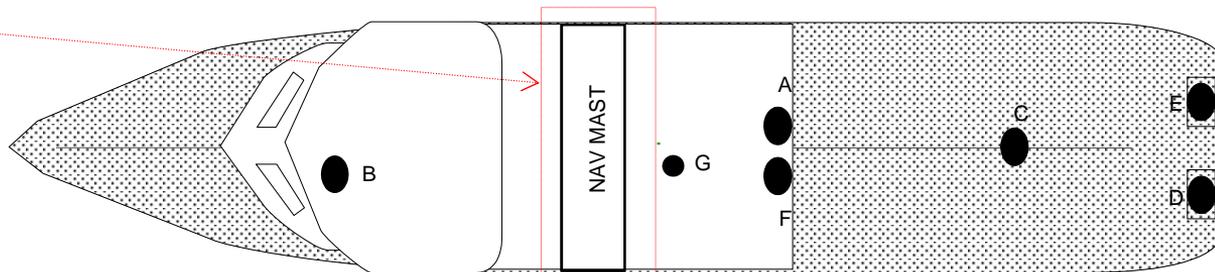
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 7
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	14-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 15-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	70		Onboard Representative	
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Antenna Offsets

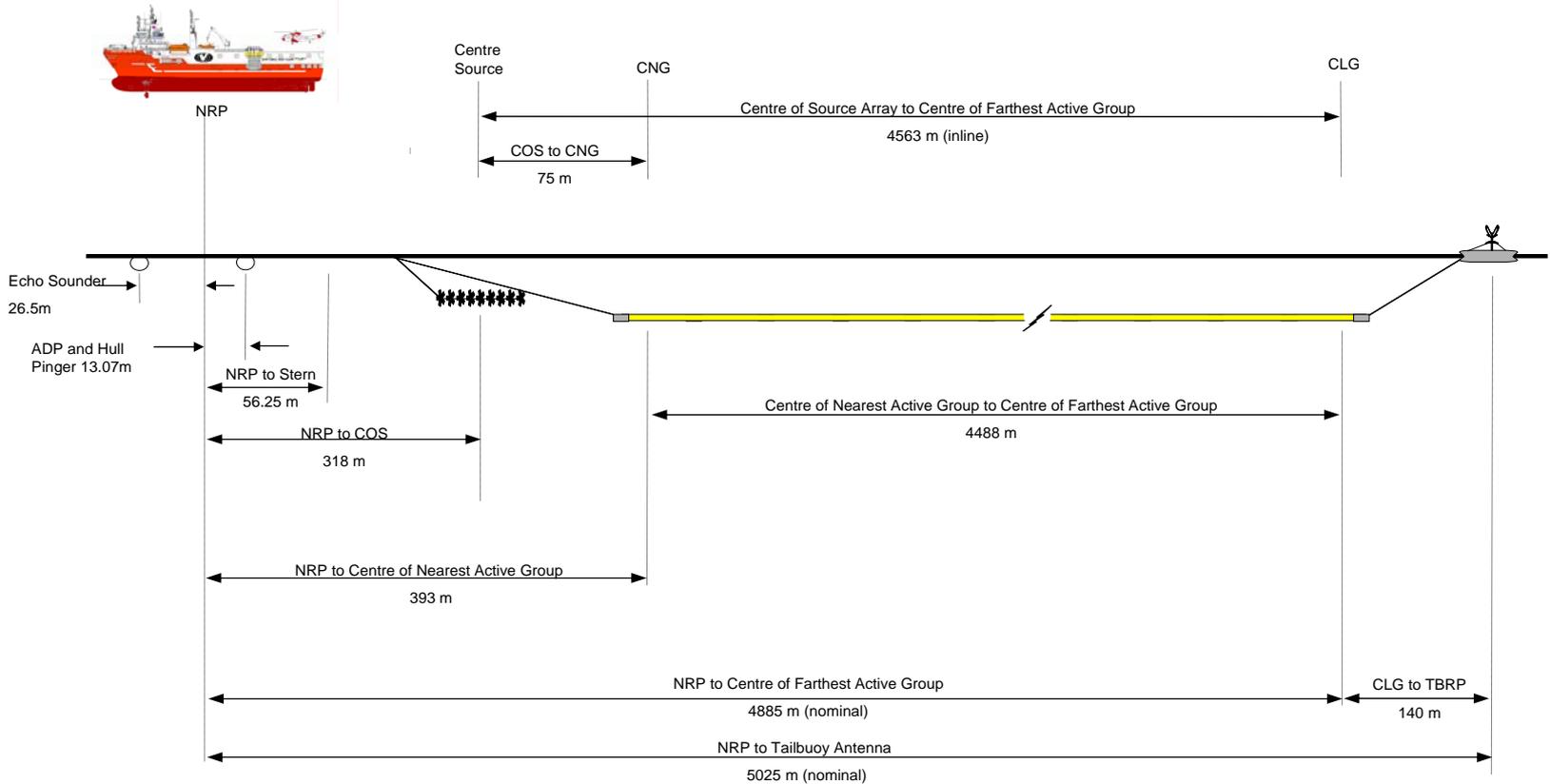
Esso Australia Pty Ltd – 2006 Bream 3D



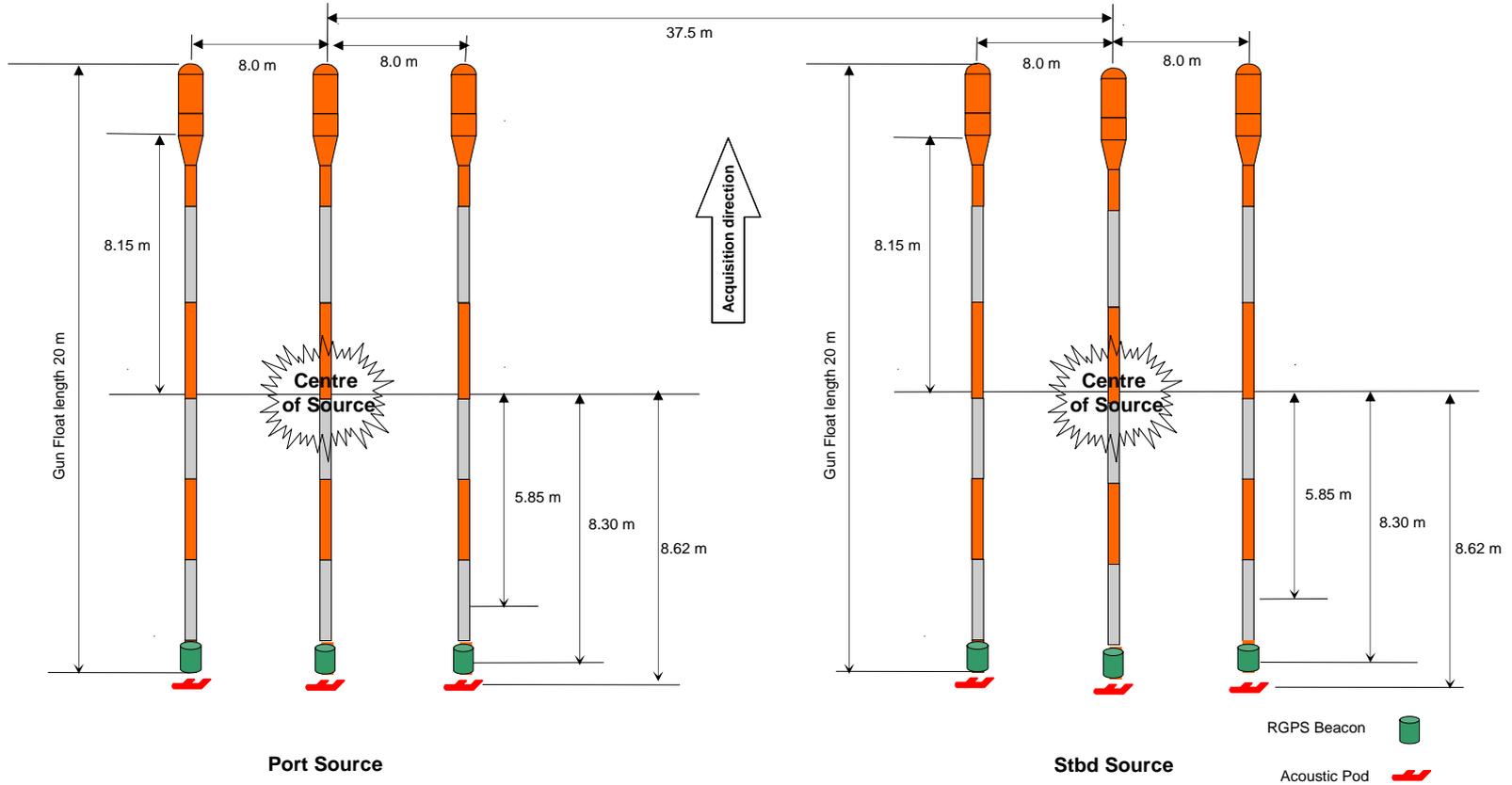
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	14-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 15-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	70		Onboard Representative	NavDef #08
JOB # :	20323	TO SEQ :	108		Client: <i>Print</i> <i>Sign</i>	



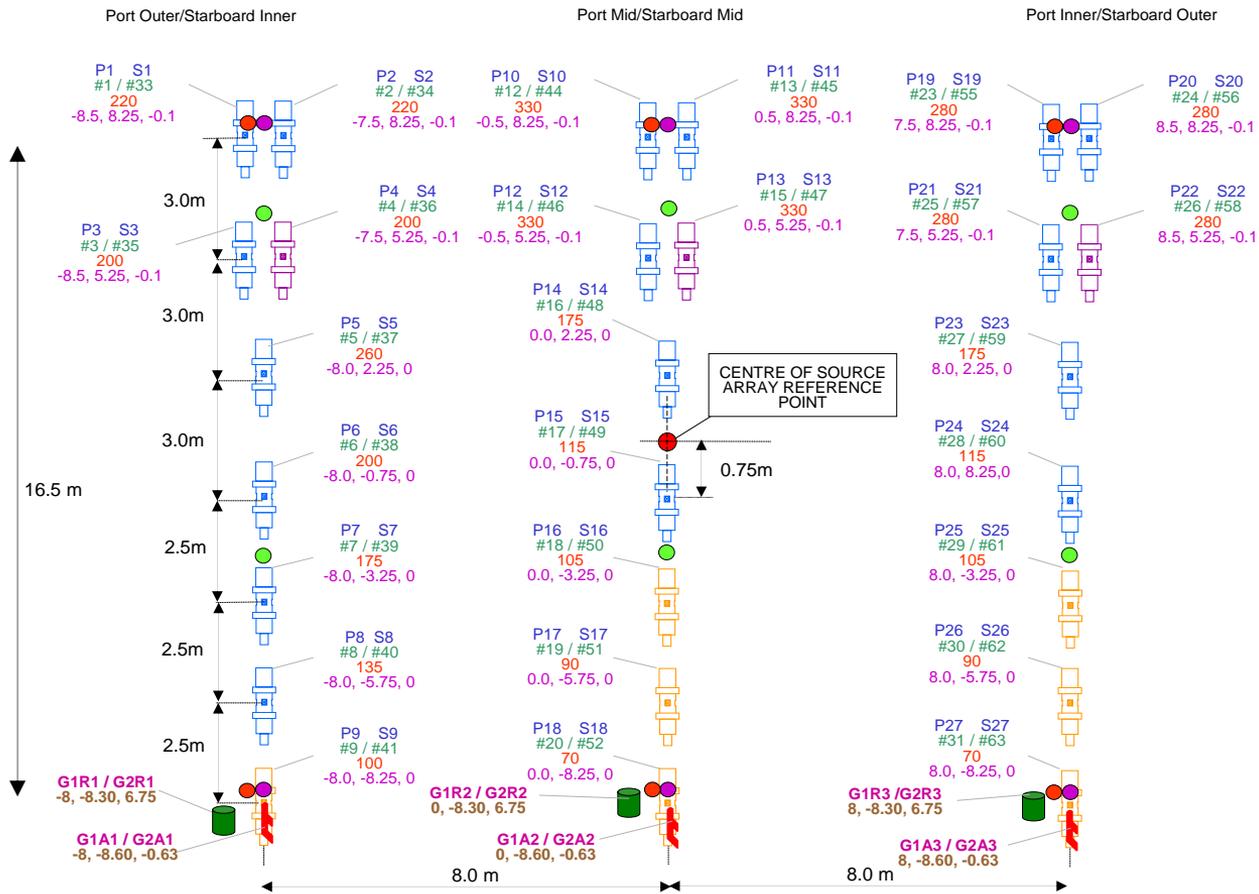
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	14-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 15-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	70		Onboard Representative	NavDef #08
JOB # :	20323	TO SEQ :	108		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	14-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 15-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	70		Onboard Representative	NavDef #08
JOB # :	20323	TO SEQ :	108		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

-  Depth
-  Pressure
-  Near Field Hydrophone

-  rGPS Pod
-  Acoustic Pod

Gun Detail

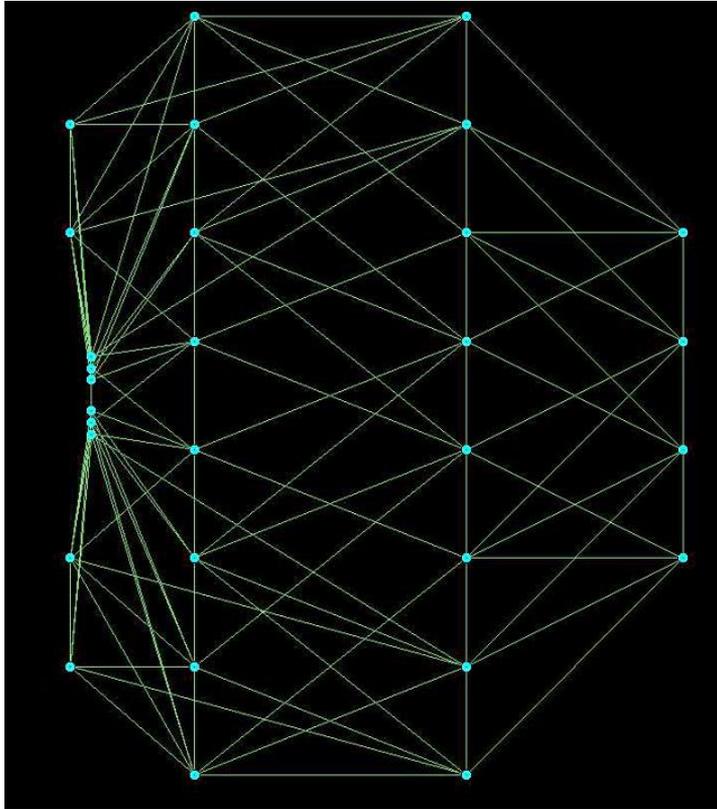
Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

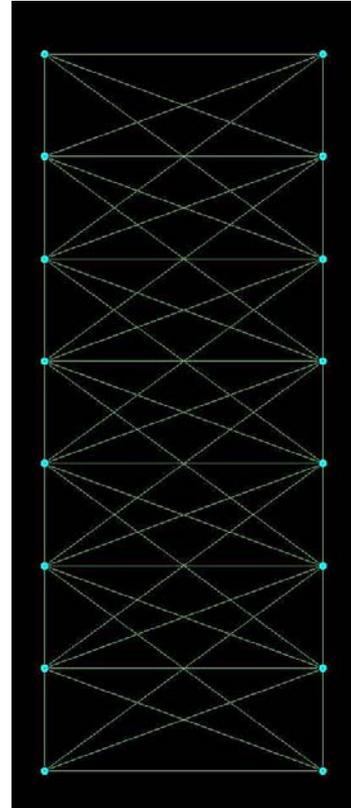
-  1500LL – Active
-  1500LL – Spare
-  1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	14-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 15-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	70		Onboard Representative	NavDef #08
JOB # :	20323	TO SEQ :	108		Client: <i>Print</i> <i>Sign</i>	

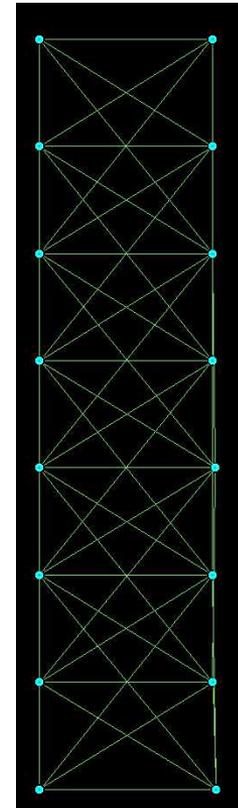
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	14-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 15-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	70		Onboard Representative	NavDef #08
JOB # :	20323	TO SEQ :	108		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 9

Esso Australia Pty Ltd – 2006 Bream 3D

**Veritas Geophysical
(Asia Pacific) Pte. Ltd.**

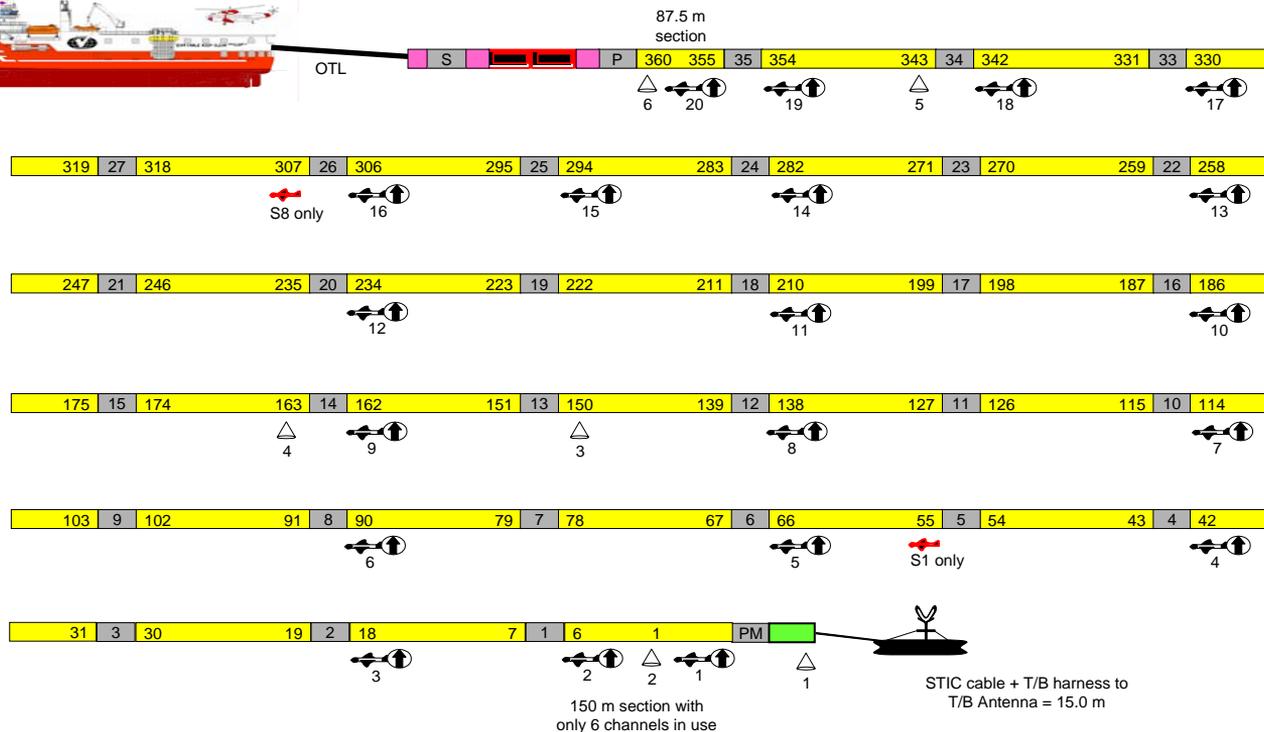
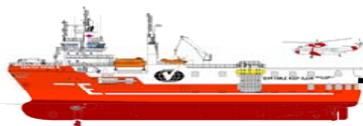
www.veritasdgc.com

Summary of changes

- **New water velocity after TS Dip from 1508m/s to 1507 m/s**
- **Corrected RGPS height of Stbd Guns. Changed from 5.75m to 6.75m**

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	14-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	18-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	108		Onboard Representative	NavDef #09
JOB # :	20323	TO SEQ :	115		Client: <i>Print</i> <i>Sign</i>	

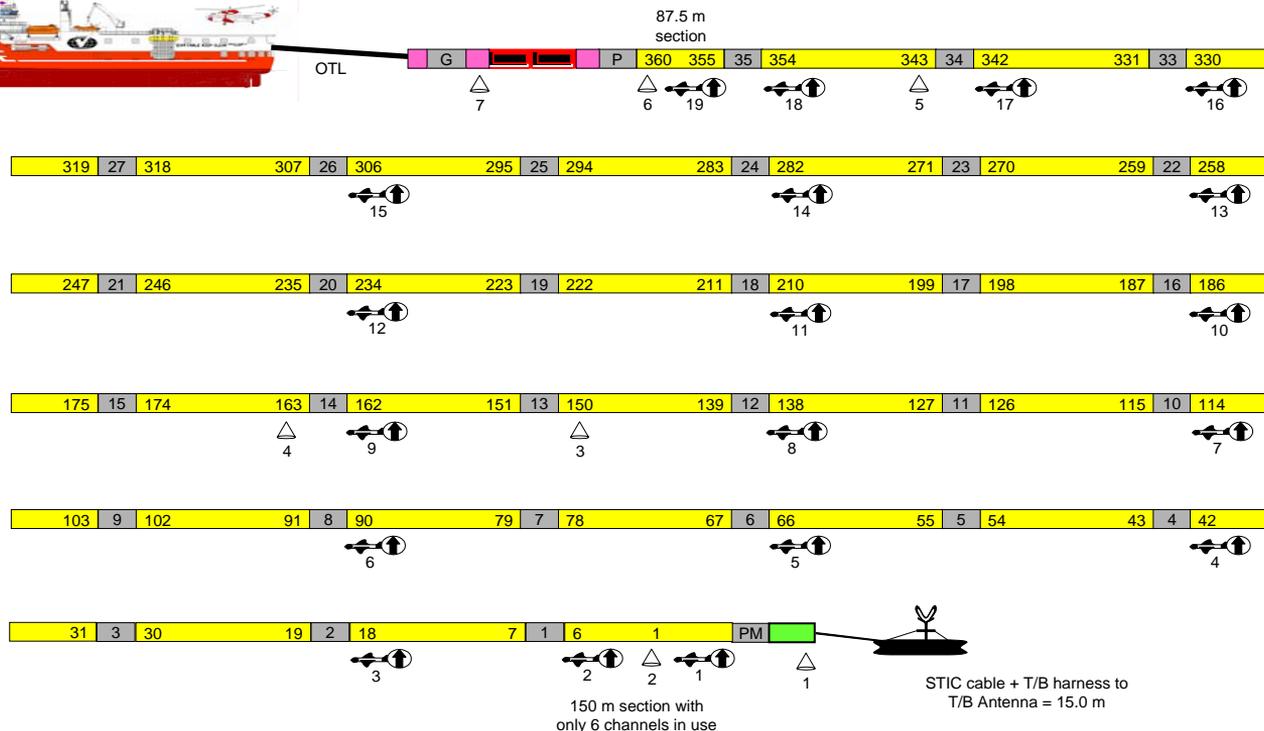
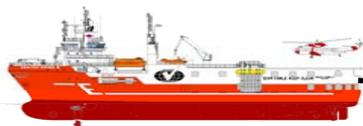
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
- Velocimeter
- Depth controller, depth transducer & compass
- Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	14-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	18-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	108		Onboard Representative	
JOB # :	20323	TO SEQ :	115		Client: <i>Print</i> <i>Sign</i>	NavDef #09

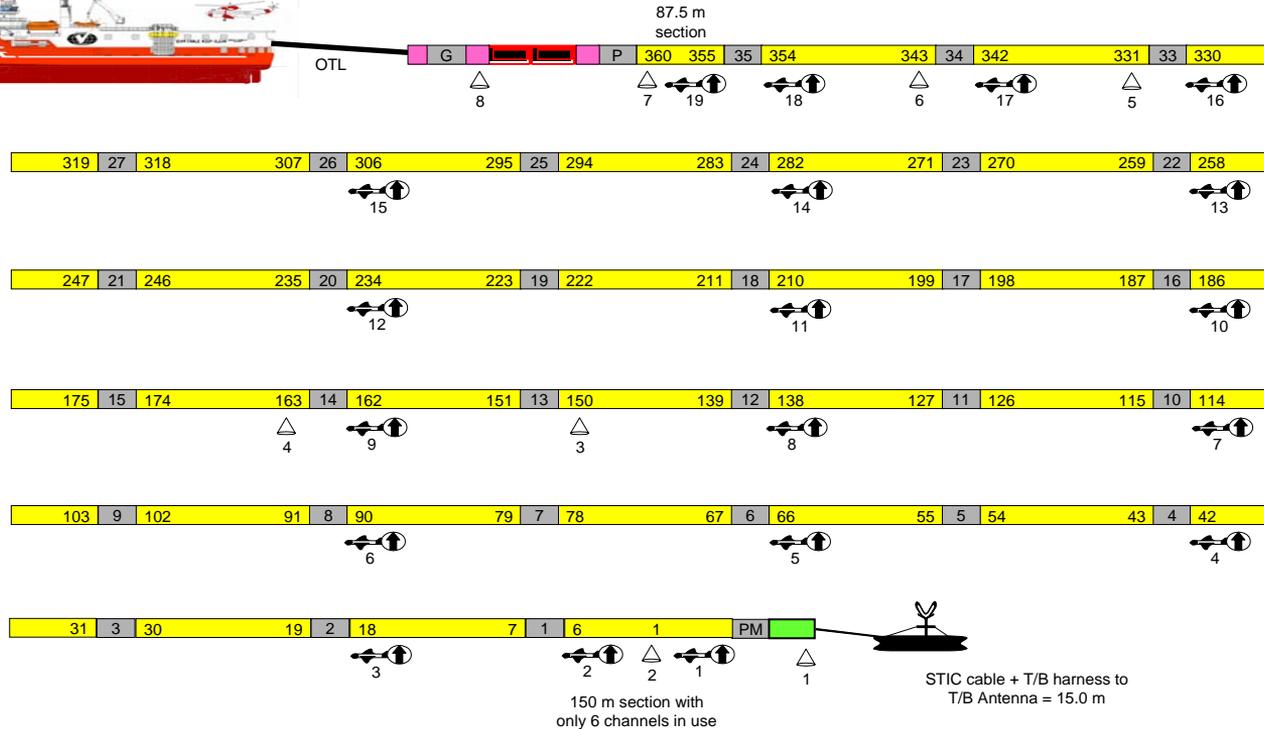
Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	14-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 3
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	18-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	108		Onboard Representative	NavDef #09
JOB # :	20323	TO SEQ :	115		Client: <i>Print</i> <i>Sign</i>	

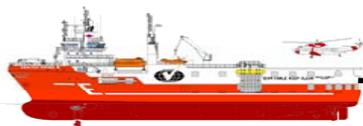
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

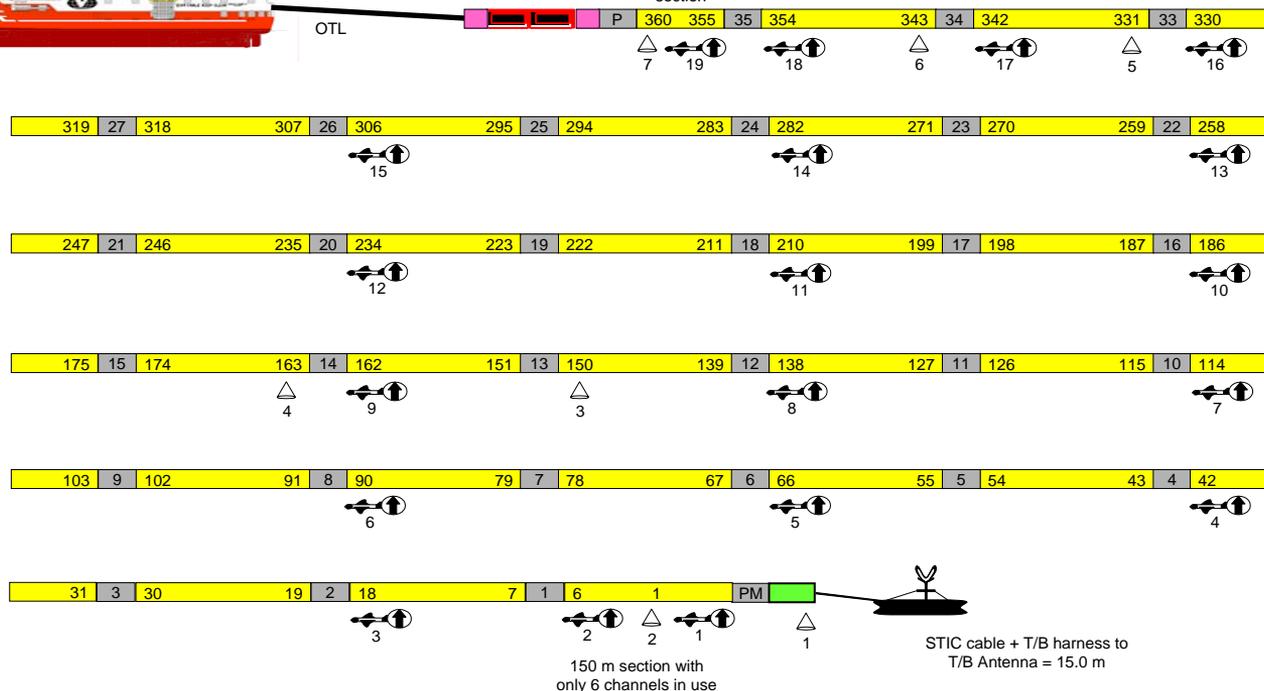
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	14-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	18-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	108		Onboard Representative	NavDef #09
JOB # :	20323	TO SEQ :	115		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



OTL

87.5 m
section

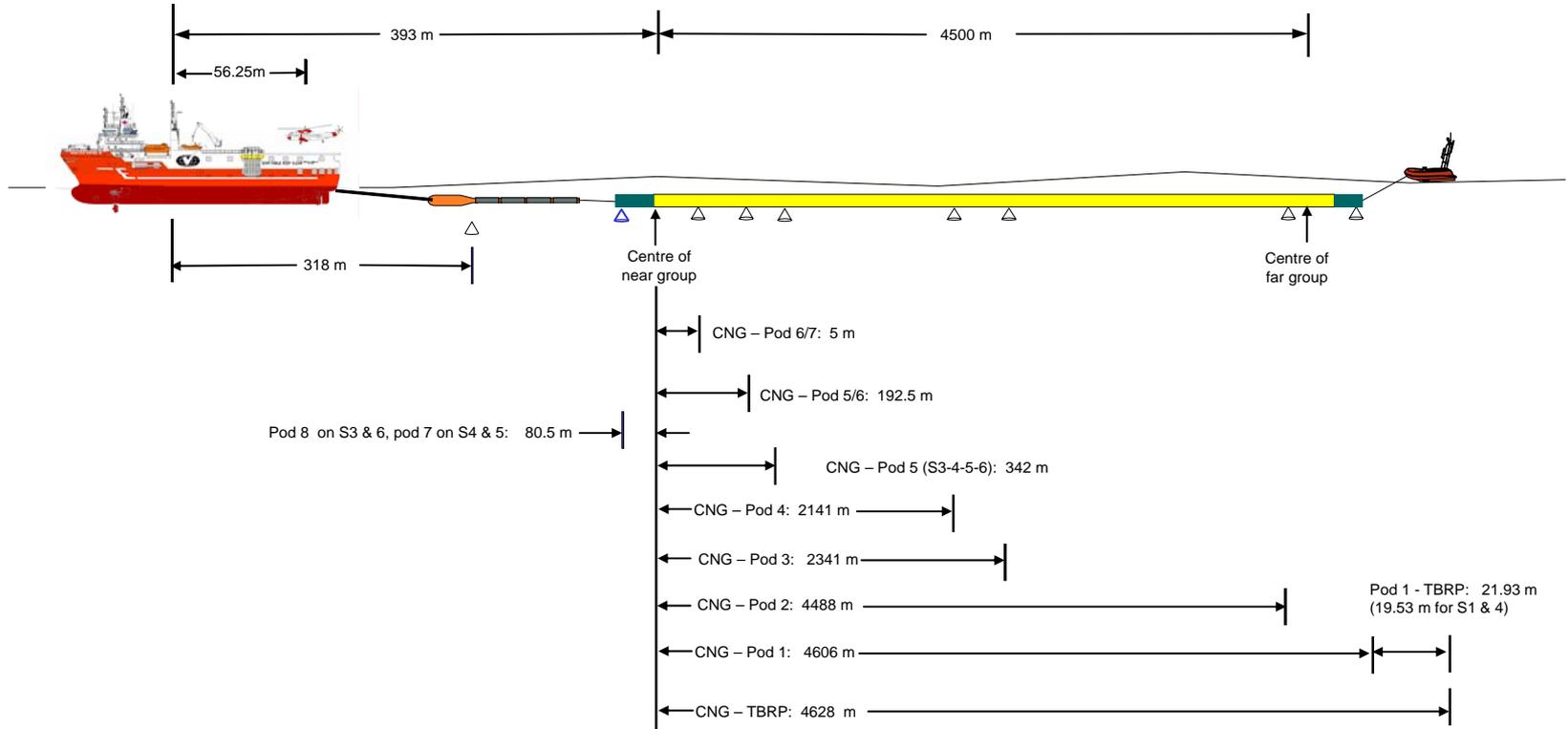


- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
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- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

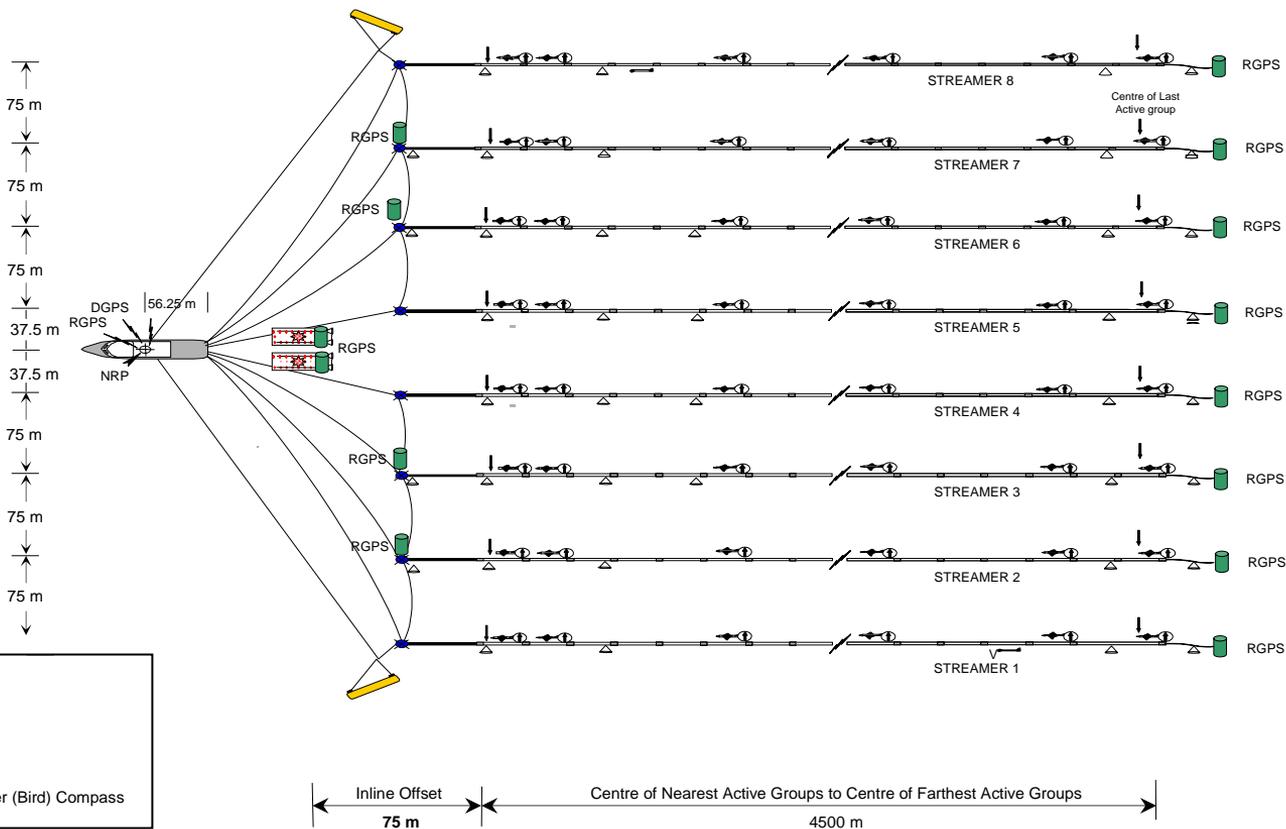
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	14-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 5
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	18-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	108		Onboard Representative	NavDef #09
JOB # :	20323	TO SEQ :	115		Client: <i>Print</i> <i>Sign</i>	

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	14-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	18-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	108		Onboard Representative	NavDef #09
JOB # :	20323	TO SEQ :	115		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2
CLIENT :	Esso Australia Pty. Ltd.
AREA :	2006 Greater Bream 3D
JOB # :	20323

FROM DATE :	14-JUN-2006
TO DATE :	18-JUN-2006
FROM SEQ :	108
TO SEQ :	115

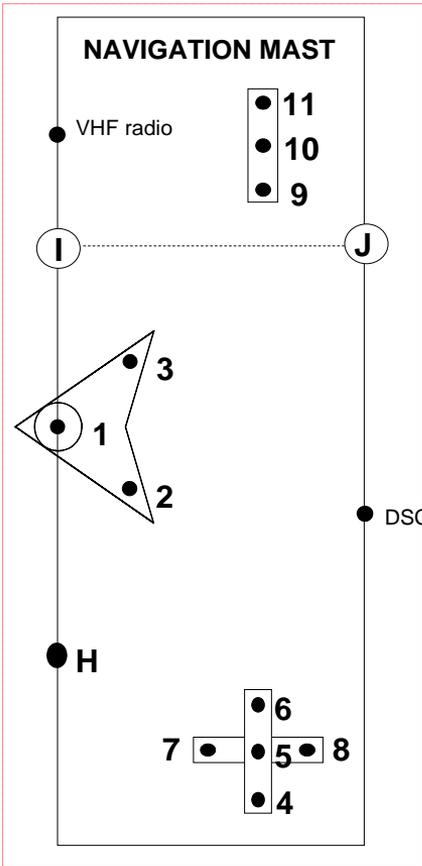
Not to scale
Measurements in metres

M Bell - Geo Supervisor
GS: <i>Print</i> <i>Sign</i>
Onboard Representative
Client: <i>Print</i> <i>Sign</i>

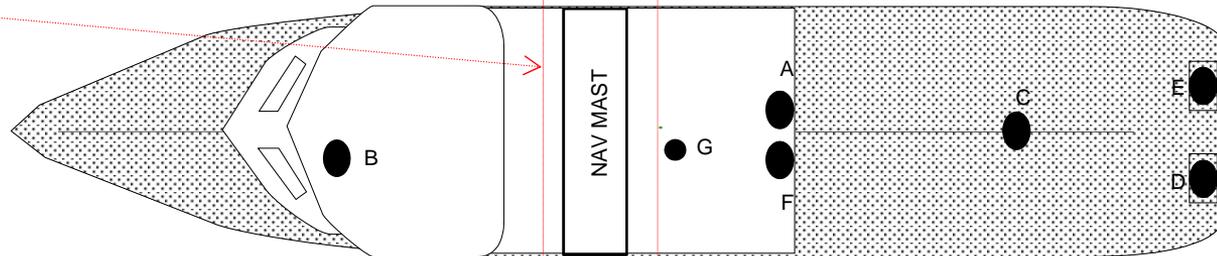
Page 7
Created: 14-JUN-06
NavDef #09

Antenna Offsets

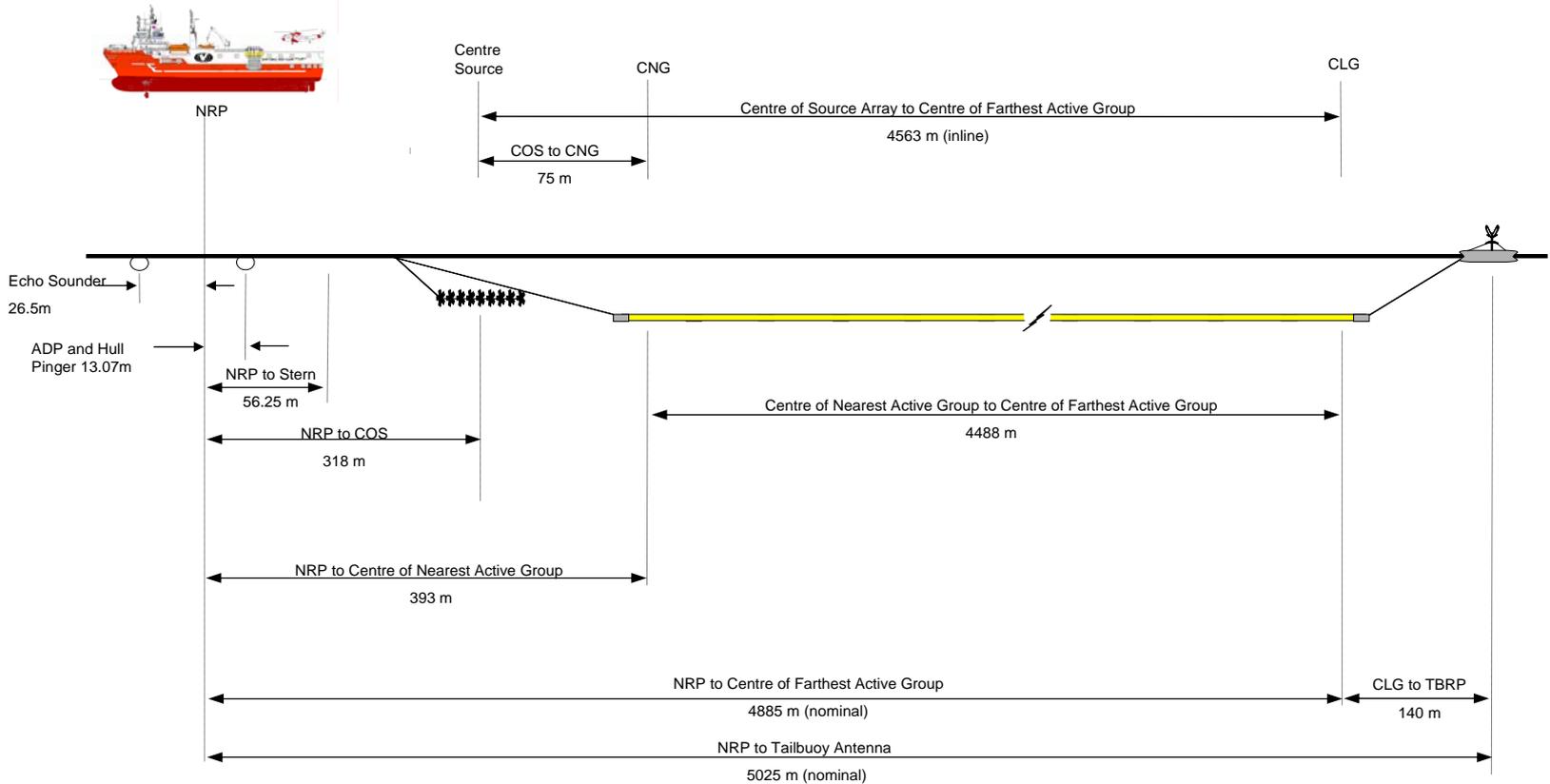
Esso Australia Pty Ltd – 2006 Bream 3D



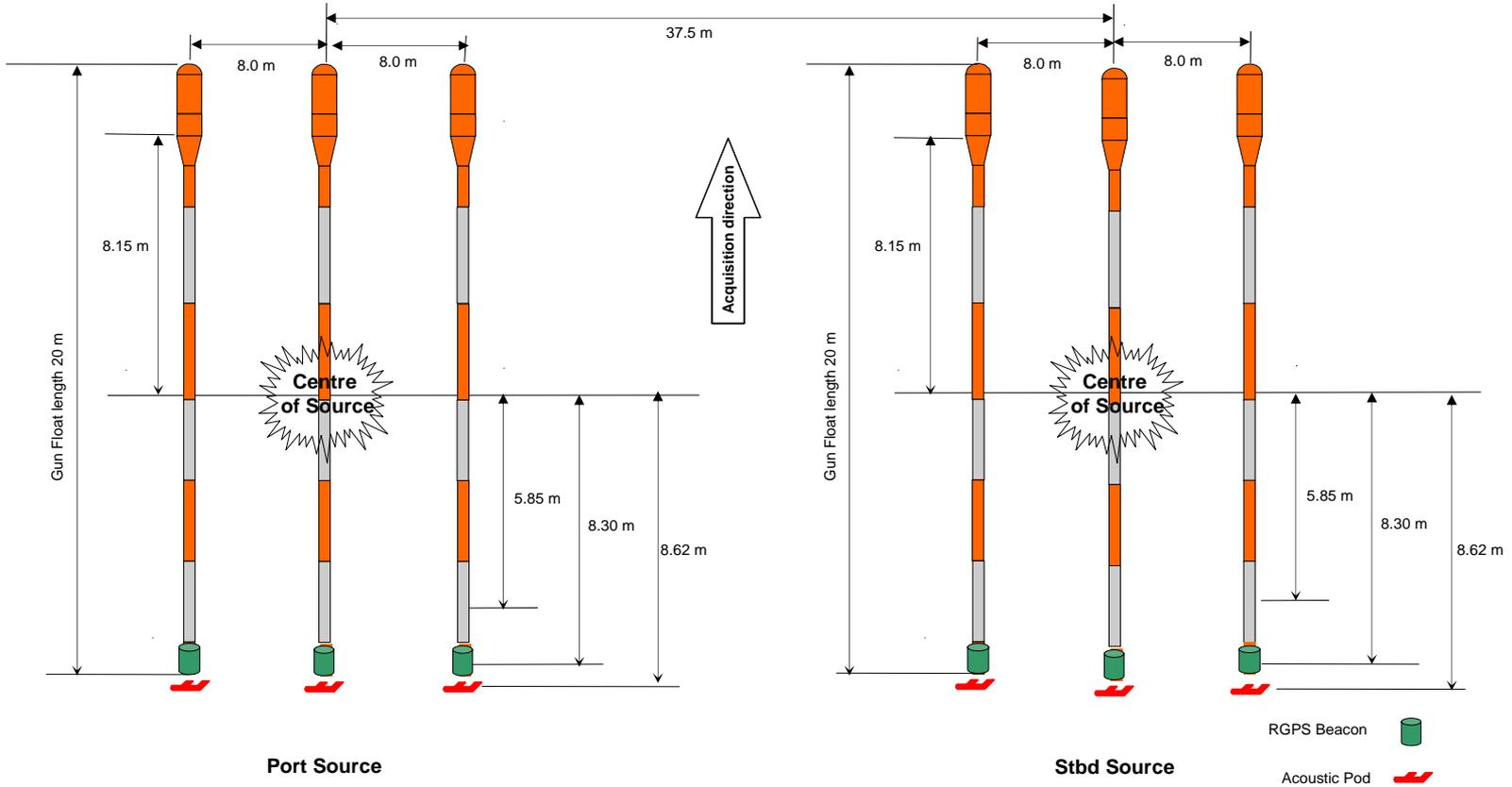
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	14-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	18-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	108		Onboard Representative	NavDef #09
JOB # :	20323	TO SEQ :	115		Client: <i>Print</i> <i>Sign</i>	



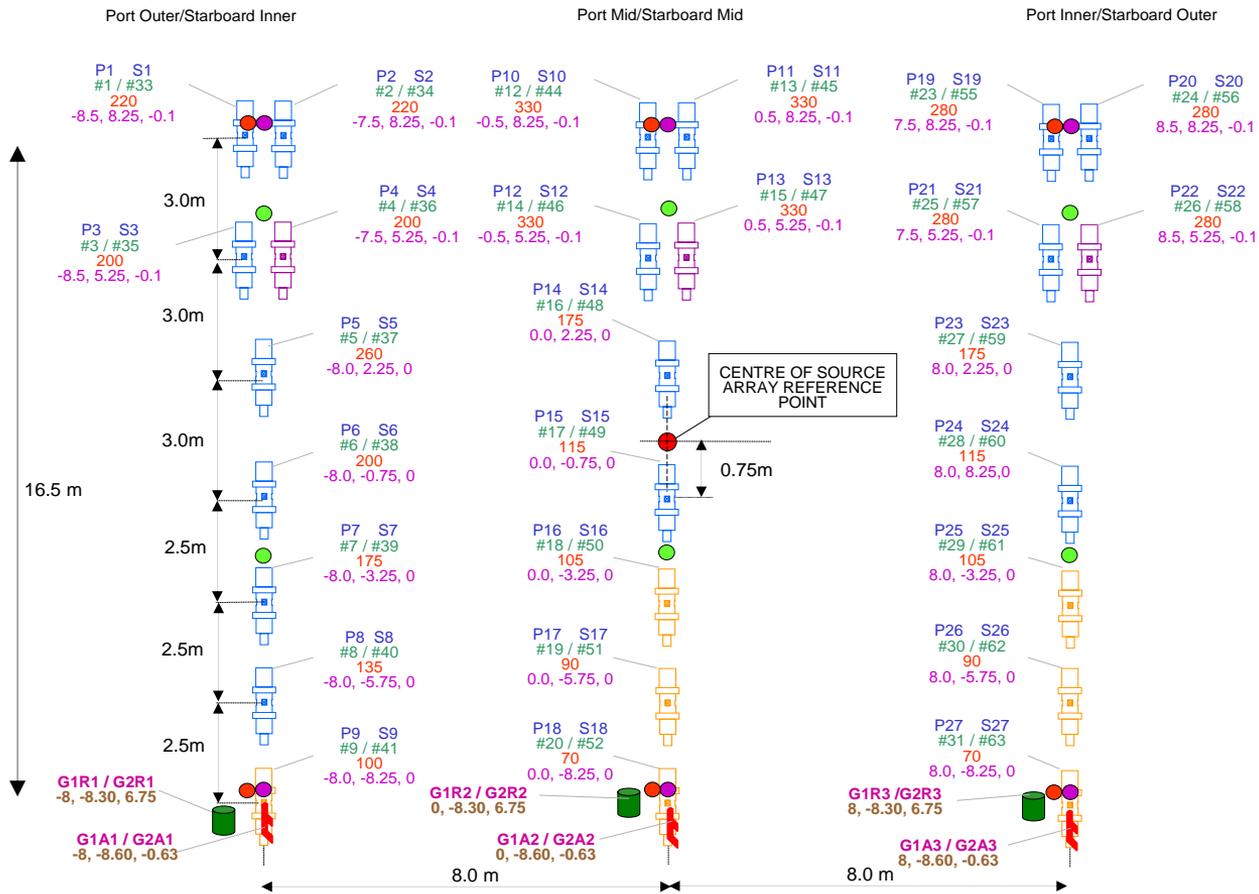
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	14-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	18-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	108		Onboard Representative	NavDef #09
JOB # :	20323	TO SEQ :	115		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	14-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	18-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	108		Onboard Representative	NavDef #09
JOB # :	20323	TO SEQ :	115		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

- Depth
- Pressure
- Near Field Hydrophone

- rGPS Pod
- Acoustic Pod

Gun Detail

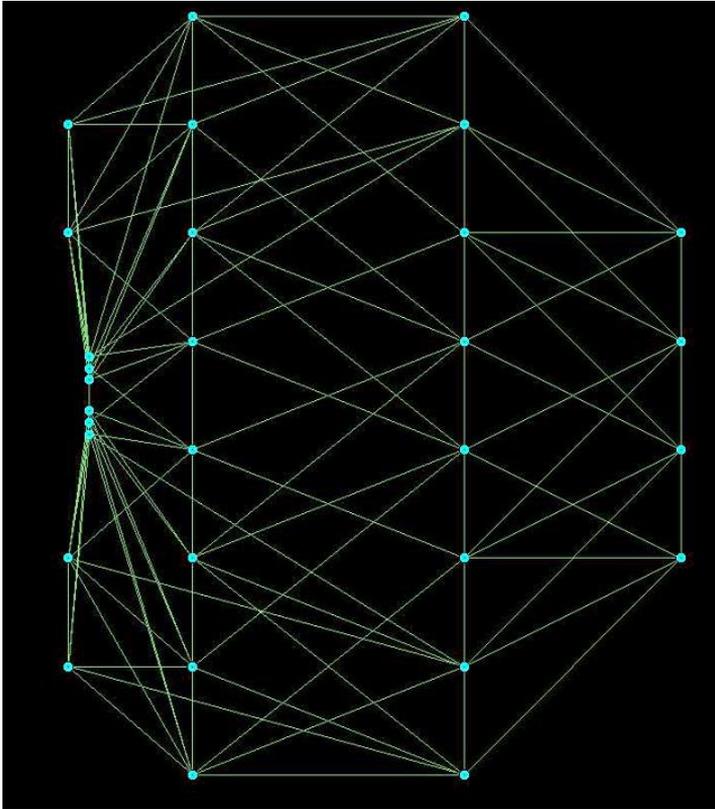
Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

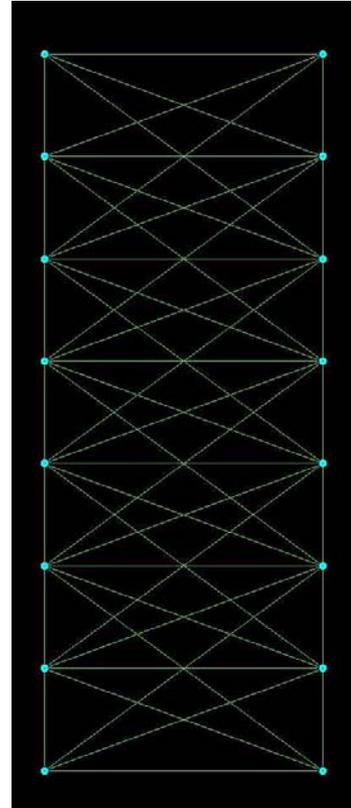
- 1500LL – Active
- 1500LL – Spare
- 1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	14-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	18-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	108		Onboard Representative	NavDef #09
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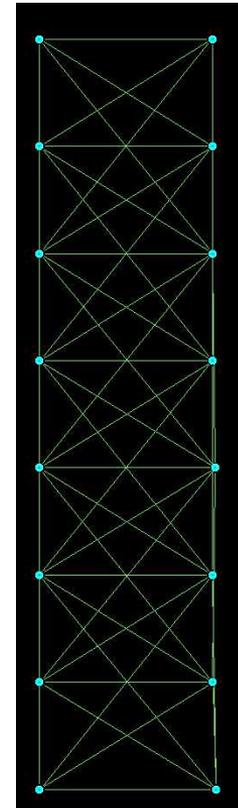
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	14-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	18-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 14-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	108		Onboard Representative	NavDef #09
JOB # :	20323	TO SEQ :	115		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 10

Esso Australia Pty Ltd – 2006 Bream 3D

**Veritas Geophysical
(Asia Pacific) Pte. Ltd.**

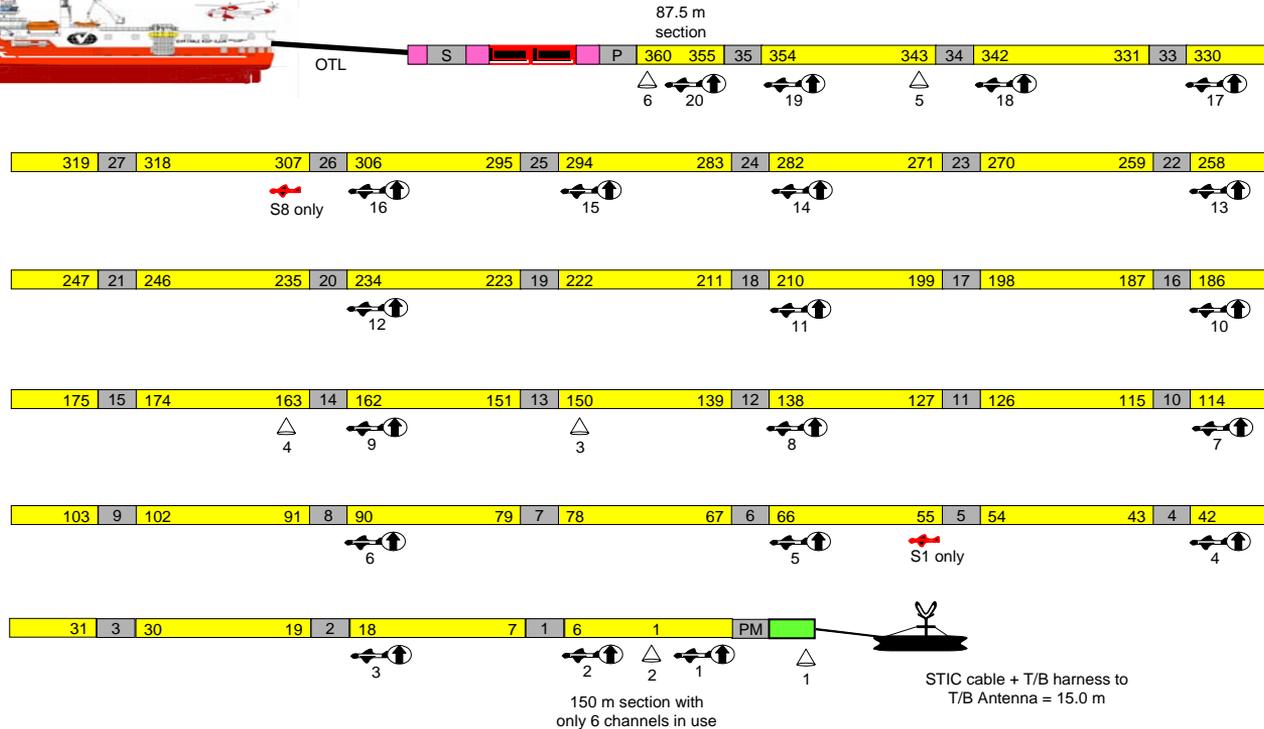
www.veritasdgc.com

Summary of changes

- **New water velocity after TS Dip from 1507m/s to 1503m/s**

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	18-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	22-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 18-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	116		Onboard Representative	NavDef #10
JOB # :	20323	TO SEQ :	133		Client: <i>Print</i> <i>Sign</i>	

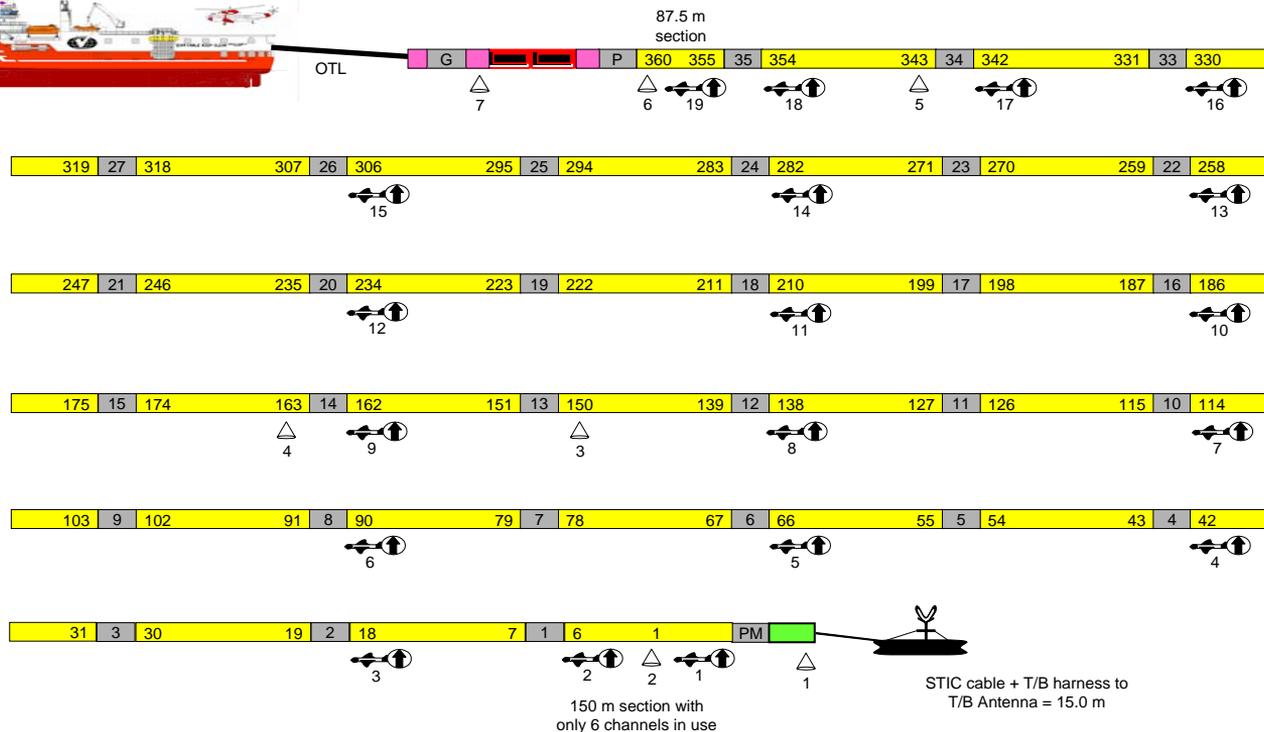
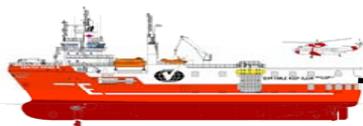
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
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-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	18-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	22-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 18-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	116		Onboard Representative	NavDef #10
JOB # :	20323	TO SEQ :	133		Client: <i>Print</i> <i>Sign</i>	

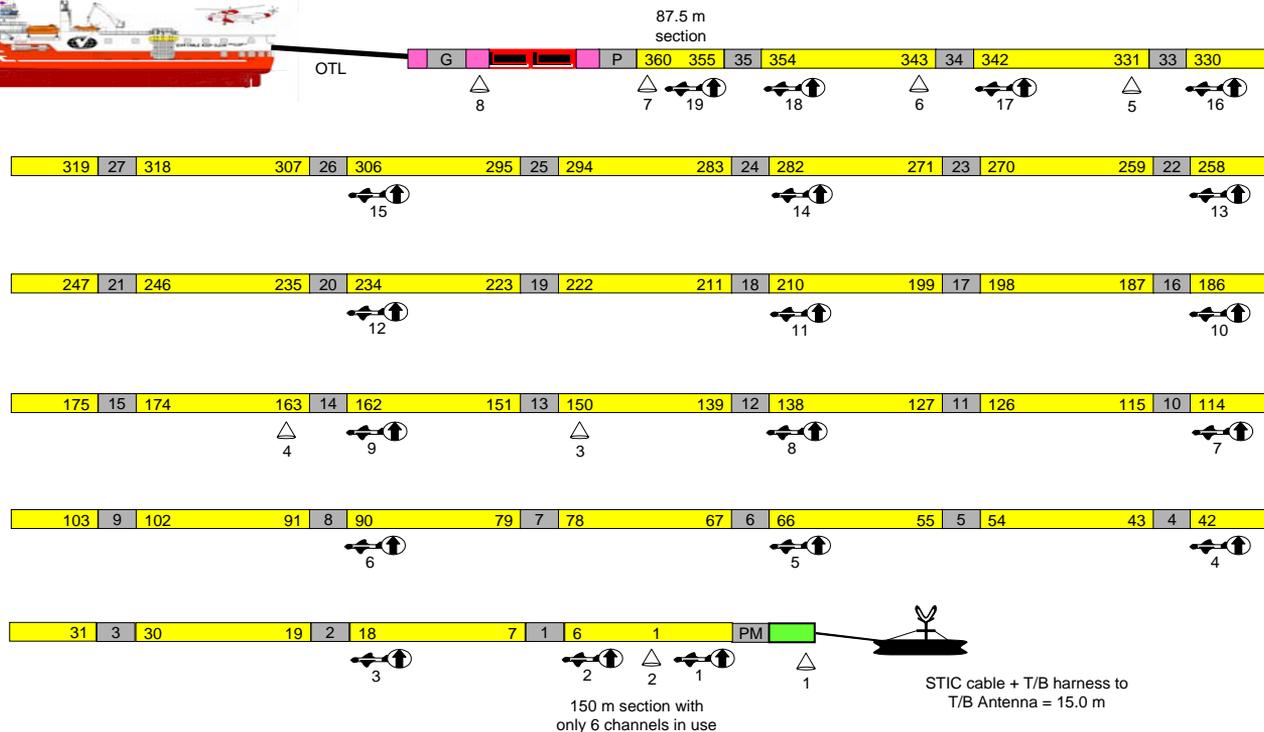
Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
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VESSEL :	SR/V Veritas Viking 2	FROM DATE :	18-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 3
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	22-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 18-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	116		Onboard Representative	NavDef #10
JOB # :	20323	TO SEQ :	133	Client: <i>Print</i> <i>Sign</i>		

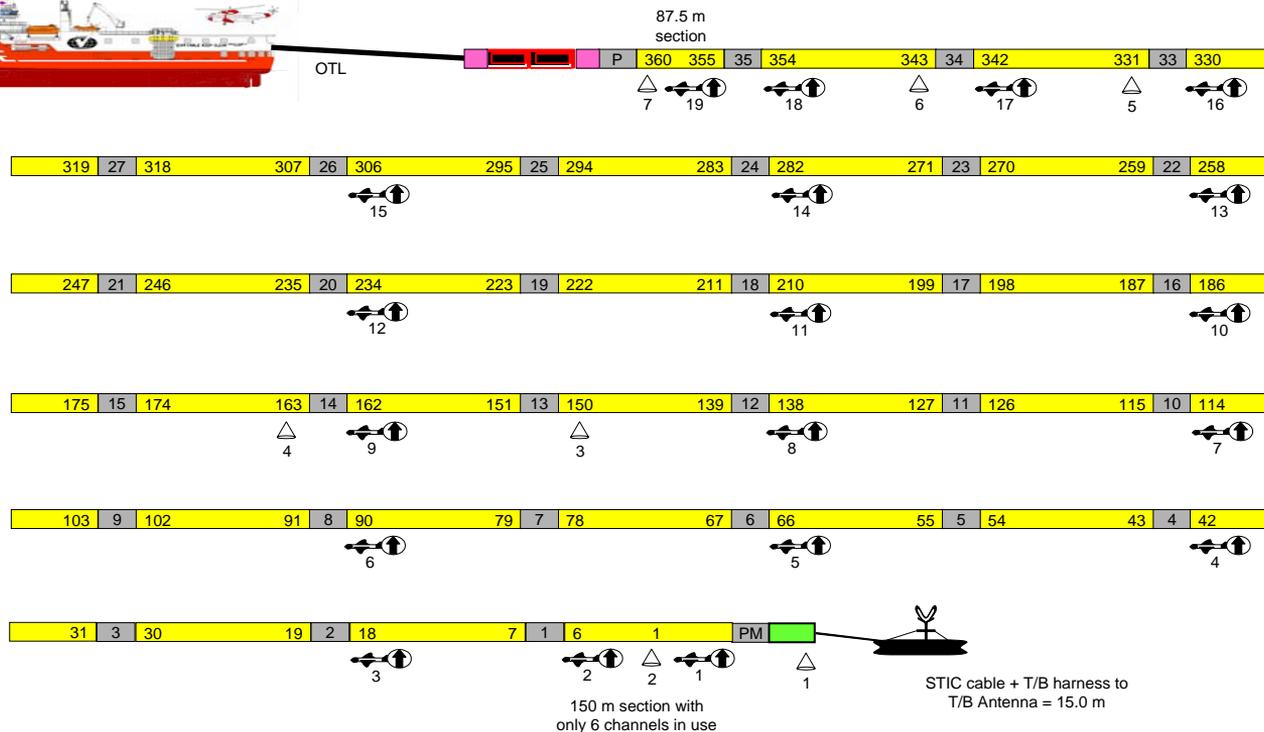
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	18-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	22-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 18-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	116		Onboard Representative	NavDef #10
JOB # :	20323	TO SEQ :	133		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

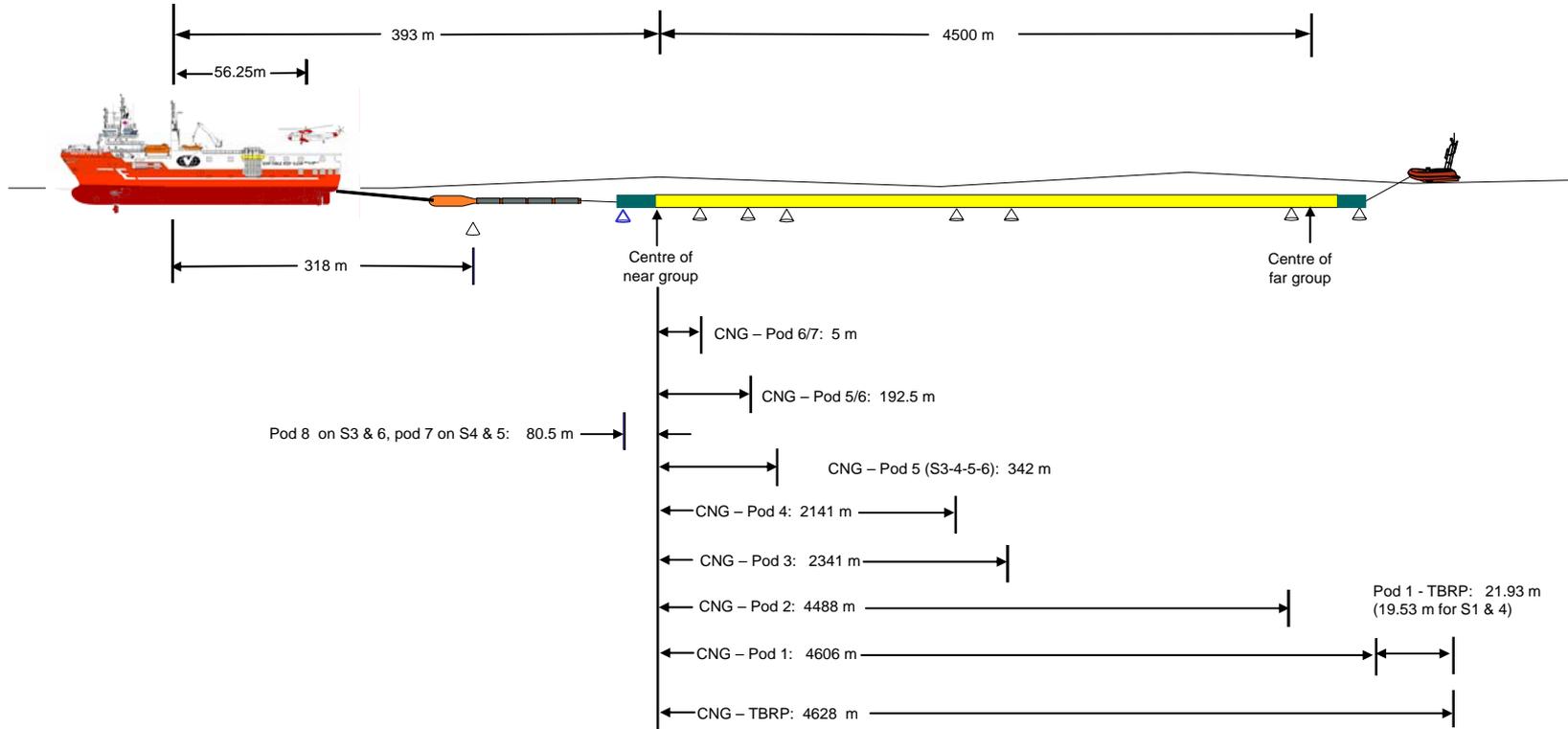


- G TAP can (0.35m)
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- P Passive Module (0.35m)
- PM Power Module (0.35m)
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- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

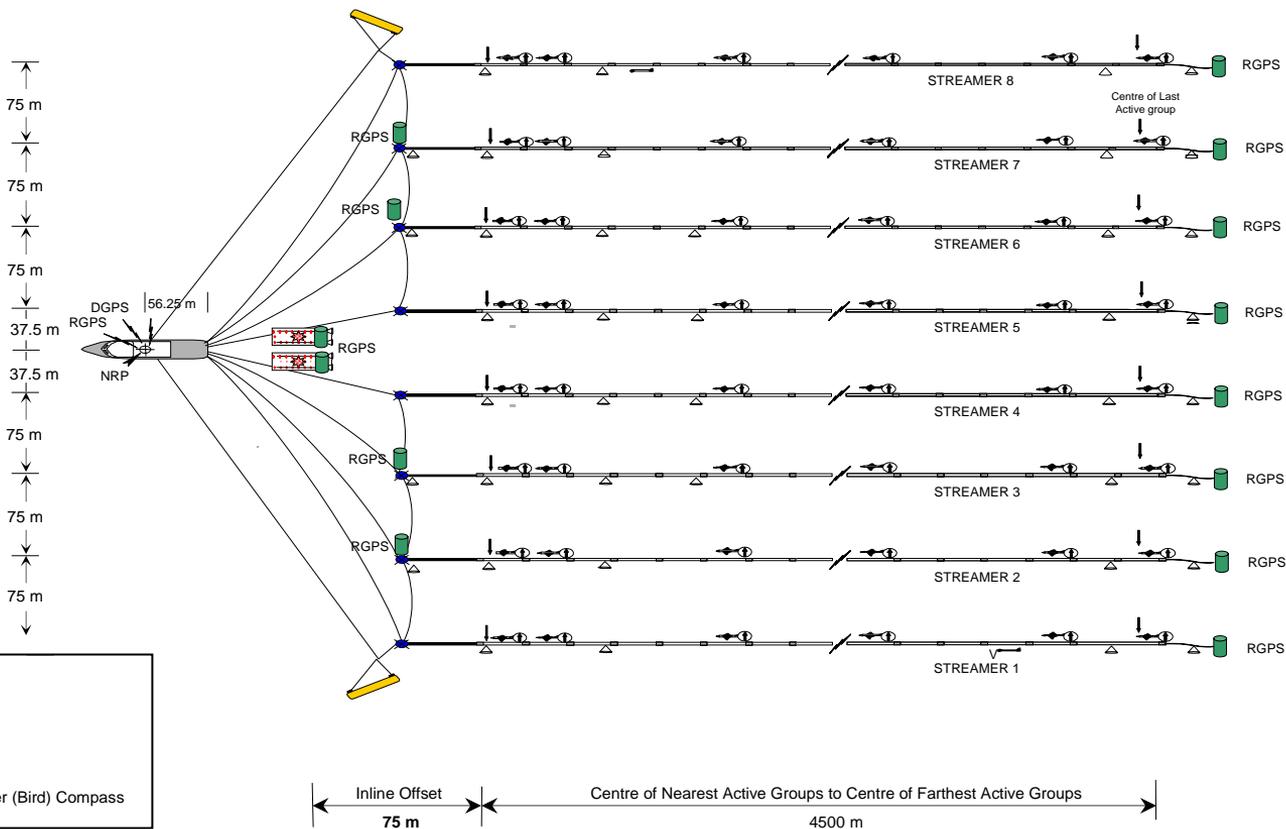
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	18-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 5
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	22-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 18-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	116		Onboard Representative	
JOB # :	20323	TO SEQ :	133		Client: <i>Print</i> <i>Sign</i>	NavDef #10

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	18-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	22-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 18-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	116		Onboard Representative	NavDef #10
JOB # :	20323	TO SEQ :	133		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2
CLIENT :	Esso Australia Pty. Ltd.
AREA :	2006 Greater Bream 3D
JOB # :	20323

FROM DATE :	18-JUN-2006
TO DATE :	22-JUN-2006
FROM SEQ :	116
TO SEQ :	133

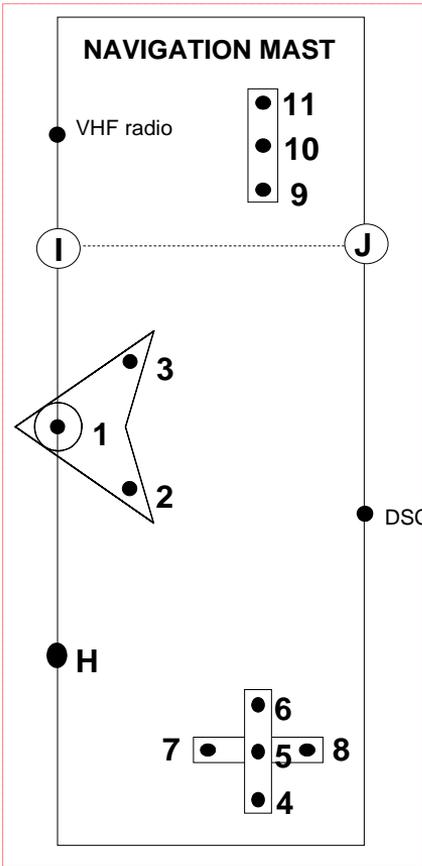
Not to scale
Measurements
in metres

M Bell - Geo Supervisor
GS: <i>Print</i> <i>Sign</i>
Onboard Representative
Client: <i>Print</i> <i>Sign</i>

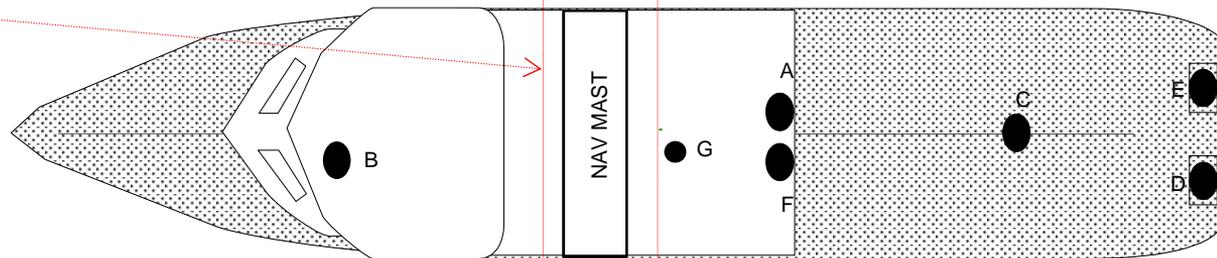
Page 7
Created: 18-JUN-06
NavDef #10

Antenna Offsets

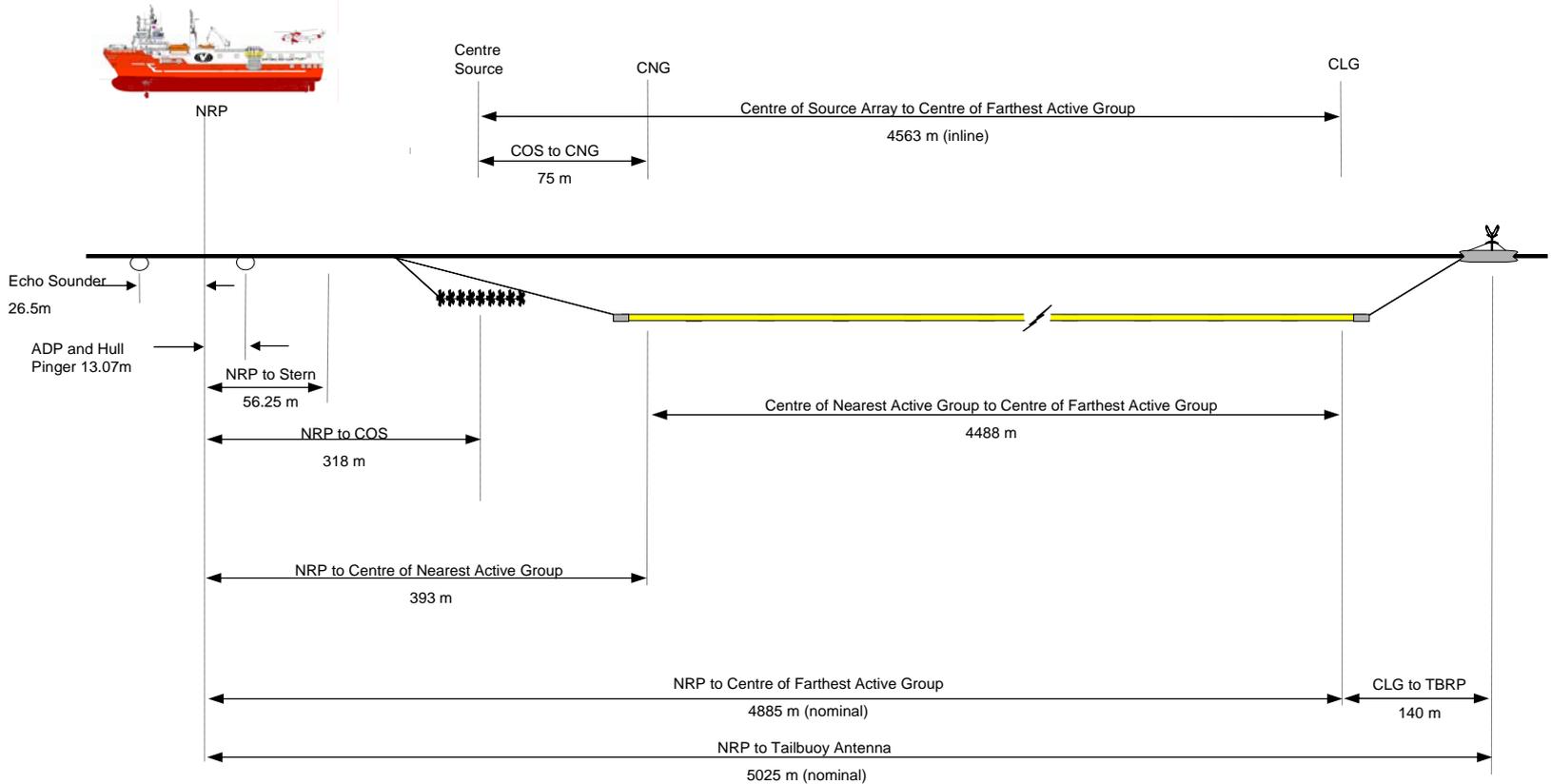
Esso Australia Pty Ltd – 2006 Bream 3D



KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



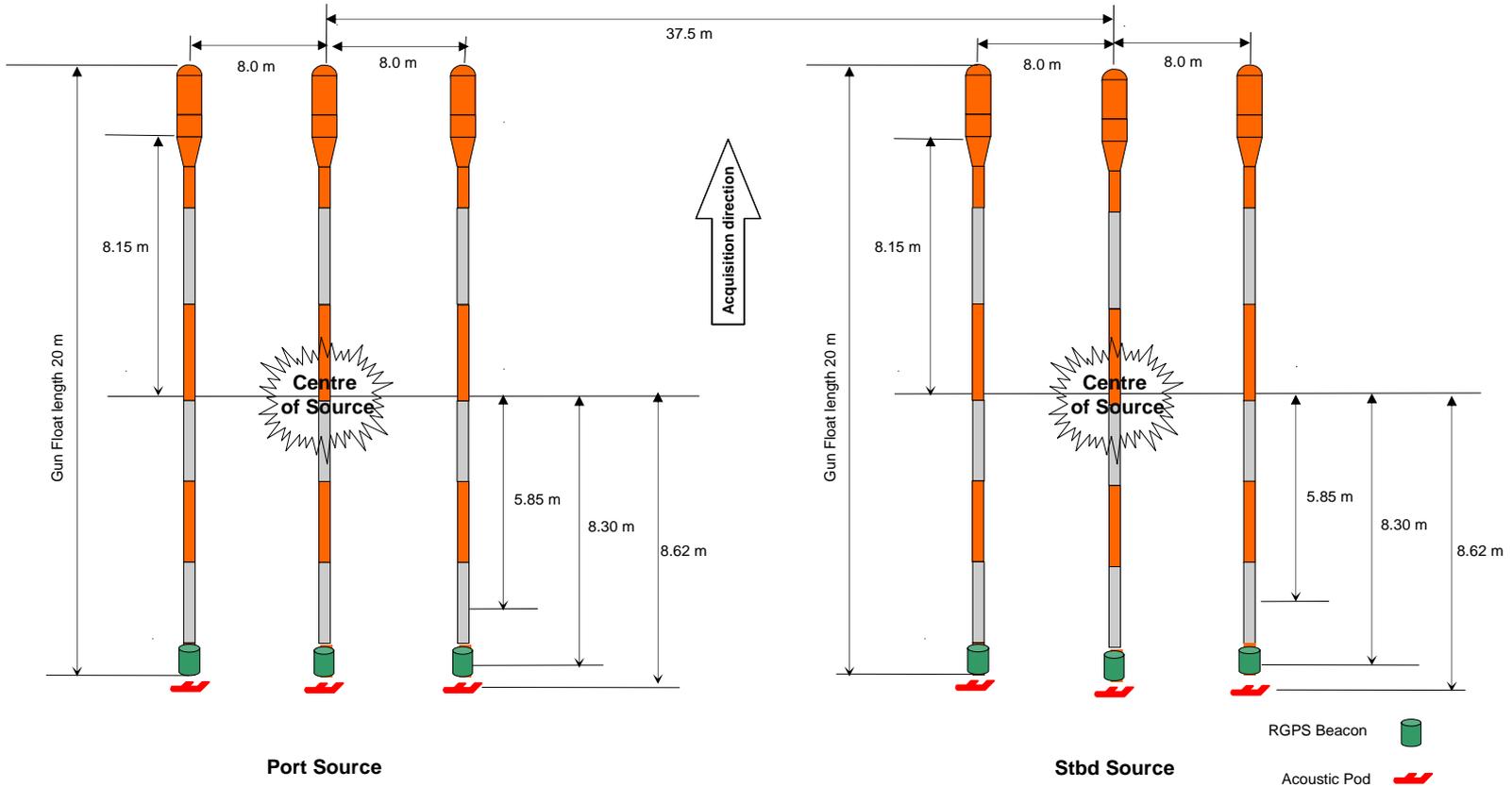
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	18-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	22-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 18-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	116		Onboard Representative	NavDef #10
JOB # :	20323	TO SEQ :	133		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	18-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	22-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 18-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	116		Onboard Representative	NavDef #10
JOB # :	20323	TO SEQ :	133		Client: <i>Print</i> <i>Sign</i>	

Source Array Navigation Node Layout

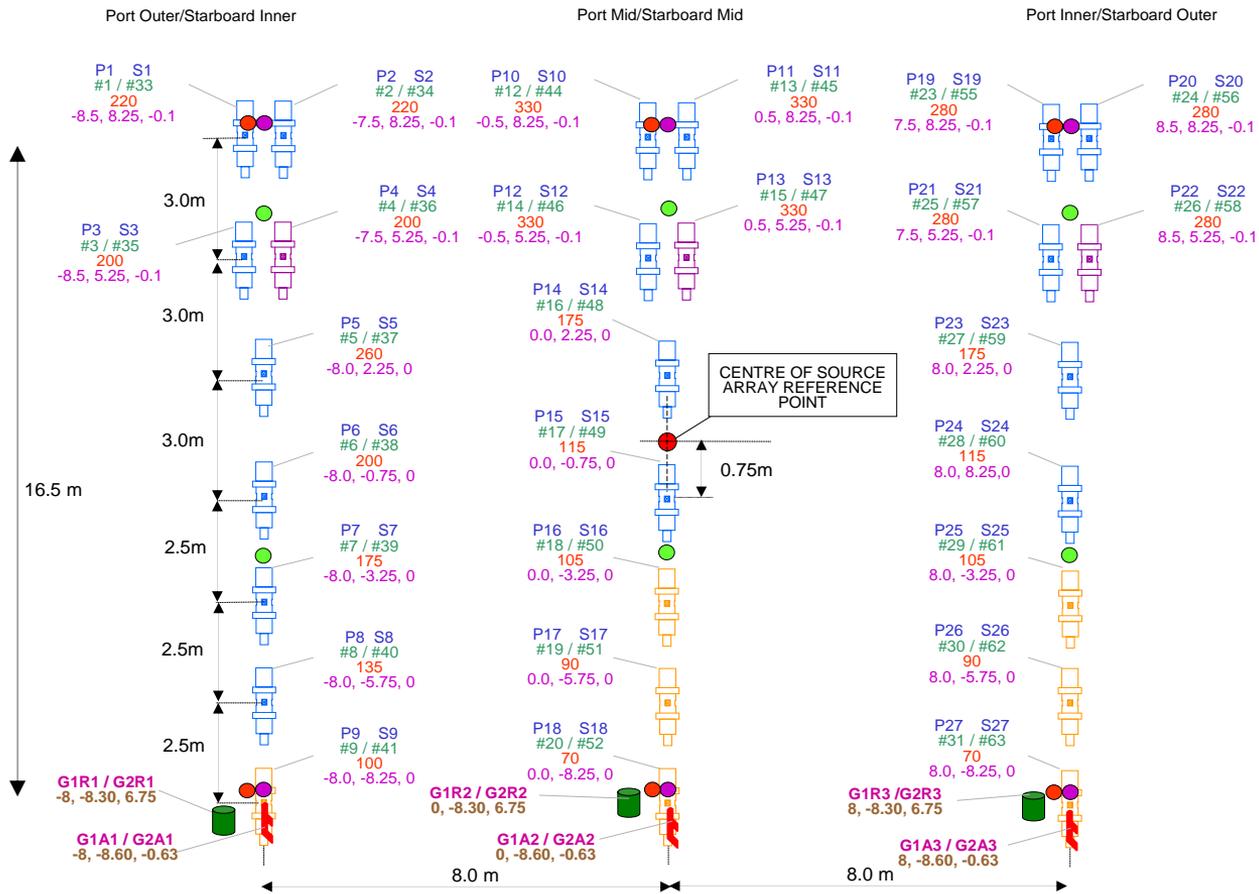
Esso Australia Pty Ltd – 2006 Bream 3D



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	18-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	22-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 18-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	116		Onboard Representative	NavDef #10
JOB # :	20323	TO SEQ :	133		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

- Depth
- Pressure
- Near Field Hydrophone

- rGPS Pod
- Acoustic Pod

Gun Detail

Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

- 1500LL – Active
- 1500LL – Spare
- 1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	18-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	22-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 18-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	116		Onboard Representative	NavDef #10
JOB # :	20323	TO SEQ :	133		Client: <i>Print</i> <i>Sign</i>	



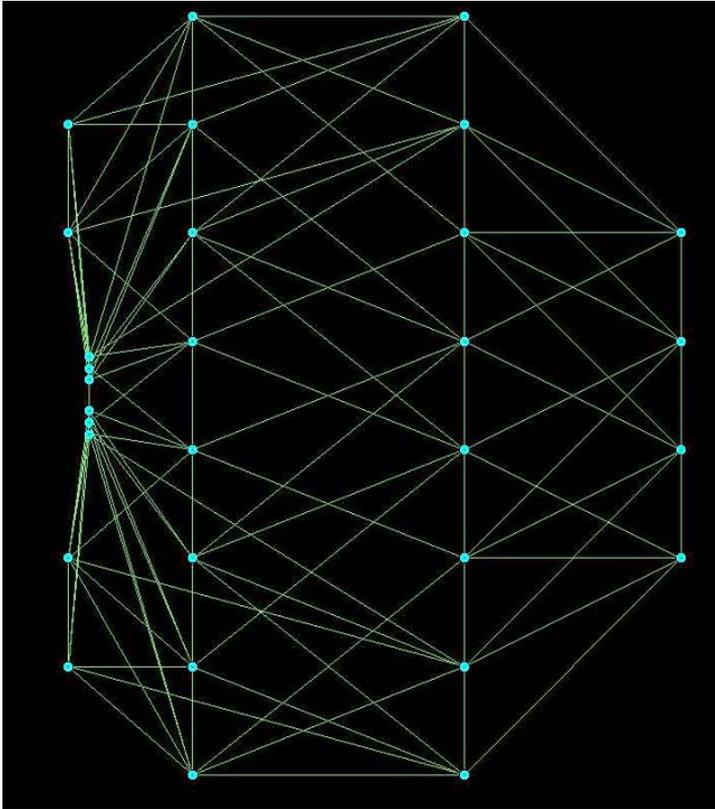
Acoustic Networks

Esso Australia Pty Ltd – 2006 Bream 3D

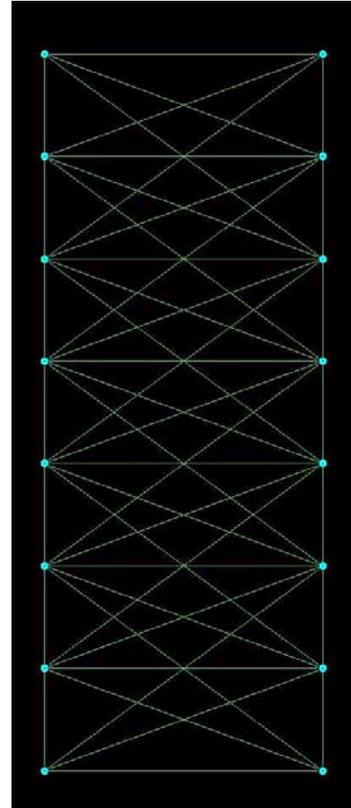
Veritas Geophysical
(Asia Pacific) Pte. Ltd.

www.veritasdgc.com

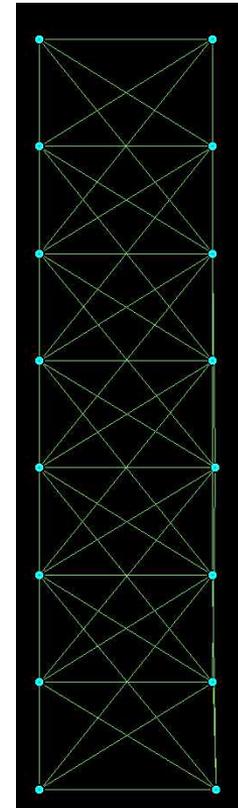
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	18-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	22-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 18-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	116		Onboard Representative	NavDef #10
JOB # :	20323	TO SEQ :	133		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 11

Esso Australia Pty Ltd – 2006 Bream 3D

**Veritas Geophysical
(Asia Pacific) Pte. Ltd.**

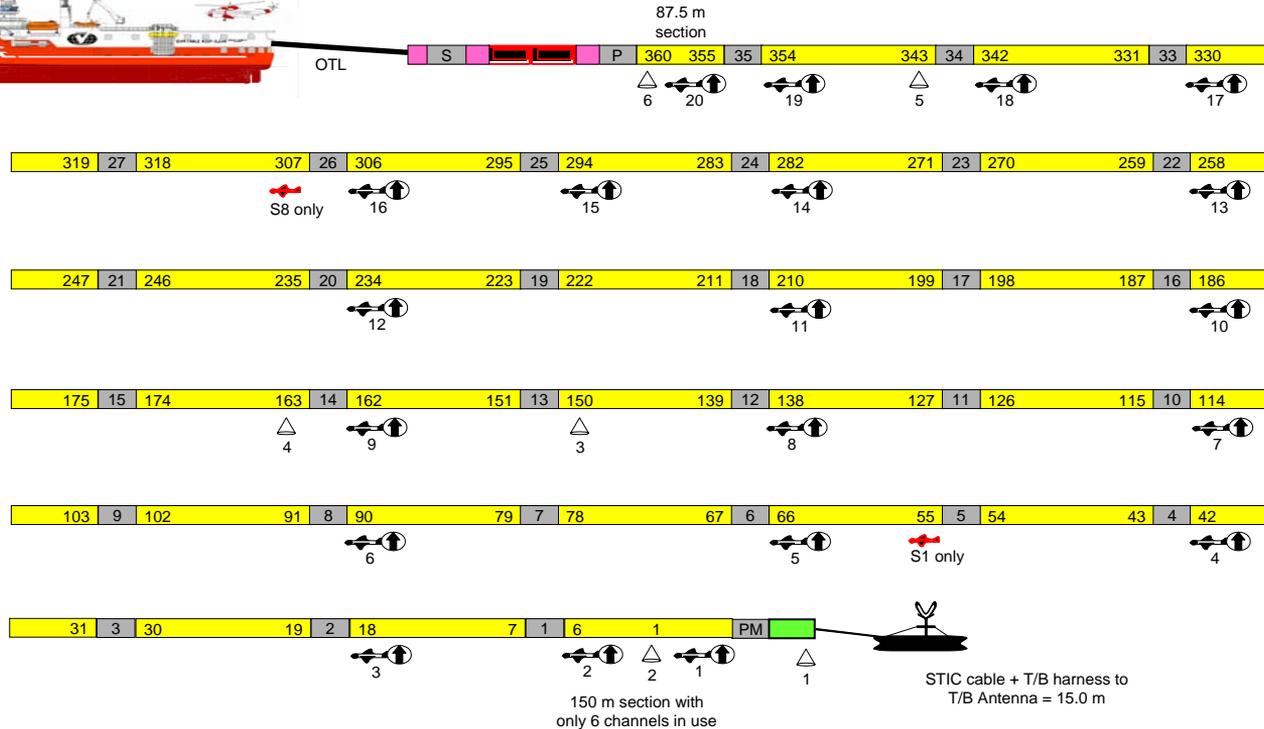
www.veritasdgc.com

Summary of changes

- **LIU ports changed –**
- **Streamer 1 moved from LIU port 4 to LIU port 1**
- **Streamer 4 moved from LIU port 1 to LIU port 4**

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	23-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	28-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 24-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	134		Onboard Representative	NavDef #11
JOB # :	20323	TO SEQ :	159		Client: <i>Print</i> <i>Sign</i>	

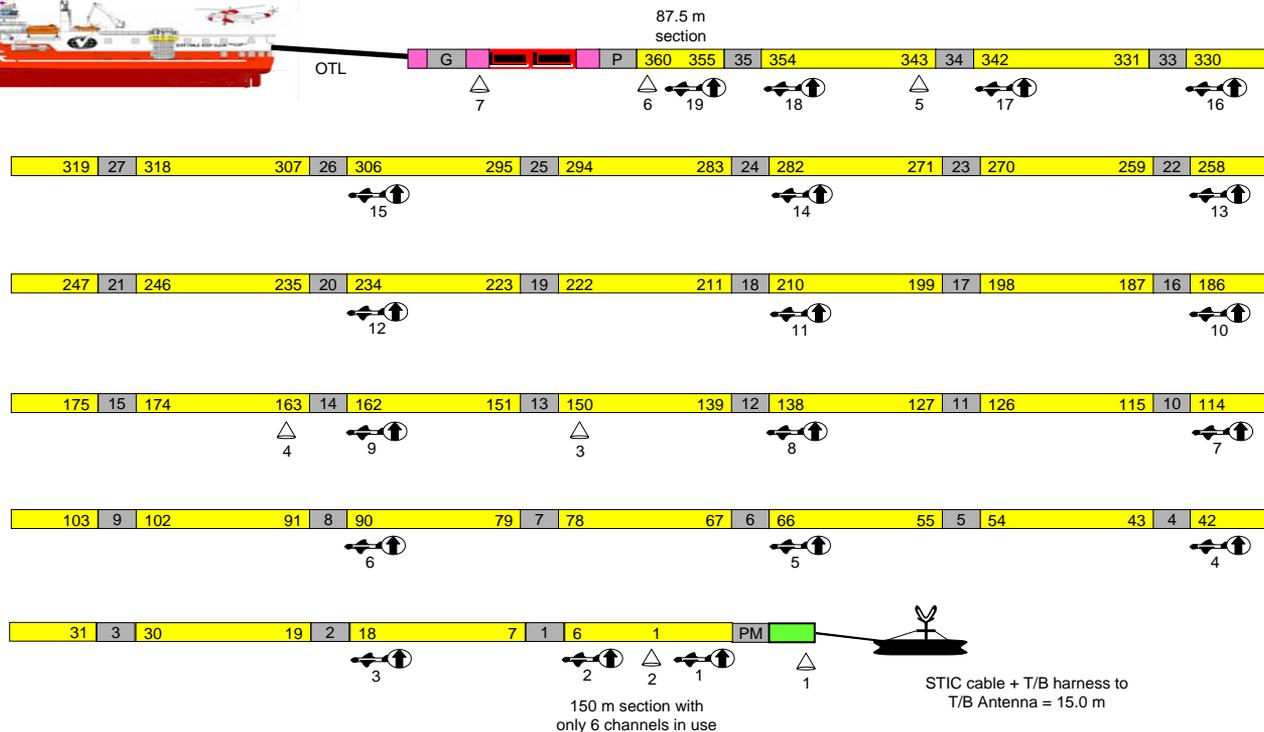
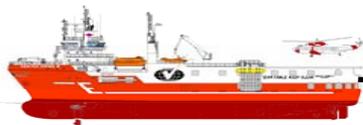
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



	TAP can (0.35m)
	Streamer tension unit, STU (0.35m)
	Passive Module (0.35m)
	Power Module (0.35m)
	Active Module (0.35m)
	RVIM Stretch section (25m static)
	Solid active (150m)
109	Group/trace number
	Stretch (50m static)
	Insert section (1m)
	Velocimeter
	Depth controller, depth transducer & compass
	Acoustic pod
6	

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	23-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	28-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 24-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	134		Onboard Representative	
JOB # :	20323	TO SEQ :	159		Client: <i>Print</i> <i>Sign</i>	NavDef #11

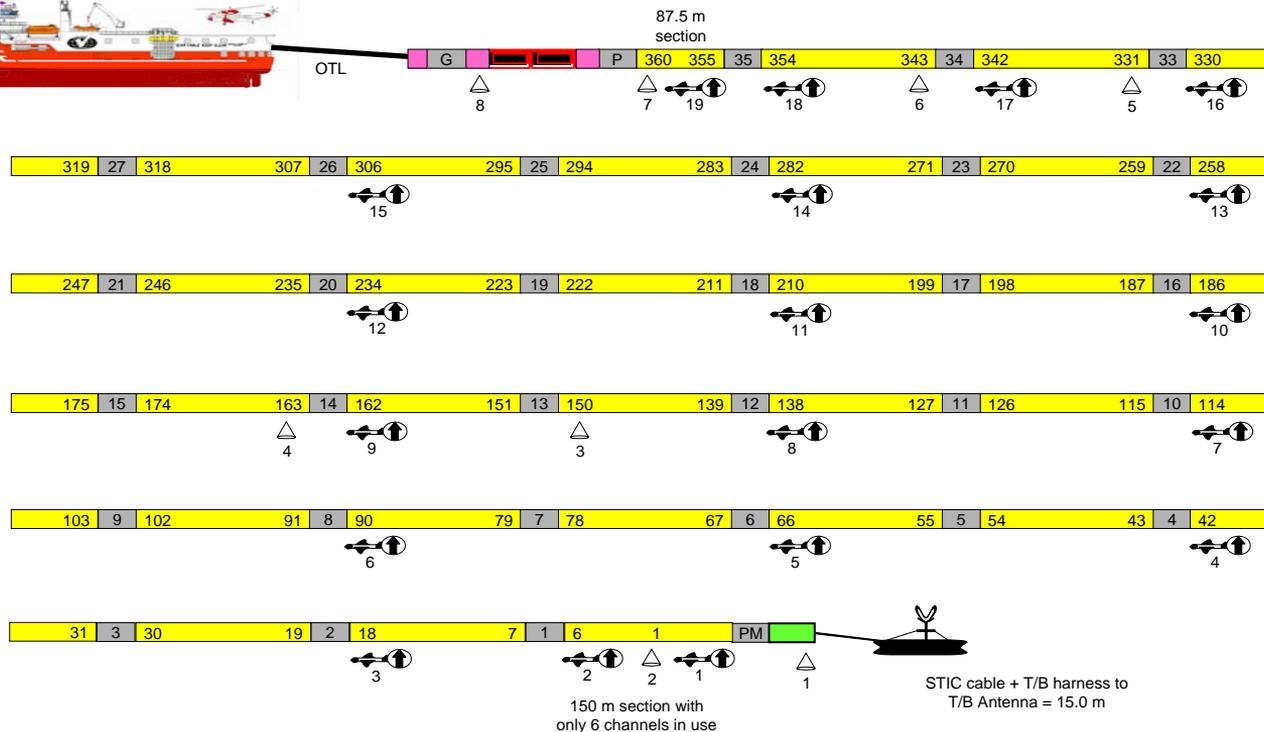
Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	23-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 3
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	28-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 24-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	134		Onboard Representative	NavDef #11
JOB # :	20323	TO SEQ :	159		Client: <i>Print</i> <i>Sign</i>	

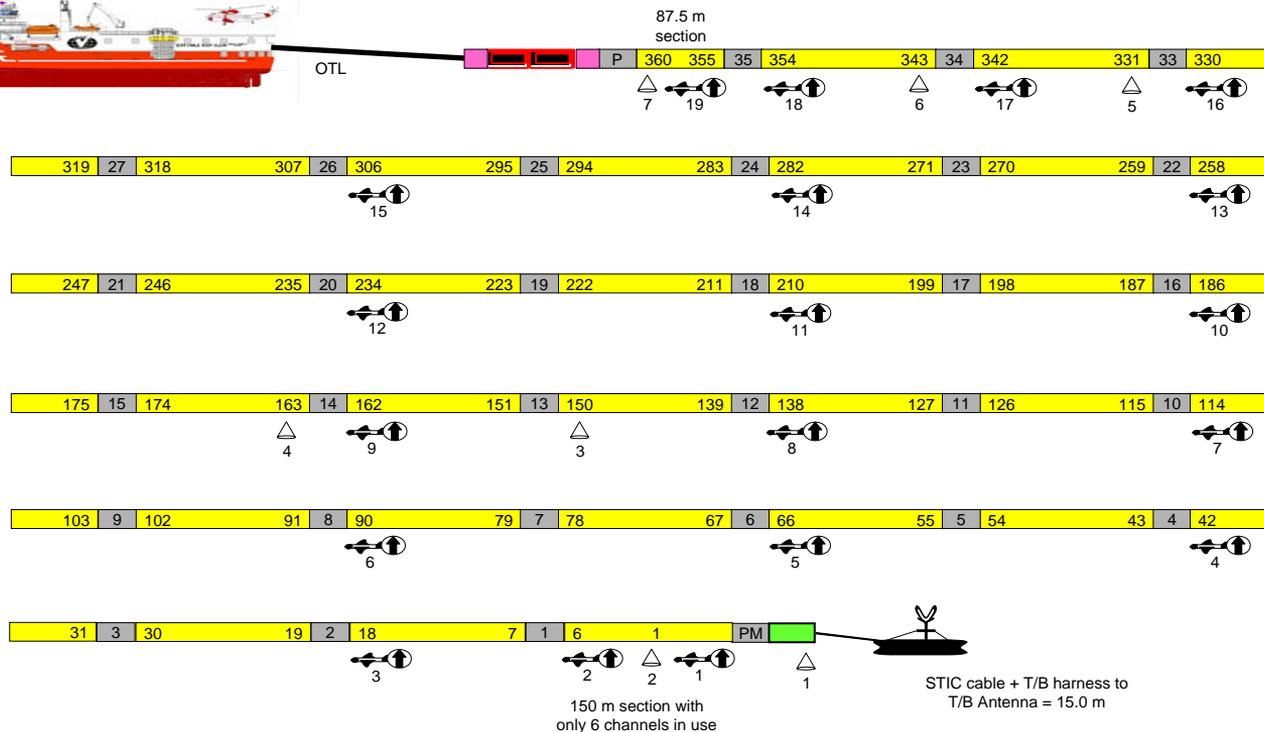
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	23-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	28-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 24-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	134		Onboard Representative	NavDef #11
JOB # :	20323	TO SEQ :	159		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

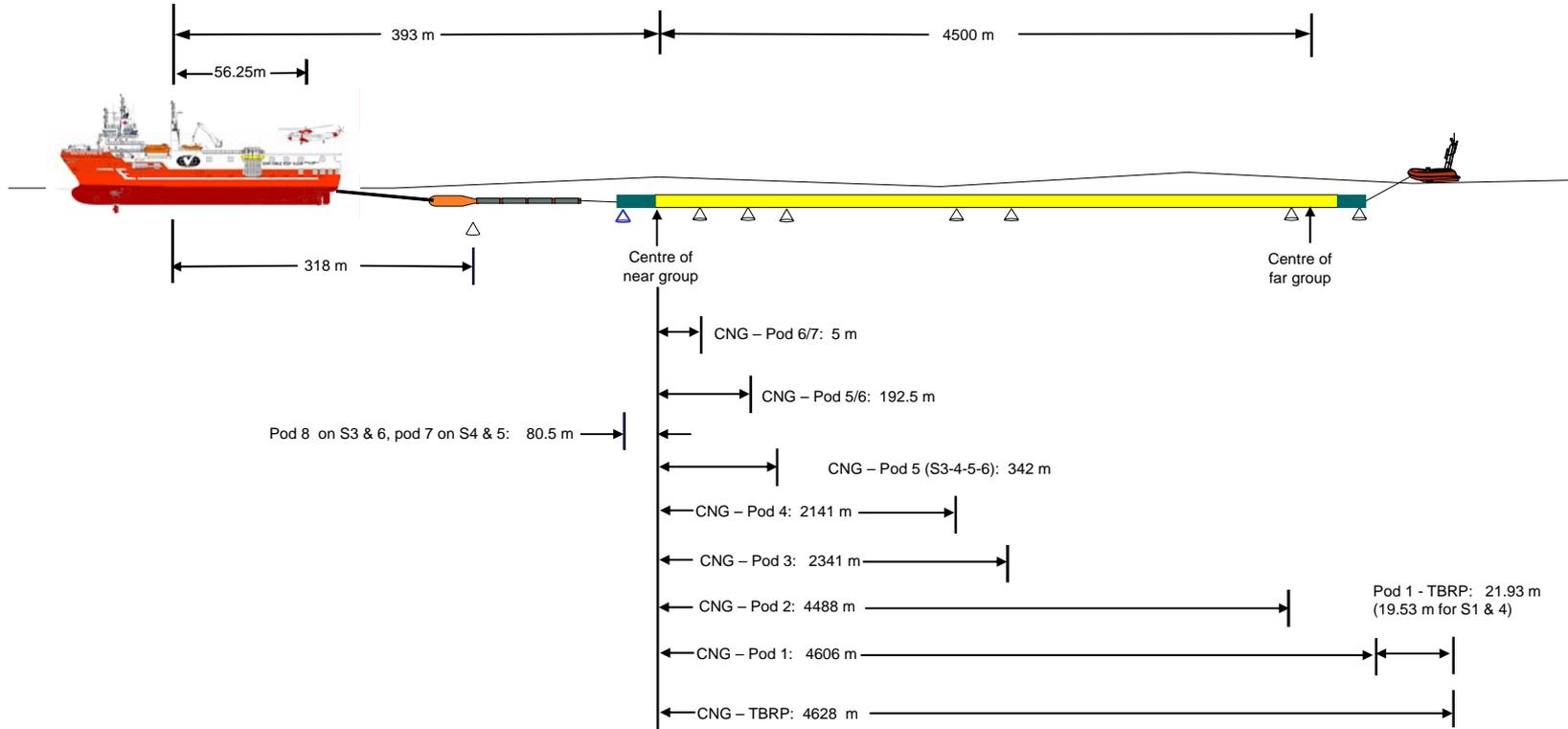


- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

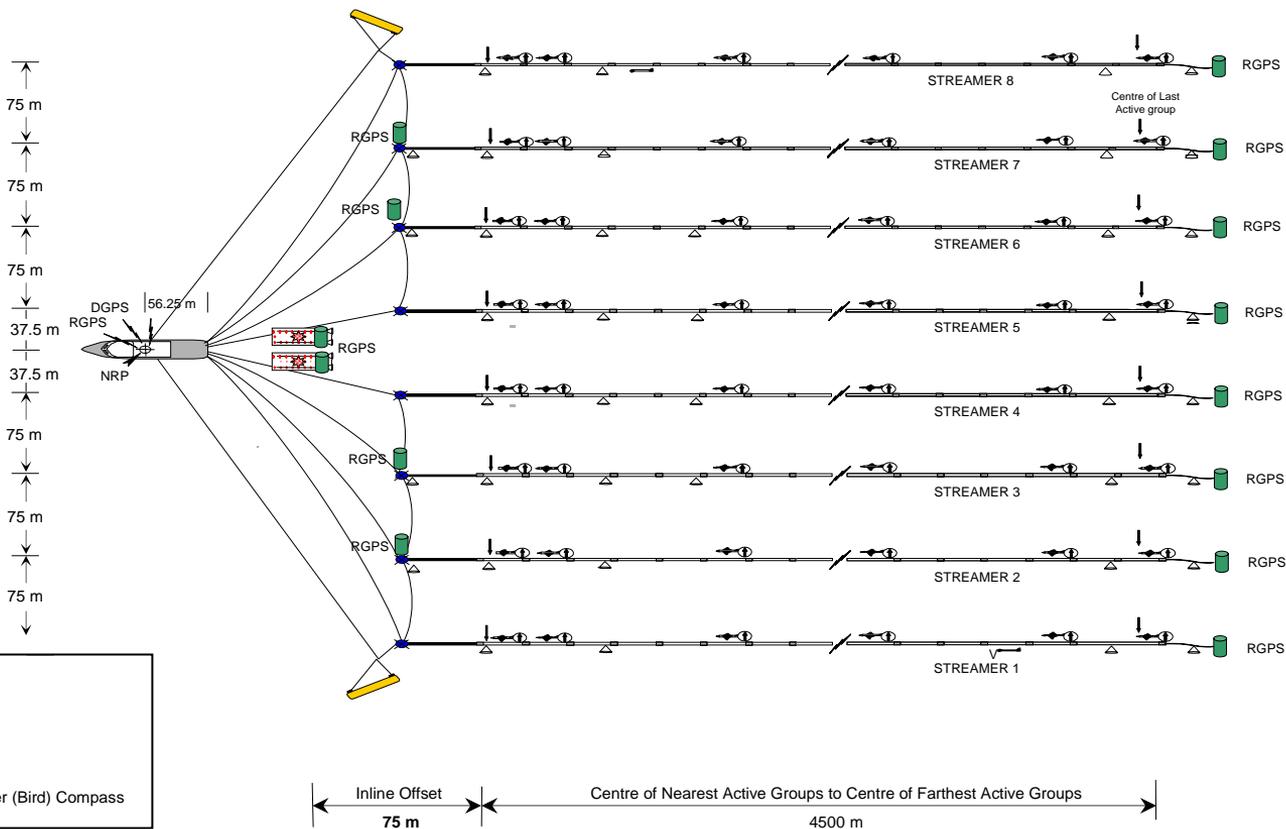
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	23-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 5
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	28-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 24-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	134		Onboard Representative	NavDef #11
JOB # :	20323	TO SEQ :	159		Client: <i>Print</i> <i>Sign</i>	

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



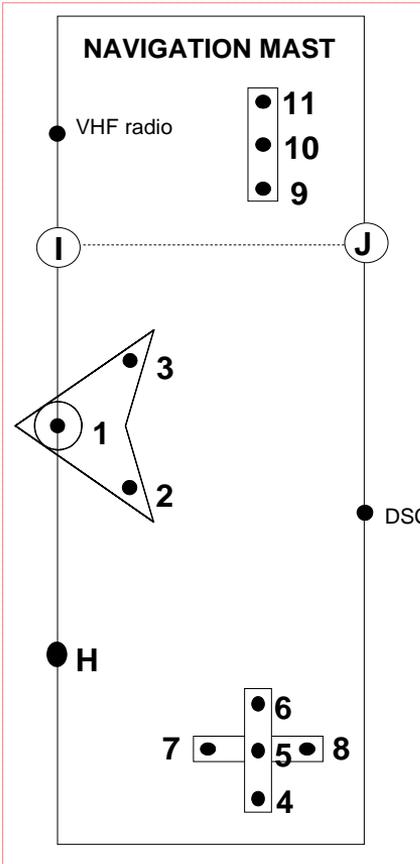
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	23-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	28-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 24-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	134		Onboard Representative	NavDef #11
JOB # :	20323	TO SEQ :	159		Client: <i>Print</i> <i>Sign</i>	



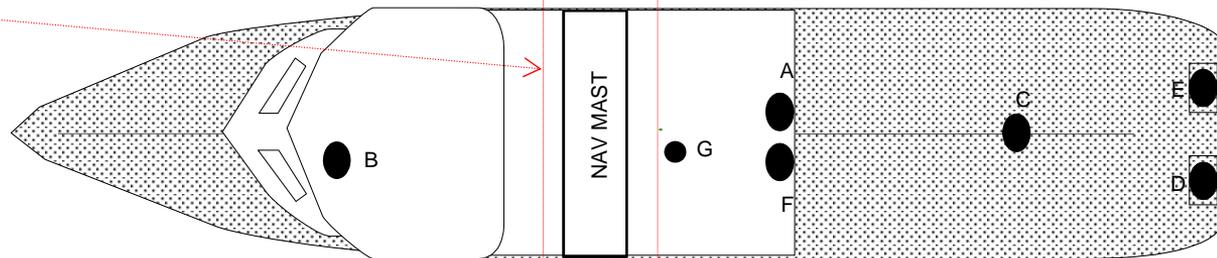
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	23-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 7
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	28-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 24-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	134		Onboard Representative	NavDef #11
JOB # :	20323	TO SEQ :	159		Client: <i>Print</i> <i>Sign</i>	

Antenna Offsets

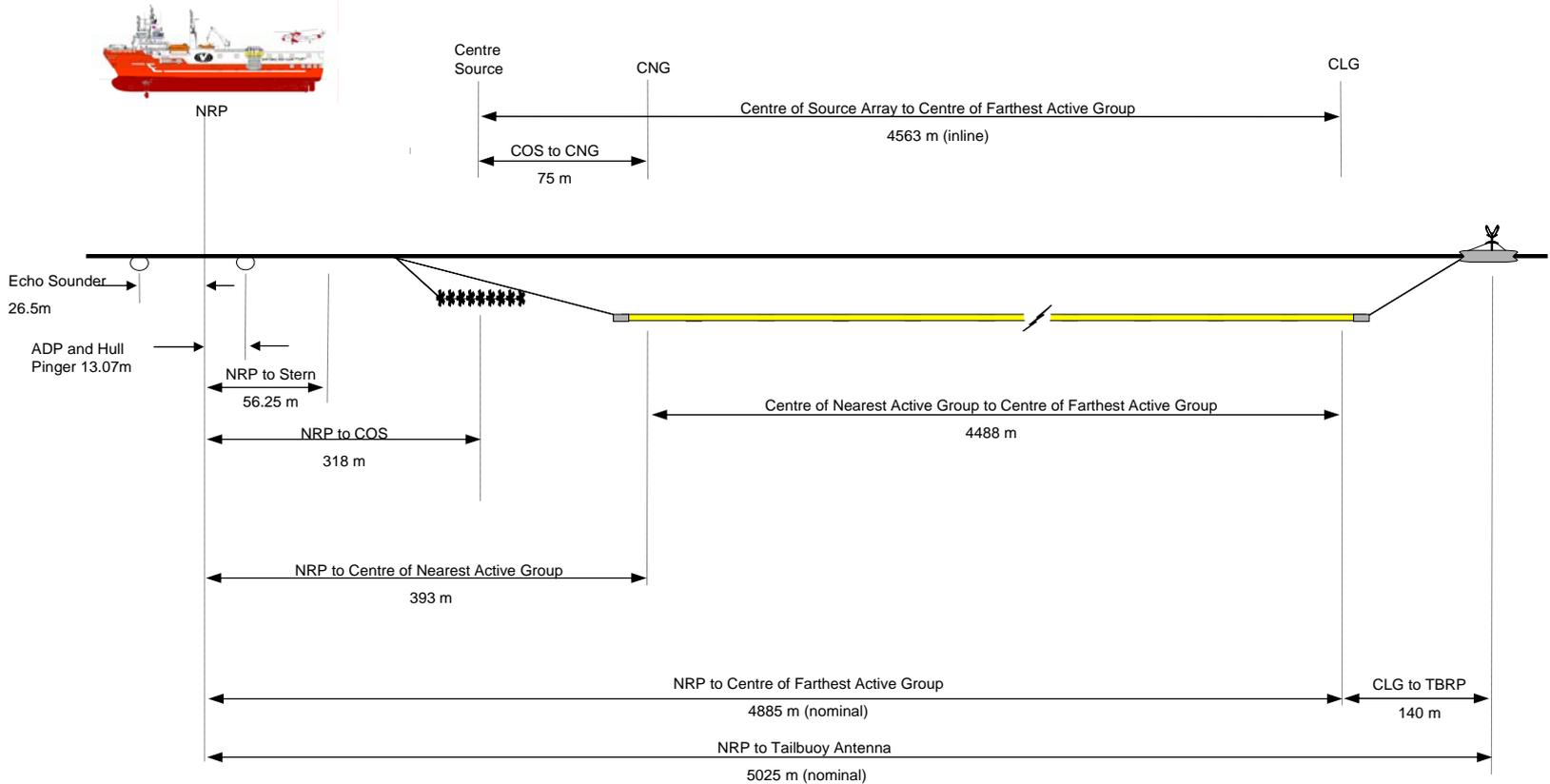
Esso Australia Pty Ltd – 2006 Bream 3D



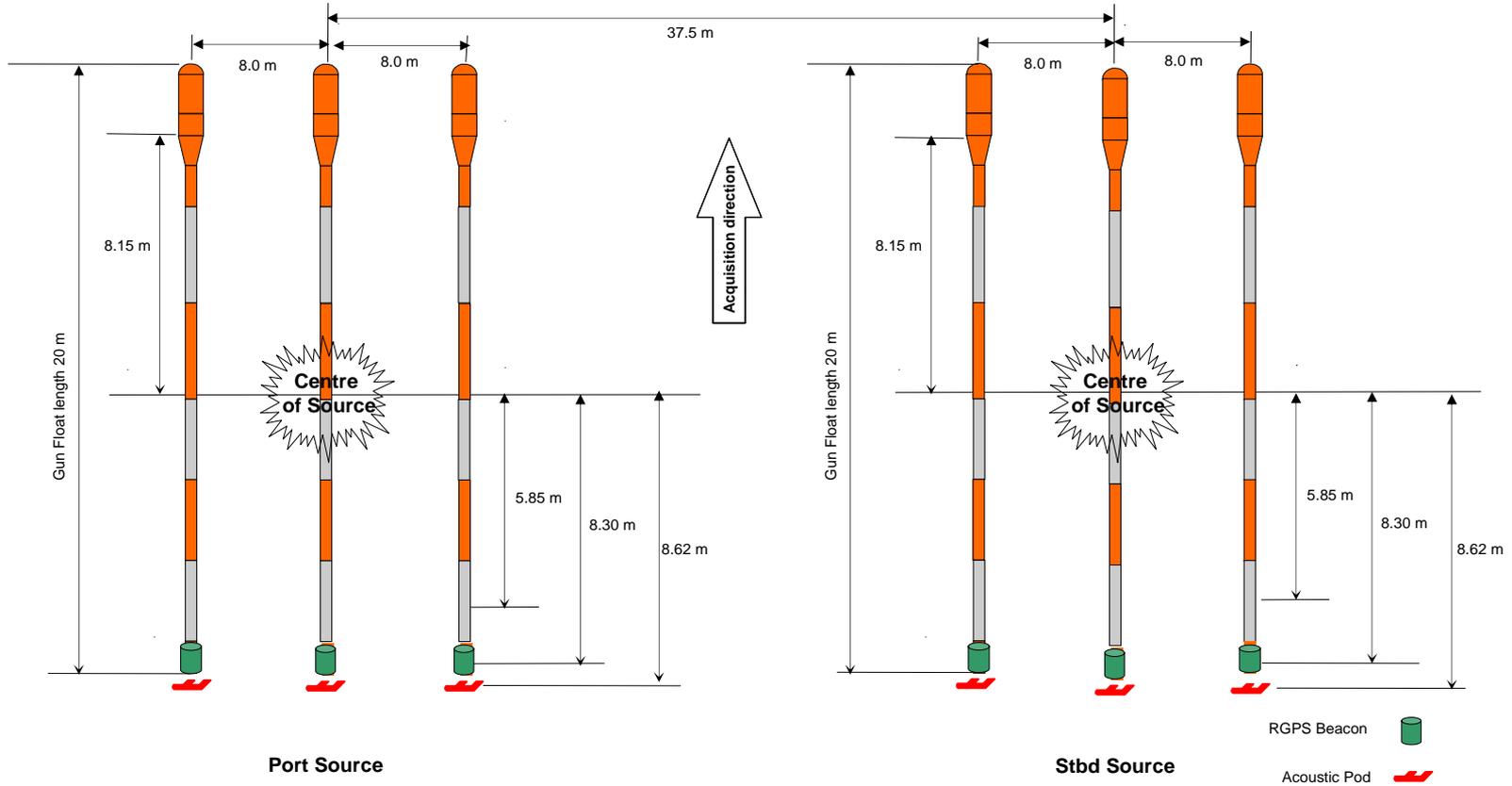
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	23-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	28-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 24-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	134		Onboard Representative	
JOB # :	20323	TO SEQ :	159		Client: <i>Print</i> <i>Sign</i>	NavDef #11



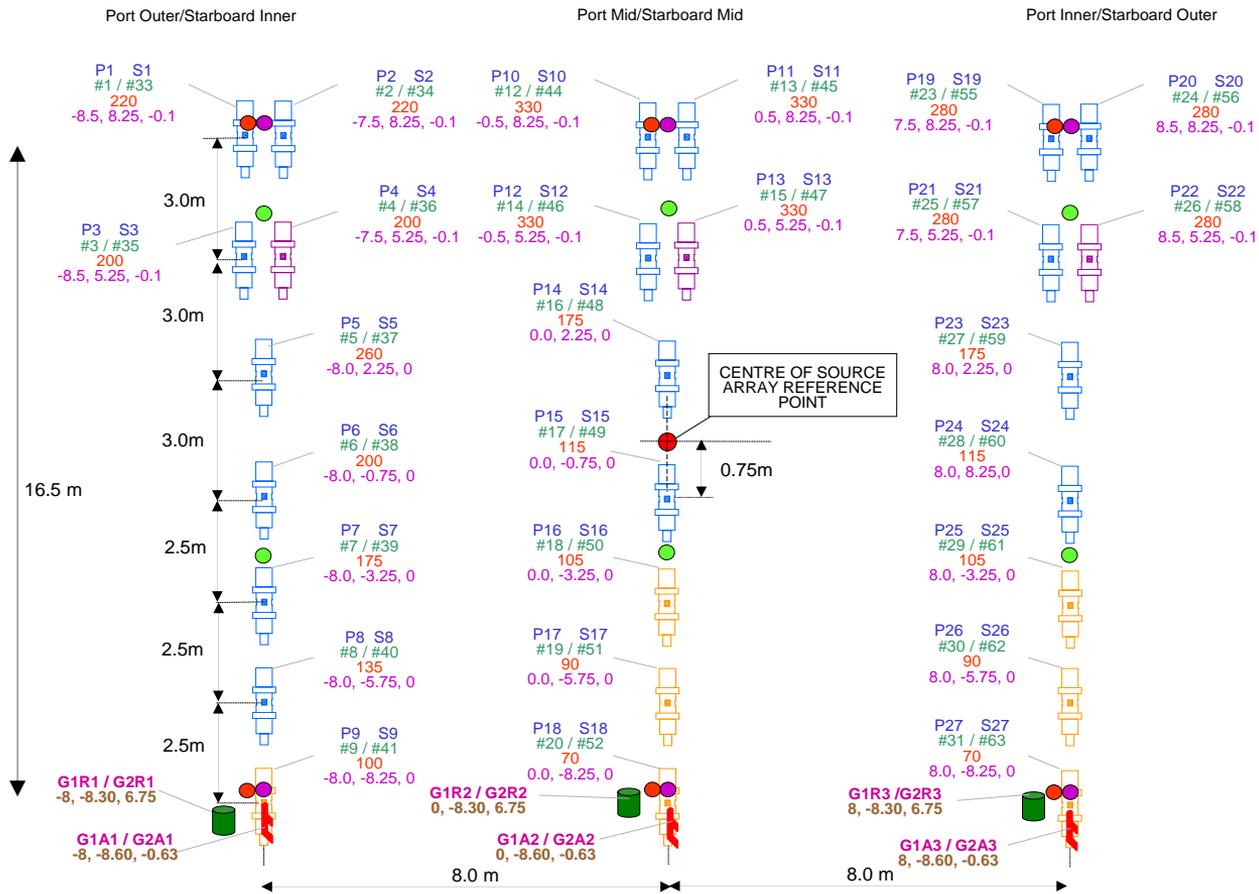
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	23-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	28-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 24-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	134		Onboard Representative	NavDef #11
JOB # :	20323	TO SEQ :	159		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	23-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	28-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 24-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	134		Onboard Representative	NavDef #11
JOB # :	20323	TO SEQ :	159		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

- Depth
- Pressure
- Near Field Hydrophone

- rGPS Pod
- Acoustic Pod

Gun Detail

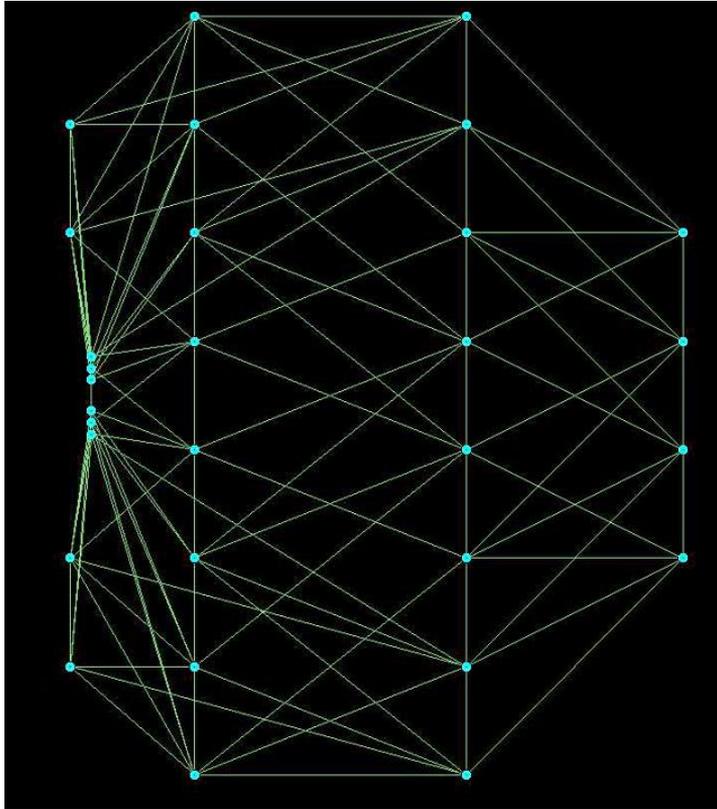
Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

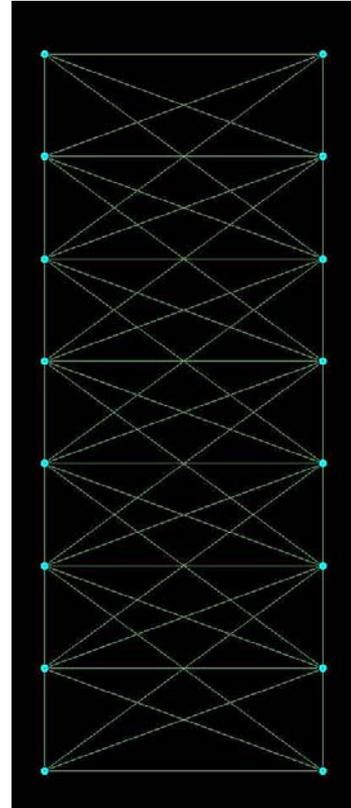
- 1500LL – Active
- 1500LL – Spare
- 1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	23-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	28-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 24-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	134		Onboard Representative	NavDef #11
JOB # :	20323	TO SEQ :	159		Client: <i>Print</i> <i>Sign</i>	

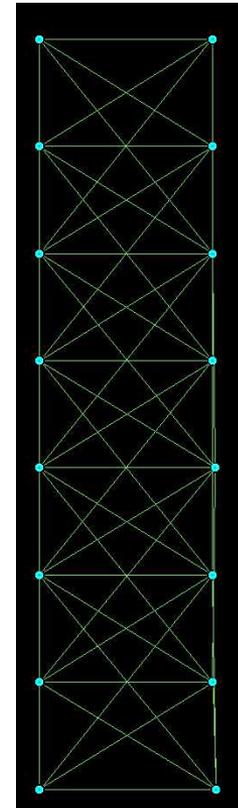
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	23-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	28-JUN-2006		GS: <i>Print</i> <i>Sign</i>	Created: 24-JUN-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	134		Onboard Representative	NavDef #11
JOB # :	20323	TO SEQ :	159		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 12

Esso Australia Pty Ltd – 2006 Bream 3D

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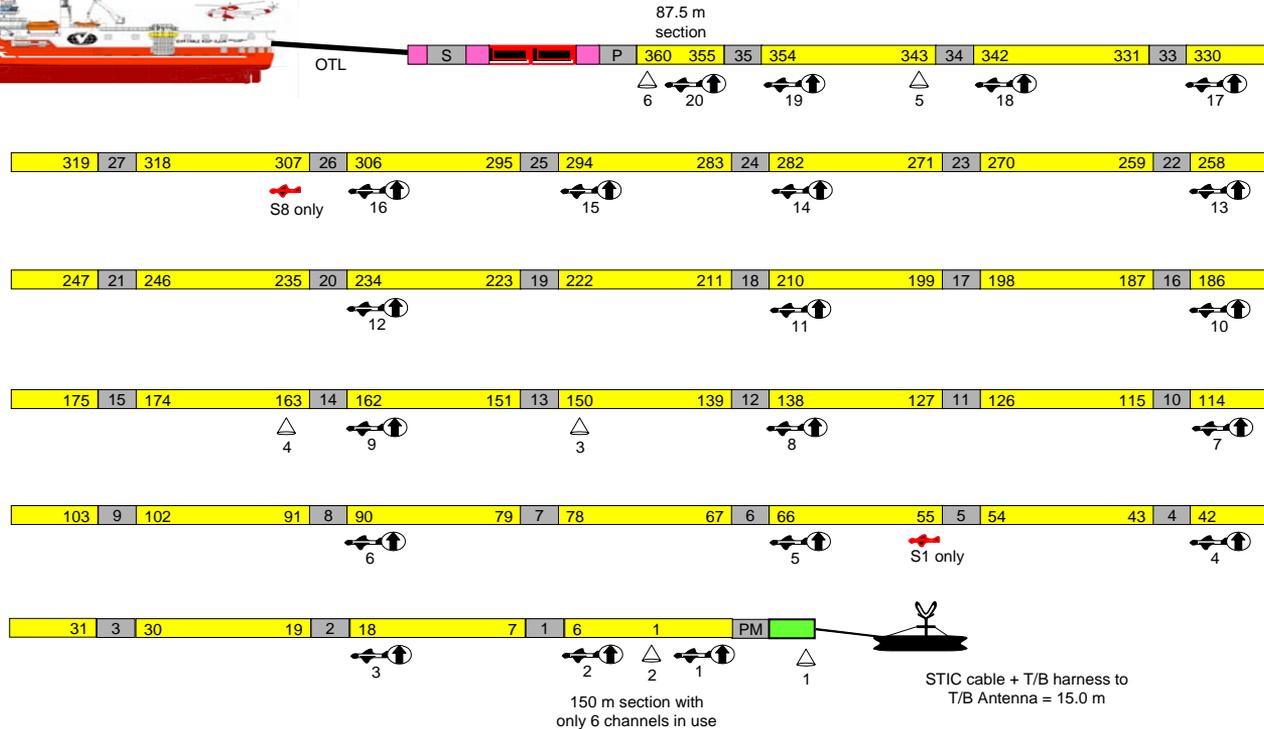
www.veritasdgc.com

Summary of changes

- **Velocity of sound in water changed from 1503 m/s to 1504 m/s**

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	28-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	04-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 05-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	160		Onboard Representative	NavDef #12
JOB # :	20323	TO SEQ :	189		Client: <i>Print</i> <i>Sign</i>	

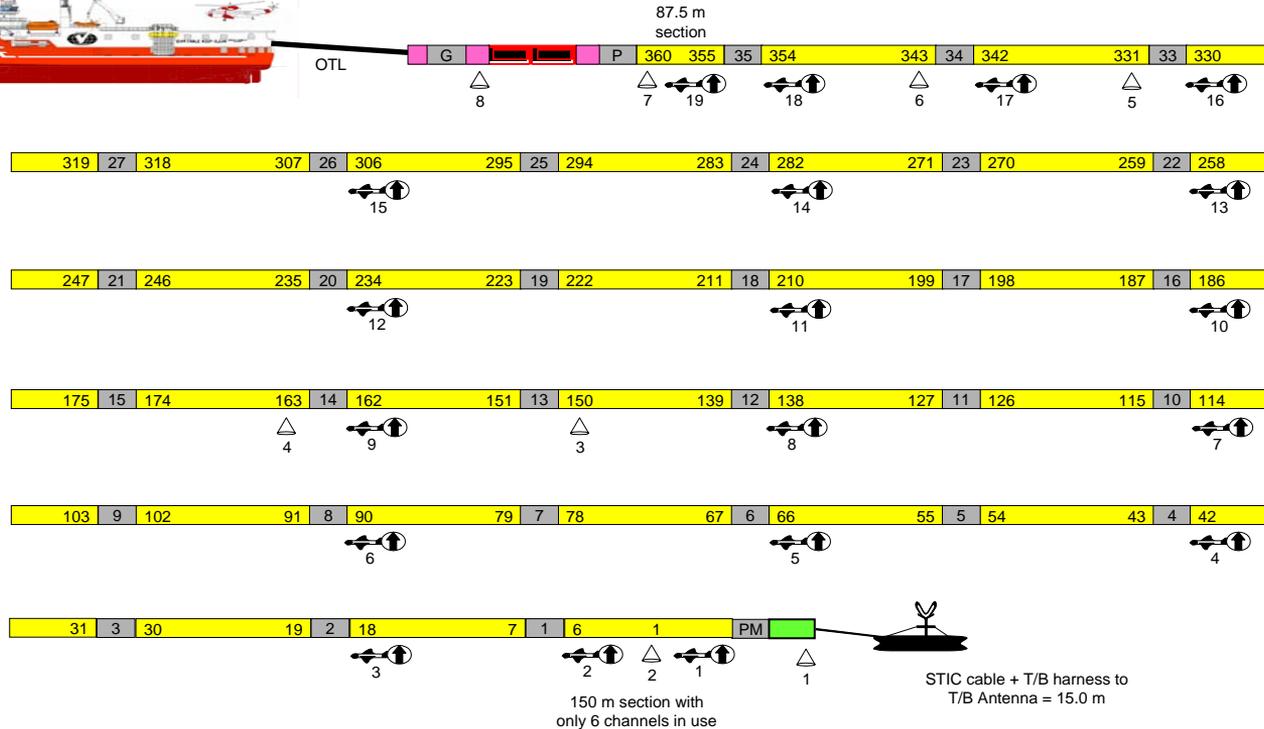
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



-  TAP can (0.35m)
-  Streamer tension unit, STU (0.35m)
-  Passive Module (0.35m)
-  Power Module (0.35m)
-  Active Module (0.35m)
-  RVIM Stretch section (25m static)
-  Solid active (150m)
- 109 Group/trace number
-  Stretch (50m static)
-  Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	28-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	04-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 05-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	160		Onboard Representative	
JOB # :	20323	TO SEQ :	189		Client: <i>Print</i> <i>Sign</i>	NavDef #12

Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

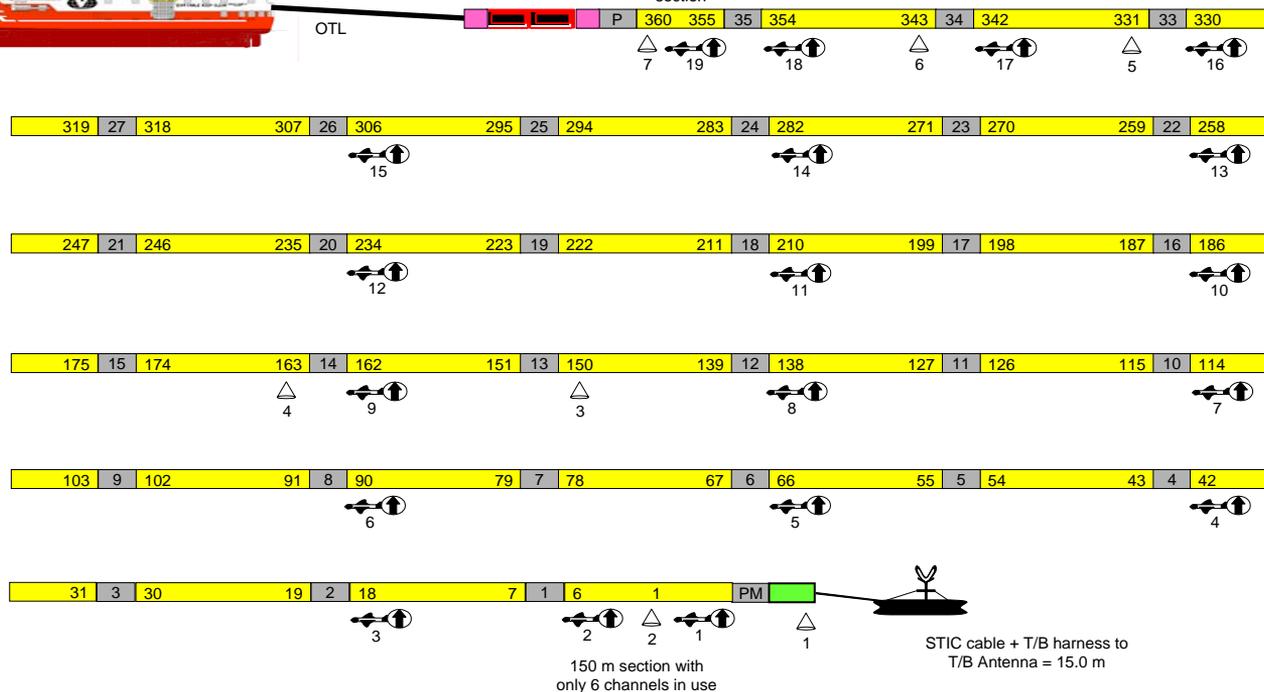
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	28-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	04-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 05-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	160		Onboard Representative	NavDef #12
JOB # :	20323	TO SEQ :	189		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



OTL

87.5 m
section



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	28-JUN-2006
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	04-JUL-2006
AREA :	2006 Greater Bream 3D	FROM SEQ :	160
JOB # :	20323	TO SEQ :	189

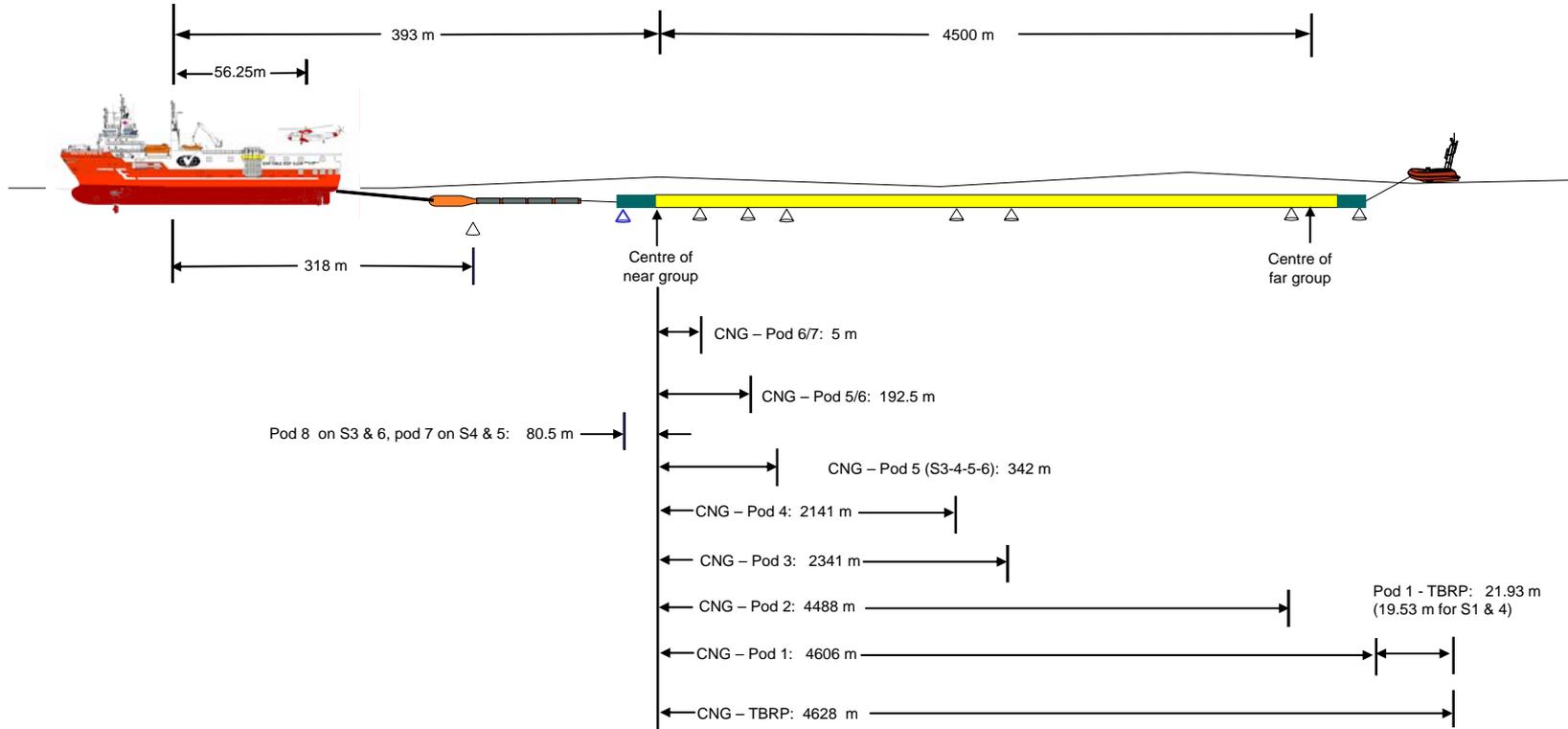
Not to scale
Measurements
in metres

M Bell - Geo Supervisor	
GS: <i>Print</i>	<i>Sign</i>
Onboard Representative	
Client: <i>Print</i>	<i>Sign</i>

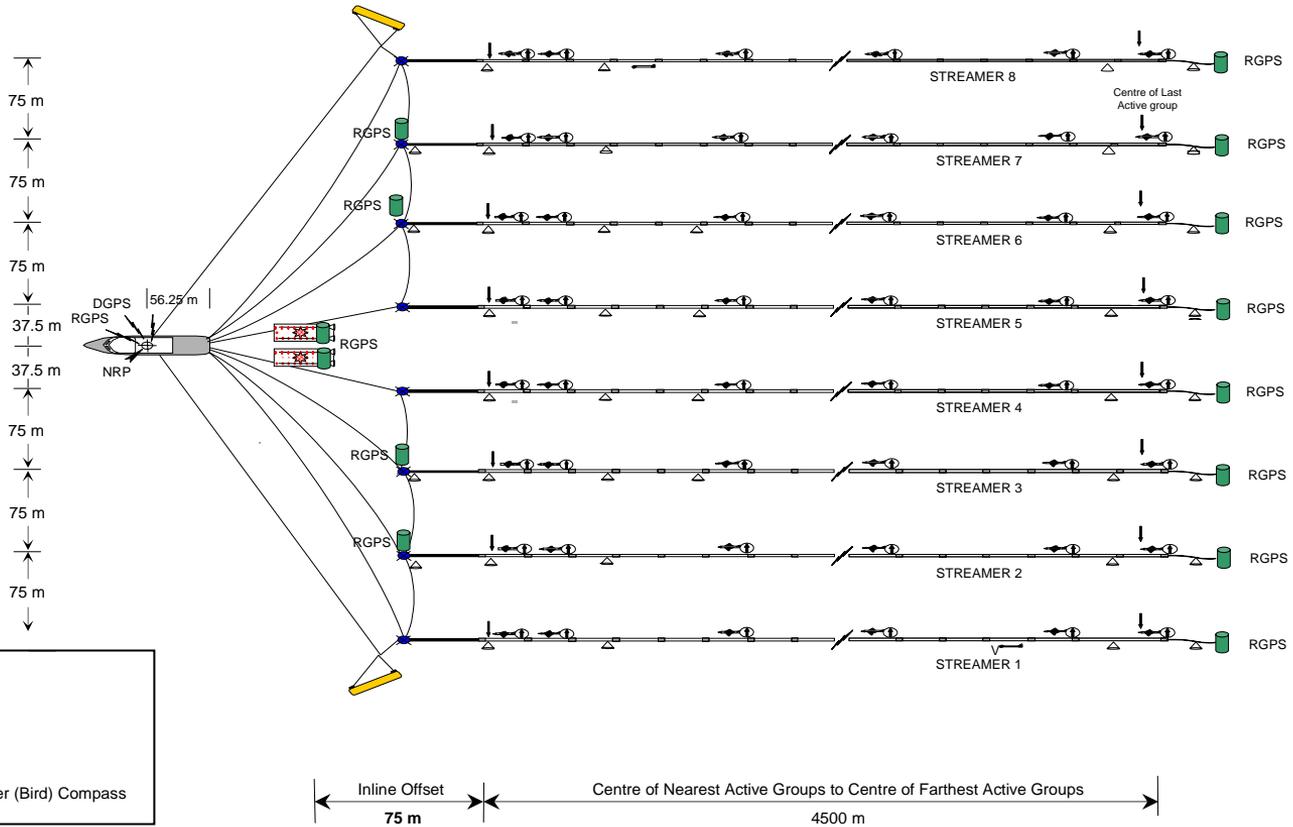
Page 5
Created: 05-JUL-06
NavDef #12

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



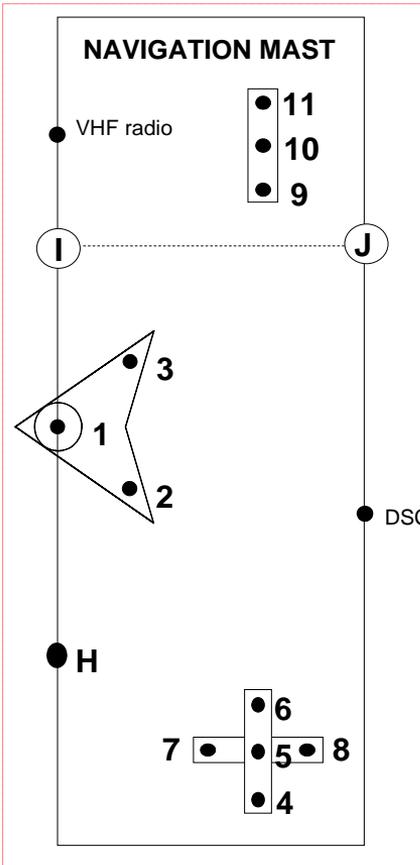
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	28-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	04-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 05-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	160		Onboard Representative	NavDef #12
JOB # :	20323	TO SEQ :	189		Client: <i>Print</i> <i>Sign</i>	



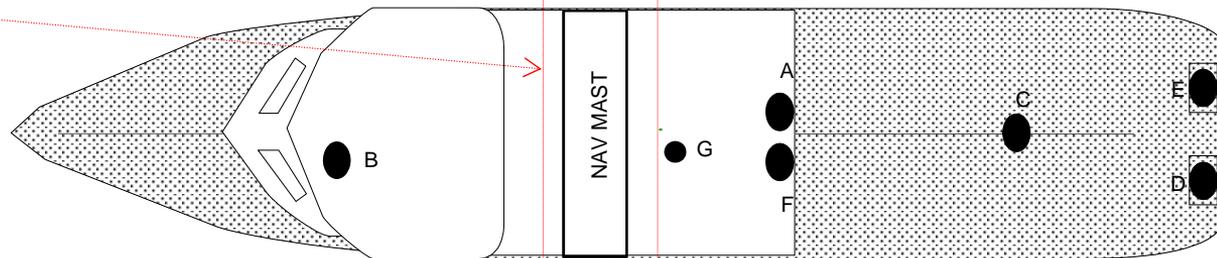
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	28-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 7
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	04-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 05-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	160		Onboard Representative	NavDef #12
JOB # :	20323	TO SEQ :	189		Client: <i>Print</i> <i>Sign</i>	

Antenna Offsets

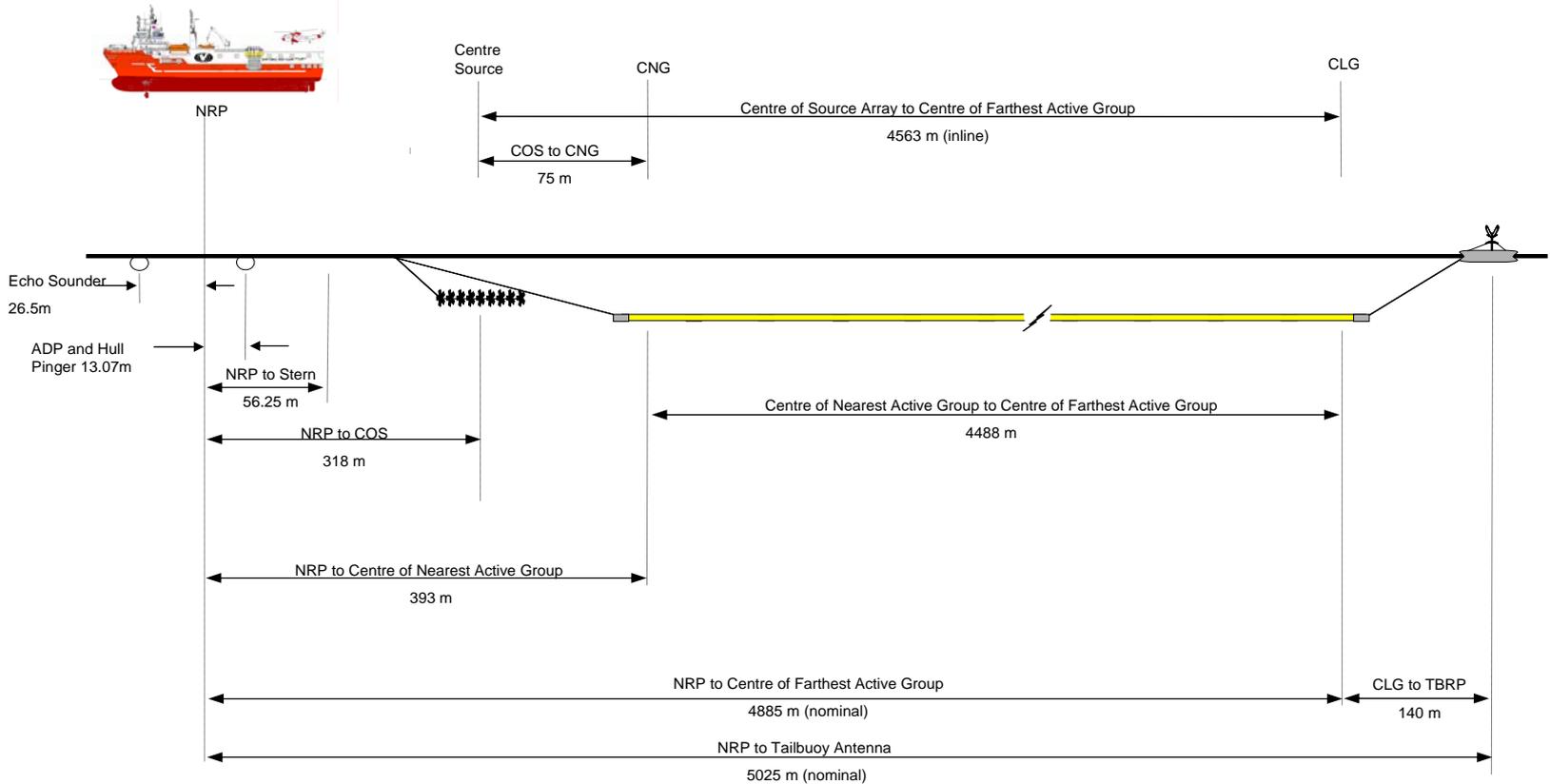
Esso Australia Pty Ltd – 2006 Bream 3D



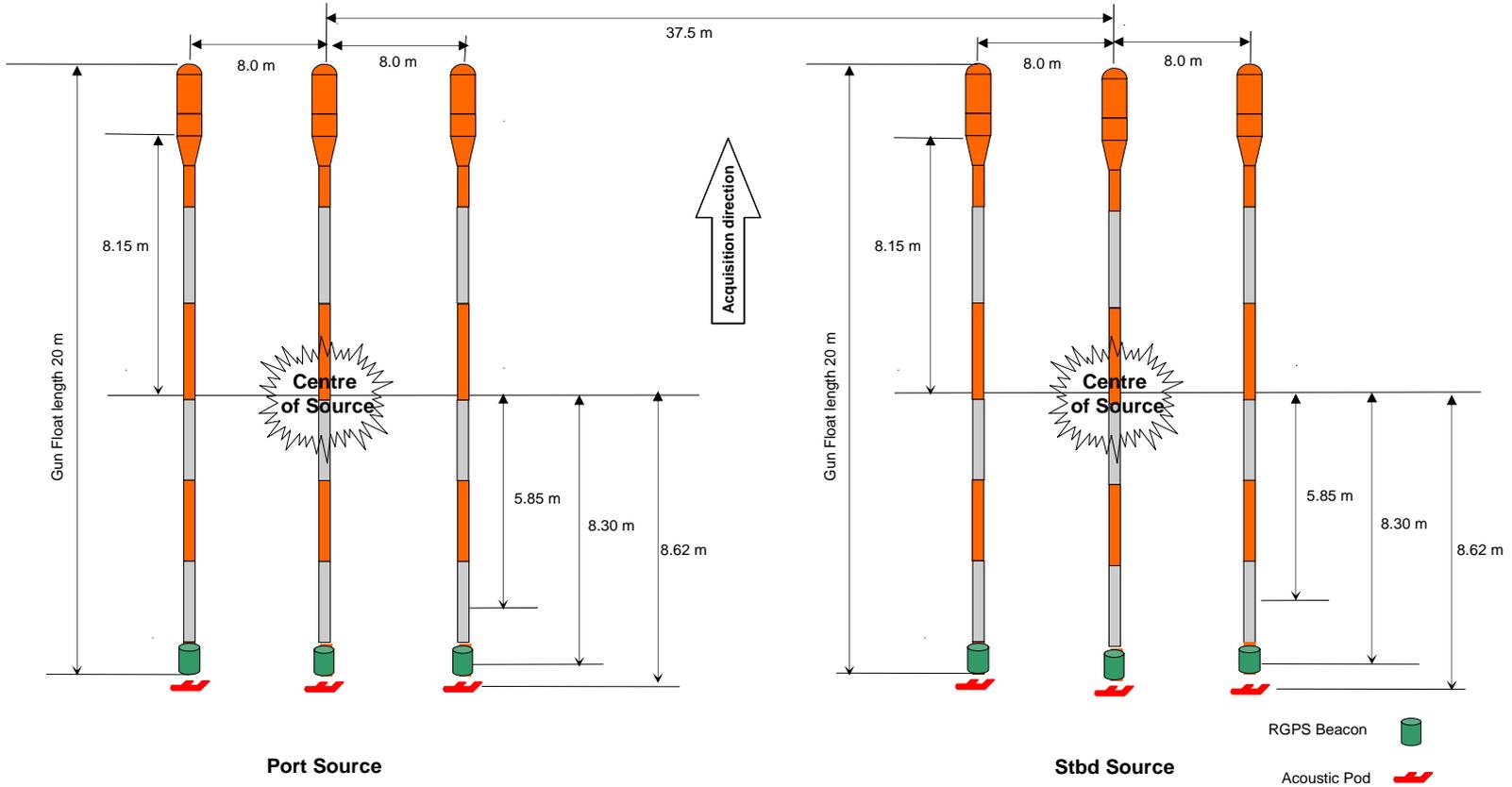
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	28-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	04-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 05-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	160		Onboard Representative	
JOB # :	20323	TO SEQ :	189		Client: <i>Print</i> <i>Sign</i>	NavDef #12



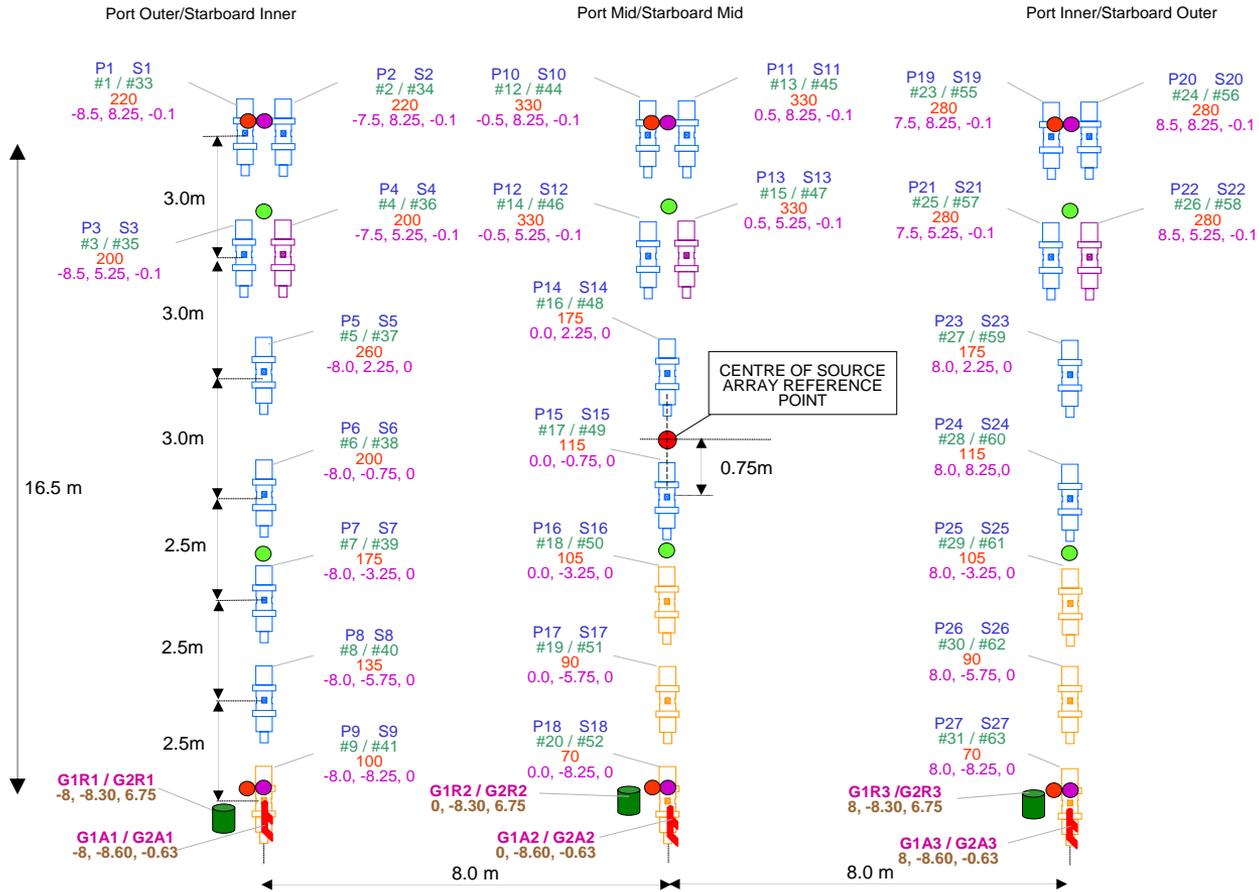
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	28-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	04-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 05-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	160		Onboard Representative	NavDef #12
JOB # :	20323	TO SEQ :	189		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	28-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	04-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 05-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	160		Onboard Representative	NavDef #12
JOB # :	20323	TO SEQ :	189		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

-  Depth
-  Pressure
-  Near Field Hydrophone



rGPS Pod



Acoustic Pod

Gun Detail

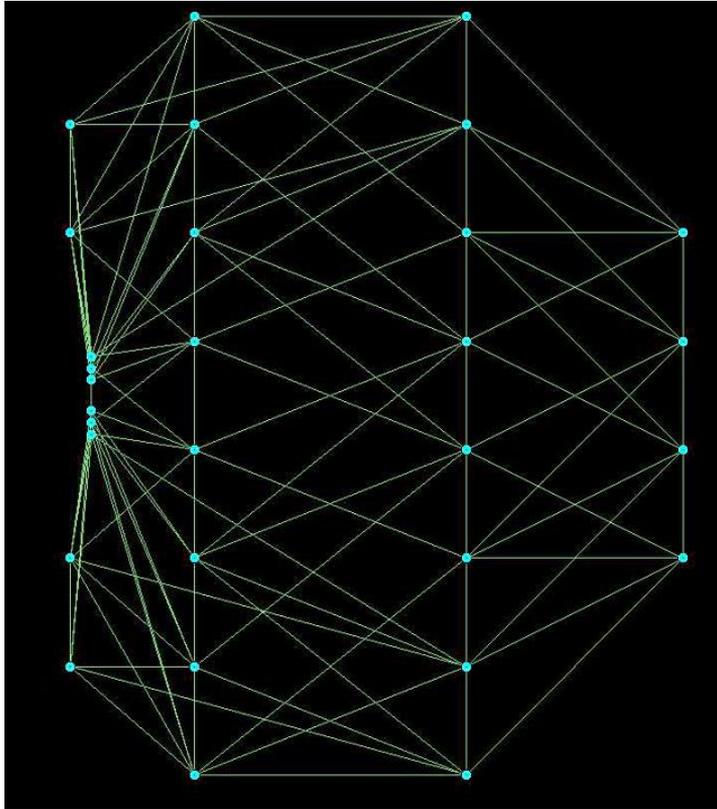
Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

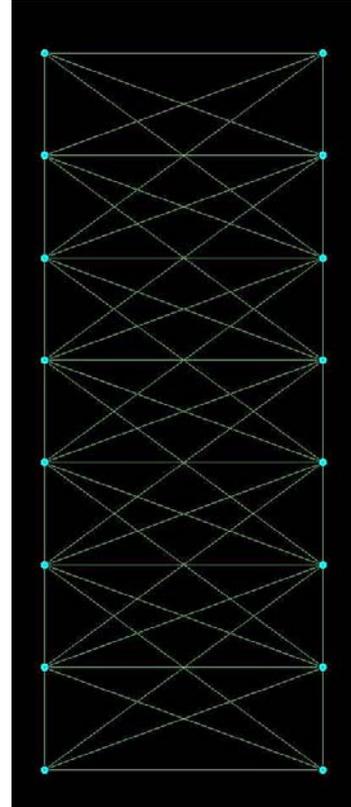
-  1500LL – Active
-  1500LL – Spare
-  1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	28-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	04-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 05-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	160		Onboard Representative	NavDef #12
JOB # :	20323	TO SEQ :	189		Client: <i>Print</i> <i>Sign</i>	

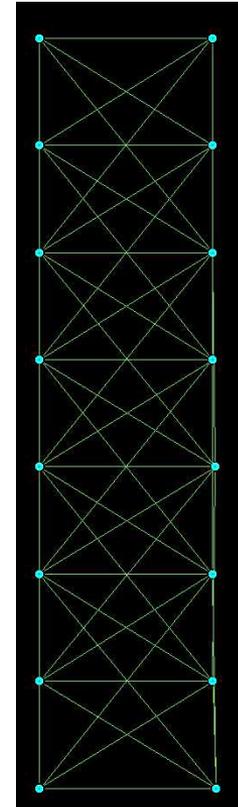
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	28-JUN-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	04-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 05-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	160		Onboard Representative	NavDef #12
JOB # :	20323	TO SEQ :	189		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 13

Esso Australia Pty Ltd – 2006 Bream 3D

**Veritas Geophysical
(Asia Pacific) Pte. Ltd.**

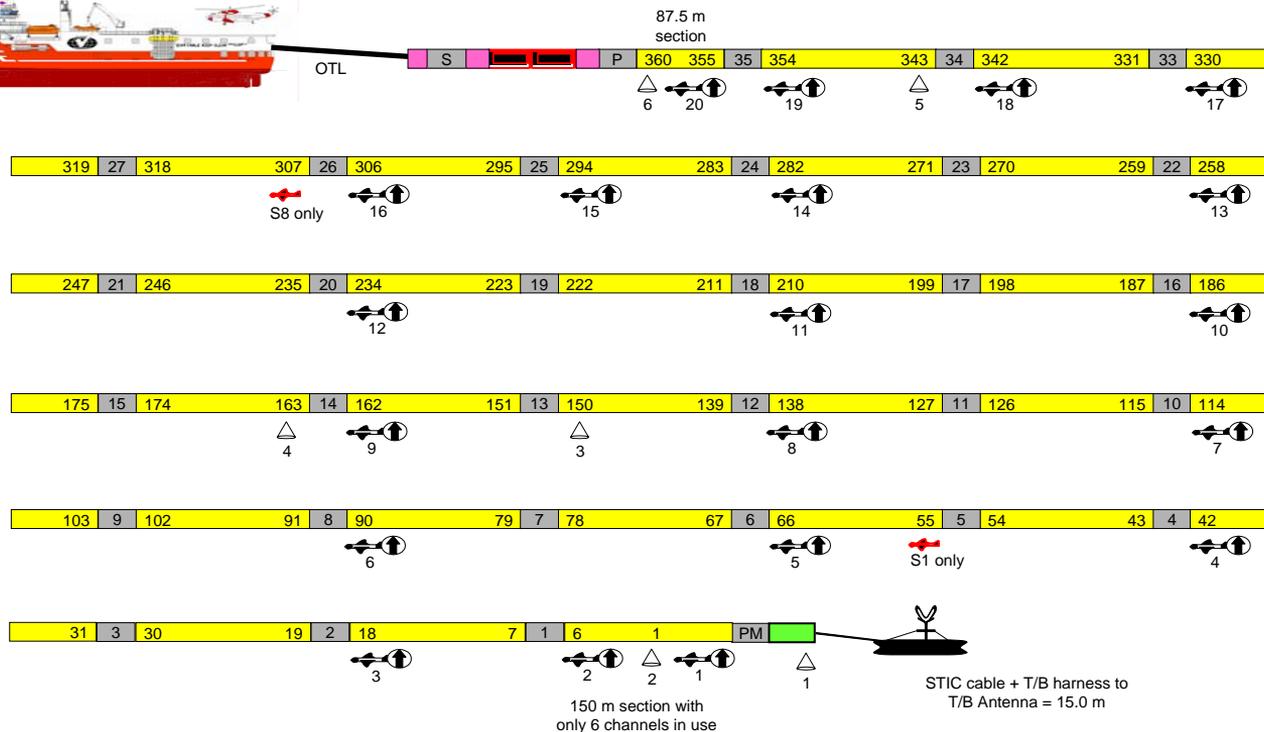
www.veritasdgc.com

Summary of changes

- **2D line navigation definition. Dual sources deployed but only starboard source active.**
- **Shot layback changed from –355.4m to –318m.**

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	05-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	190		Onboard Representative	NavDef #13
JOB # :	20323	TO SEQ :	192		Client: <i>Print</i> <i>Sign</i>	

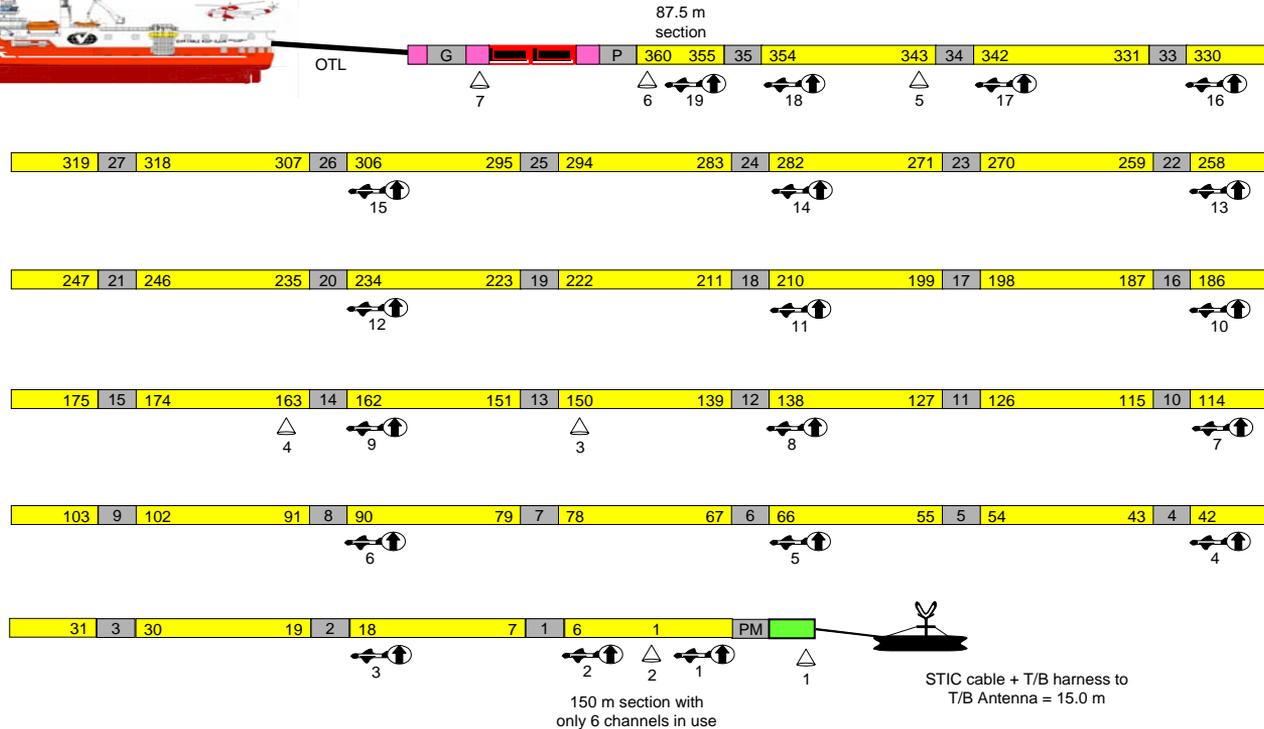
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	05-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	190		Onboard Representative	NavDef #13
JOB # :	20323	TO SEQ :	192		Client: <i>Print</i> <i>Sign</i>	

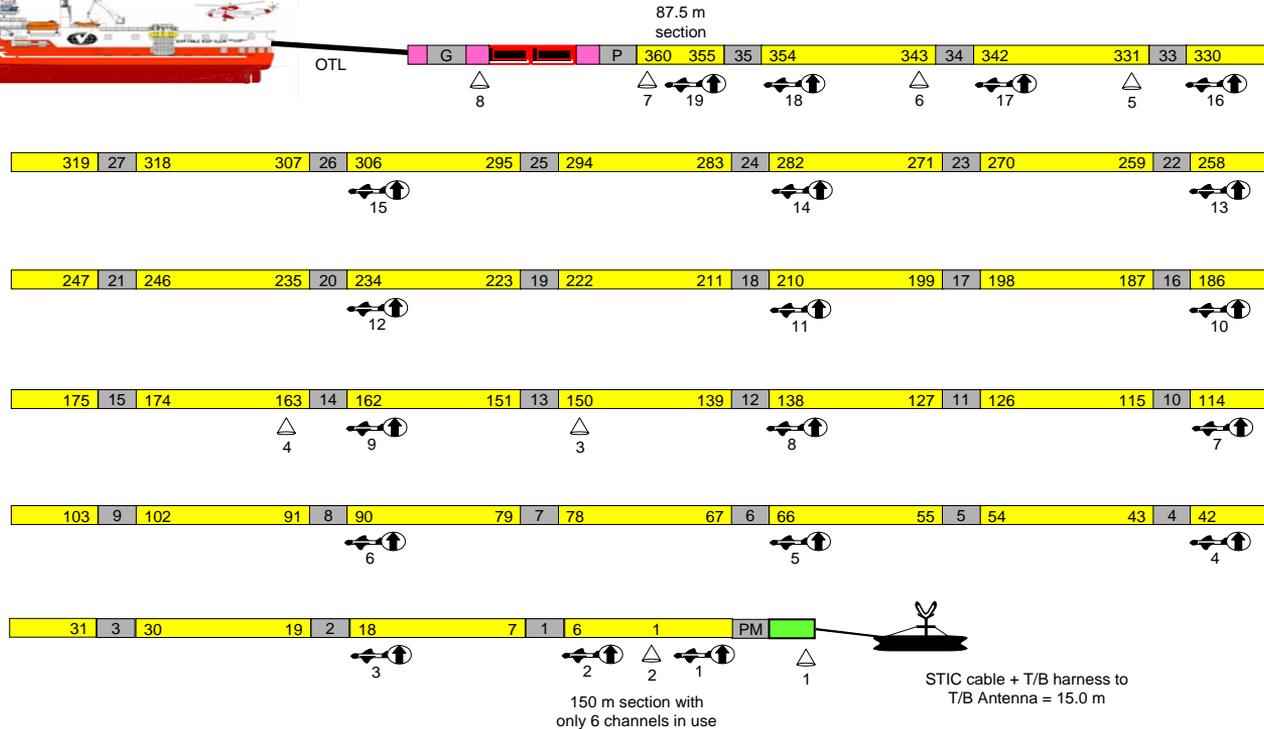
Streamer 2 and 7: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 3
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	05-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	190		Onboard Representative	NavDef #13
JOB # :	20323	TO SEQ :	192		Client: <i>Print</i> <i>Sign</i>	

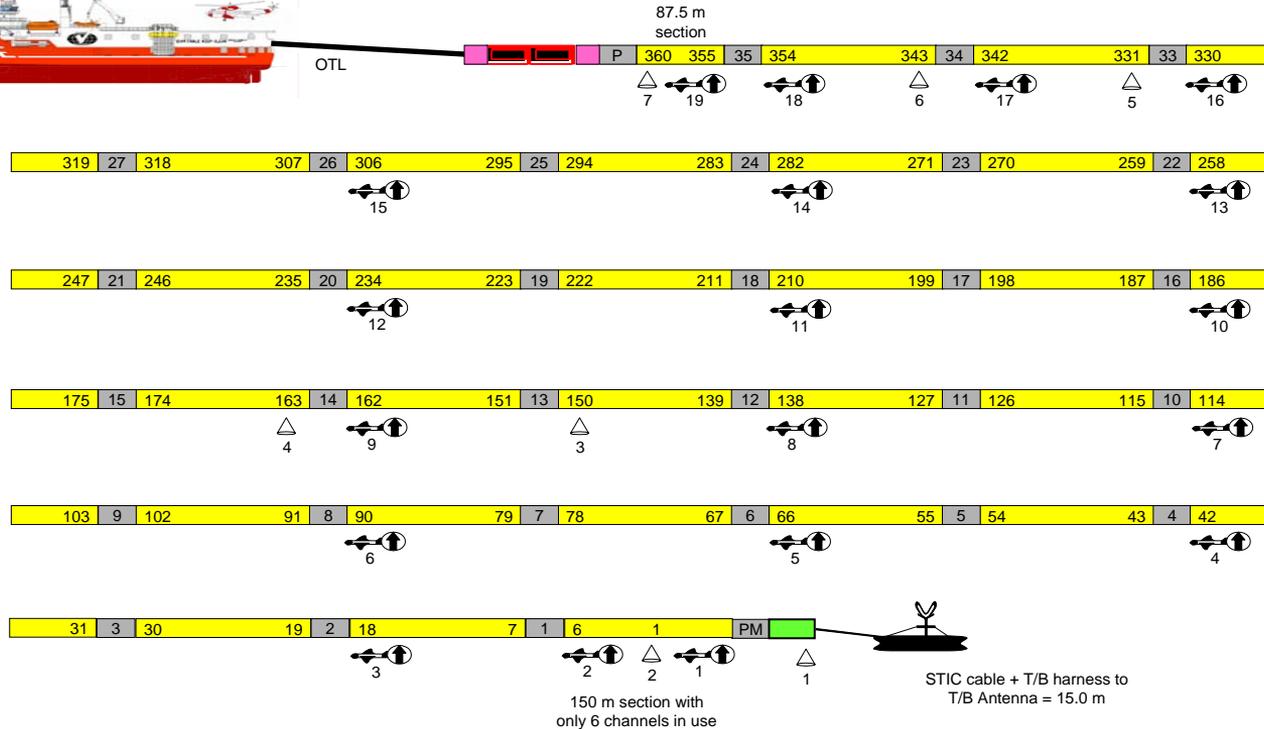
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	05-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	190		Onboard Representative	NavDef #13
JOB # :	20323	TO SEQ :	192	Client: <i>Print</i> <i>Sign</i>		

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

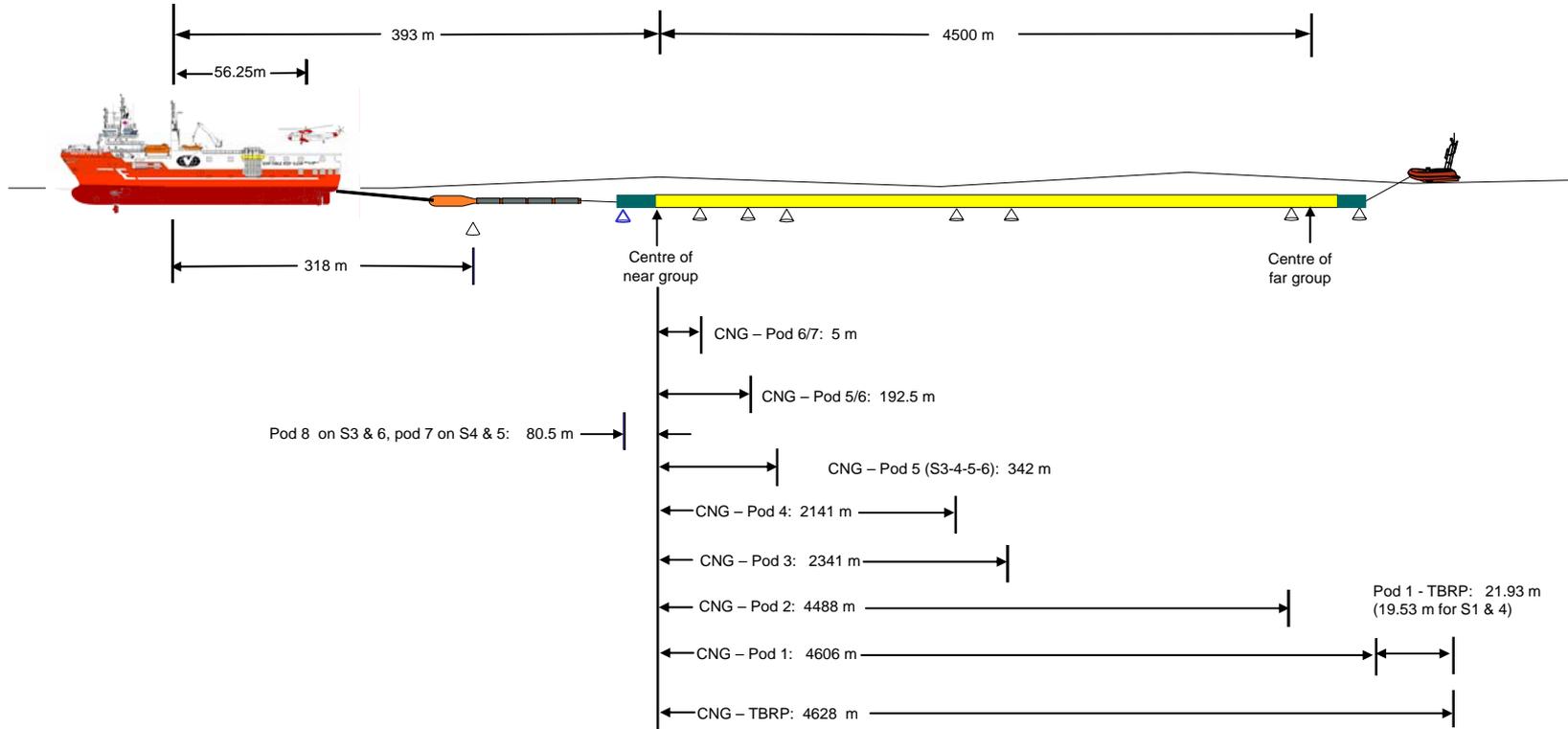


- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

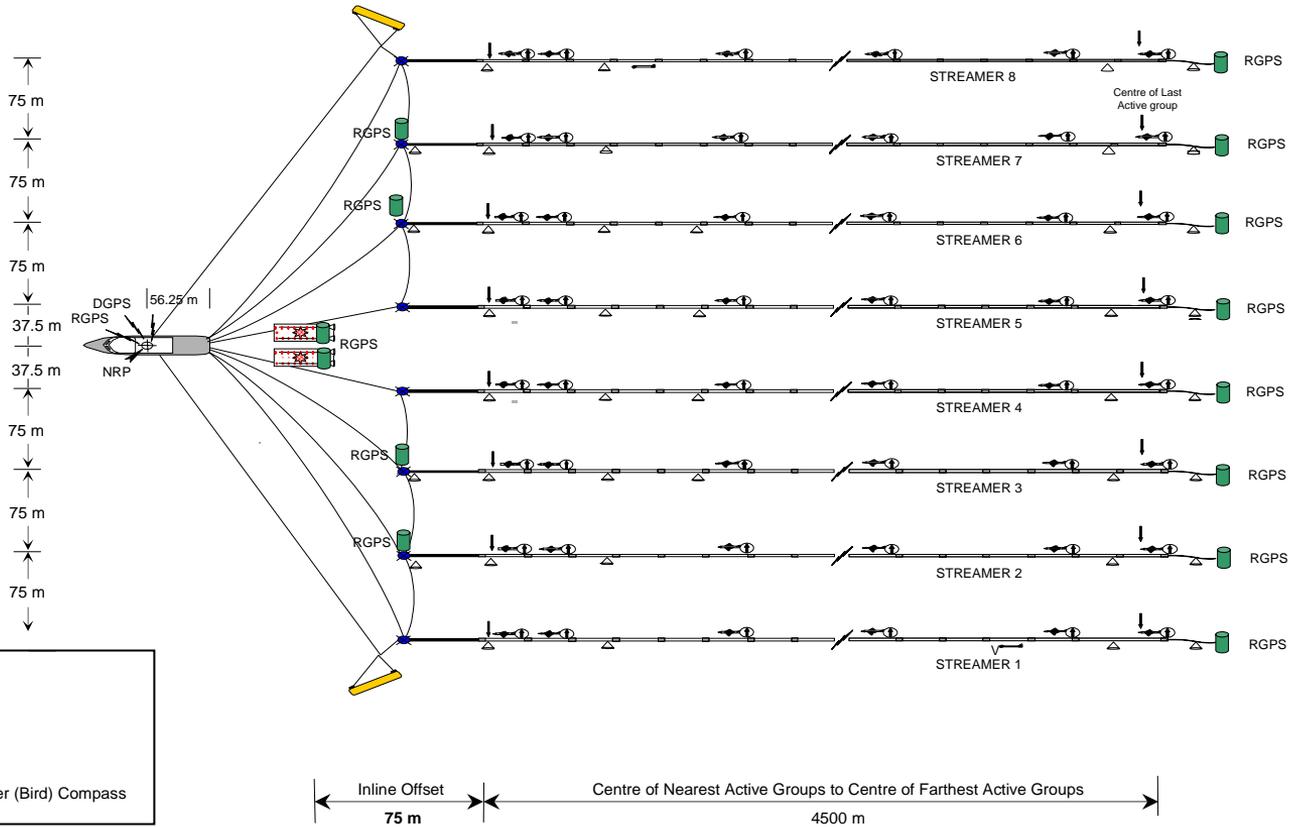
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 5
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	05-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	190		Onboard Representative	NavDef #13
JOB # :	20323	TO SEQ :	192		Client: <i>Print</i> <i>Sign</i>	

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



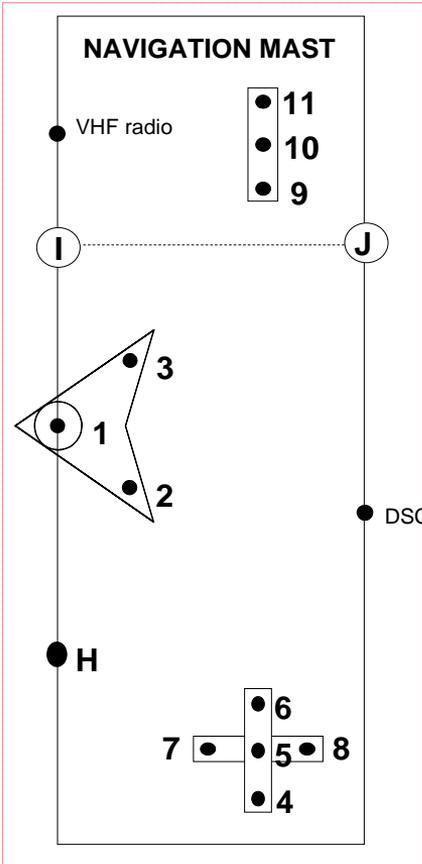
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	05-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	190		Onboard Representative	NavDef #13
JOB # :	20323	TO SEQ :	192		Client: <i>Print</i> <i>Sign</i>	



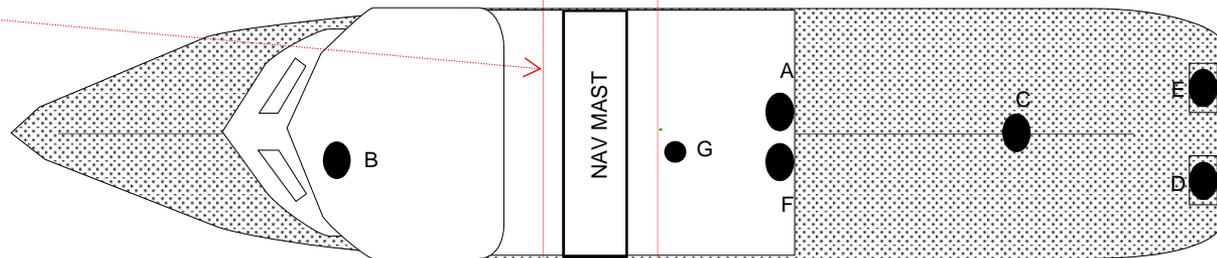
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 7
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	05-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	190		Onboard Representative	NavDef #13
JOB # :	20323	TO SEQ :	192		Client: <i>Print</i> <i>Sign</i>	

Antenna Offsets

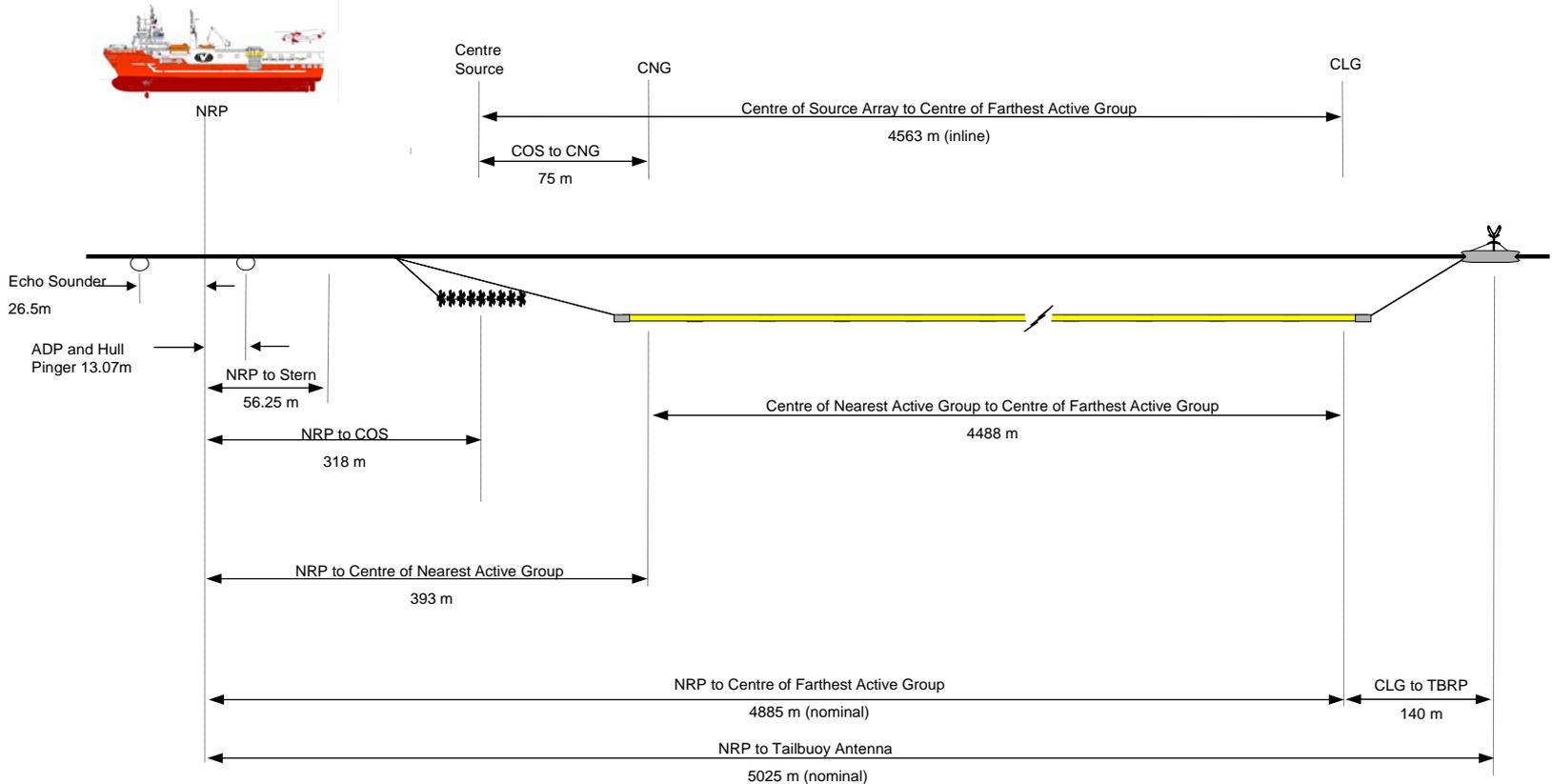
Esso Australia Pty Ltd – 2006 Bream 3D



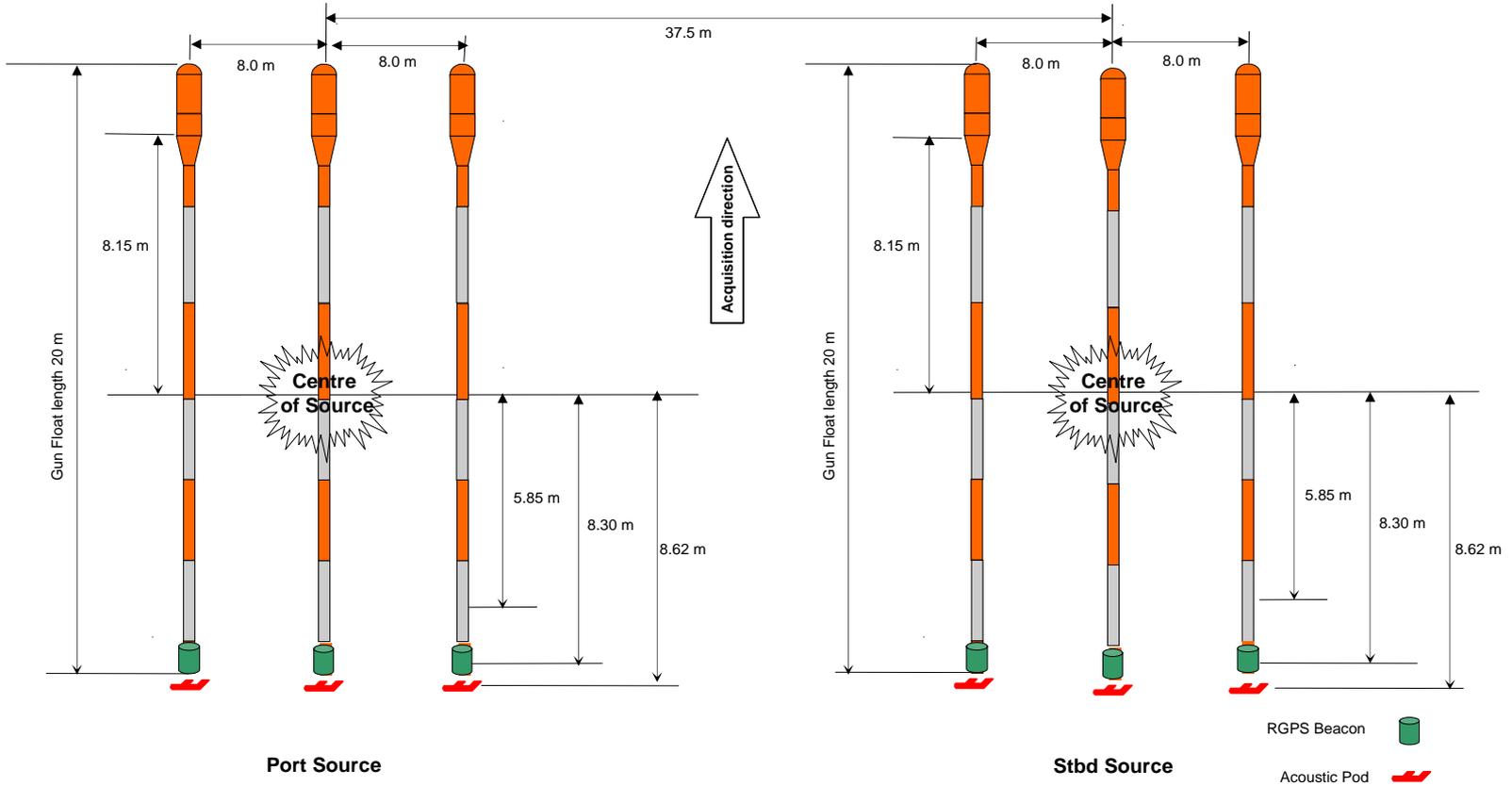
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	05-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	190		Onboard Representative	NavDef #13
JOB # :	20323	TO SEQ :	192		Client: <i>Print</i> <i>Sign</i>	



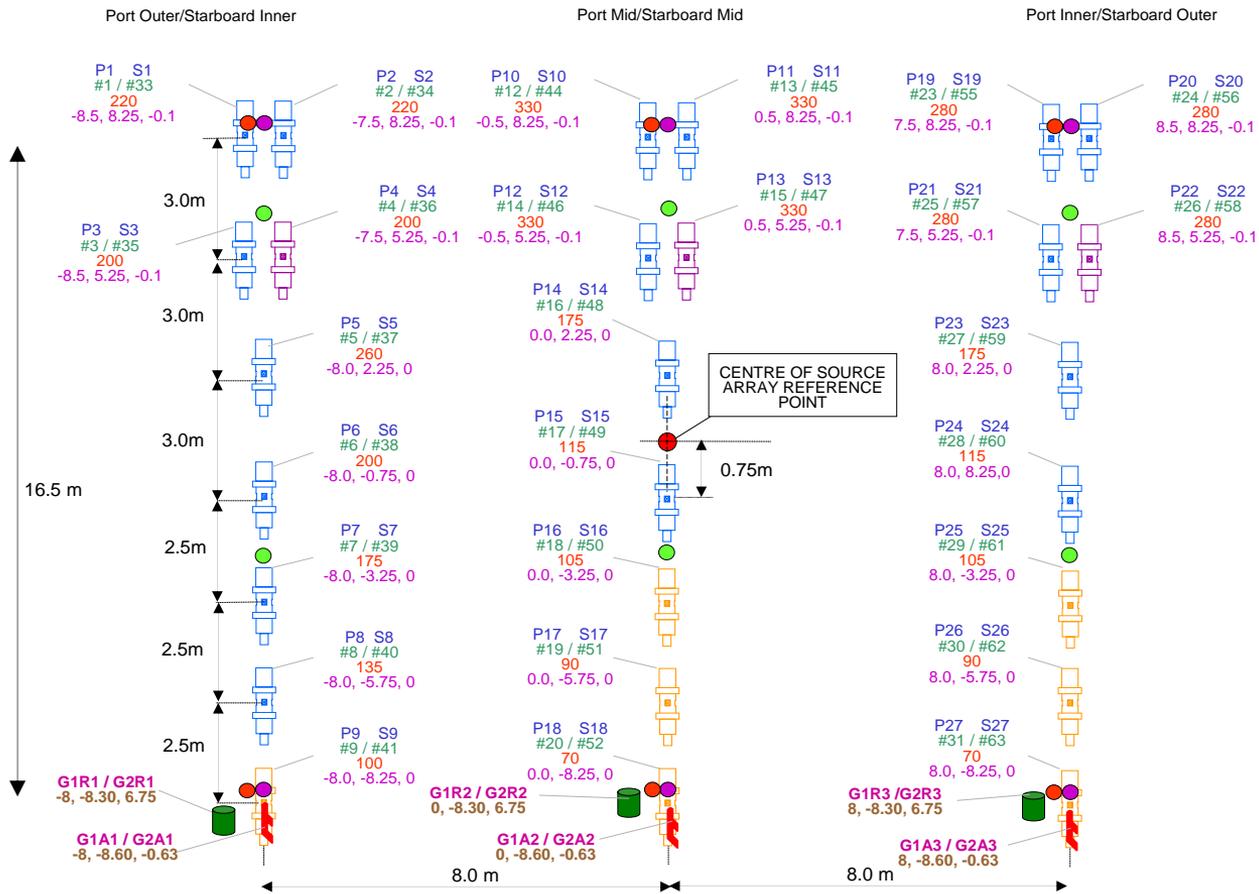
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	05-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	190		Onboard Representative	NavDef #13
JOB # :	20323	TO SEQ :	192		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	05-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	190		Onboard Representative	NavDef #13
JOB # :	20323	TO SEQ :	192		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

-  Depth
-  Pressure
-  Near Field Hydrophone

-  rGPS Pod
-  Acoustic Pod

Gun Detail

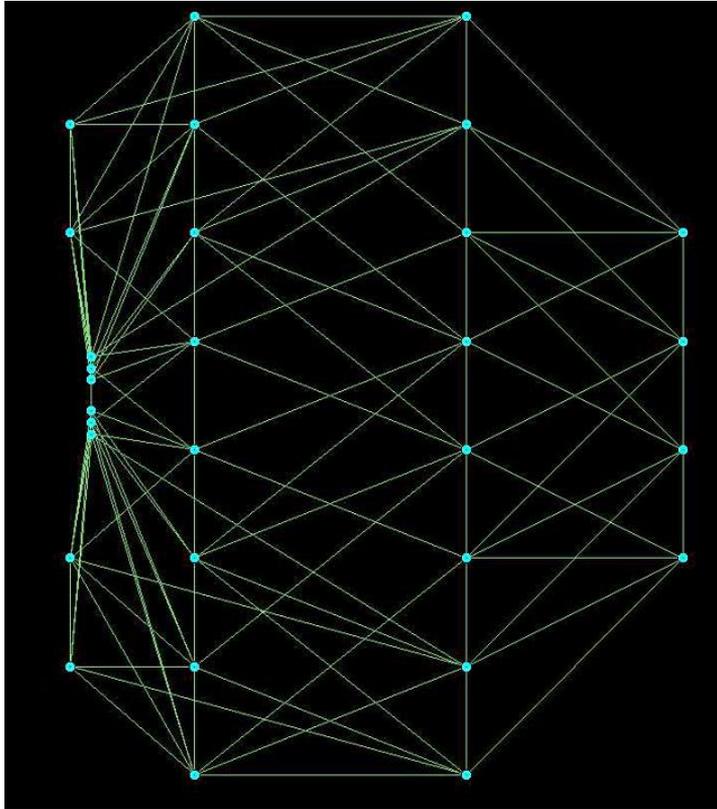
Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

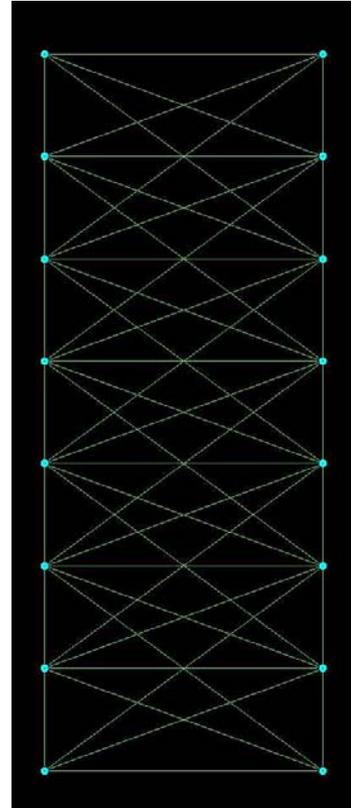
-  1500LL – Active
-  1500LL – Spare
-  1900LL - Active

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 11
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	05-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	190		Onboard Representative	NavDef #13
JOB # :	20323	TO SEQ :	192		Client: <i>Print</i> <i>Sign</i>	

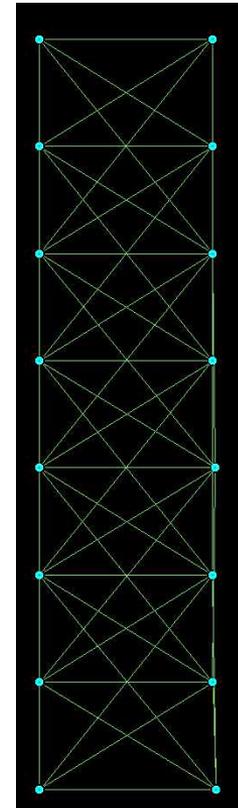
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	04-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	05-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	190		Onboard Representative	NavDef #13
JOB # :	20323	TO SEQ :	192		Client: <i>Print</i> <i>Sign</i>	



Navigation Definition 14

Esso Australia Pty Ltd – 2006 Bream 3D

**Veritas Geophysical
(Asia Pacific) Pte. Ltd.**

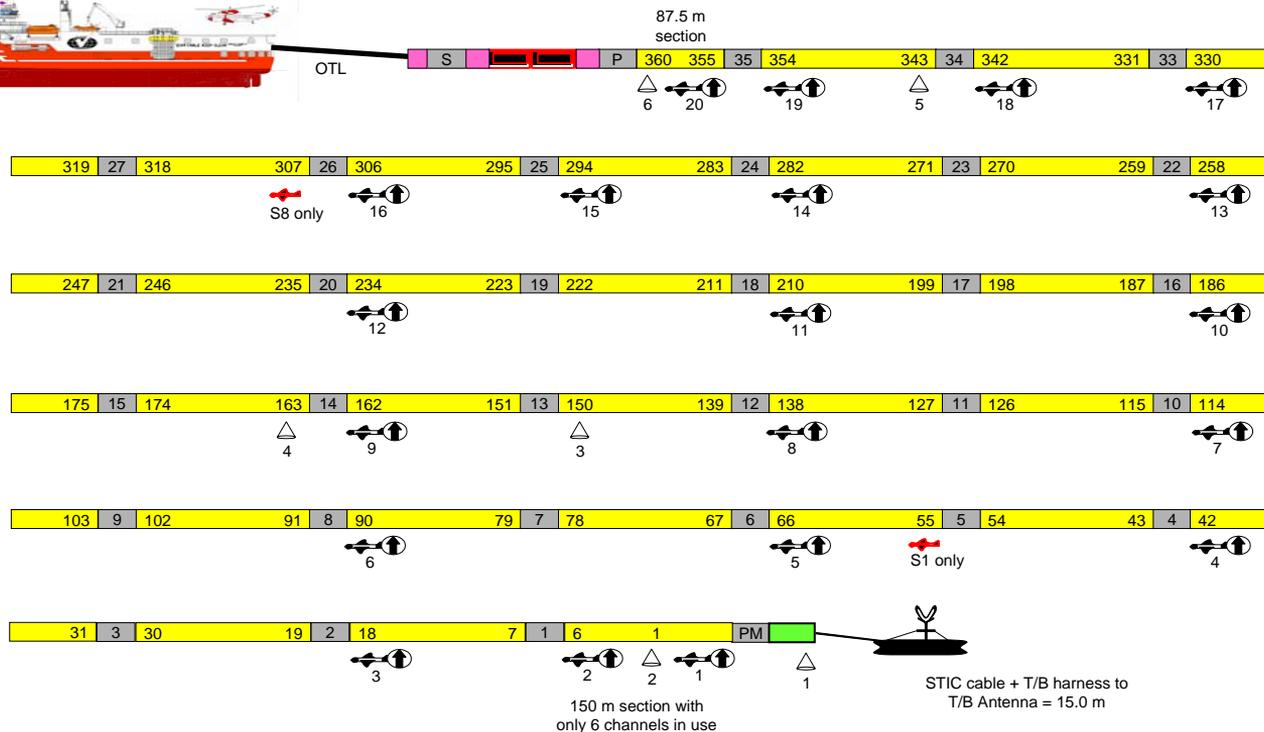
www.veritasdgc.com

Summary of changes

- 3D navigation definition. Dual source active.
- Shot layback changed from –318m to –355.4m.

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	05-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 1
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	06-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	193		Onboard Representative	NavDef #14
JOB # :	20323	TO SEQ :	198		Client: <i>Print</i> <i>Sign</i>	

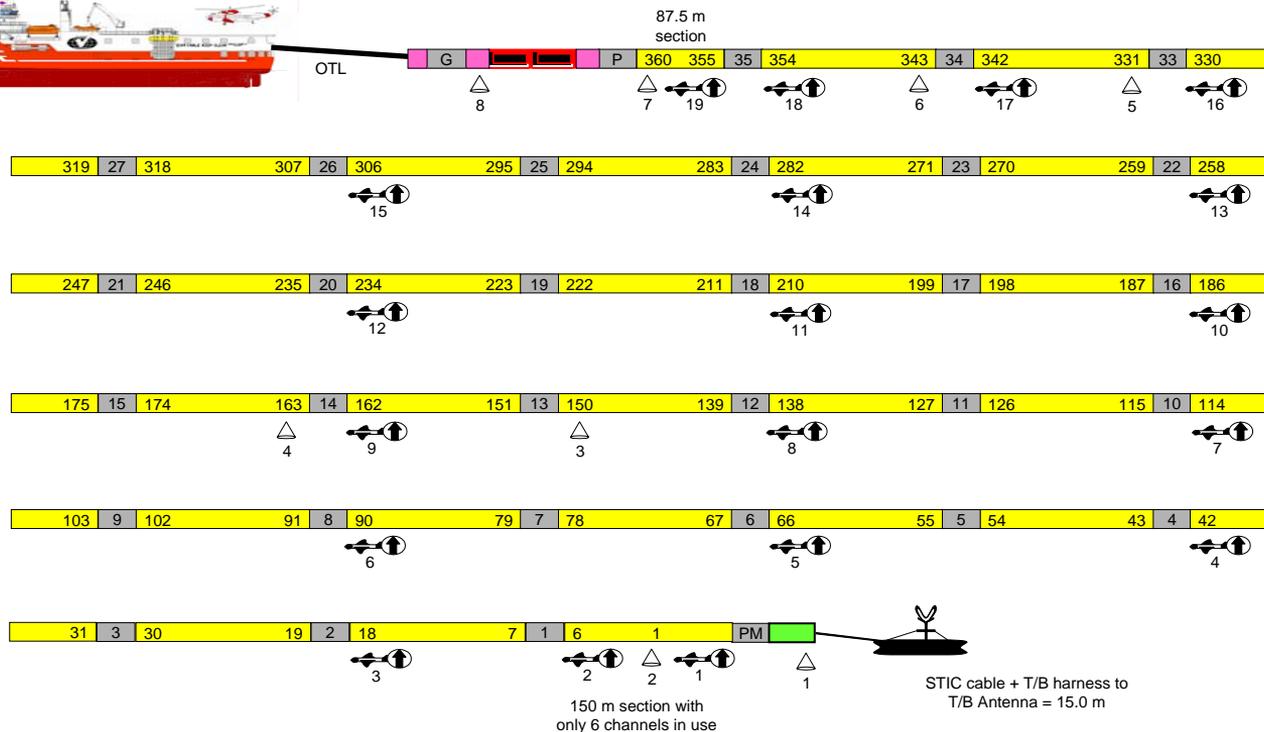
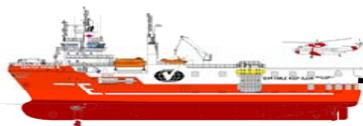
Streamer 1 and 8: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



-  TAP can (0.35m)
-  Streamer tension unit, STU (0.35m)
-  Passive Module (0.35m)
-  Power Module (0.35m)
-  Active Module (0.35m)
-  RVIM Stretch section (25m static)
-  Solid active (150m)
- 109 Group/trace number
-  Stretch (50m static)
-  Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	05-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 2
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	06-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	193		Onboard Representative	NavDef #14
JOB # :	20323	TO SEQ :	198		Client: <i>Print</i> <i>Sign</i>	

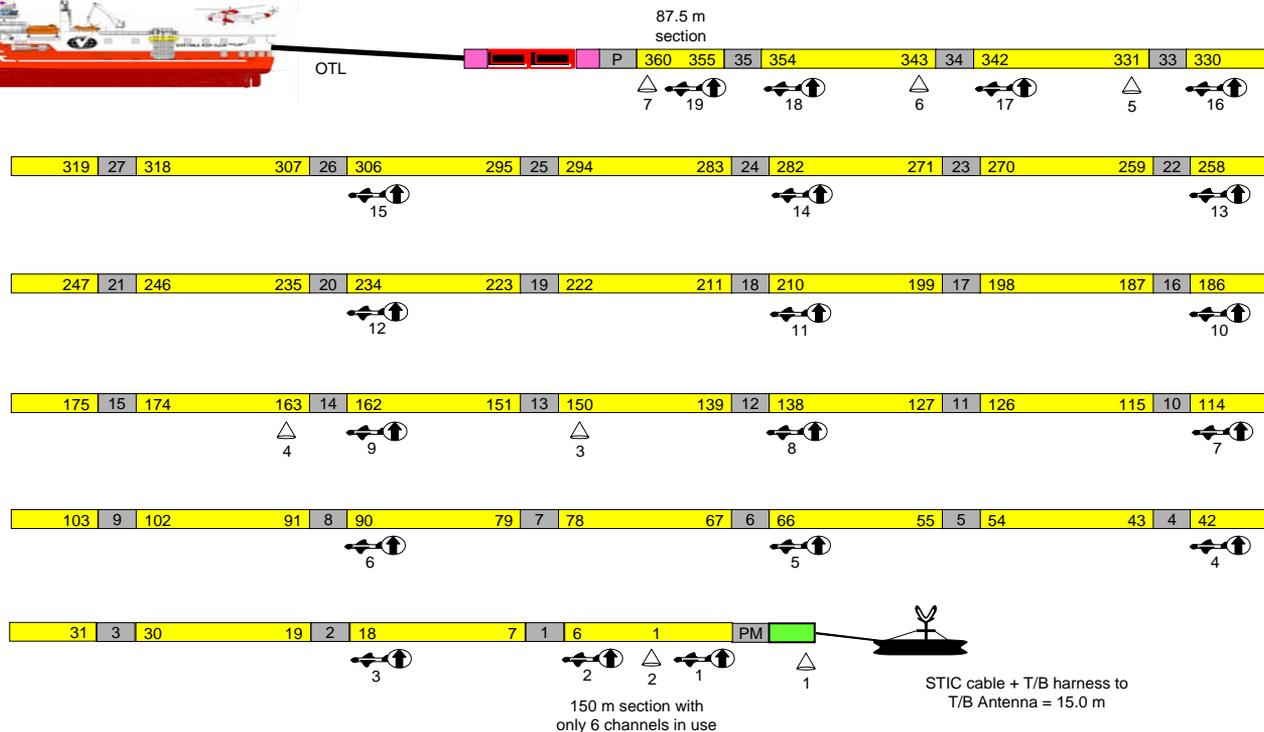
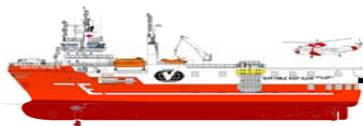
Streamer 3 and 6: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D



- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod
- 6

VESSEL :	SR/V Veritas Viking 2	FROM DATE :	05-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 4
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	06-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	193		Onboard Representative	NavDef #14
JOB # :	20323	TO SEQ :	198		Client: <i>Print</i> <i>Sign</i>	

Streamer 4 and 5: 4500 meters, Esso Australia Pty Ltd – 2006 Bream 3D

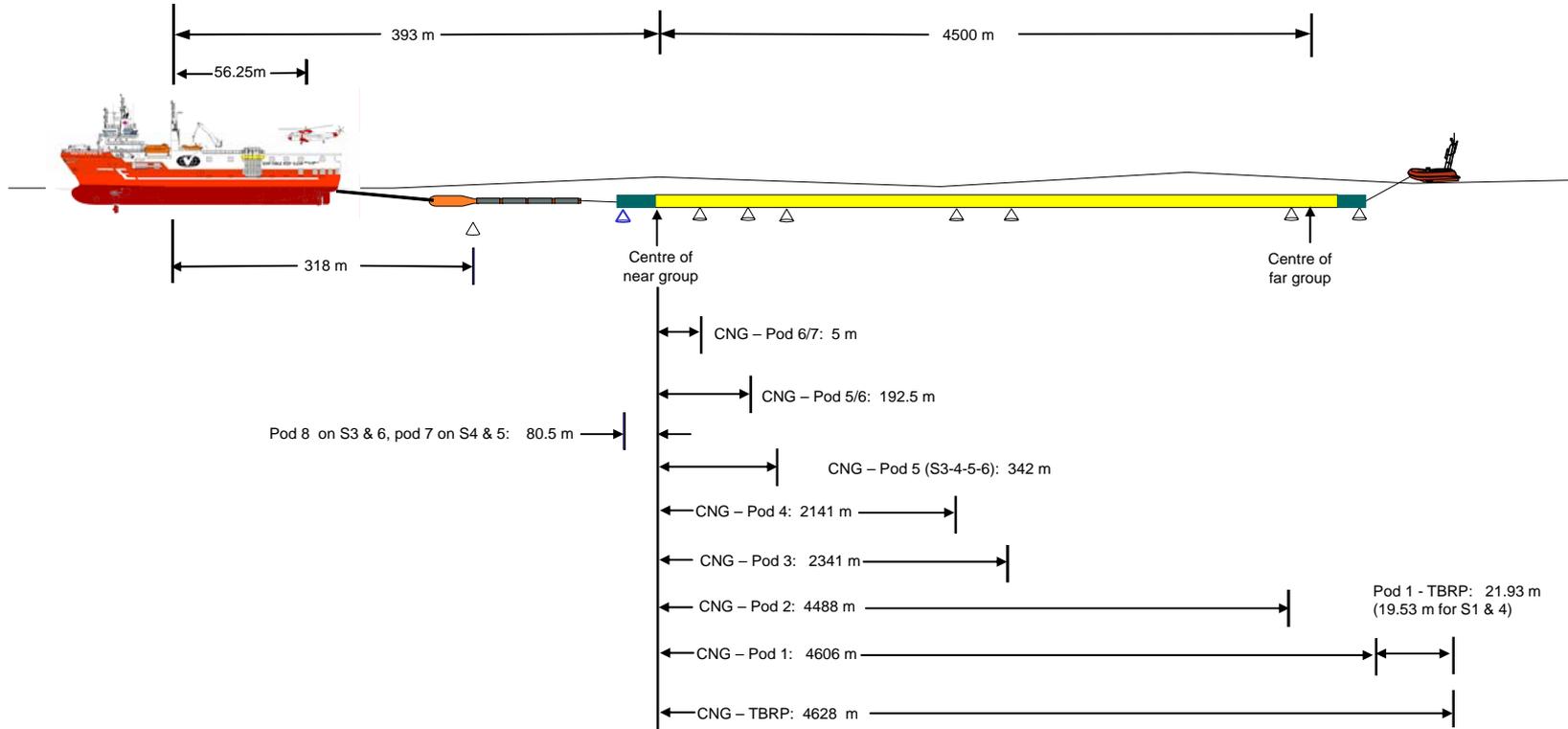


- G TAP can (0.35m)
- S Streamer tension unit, STU (0.35m)
- P Passive Module (0.35m)
- PM Power Module (0.35m)
- 13 Active Module (0.35m)
- RVIM Stretch section (25m static)
- Solid active (150m)
- 109 Group/trace number
- Stretch (50m static)
- Insert section (1m)
-  Velocimeter
-  Depth controller, depth transducer & compass
-  Acoustic pod

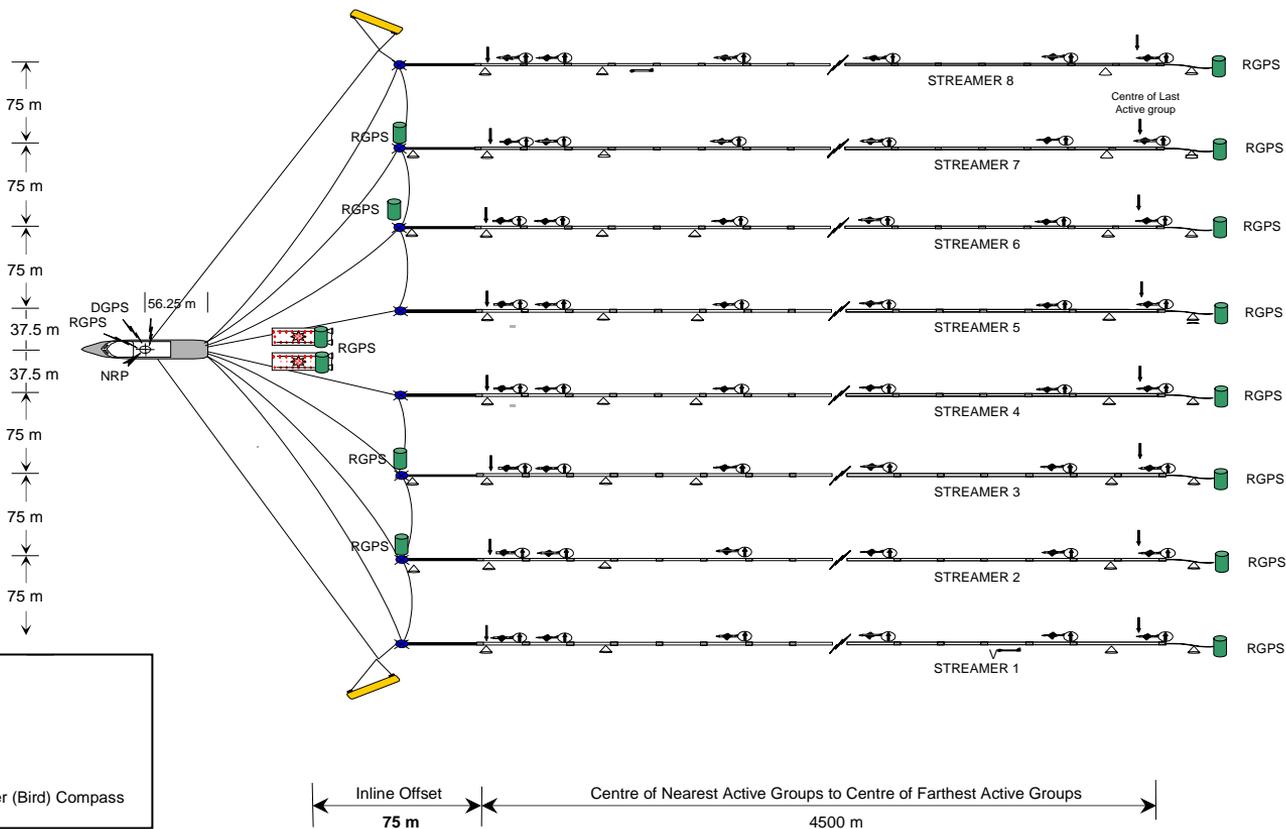
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	05-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 5
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	06-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	193		Onboard Representative	NavDef #14
JOB # :	20323	TO SEQ :	198		Client: <i>Print</i> <i>Sign</i>	

Nominal Inline Acoustic Offsets

Esso Australia Pty Ltd – 2006 Bream 3D



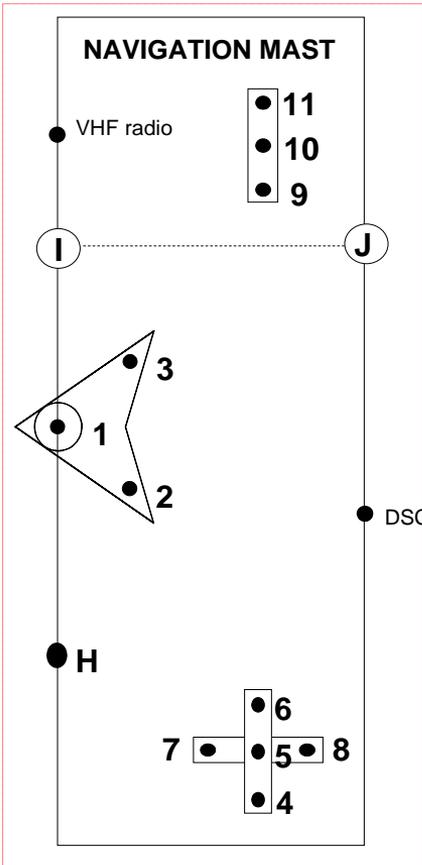
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	05-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 6
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	06-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	193		Onboard Representative	
JOB # :	20323	TO SEQ :	198		Client: <i>Print</i> <i>Sign</i>	NavDef #14



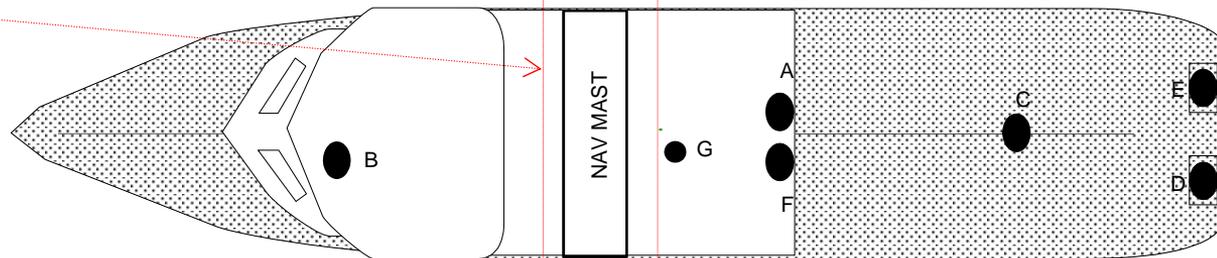
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	05-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 7
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	06-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	193		Onboard Representative	NavDef #14
JOB # :	20323	TO SEQ :	198		Client: <i>Print</i> <i>Sign</i>	

Antenna Offsets

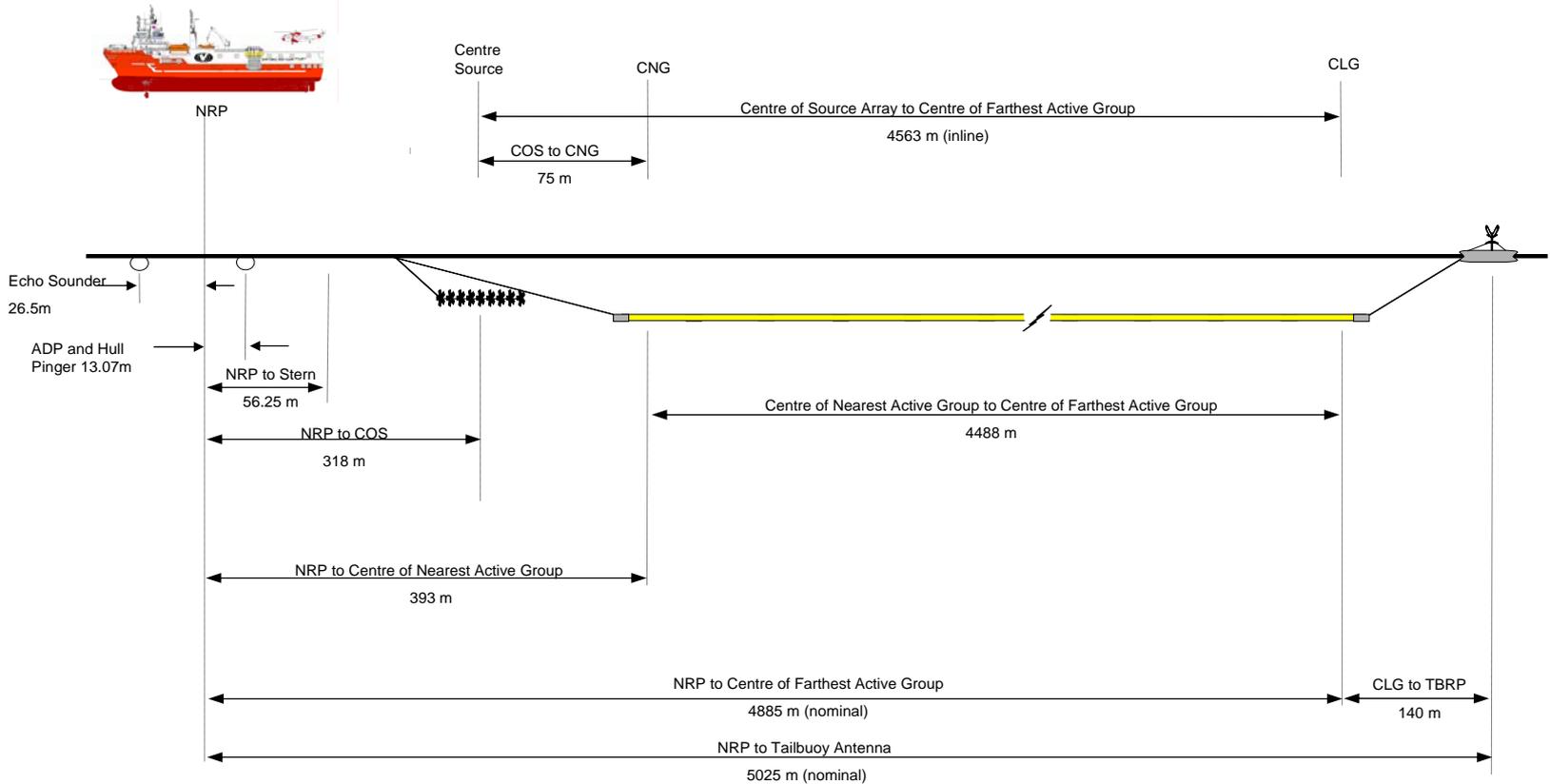
Esso Australia Pty Ltd – 2006 Bream 3D



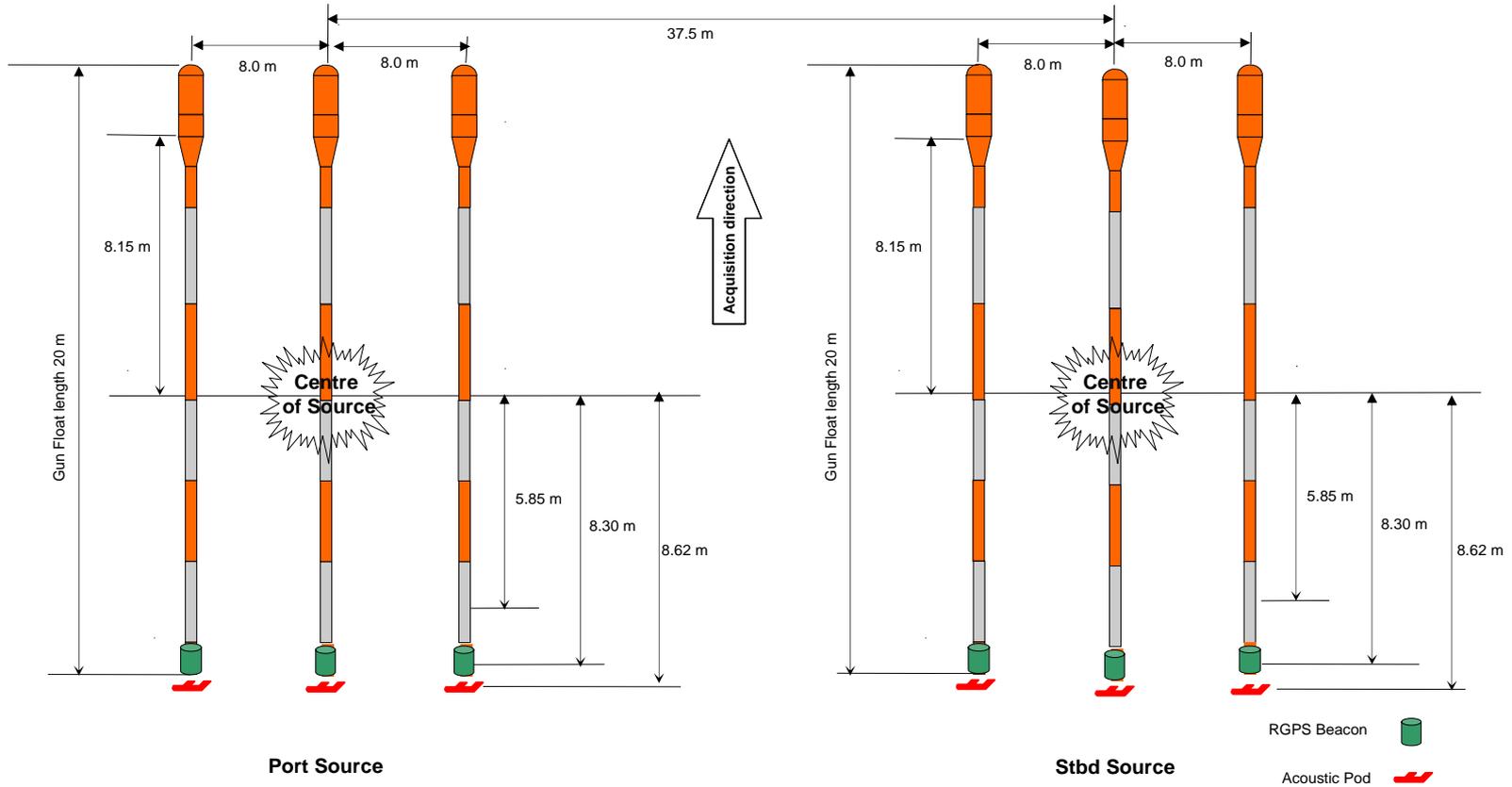
KEY : (all measurements in metres)		LATERAL OFFSET	INLINE OFFSET	HEIGHT
1.	V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
2.	V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
3.	V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
4.	RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
5.	EMPTY	-4.40	-0.70	+26.00
6.	VERIPOS RTCM	-3.93	-0.70	+26.00
7.	V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
8.	EMPTY	-4.40	-1.17	+26.00
9.	EMPTY	3.93	-0.70	+26.00
10.	STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
11.	EMPTY	4.87	-0.70	+26.00
A	EMPTY	0.80	-13.07	-8.00
B	V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C	EMPTY	-0.42	-39.67	+10.11
D	EMPTY	-3.13	-56.25	+9.40
E	EMPTY	3.13	-56.25	+9.40
F	DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G	GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H	RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J	EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	05-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 8
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	06-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	193		Onboard Representative	
JOB # :	20323	TO SEQ :	198		Client: <i>Print</i> <i>Sign</i>	NavDef #14



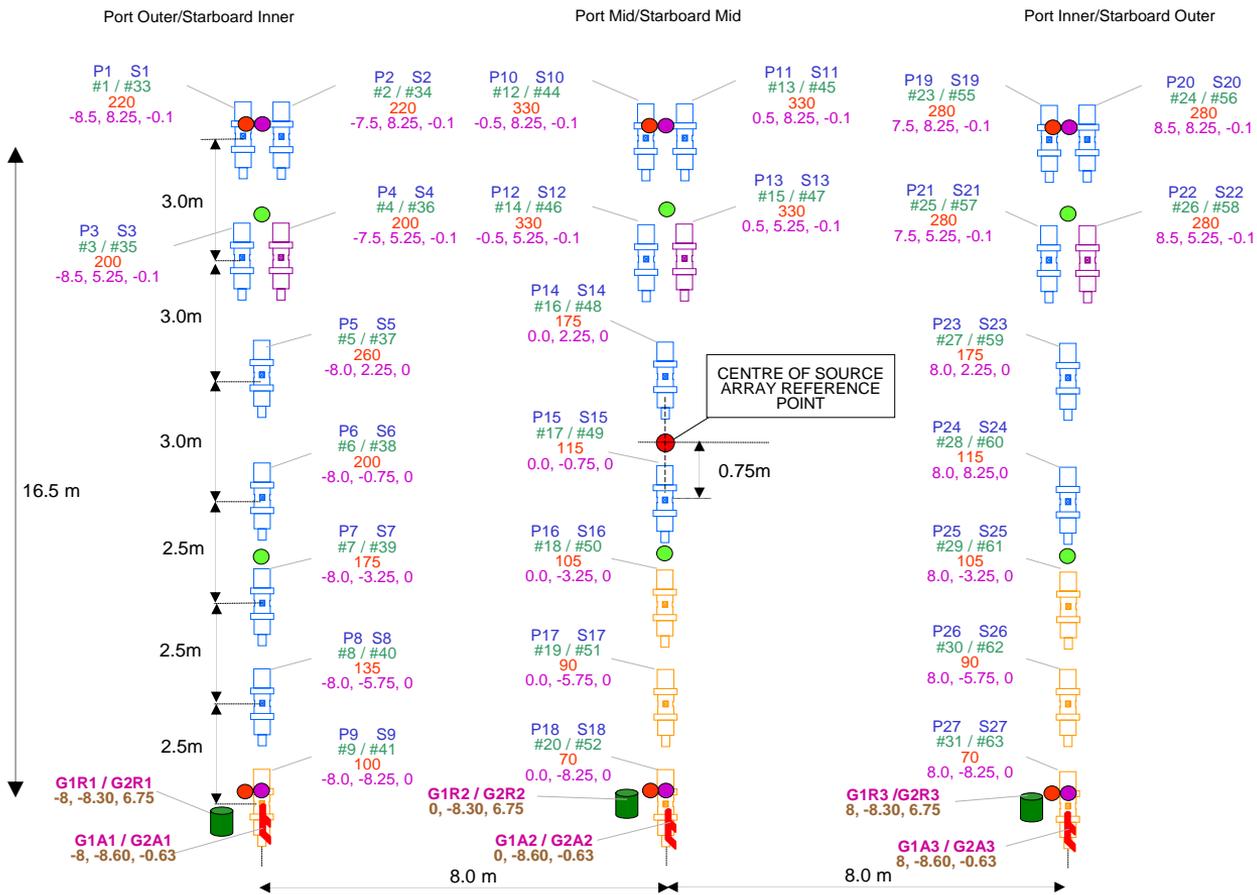
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	05-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 9
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	06-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	193		Onboard Representative	NavDef #14
JOB # :	20323	TO SEQ :	198		Client: <i>Print</i> <i>Sign</i>	



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	05-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 10
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	06-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	193		Onboard Representative	NavDef #14
JOB # :	20323	TO SEQ :	198		Client: <i>Print</i> <i>Sign</i>	

Source array layout

Esso Australia Pty Ltd – 2006 Bream 3D



4450 cu in

Array Sensors

-  Depth
-  Pressure
-  Near Field Hydrophone



rGPS Pod



Acoustic Pod

Gun Detail

Name as in dropout spec
Gun Controller ID
Gun Volume
Position relative to array reference point (x,y,z)

Bolt Gun Model, and Status

-  1500LL – Active
-  1500LL – Spare
-  1900LL - Active

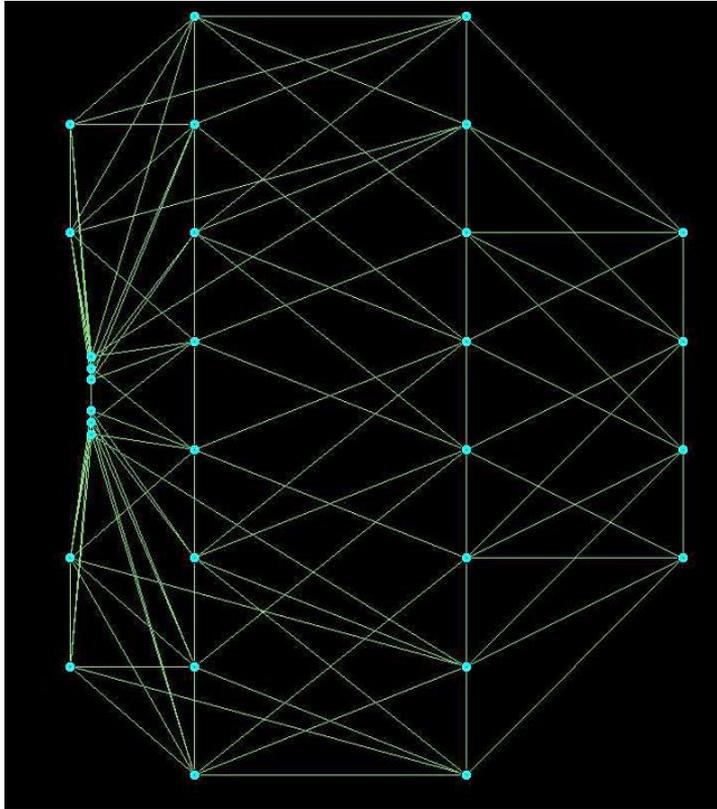
VESSEL :	SR/V Veritas Viking 2	FROM DATE :	05-JUL-2006
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	06-JUL-2006
AREA :	2006 Greater Bream 3D	FROM SEQ :	193
JOB # :	20323	TO SEQ :	198

Not to scale
Measurements in metres

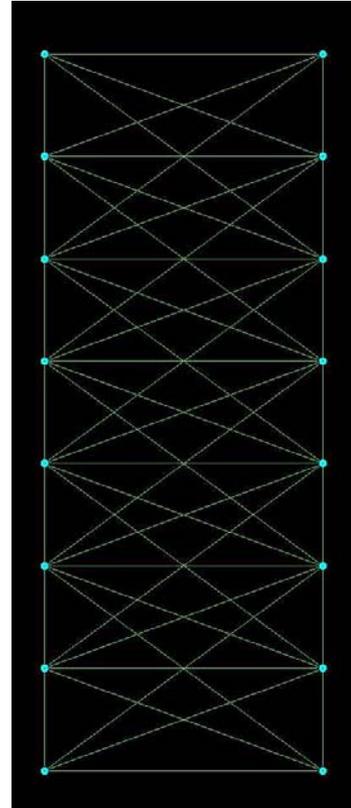
M Bell - Geo Supervisor	
GS: <i>Print</i>	<i>Sign</i>
Onboard Representative	
Client: <i>Print</i>	<i>Sign</i>

Page 11
Created: 06-JUL-06
NavDef #14

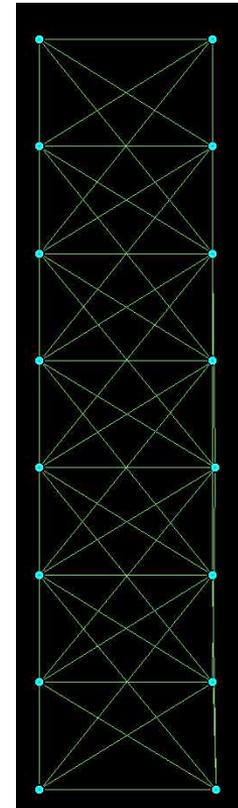
Head Acoustic Network



Mid Acoustic Network



Tail Acoustic Network



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	05-JUL-2006	Not to scale Measurements in metres	M Bell - Geo Supervisor	Page 12
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	06-JUL-2006		GS: <i>Print</i> <i>Sign</i>	Created: 06-JUL-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	193		Onboard Representative	NavDef #14
JOB # :	20323	TO SEQ :	198		Client: <i>Print</i> <i>Sign</i>	

LINE PRODUCTION LOG

(Sorted by Sequence Number)

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job # : 20323,20324

Summary	Prime	Reshoot	Infill	% Prime	% Reshoot	% Infill
CMP-kms	33529.800	124.500	18147.900	104.86%	0.39%	56.76%
Full-fold CMP-kms	30125.250	88.500	16289.400	105.90%	0.31%	57.26%
Full-fold Square-kms	564.848	1.659	305.426	105.90%	0.31%	57.26%
Sail-kms	2182.875	7.781	1134.244	109.23%	0.39%	56.76%
Percent Rel Prime		0.37%	54.12%			

Vessel	Job Number	Prefix	Line Number	Suffix	Type	Low CMP	Nav/Def	Sequence	Julian Day	Date	Direction	SOL Time	EOL Time	FGSP (FF)	LGSP (FF)	LGSP (w/ro)	CDPs	Sail-kms	CMP-kms	Full-Fold CMP-kms	Full-Fold Square-kms	Runout SP	Status	Ground Speed	Comments
SR/V Veritas Viking2	20323 G06A-	1728 P1	Prime	1721	1	1	130	5/10/2006	191	8:33	11:14	1997		881	16	0.0000	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	4.21		
SR/V Veritas Viking2	20323 G06A-	1440 P1	Prime	1433	2	2	130	5/10/2006	10.5	13:35	16:07	1009	2117	16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	4.43		
SR/V Veritas Viking2	20323 G06A-	1728 P2	Prime	1721	3	3	130	5/10/2006	191	23:23	0:00	1997	1712	16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	4.68		
SR/V Veritas Viking2	20323 G06A-	1728 P2	Prime	1721	3	3	131	5/11/2006	191	0:00	1:46	1711		881	16	0.0000	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	4.76		
SR/V Veritas Viking2	20323 G06A-	1440 P2	Prime	1433	3	4	131	5/11/2006	10.5	4:06	5:53	1001	1862	1862	16	16.1625	258.6000	258.6000	4.8488		0	Incomplete	4.89		
SR/V Veritas Viking2	20323 G06A-	1744 P1	Prime	1737	3	5	131	5/11/2006	191	9:33	10:57	1997	1390	1390	16	11.4000	182.4000	182.4000	3.4200		0	Incomplete	4.39		
SR/V Veritas Viking2	20323 G06A-	1744 P1	Prime	1737	3	5	131	5/11/2006	191	11:17	12:11	1238	1001	881	16	6.7125	107.4000	71.4000	1.3388		120	Incomplete	4.02		
SR/V Veritas Viking2	20323 G06A-	1456 P1	Prime	1449	4	6	131	5/11/2006	10.5	14:34	16:56	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.77		
SR/V Veritas Viking2	20323 G06A-	1760 P1	Prime	1753	4	7	131	5/11/2006	191	22:53	0:00	1997	1502	1502	16	9.3000	148.8000	148.8000	2.7900		0	In Progress	4.49		
SR/V Veritas Viking2	20323 G06A-	1760 P1	Prime	1753	4	7	132	5/12/2006	191	0:00	1:24	1501	1001	881	16	11.6438	186.3000	150.3000	2.8181		120	Complete	4.48		
SR/V Veritas Viking2	20323 G06A-	1472 P1	Prime	1465	4	8	132	5/12/2006	10.5	3:46	6:20	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.40		
SR/V Veritas Viking2	20323 G06A-	1776 P1	Prime	1769	4	9	132	5/12/2006	191	8:52	11:31	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.26		
SR/V Veritas Viking2	20323 G06A-	1488 P1	Prime	1481	4	10	132	5/12/2006	10.5	14:15	16:45	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.52		
SR/V Veritas Viking2	20323 G06A-	1776 F1	Infill	1769	4	11	132	5/12/2006	191	19:17	21:56	1997	881	16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	4.26		
SR/V Veritas Viking2	20323 G06A-	1744 P2	Prime	1737	4	12	133	5/13/2006	191	22:11	22:33	1389	1239	1239	16	2.8313	45.3000	45.3000	0.8494		0	Complete	4.14		
SR/V Veritas Viking2	20323 G06A-	1488 F1	Infill	1481	4	13	134	5/14/2006	10.5	2:08	4:43	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.37		
SR/V Veritas Viking2	20323 G06A-	1776 F2	Infill	1769	4	14	134	5/14/2006	191	7:16	9:52	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.35		
SR/V Veritas Viking2	20323 G06A-	1504 P1	Prime	1497	4	15	134	5/14/2006	10.5	12:18	14:50	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.46		
SR/V Veritas Viking2	20323 G06A-	1792 P1	Prime	1785	4	16	134	5/14/2006	191	17:16	19:55	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.26		
SR/V Veritas Viking2	20323 G06A-	1520 P1	Prime	1513	4	17	135	5/15/2006	10.5	18:00	20:36	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.35		
SR/V Veritas Viking2	20323 G06A-	1808 P1	Prime	1801	4	18	135	5/15/2006	191	23:21	0:00	1997	1708	1708	16	5.4375	87.0000	87.0000	1.6313		0	In Progress	4.50		
SR/V Veritas Viking2	20323 G06A-	1808 P1	Prime	1801	4	18	136	5/16/2006	191	0:00	1:51	1707	1001	881	16	15.5063	248.1000	212.1000	3.9769		120	Complete	4.52		
SR/V Veritas Viking2	20323 G06A-	1520 F1	Infill	1513	4	19	136	5/16/2006	10.5	5:29	7:57	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.58		
SR/V Veritas Viking2	20323 G06A-	1824 P1	Prime	1817	5	20	136	5/16/2006	191	10:28	12:57	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.55		
SR/V Veritas Viking2	20323 G06A-	1536 P1	Prime	1529	5	21	136	5/16/2006	10.5	15:27	17:56	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.55		
SR/V Veritas Viking2	20323 G06A-	1824 F1	Infill	1817	5	22	136	5/16/2006	191	20:28	22:59	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.49		
SR/V Veritas Viking2	20323 G06A-	1552 P1	Prime	1545	5	23	137	5/17/2006	10.5	3:08	5:38	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.52		
SR/V Veritas Viking2	20323 G06A-	1840 P1	Prime	1833	5	24	137	5/17/2006	191	8:09	10:45	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.35		
SR/V Veritas Viking2	20323 G06A-	1568 P1	Prime	1561	5	25	137	5/17/2006	10.5	13:10	15:38	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.58		
SR/V Veritas Viking2	20323 G06A-	1856 P1	Prime	1849	5	26	137	5/17/2006	191	18:11	20:53	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.18		
SR/V Veritas Viking2	20323 G06A-	1584 P1	Prime	1577	5	27	137	5/17/2006	10.5	23:23	0:00	1001	1272	1272	16	5.1000	81.6000	81.6000	1.5300		0	In Progress	4.45		
SR/V Veritas Viking2	20323 G06A-	1584 P1	Prime	1577	5	27	138	5/18/2006	10.5	0:00	1:52	1273	1997	2117	16	15.8438	253.5000	217.5000	4.0781		120	Complete	4.58		
SR/V Veritas Viking2	20323 G06A-	1856 F1	Infill	1849	5	28	138	5/18/2006	191	4:40	7:11	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.49		
SR/V Veritas Viking2	20323 G06A-	1584 F1	Infill	1577	5	29	138	5/18/2006	10.5	9:30	9:47	1001	1132	16	0.0000	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	4.68			
SR/V Veritas Viking2	20323 G06A-	1856 F2	Infill	1849	5	30	138	5/18/2006	191	14:28	16:54	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.64		
SR/V Veritas Viking2	20323 G06A-	1872 P1	Prime	1865	5	31	139	5/19/2006	191	0:03	2:30	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081		120	Complete	4.61		
SR/V Veritas Viking2	20323 G06A-	1520 U1	Prime	1517	01U	32	139	5/19/2006	10.5	5:56	7:39	1159	1913	8	0.0000	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	4.45			
SR/V Veritas Viking2	20323 G06A-	1824 U1	Prime	1821	02U	33	139	5/19/2006	191	9:53	10:09	1563	1455	8	0.0000	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	4.10			
SR/V Veritas Viking2	20323 G06A-	1520 U2	Prime	1517	02U	34	139	5/19/2006	10.5	14:39	16:09	1147	1891	8	13.9688	111.7500	111.7500	2.0953		Complete	5.02				
SR/V Veritas Viking2	20323 G06A-	1872 U1	Prime	1869	03U	35	140	5/20/2006	191	4:38	5:59	1518	882	8	11.9438	95.5500	77.7000	1.4569		119	Complete	4.77			
SR/V Veritas Viking2	20323 G06A-	1504 U1	Prime	1501	03U	36	140	5/20/2006	10.5	8:55	10:39	1068	1910	8	15.8063	126.4500	126.4500	2.3709		Complete	4.92				
SR/V Veritas Viking2	20323 G06A-	1840 U1	Prime	1837	03U	37	140	5/20/2006	191	13:09	14:46	1572	882	8	12.9563	103.6500	85.8000	1.6088		119	Complete	4.32			
SR/V Veritas Viking2	20323 G06A-	1520 U3	Prime	1517	03U	38	140	5/20/2006	10.5	17:59	19:42	1152	1920	8	14.4188	115.3500	115.3500	2.1628		Complete	4.53				
SR/V Veritas Viking2	20323 G06A-	1840 U2	Prime	1837	03U	39	140	5/20/2006	191	22:50	23:38	1513	1199	8	5.9063	47.2500	47.2500	0.8859		Complete	3.97				
SR/V Veritas Viking2	20323 G06A-	1872 U2	Prime	1869	03U	40	141	5/21/2006	191	7:33	8:55	1513	934	8	11.8688	94.9500	76.9500	1.4428		120	Complete	4.68			
SR/V Veritas Viking2	20323 G06A-	1872 U3	Prime	1869	03U	41	141	5/21/2006	191	15:41	17:07	1512	881	8	10.8563	86.8500	76.8000	1.4400		67	Complete	4.08			
SR/V Veritas Viking2	20323 G06A-	1504 U2	Prime	1501	03U	42	141	5/21/2006	10.5	21:01	21:54	1001	1393	8	7.3688	58.9500	58.9500	1.1053		Incomplete	4.49				
SR/V Veritas Viking2	20323 G06A-	1504 U2	Prime	1501	03U	42	141	5/21/2006	10.5	21:57	22:50	1415	1817	8	7.5563	60.4500	60.4500	1.1334		Incomplete	4.61				
SR/V Veritas Viking2	20323 G06A-	1520 U4	Prime	1517	03U	43	143	5/23/2006	191	10:04	10:31	1001	1207	8	0.0000	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	4.63			
SR/V Veritas Viking2	20323 G06A-	1504 U3	Prime	1501	03U	44	146	5/26/2006	10.5	3:52	5:11	1002	1706	8	0.0000	0.0000	0.0000	0.0000	0						

LINE PRODUCTION LOG

(Sorted by Sequence Number)

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job # : 20323,20324

Summary	Prime	Reshoot	Infill	% Prime	% Reshoot	% Infill
CMP-kms	33529.800	124.500	18147.900	104.86%	0.39%	56.76%
Full-fold CMP-kms	30125.250	88.500	16289.400	105.90%	0.31%	57.26%
Full-fold Square-kms	564.848	1.659	305.426	105.90%	0.31%	57.26%
Sail-Kms	2182.875	7.781	1134.244	109.23%	0.39%	56.76%
Percent Rel Prime		0.37%	54.12%			

Vessel	Job Number	Prefix	Line Number	Suffix	Type	Low CMP	Nav/Def	Sequence	Julian Day	Date	Direction	SOL Time	EOL Time	FGSP (FF)	LGSP (FF)	LGSP (w/o)	CDPs	Sail-kms	CMP-kms	Full-Fold CMP-kms	Full-Fold Square-kms	Runout SP	Status	Ground Speed	Comments
SR/V Veritas Viking2	20323 G06A-	1904 P1	Prime	1897	6	53	148	5/28/2006	191	0:00	0:29	1119	1001	881	16	4.4813	71.7000	35.7000	0.6694	120	Complete	4.99			
SR/V Veritas Viking2	20323 G06A-	1616 P1	Prime	1609	6	54	148	5/28/2006	10.5	3:20	5:45	1002	1997	2117	16	20.9250	334.8000	298.8000	5.6025	120	Complete	4.67			
SR/V Veritas Viking2	20323 G06A-	1840 U3	Prime	1837	03U	55	148	5/28/2006	191	8:44	10:25	1572		882	8	12.9563	103.6500	85.8000	1.6088	119	Complete	4.15			
SR/V Veritas Viking2	20323 G06A-	1520 U6	Prime	1517	03U	56	149	5/29/2006	10.5	0:45	2:13	1111		1699	8	11.0438	88.3500	88.3500	1.6566		Complete	4.06			
SR/V Veritas Viking2	20323 G06A-	1520 U7	Prime	1517	03U	57	150	5/30/2006	10.5	8:12	9:23	1108		1656	8	10.2938	82.3500	82.3500	1.5441		Complete	4.69			
SR/V Veritas Viking2	20323 G06A-	1168 P1	Prime	1161	6	58	150	5/30/2006	191	13:43	16:00	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.95			
SR/V Veritas Viking2	20323 G06A-	1616 F1	Infill	1609	6	59	150	5/30/2006	10.5	18:29	20:52	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.74			
SR/V Veritas Viking2	20323 G06A-	1184 P1	Prime	1177	6	60	150	5/30/2006	191	23:10	0:00	1997	1616	1616	16	7.1625	114.6000	114.6000	2.1488	0	In Progress	4.63			
SR/V Veritas Viking2	20323 G06A-	1184 P1	Prime	1177	6	60	151	5/31/2006	191	0:00	1:30	1615	1001	881	16	13.7813	220.5000	184.5000	3.4594	120	Complete	4.95			
SR/V Veritas Viking2	20323 G06A-	1632 P1	Prime	1625	7	61	151	5/31/2006	10.5	4:14	6:59	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.11			
SR/V Veritas Viking2	20323 G06A-	1200 P1	Prime	1193	7	62	151	5/31/2006	191	9:26	12:02	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.35			
SR/V Veritas Viking2	20323 G06A-	1632 F1	Infill	1625	7	63	151	5/31/2006	10.5	14:25	16:56	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.49			
SR/V Veritas Viking2	20323 G06A-	1216 P1	Prime	1209	7	64	151	5/31/2006	191	19:20	21:48	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.58			
SR/V Veritas Viking2	20323 G06A-	1648 P1	Prime	1641	7	65	152	6/1/2006	10.5	0:13	2:44	1001	1997	2116	16	20.9250	334.8000	299.1000	5.6081	119	Complete	4.49	1 runouts still to be acquired.		
SR/V Veritas Viking2	20323 G06A-	1232 P1	Prime	1225	7	66	152	6/1/2006	191	6:47	9:13	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.64			
SR/V Veritas Viking2	20323 G06A-	1664 P1	Prime	1657	7	67	152	6/1/2006	10.5	11:52	14:14	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.77			
SR/V Veritas Viking2	20323 G06A-	1248 P1	Prime	1241	7	68	152	6/1/2006	191	16:47	19:12	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.68			
SR/V Veritas Viking2	20323 G06A-	1680 P1	Prime	1673	7	69	152	6/1/2006	10.5	21:46	0:00	1001	1997	2059	16	19.8563	317.7000	299.1000	5.6081	62	In Progress	4.80	58 runouts still to be acquired.		
SR/V Veritas Viking2	20323 G06A-	1680 P1	Prime	1673	7	69	153	6/2/2006	10.5	0:00	0:07	2060		2117	16	1.0875	17.4000	0.0000	0.0000	58	Complete	4.95	Only runouts acquired on this segment.		
SR/V Veritas Viking2	20323 G06A-	1680 F1	Infill	1673	8	70	155	6/4/2006	10.5	0:07	2:26	1001		2117	16	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	4.88			
SR/V Veritas Viking2	20323 G06A-	1680 F2	Infill	1673	8	71	155	6/4/2006	10.5	10:03	12:31	1001		2117	16	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	4.58			
SR/V Veritas Viking2	20323 G06A-	1248 F1	Infill	1241	8	72	155	6/4/2006	191	15:01	17:32	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.49			
SR/V Veritas Viking2	20323 G06A-	1680 F3	Infill	1673	8	73	155	6/4/2006	10.5	20:08	22:39	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.49			
SR/V Veritas Viking2	20323 G06A-	1680 F4	Infill	1673	8	74	156	6/5/2006	10.5	14:10	16:37	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.61			
SR/V Veritas Viking2	20323 G06A-	1264 P1	Prime	1257	8	75	156	6/5/2006	191	19:11	21:30	1997	1001	883	16	20.9063	334.5000	299.1000	5.6081	118	Complete	4.87	2 runouts still to be acquired.		
SR/V Veritas Viking2	20323 G06A-	1696 P1	Prime	1689	8	76	157	6/6/2006	10.5	0:10	1:32	1001	1643	1643	16	12.0563	192.9000	192.9000	3.6169	0	Incomplete	4.76			
SR/V Veritas Viking2	20323 G06A-	1696 P1	Prime	1689	8	76	157	6/6/2006	10.5	1:36	2:32	1677	1997	2117	16	8.2688	132.3000	96.3000	1.8056	120	Incomplete	4.77			
SR/V Veritas Viking2	20323 G06A-	1280 P1	Prime	1273	8	77	157	6/6/2006	191	6:59	9:21	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.77			
SR/V Veritas Viking2	20323 G06A-	1712 P1	Prime	1705	8	78	157	6/6/2006	10.5	11:53	14:14	1021	1997	2117	16	20.5688	329.1000	293.1000	5.4956	120	Incomplete	4.72			
SR/V Veritas Viking2	20323 G06A-	1296 P1	Prime	1289	8	79	157	6/6/2006	191	16:46	19:14	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.58			
SR/V Veritas Viking2	20323 G06A-	1728 P3	Prime	1721	8	80	157	6/6/2006	10.5	21:43	0:00	1001	1974	1974	16	18.2625	292.2000	292.2000	5.4788	0	In Progress	4.31			
SR/V Veritas Viking2	20323 G06A-	1728 P3	Prime	1721	8	80	158	6/7/2006	10.5	0:00	0:20	1975	1997	2117	16	2.6813	42.9000	6.9000	0.1294	120	Complete	4.31			
SR/V Veritas Viking2	20323 G06A-	1296 F1	Infill	1289	8	81	158	6/7/2006	191	2:44	5:19	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.37			
SR/V Veritas Viking2	20323 G06A-	1728 F1	Infill	1721	8	82	158	6/7/2006	10.5	7:46	10:23	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.32			
SR/V Veritas Viking2	20323 G06A-	1152 P1	Prime	1145	8	83	158	6/7/2006	191	13:00	15:40	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.24			
SR/V Veritas Viking2	20323 G06A-	1728 F2	Infill	1721	8	84	158	6/7/2006	10.5	18:24	21:08	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.13			
SR/V Veritas Viking2	20323 G06A-	1152 F1	Infill	1145	8	85	158	6/7/2006	191	23:48	0:00	1997	1907	1907	16	1.7063	27.3000	27.3000	0.5119	0	In Progress	4.56			
SR/V Veritas Viking2	20323 G06A-	1152 F1	Infill	1145	8	85	159	6/8/2006	191	0:00	2:11	1906	1001	881	16	19.2375	307.8000	271.8000	5.0963	120	Complete	4.75			
SR/V Veritas Viking2	20323 G06A-	1424 P1	Prime	1417	8	86	159	6/8/2006	10.5	4:54	7:24	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.52			
SR/V Veritas Viking2	20323 G06A-	1136 P1	Prime	1129	8	87	159	6/8/2006	191	9:47	12:17	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.52			
SR/V Veritas Viking2	20323 G06A-	1408 P1	Prime	1401	8	88	159	6/8/2006	10.5	14:54	17:19	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.68			
SR/V Veritas Viking2	20323 G06A-	1120 P1	Prime	1113	8	89	159	6/8/2006	191	19:46	22:07	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.81			
SR/V Veritas Viking2	20323 G06A-	1392 P1	Prime	1385	8	90	160	6/9/2006	10.5	0:35	3:14	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.26			
SR/V Veritas Viking2	20323 G06A-	1104 P1	Prime	1097	8	91	160	6/9/2006	191	5:36	8:08	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.46			
SR/V Veritas Viking2	20323 G06A-	1376 P1	Prime	1369	8	92	160	6/9/2006	10.5	10:32	13:07	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.37			
SR/V Veritas Viking2	20323 G06A-	1104 F1	Infill	1097	8	93	160	6/9/2006	191	15:29	18:08	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.26			
SR/V Veritas Viking2	20323 G06A-	1360 P1	Prime	1353	8	94	160	6/9/2006	10.5	20:50	23:39	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.01			
SR/V Veritas Viking2	20323 G06A-	1088 P1	Prime	1081	8	95	161	6/10/2006	191	2:01	4:35	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.40			
SR/V Veritas Viking2	20323 G06A-	1344 P1	Prime	1337	8	96	161	6/10/2006	10.5	7:08	9:32	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.71			
SR/V Veritas Viking2	20323 G06A-	1088 F1	Infill	1081	8	97	161	6/10/2006	191	11:58	14:43	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.11			
SR/V Veritas Viking2	20323 G06A-	1072 P1	Prime	1065	8																				

LINE PRODUCTION LOG

(Sorted by Sequence Number)

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job # : 20323,20324

Summary	Prime	Reshoot	Infill	% Prime	% Reshoot	% Infill
CMP-kms	33529.800	124.500	18147.900	104.86%	0.39%	56.76%
Full-fold CMP-kms	30125.250	88.500	16289.400	105.90%	0.31%	57.26%
Full-fold Square-kms	564.848	1.659	305.426	105.90%	0.31%	57.26%
Sail-kms	2182.875	7.781	1134.244	109.23%	0.39%	56.76%
Percent Rel Prime		0.37%	54.12%			

Vessel	Job Number	Prefix	Line Number	Suffix	Type	Low CMP	Nav/Def	Sequence	Julian Day	Date	Direction	SOL Time	EOL Time	FGSP (FF)	LGSP (FF)	LGSP (w/ro)	CDPs	Sail-kms	CMP-kms	Full-Fold CMP-kms	Full-Fold Square-kms	Runout SP	Status	Ground Speed	Comments
SR/V Veritas Viking2	20323 G06A-	1312	P1	Prime	1305	8	105	165	6/14/2006	10.5	9:10	11:29	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.88		
SR/V Veritas Viking2	20323 G06A-	1056	F1	Infill	1049	8	106	165	6/14/2006	191	14:01	16:36	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.37		
SR/V Veritas Viking2	20323 G06A-	1312	F1	Infill	1305	8	107	165	6/14/2006	10.5	19:23	21:44	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.81		
SR/V Veritas Viking2	20323 G06A-	1040	P1	Prime	1033	8	108	166	6/15/2006	191	0:26	2:21	1997		1134	16	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	4.56		
SR/V Veritas Viking2	20323 G06A-	1040	P2	Prime	1033	9	109	167	6/16/2006	191	19:29	22:02	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.43		
SR/V Veritas Viking2	20323 G06A-	1312	F2	Infill	1305	9	110	168	6/17/2006	10.5	0:32	3:04	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.46		
SR/V Veritas Viking2	20323 G06A-	1024	P1	Prime	1017	9	111	168	6/17/2006	191	5:36	7:58	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.77		
SR/V Veritas Viking2	20323 G06A-	1312	F3	Infill	1305	9	112	168	6/17/2006	10.5	10:33	12:53	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.84		
SR/V Veritas Viking2	20323 G06A-	1008	P1	Prime	1001	9	113	168	6/17/2006	191	15:18	17:39	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.81		
SR/V Veritas Viking2	20323 G06A-	1312	F4	Infill	1305	9	114	168	6/17/2006	10.5	20:01	22:31	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.52		
SR/V Veritas Viking2	20323 G06A-	1008	F1	Infill	1001	9	115	169	6/18/2006	191	0:58	3:28	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.52		
SR/V Veritas Viking2	20323 G06A-	1312	F5	Infill	1305	10	116	169	6/18/2006	10.5	6:07	8:10	1001	1790	1790	16	14.8125	237.0000	237.0000	4.4438	0	Complete	3.90		
SR/V Veritas Viking2	20323 G06A-	1904	F1	Infill	1897	10	117	169	6/18/2006	191	11:36	14:24	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.04		
SR/V Veritas Viking2	20323 G06A-	2224	P1	Prime	2217	10	118	169	6/18/2006	10.5	16:52	19:40	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.04		
SR/V Veritas Viking2	20323 G06A-	1920	P1	Prime	1913	10	119	169	6/18/2006	191	22:01	0:00	1997	1211	1211	16	14.7563	236.1000	236.1000	4.4269	0	In Progress	4.01		
SR/V Veritas Viking2	20323 G06A-	1920	P1	Prime	1913	10	119	170	6/19/2006	191	0:00	0:51	1210	1001	881	16	6.1875	99.0000	63.0000	1.1813	120	Complete	3.92		
SR/V Veritas Viking2	20323 G06A-	2240	P1	Prime	2233	10	120	170	6/19/2006	10.5	3:24	6:12	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.04		
SR/V Veritas Viking2	20323 G06A-	1936	P1	Prime	1929	10	121	170	6/19/2006	191	8:37	11:17	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.24		
SR/V Veritas Viking2	20323 G06A-	2256	P1	Prime	2249	10	122	170	6/19/2006	10.5	13:51	16:17	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.64		
SR/V Veritas Viking2	20323 G06A-	1952	P1	Prime	1945	10	123	170	6/19/2006	191	18:38	20:59	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.81		
SR/V Veritas Viking2	20323 G06A-	2272	P1	Prime	2265	10	124	170	6/19/2006	10.5	23:17	0:00	1001	1345	1345	16	6.4688	103.5000	103.5000	1.9406	0	In Progress	4.86		
SR/V Veritas Viking2	20323 G06A-	2272	P1	Prime	2265	10	124	171	6/20/2006	10.5	0:00	1:36	1346	1997	2117	16	14.4750	231.6000	195.6000	3.6675	120	Complete	4.88		
SR/V Veritas Viking2	20323 G06A-	1952	F1	Infill	1945	10	125	171	6/20/2006	191	4:01	6:30	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.55		
SR/V Veritas Viking2	20323 G06A-	2272	F1	Infill	2265	10	126	171	6/20/2006	10.5	8:50	11:17	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.61		
SR/V Veritas Viking2	20323 G06A-	1968	P1	Prime	1961	10	127	171	6/20/2006	191	13:44	16:31	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.06		
SR/V Veritas Viking2	20323 G06A-	2288	P1	Prime	2281	10	128	171	6/20/2006	10.5	19:03	21:09	1001	1820	1820	16	15.3750	246.0000	246.0000	4.6125	0	Incomplete	3.95		
SR/V Veritas Viking2	20323 G06A-	2288	P2	Prime	2281	10	129	172	6/21/2006	10.5	14:38	15:16	1821	1997	2117	16	5.5688	89.1000	53.1000	0.9956	120	Complete	4.73		
SR/V Veritas Viking2	20323 G06A-	1984	P1	Prime	1977	10	130	172	6/21/2006	191	17:41	20:00	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.88		
SR/V Veritas Viking2	20323 G06A-	2304	P1	Prime	2297	10	131	172	6/21/2006	10.5	23:17	0:00	1001	1298	1298	16	5.5875	89.4000	89.4000	1.6763	0	In Progress	4.20		
SR/V Veritas Viking2	20323 G06A-	2304	P1	Prime	2297	10	131	173	6/22/2006	10.5	0:00	1:48	1299	1997	2117	16	15.3563	245.7000	209.7000	3.9319	120	Complete	4.60		
SR/V Veritas Viking2	20323 G06A-	2000	P1	Prime	1993	10	132	173	6/22/2006	191	4:21	6:54	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.43		
SR/V Veritas Viking2	20323 G06A-	2304	F1	Infill	2297	10	133	173	6/22/2006	10.5	9:29	12:09	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.24		
SR/V Veritas Viking2	20323 G06A-	2000	P1	Prime	1993	11	134	173	6/22/2006	191	15:26	17:59	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.43		
SR/V Veritas Viking2	20323 G06A-	2320	P1	Prime	2313	11	135	173	6/22/2006	10.5	20:23	23:03	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.24		
SR/V Veritas Viking2	20323 G06A-	2016	P1	Prime	2009	11	136	174	6/23/2006	191	1:25	4:18	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	3.92		
SR/V Veritas Viking2	20323 G06A-	2016	F1	Infill	2009	11	138	174	6/23/2006	191	11:53	14:51	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	3.81		
SR/V Veritas Viking2	20323 G06A-	2336	P1	Prime	2329	11	137	174	6/23/2006	10.5	17:01	19:25	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	-1.49		
SR/V Veritas Viking2	20323 G06A-	2336	F1	Infill	2329	11	139	174	6/23/2006	10.5	17:33	19:54	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.81		
SR/V Veritas Viking2	20323 G06A-	2032	P1	Prime	2025	11	140	174	6/23/2006	191	22:14	0:00	1997	1162	1162	16	15.6750	250.8000	250.8000	4.7025	0	In Progress	4.79		
SR/V Veritas Viking2	20323 G06A-	2032	P1	Prime	2025	11	140	175	6/24/2006	191	0:00	0:36	1161	1001	881	16	5.2688	84.3000	48.3000	0.9056	120	Complete	4.72		
SR/V Veritas Viking2	20323 G06A-	2352	P1	Prime	2345	11	141	175	6/24/2006	10.5	3:33	5:51	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.91		
SR/V Veritas Viking2	20323 G06A-	2032	F1	Infill	2025	11	142	175	6/24/2006	191	9:14	11:57	1975	1001	881	16	20.5313	328.5000	292.5000	5.4844	120	Incomplete	4.08		
SR/V Veritas Viking2	20323 G06A-	2368	P1	Prime	2361	11	143	175	6/24/2006	10.5	14:36	16:54	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.91		
SR/V Veritas Viking2	20323 G06A-	2048	P1	Prime	2041	11	144	175	6/24/2006	191	19:37	0:00	1997		881	16	0.0000	0.0000	0.0000	0.0000	0	Do Not Process	2.58		
SR/V Veritas Viking2	20323 G06A-	2384	P1	Prime	2377	11	145	176	6/25/2006	10.5	0:33	3:04	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.49		
SR/V Veritas Viking2	20323 G06A-	2048	P2	Prime	2041	11	146	176	6/25/2006	191	5:46	8:54	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	3.61		
SR/V Veritas Viking2	20323 G06A-	2384	F1	Infill	2377	11	147	176	6/25/2006	10.5	11:22	13:45	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.74		
SR/V Veritas Viking2	20323 G06A-	2048	F1	Infill	2041	11	148	176	6/25/2006	191	16:13	19:12	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	3.79		
SR/V Veritas Viking2	20323 G06A-	2384	F2	Infill	2377	11	149	176	6/25/2006	10.5	21:40	0:00	1001	1966	1966	16	18.1125	289.8000	289.8000	5.4338</					

LINE PRODUCTION LOG

(Sorted by Sequence Number)

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job #: 20323,20324

Summary	Prime	Reshoot	Infill	% Prime	% Reshoot	% Infill
CMP-kms	33529.800	124.500	18147.900	104.86%	0.39%	56.76%
Full-fold CMP-kms	30125.250	88.500	16289.400	105.90%	0.31%	57.26%
Full-fold Square-kms	564.848	1.659	305.426	105.90%	0.31%	57.26%
Sail-kms	2182.875	7.781	1134.244	109.23%	0.39%	56.76%
Percent Rel Prime		0.37%	54.12%			

Vessel	Job Number	Prefix	Line Number	Surfix	Type	Low CMP	Nav/Def	Sequence	Julian Day	Date	Direction	SOL Time	EOL Time	FGSP (FF)	LGSP (FF)	LGSP (w/o)	CDPs	Sail-kms	CMP-kms	Full-Fold CMP-kms	Full-Fold Square-kms	Runout SP	Status	Ground Speed	Comments
SR/V Veritas Viking2	20323 G06A-		2112 P1	Prime	2105	11	158	178	6/27/2006	191	18:47	21:42	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	3.87		
SR/V Veritas Viking2	20323 G06A-		2432 P1	Prime	2425	11	159	178	6/27/2006	10.5	23:57	0:00	1145	1163	1163	16	0.3563	5.7000	5.7000	0.1069	0	In Progress	3.64		
SR/V Veritas Viking2	20323 G06A-		2432 P1	Prime	2425	11	159	179	6/28/2006	10.5	0:00	2:26	1164		2117	16	17.8875	286.2000	286.2000	5.3663		Complete	3.97		
SR/V Veritas Viking2	20323 G06A-		2112 F1	Infill	2105	12	160	179	6/28/2006	191	5:17	8:02	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.11		
SR/V Veritas Viking2	20323 G06A-		2432 F1	Infill	2425	12	161	179	6/28/2006	10.5	10:37	12:39	1190		2117	16	17.4000	278.4000	278.4000	5.2200		Complete	4.62		
SR/V Veritas Viking2	20323 G06A-		2128 P1	Prime	2121	12	162	179	6/28/2006	191	16:23	19:03	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.24		
SR/V Veritas Viking2	20323 G06A-		2448 P1	Prime	2441	12	163	179	6/28/2006	10.5	21:08	22:55	1260		2117	16	16.0875	257.4000	257.4000	4.8263		Complete	4.87		
SR/V Veritas Viking2	20323 G06A-		2128 F1	Infill	2121	12	164	180	6/29/2006	191	1:15	3:33	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.91		
SR/V Veritas Viking2	20323 G06A-		2464 P1	Prime	2457	12	165	180	6/29/2006	10.5	6:09	7:54	1340		2117	16	14.5875	233.4000	233.4000	4.3763		Complete	4.50		
SR/V Veritas Viking2	20323 G06A-		2144 P1	Prime	2137	12	166	180	6/29/2006	191	10:27	13:06	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.26		
SR/V Veritas Viking2	20323 G06A-		2400 P1	Prime	2473	12	167	180	6/29/2006	10.5	15:36	17:09	1429		2117	16	12.9188	206.7000	206.7000	3.8756		Complete	4.49		
SR/V Veritas Viking2	20323 G06A-		2144 F1	Infill	2137	12	168	180	6/29/2006	191	19:49	22:34	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.11		
SR/V Veritas Viking2	20323 G06A-		2480 F1	Infill	2153	12	169	181	6/30/2006	10.5	0:57	2:40	1420	1997	2117	16	13.0875	209.4000	173.4000	3.2513		Complete	4.11		
SR/V Veritas Viking2	20323 G06A-		2160 P1	Prime	2153	12	170	181	6/30/2006	191	6:21	9:17	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	3.85		
SR/V Veritas Viking2	20323 G06A-		2496 P1	Prime	2489	12	171	181	6/30/2006	10.5	11:56	13:15	1480		2117	16	11.9625	191.4000	191.4000	3.5888		Complete	4.90		
SR/V Veritas Viking2	20323 G06A-		2160 F1	Infill	2153	12	172	181	6/30/2006	191	16:25	19:03	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.29		
SR/V Veritas Viking2	20323 G06A-		2496 F1	Infill	2489	12	173	181	6/30/2006	10.5	21:51	23:01	1554		2117	16	10.5750	169.2000	169.2000	3.1725		Complete	4.89		
SR/V Veritas Viking2	20323 G06A-		2176 P1	Prime	2169	12	174	182	7/1/2006	191	2:11	4:00	1997	1215	1215	16	14.6813	234.9000	234.9000	4.4044	0	Incomplete	4.36		
SR/V Veritas Viking2	20323 G06A-		2512 P1	Prime	2505	12	175	182	7/1/2006	10.5	6:34	7:34	1648		2117	16	8.8125	141.0000	141.0000	2.6438		Complete	4.75		
SR/V Veritas Viking2	20323 G06A-		2176 P2	Prime	2169	12	176	182	7/1/2006	191	11:12	12:10	1214	1001	881	16	6.2625	100.2000	64.2000	1.2038	120	Complete	3.49		
SR/V Veritas Viking2	20323 G06A-		2512 F1	Infill	2505	12	177	182	7/1/2006	10.5	14:57	15:54	1690		2117	16	8.0250	128.4000	128.4000	2.4075		Complete	4.55		
SR/V Veritas Viking2	20323 G06A-		2192 P1	Prime	2185	12	178	182	7/1/2006	191	19:19	22:21	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	3.72		
SR/V Veritas Viking2	20323 G06A-		2208 P1	Prime	2201	12	179	183	7/2/2006	10.5	1:26	4:30	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	3.68		
SR/V Veritas Viking2	20323 G06A-		2192 F1	Infill	2185	12	180	183	7/2/2006	191	7:34	10:26	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	3.94		
SR/V Veritas Viking2	20323 G06A-		2208 F1	Infill	2201	12	181	183	7/2/2006	10.5	13:40	16:01	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.81		
SR/V Veritas Viking2	20323 G06A-		2192 F2	Infill	2185	12	182	183	7/2/2006	191	19:26	22:09	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.16		
SR/V Veritas Viking2	20323 G06A-		2208 F2	Infill	2201	12	183	184	7/3/2006	10.5	1:21	3:48	1001	1997	2117	16	20.9438	335.1000	299.1000	5.6081	120	Complete	4.61		
SR/V Veritas Viking2	20323 G06A-		1952 F2	Infill	1945	12	184	184	7/3/2006	191	6:18	6:57	1997	1704	1704	16	5.5125	88.2000	88.2000	1.6538	0	Complete	4.56		
SR/V Veritas Viking2	20323 G06A-		2288 P3	Reshoot r	2281	12	185	184	7/3/2006	10.5	9:20	9:57	1821	1997	2117	16	5.5688	89.1000	53.1000	0.9956	120	Complete	4.86		
SR/V Veritas Viking2	20323 G06A-		2000 F2	Reshoot r	1993	12	186	184	7/3/2006	191	12:22	12:40	1997	1880	1880	16	2.2125	35.4000	35.4000	0.6638	0	Complete	3.95		
SR/V Veritas Viking2	20323 G06A-		1696 P2	Prime	1689	12	187	184	7/3/2006	10.5	15:54	15:58	1644	1676	1676	16	0.6188	9.9000	9.9000	0.1856	0	Complete	4.86		
SR/V Veritas Viking2	20323 G06A-		2032 F2	Infill	2025	12	188	184	7/3/2006	191	19:10	19:13	1997	1976	1976	16	0.4125	6.6000	6.6000	0.1238	0	Complete	4.25		
SR/V Veritas Viking2	20323 G06A-		1728 F3	Infill	1721	12	189	184	7/3/2006	10.5	23:34	0:00	1001	1215	1215	16	4.0313	64.5000	64.5000	1.2094	0	Complete	5.00		
SR/V Veritas Viking2	20323 G06A-		1728 F3	Infill	1721	12	189	185	7/4/2006	10.5	0:53	1:05	1635	1725	1725	16	1.7063	27.3000	27.3000	0.5119	0	Complete	4.56		
SR/V Veritas Viking2	20323 G06A-		1 2D	Prime	1	13	190	185	7/4/2006	10.5	6:22	9:29	2167		881	16	24.1313	386.1000	350.1000	6.5644	120	Complete	4.18		
SR/V Veritas Viking2	20323 G06A-		3 2D	Prime	3	13	191	185	7/4/2006	10.5	11:49	14:36	1001		2141	16	21.3938	342.3000	306.3000	5.7431	120	Complete	4.15		
SR/V Veritas Viking2	20323 G06A-		2 2D	Prime	2	13	192	185	7/4/2006	10.5	18:47	21:24	1001		2083	16	20.3063	324.9000	288.9000	5.4169	120	Complete	4.19		
SR/V Veritas Viking2	20323 G06A-		1440 P3	Prime	1433	14	193	185	7/4/2006	10.5	22:43	23:15	1863	1997	2117	16	4.7813	76.5000	40.5000	0.7594	120	Complete	4.82		
SR/V Veritas Viking2	20323 G06A-		1792 F1	Infill	1785	14	194	186	7/5/2006	191	1:44	4:38	1997	1001	881	16	20.9438	335.1000	299.1000	5.6081	120	Complete	3.90		
SR/V Veritas Viking2	20323 G06A-		1344 F2	Infill	1337	14	195	186	7/5/2006	10.5	7:15	7:57	1001	1306	1306	16	5.7375	91.8000	91.8000	1.7213	0	Complete	4.41		
SR/V Veritas Viking2	20323 G06A-		2192 F3	Infill	2185	14	196	186	7/5/2006	191	11:44	12:48	1300	1001	926	16	7.0313	112.5000	90.0000	1.6875	75	Complete	3.55	45 runouts still to be acquired.	
SR/V Veritas Viking2	20323 G06A-		1328 F2	Infill	1321	14	197	186	7/5/2006	10.5	15:44	16:15	1300	1550	1550	16	4.7063	75.3000	75.3000	1.4119	0	Complete	4.90		
SR/V Veritas Viking2	20323 G06A-		1104 F2	Infill	1097	14	198	186	7/5/2006	191	19:30	21:27	1700	1001	817	16	15.3750	246.0000	210.0000	3.9375	120	Complete	4.25		

TIME-USE LOG

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job #: 20323,20324

Summary	Hours	Vessel Days	Percentage of Survey
Total Survey	3128.083	130.337	100.0%

Vessel	Job Number	Date	Time	Total Time	Primary	Secondary	Tertiary
SR/V Veritas Viking2	20323	22-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	PRT
SR/V Veritas Viking2	20323	23-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	24-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	25-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
M/V Pacific Sword	20324	25-Apr-06	15:55 - 16:10	0.25	Service Time	MOB	CSTM
M/V Pacific Sword	20324	25-Apr-06	16:10 - 24:00	7.83	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	26-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
M/V Pacific Sword	20324	26-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	27-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
M/V Pacific Sword	20324	27-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	28-Apr-06	00:00 - 14:43	14.72	Service Time	MOB	TRV
M/V Pacific Sword	20324	28-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	28-Apr-06	14:43 - 24:00	9.28	Service Time	MOB	DEP
SR/V Veritas Viking2	20323	29-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	DEP
M/V Pacific Sword	20324	29-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	30-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	DEP
M/V Pacific Sword	20324	30-Apr-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	1-May-06	00:00 - 08:26	8.43	Service Time	MOB	DEP
M/V Pacific Sword	20324	1-May-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	1-May-06	08:26 - 23:10	14.73	Service Time	MOB	WX
SR/V Veritas Viking2	20323	1-May-06	23:10 - 24:00	0.83	Service Time	MOB	DEP
SR/V Veritas Viking2	20323	2-May-06	00:00 - 17:01	17.02	Service Time	MOB	DEP
M/V Pacific Sword	20324	2-May-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	2-May-06	17:01 - 24:00	6.98	Service Time	MOB	WX
SR/V Veritas Viking2	20323	3-May-06	00:00 - 24:00	24.00	Service Time	MOB	WX
M/V Pacific Sword	20324	3-May-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	4-May-06	00:00 - 24:00	24.00	Service Time	MOB	WX
M/V Pacific Sword	20324	4-May-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	5-May-06	00:00 - 06:34	6.57	Service Time	MOB	WX
M/V Pacific Sword	20324	5-May-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	5-May-06	06:34 - 14:45	8.18	Service Time	MOB	DEP
SR/V Veritas Viking2	20323	5-May-06	14:45 - 16:40	1.92	Technical D/T	HDL	HYD
SR/V Veritas Viking2	20323	5-May-06	16:40 - 24:00	7.33	Service Time	MOB	DEP
SR/V Veritas Viking2	20323	6-May-06	00:00 - 05:57	5.95	Service Time	MOB	DEP
M/V Pacific Sword	20324	6-May-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	6-May-06	05:57 - 10:00	4.05	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	6-May-06	10:00 - 24:00	14.00	Service Time	MOB	CAL
SR/V Veritas Viking2	20323	7-May-06	00:00 - 14:40	14.67	Service Time	MOB	CAL
M/V Pacific Sword	20324	7-May-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	7-May-06	14:40 - 17:30	2.83	Service Time	MOB	WX
SR/V Veritas Viking2	20323	7-May-06	17:30 - 24:00	6.50	Service Time	MOB	CAL
SR/V Veritas Viking2	20323	8-May-06	00:00 - 11:25	11.42	Service Time	MOB	CAL
M/V Pacific Sword	20324	8-May-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	8-May-06	11:25 - 15:01	3.60	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	8-May-06	15:01 - 24:00	8.98	Service Time	MOB	CAL
SR/V Veritas Viking2	20323	9-May-06	00:00 - 17:06	17.10	Service Time	MOB	CAL
M/V Pacific Sword	20324	9-May-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	9-May-06	17:06 - 24:00	6.90	Service Time	MOB	WX
SR/V Veritas Viking2	20323	10-May-06	00:00 - 04:11	4.18	Service Time	MOB	WX
M/V Pacific Sword	20324	10-May-06	00:00 - 20:55	20.92	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	10-May-06	04:11 - 08:33	4.37	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	10-May-06	08:33 - 11:14	2.68	Service Time	MOB	CAL
SR/V Veritas Viking2	20323	10-May-06	11:14 - 13:35	2.35	Service Time	MOB	CAL
SR/V Veritas Viking2	20323	10-May-06	13:35 - 16:07	2.53	Service Time	MOB	CAL
SR/V Veritas Viking2	20323	10-May-06	16:07 - 18:43	2.60	Service Time	MOB	CAL
SR/V Veritas Viking2	20323	10-May-06	18:43 - 18:47	0.07	Service Time	MOB	CAL
SR/V Veritas Viking2	20323	10-May-06	18:47 - 23:23	4.60	Service Time	MOB	CAL
M/V Pacific Sword	20324	10-May-06	20:55 - 24:00	3.08	Service Time	MOB	PRT
SR/V Veritas Viking2	20323	10-May-06	23:23 - 24:00	0.62	Service Time	MOB	CAL
SR/V Veritas Viking2	20323	11-May-06	00:00 - 01:46	1.77	Service Time	MOB	CAL
M/V Pacific Sword	20324	11-May-06	00:00 - 03:00	3.00	Service Time	MOB	PRT
SR/V Veritas Viking2	20323	11-May-06	01:46 - 04:06	2.33	Service Time	MOB	CAL
M/V Pacific Sword	20324	11-May-06	03:00 - 06:50	3.83	Technical D/T	SHP	ENG
SR/V Veritas Viking2	20323	11-May-06	04:06 - 05:53	1.78	Recording	RECP	RECP
SR/V Veritas Viking2	20323	11-May-06	05:53 - 06:26	0.55	Technical D/T	SRC	ALF
SR/V Veritas Viking2	20323	11-May-06	06:26 - 09:11	2.75	Line Change	LCP	LCP
M/V Pacific Sword	20324	11-May-06	06:50 - 24:00	17.17	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	11-May-06	09:11 - 09:33	0.37	Technical D/T	HDL	WKB
SR/V Veritas Viking2	20323	11-May-06	09:33 - 10:57	1.40	Recording	RECP	RECP

TIME-USE LOG

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job #: 20323,20324

Summary	Hours	Vessel Days	Percentage of Survey
Total Survey	3128.083	130.337	100.0%

Vessel	Job Number	Date	Time	Total Time	Primary	Secondary	Tertiary
SR/V Veritas Viking2	20323	11-May-06	10:57 - 11:17	0.33	Technical D/T	SRC	COM
SR/V Veritas Viking2	20323	11-May-06	11:17 - 12:11	0.90	Recording	RECP	RECP
SR/V Veritas Viking2	20323	11-May-06	12:11 - 14:34	2.38	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	11-May-06	14:34 - 16:56	2.37	Recording	RECP	RECP
SR/V Veritas Viking2	20323	11-May-06	16:56 - 19:10	2.23	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	11-May-06	19:10 - 22:53	3.72	Technical D/T	SRC	SFLT
SR/V Veritas Viking2	20323	11-May-06	22:53 - 24:00	1.12	Recording	RECP	RECP
SR/V Veritas Viking2	20323	12-May-06	00:00 - 01:24	1.40	Recording	RECP	RECP
M/V Pacific Sword	20324	12-May-06	00:00 - 11:40	11.67	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	12-May-06	01:24 - 03:46	2.37	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	12-May-06	03:46 - 06:20	2.57	Recording	RECP	RECP
SR/V Veritas Viking2	20323	12-May-06	06:20 - 08:52	2.53	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	12-May-06	08:52 - 11:31	2.65	Recording	RECP	RECP
SR/V Veritas Viking2	20323	12-May-06	11:31 - 14:15	2.73	Line Change	LCP	LCP
M/V Pacific Sword	20324	12-May-06	11:40 - 24:00	12.33	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	12-May-06	14:15 - 16:45	2.50	Recording	RECP	RECP
SR/V Veritas Viking2	20323	12-May-06	16:45 - 19:17	2.53	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	12-May-06	19:17 - 21:56	2.65	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	12-May-06	21:56 - 24:00	2.07	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	13-May-06	00:00 - 02:54	2.90	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	13-May-06	00:00 - 22:09	22.15	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	13-May-06	02:54 - 04:11	1.28	Regional D/T	WLF	MAM
M/V Pacific Sword	20324	13-May-06	04:11 - 24:00	19.82	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	13-May-06	22:09 - 22:11	0.03	Technical D/T	SRC	COM
SR/V Veritas Viking2	20323	13-May-06	22:11 - 22:31	0.33	Recording	RECP	RECP
SR/V Veritas Viking2	20323	13-May-06	22:31 - 22:33	0.03	Technical D/T	SRC	COM
SR/V Veritas Viking2	20323	13-May-06	22:33 - 24:00	1.45	Technical D/T	SRC	COM
SR/V Veritas Viking2	20323	14-May-06	00:00 - 02:08	2.13	Technical D/T	SRC	COM
M/V Pacific Sword	20324	14-May-06	00:00 - 24:00	24.00	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	14-May-06	02:08 - 04:43	2.58	Recording	RECI	RECI
SR/V Veritas Viking2	20323	14-May-06	04:43 - 07:16	2.55	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	14-May-06	07:16 - 09:52	2.60	Recording	RECI	RECI
SR/V Veritas Viking2	20323	14-May-06	09:52 - 12:18	2.43	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	14-May-06	12:18 - 14:50	2.53	Recording	RECP	RECP
SR/V Veritas Viking2	20323	14-May-06	14:50 - 17:16	2.43	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	14-May-06	17:16 - 19:55	2.65	Recording	RECP	RECP
SR/V Veritas Viking2	20323	14-May-06	19:55 - 22:21	2.43	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	14-May-06	22:21 - 24:00	1.65	Technical D/T	HDL	RIG
SR/V Veritas Viking2	20323	15-May-06	00:00 - 18:00	18.00	Technical D/T	HDL	RIG
M/V Pacific Sword	20324	15-May-06	00:00 - 24:00	24.00	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	15-May-06	18:00 - 20:36	2.60	Recording	RECP	RECP
SR/V Veritas Viking2	20323	15-May-06	20:36 - 23:21	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	15-May-06	23:21 - 24:00	0.65	Recording	RECP	RECP
SR/V Veritas Viking2	20323	16-May-06	00:00 - 01:51	1.85	Recording	RECP	RECP
M/V Pacific Sword	20324	16-May-06	00:00 - 24:00	24.00	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	16-May-06	01:51 - 04:36	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	16-May-06	04:36 - 05:29	0.88	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	16-May-06	05:29 - 07:57	2.47	Recording	RECI	RECI
SR/V Veritas Viking2	20323	16-May-06	07:57 - 10:28	2.52	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	16-May-06	10:28 - 12:57	2.48	Recording	RECP	RECP
SR/V Veritas Viking2	20323	16-May-06	12:57 - 15:27	2.50	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	16-May-06	15:27 - 17:56	2.48	Recording	RECP	RECP
SR/V Veritas Viking2	20323	16-May-06	17:56 - 20:28	2.53	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	16-May-06	20:28 - 22:59	2.52	Recording	RECI	RECI
SR/V Veritas Viking2	20323	16-May-06	22:59 - 24:00	1.02	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	17-May-06	00:00 - 01:44	1.73	Line Change	LCI	LCI
M/V Pacific Sword	20324	17-May-06	00:00 - 24:00	24.00	Service Time	LOG	CMBS
SR/V Veritas Viking2	20323	17-May-06	01:44 - 03:08	1.40	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	17-May-06	03:08 - 05:38	2.50	Recording	RECP	RECP
SR/V Veritas Viking2	20323	17-May-06	05:38 - 08:09	2.52	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	17-May-06	08:09 - 10:45	2.60	Recording	RECP	RECP
SR/V Veritas Viking2	20323	17-May-06	10:45 - 13:10	2.42	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	17-May-06	13:10 - 15:38	2.47	Recording	RECP	RECP
SR/V Veritas Viking2	20323	17-May-06	15:38 - 18:11	2.55	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	17-May-06	18:11 - 20:53	2.70	Recording	RECP	RECP
SR/V Veritas Viking2	20323	17-May-06	20:53 - 23:23	2.50	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	17-May-06	23:23 - 24:00	0.62	Recording	RECP	RECP
SR/V Veritas Viking2	20323	18-May-06	00:00 - 01:52	1.87	Recording	RECP	RECP
M/V Pacific Sword	20324	18-May-06	00:00 - 24:00	24.00	Service Time	LOG	CMBS

TIME-USE LOG

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job #: 20323,20324

Summary	Hours	Vessel Days	Percentage of Survey
Total Survey	3128.083	130.337	100.0%

Vessel	Job Number	Date	Time	Total Time	Primary	Secondary	Tertiary
SR/V Veritas Viking2	20323	18-May-06	01:52 - 04:37	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	18-May-06	04:37 - 04:40	0.05	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	18-May-06	04:40 - 07:11	2.52	Recording	RECI	RECI
SR/V Veritas Viking2	20323	18-May-06	07:11 - 09:30	2.32	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	18-May-06	09:30 - 09:47	0.28	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	18-May-06	09:47 - 14:28	4.68	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	18-May-06	14:28 - 16:54	2.43	Recording	RECI	RECI
SR/V Veritas Viking2	20323	18-May-06	16:54 - 19:39	2.75	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	18-May-06	19:39 - 24:00	4.35	Technical D/T	SRC	DSNS
SR/V Veritas Viking2	20323	19-May-06	00:00 - 00:03	0.05	Technical D/T	SRC	DSNS
M/V Pacific Sword	20324	19-May-06	00:00 - 05:15	5.25	Service Time	LOG	CMBS
SR/V Veritas Viking2	20323	19-May-06	00:03 - 02:30	2.45	Recording	RECP	RECP
SR/V Veritas Viking2	20323	19-May-06	02:30 - 05:15	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	19-May-06	05:15 - 05:36	0.35	Service Time	MOB	VRF
M/V Pacific Sword	20324	19-May-06	05:15 - 05:36	0.35	Service Time	MOB	VRF
SR/V Veritas Viking2	20323	19-May-06	05:36 - 07:39	2.05	Technical D/T	SRC	SRIG
M/V Pacific Sword	20324	19-May-06	05:36 - 07:39	2.05	Technical D/T	SRC	SRIG
SR/V Veritas Viking2	20323	19-May-06	07:39 - 09:53	2.23	Technical D/T	SRC	SRIG
M/V Pacific Sword	20324	19-May-06	07:39 - 09:53	2.23	Technical D/T	SRC	SRIG
SR/V Veritas Viking2	20323	19-May-06	09:53 - 10:09	0.27	Technical D/T	SRC	SRIG
M/V Pacific Sword	20324	19-May-06	09:53 - 10:09	0.27	Technical D/T	SRC	SRIG
SR/V Veritas Viking2	20323	19-May-06	10:09 - 14:39	4.50	Technical D/T	SRC	SRIG
M/V Pacific Sword	20324	19-May-06	10:09 - 14:39	4.50	Technical D/T	SRC	SRIG
SR/V Veritas Viking2	20323	19-May-06	14:39 - 16:09	1.50	Recording	RUP	RUP
M/V Pacific Sword	20324	19-May-06	14:39 - 16:09	1.50	Recording	RUP	RUP
SR/V Veritas Viking2	20323	19-May-06	16:09 - 18:54	2.75	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	19-May-06	16:09 - 18:54	2.75	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	19-May-06	18:54 - 19:25	0.52	Regional D/T	ENV	CUR
M/V Pacific Sword	20324	19-May-06	18:54 - 19:25	0.52	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	19-May-06	19:25 - 24:00	4.58	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	19-May-06	19:25 - 24:00	4.58	Regional D/T	ENV	SEA
SR/V Veritas Viking2	20323	20-May-06	00:00 - 04:38	4.63	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	20-May-06	00:00 - 04:38	4.63	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	20-May-06	04:38 - 05:59	1.35	Recording	RUP	RUP
M/V Pacific Sword	20324	20-May-06	04:38 - 05:59	1.35	Recording	RUP	RUP
SR/V Veritas Viking2	20323	20-May-06	05:59 - 08:44	2.75	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	20-May-06	05:59 - 08:44	2.75	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	20-May-06	08:44 - 08:55	0.18	Regional D/T	ENV	CUR
M/V Pacific Sword	20324	20-May-06	08:44 - 08:55	0.18	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	20-May-06	08:55 - 10:39	1.73	Recording	RUP	RUP
M/V Pacific Sword	20324	20-May-06	08:55 - 10:39	1.73	Recording	RUP	RUP
SR/V Veritas Viking2	20323	20-May-06	10:39 - 13:09	2.50	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	20-May-06	10:39 - 13:09	2.50	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	20-May-06	13:09 - 14:46	1.62	Recording	RUP	RUP
M/V Pacific Sword	20324	20-May-06	13:09 - 14:46	1.62	Recording	RUP	RUP
SR/V Veritas Viking2	20323	20-May-06	14:46 - 17:31	2.75	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	20-May-06	14:46 - 17:31	2.75	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	20-May-06	17:31 - 17:59	0.47	Regional D/T	ENV	CUR
M/V Pacific Sword	20324	20-May-06	17:31 - 17:59	0.47	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	20-May-06	17:59 - 19:42	1.72	Recording	RUP	RUP
M/V Pacific Sword	20324	20-May-06	17:59 - 19:42	1.72	Recording	RUP	RUP
SR/V Veritas Viking2	20323	20-May-06	19:42 - 22:27	2.75	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	20-May-06	19:42 - 22:27	2.75	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	20-May-06	22:27 - 22:50	0.38	Regional D/T	ENV	SEA
M/V Pacific Sword	20324	20-May-06	22:27 - 22:50	0.38	Regional D/T	ENV	SEA
SR/V Veritas Viking2	20323	20-May-06	22:50 - 23:38	0.80	Recording	RUP	RUP
M/V Pacific Sword	20324	20-May-06	22:50 - 23:38	0.80	Recording	RUP	RUP
SR/V Veritas Viking2	20323	20-May-06	23:38 - 24:00	0.37	Technical D/T	SRC	ALF
M/V Pacific Sword	20324	20-May-06	23:38 - 24:00	0.37	Technical D/T	SRC	ALF
SR/V Veritas Viking2	20323	21-May-06	00:00 - 00:13	0.22	Technical D/T	SRC	ALF
M/V Pacific Sword	20324	21-May-06	00:00 - 00:13	0.22	Technical D/T	SRC	ALF
SR/V Veritas Viking2	20323	21-May-06	00:13 - 02:58	2.75	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	21-May-06	00:13 - 02:58	2.75	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	21-May-06	02:58 - 07:33	4.58	Technical D/T	NAV	RGP
M/V Pacific Sword	20324	21-May-06	02:58 - 07:33	4.58	Technical D/T	NAV	RGP
SR/V Veritas Viking2	20323	21-May-06	07:33 - 08:55	1.37	Recording	RUP	RUP
M/V Pacific Sword	20324	21-May-06	07:33 - 08:55	1.37	Recording	RUP	RUP
SR/V Veritas Viking2	20323	21-May-06	08:55 - 11:40	2.75	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	21-May-06	08:55 - 11:40	2.75	Line Change	LCUP	LCUP

TIME-USE LOG

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job #: 20323,20324

Summary	Hours	Vessel Days	Percentage of Survey
Total Survey	3128.083	130.337	100.0%

Vessel	Job Number	Date	Time	Total Time	Primary	Secondary	Tertiary
SR/V Veritas Viking2	20323	21-May-06	11:40 - 15:41	4.02	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	21-May-06	11:40 - 15:41	4.02	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	21-May-06	15:41 - 17:07	1.43	Recording	RUP	RUP
M/V Pacific Sword	20324	21-May-06	15:41 - 17:07	1.43	Recording	RUP	RUP
SR/V Veritas Viking2	20323	21-May-06	17:07 - 19:52	2.75	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	21-May-06	17:07 - 19:52	2.75	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	21-May-06	19:52 - 21:01	1.15	Regional D/T	ENV	CUR
M/V Pacific Sword	20324	21-May-06	19:52 - 21:01	1.15	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	21-May-06	21:01 - 21:54	0.88	Recording	RUP	RUP
M/V Pacific Sword	20324	21-May-06	21:01 - 21:54	0.88	Recording	RUP	RUP
SR/V Veritas Viking2	20323	21-May-06	21:54 - 21:57	0.05	Technical D/T	NAV	INAV
M/V Pacific Sword	20324	21-May-06	21:54 - 21:57	0.05	Technical D/T	NAV	INAV
SR/V Veritas Viking2	20323	21-May-06	21:57 - 22:50	0.88	Recording	RUP	RUP
M/V Pacific Sword	20324	21-May-06	21:57 - 22:50	0.88	Recording	RUP	RUP
SR/V Veritas Viking2	20323	21-May-06	22:50 - 24:00	1.17	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	21-May-06	22:50 - 24:00	1.17	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	22-May-06	00:00 - 01:35	1.58	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	22-May-06	00:00 - 01:35	1.58	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	22-May-06	01:35 - 01:48	0.22	Regional D/T	ENV	CUR
M/V Pacific Sword	20324	22-May-06	01:35 - 01:48	0.22	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	22-May-06	01:48 - 06:18	4.50	Technical D/T	SRC	ALF
M/V Pacific Sword	20324	22-May-06	01:48 - 06:18	4.50	Technical D/T	SRC	ALF
SR/V Veritas Viking2	20323	22-May-06	06:18 - 24:00	17.70	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	22-May-06	06:18 - 24:00	17.70	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	23-May-06	00:00 - 10:04	10.07	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	23-May-06	00:00 - 10:04	10.07	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	23-May-06	10:04 - 10:31	0.45	Regional D/T	ENV	CUR
M/V Pacific Sword	20324	23-May-06	10:04 - 10:31	0.45	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	23-May-06	10:31 - 14:07	3.60	Regional D/T	ENV	CUR
M/V Pacific Sword	20324	23-May-06	10:31 - 14:07	3.60	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	23-May-06	14:07 - 24:00	9.88	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	23-May-06	14:07 - 24:00	9.88	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	24-May-06	00:00 - 24:00	24.00	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	24-May-06	00:00 - 24:00	24.00	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	25-May-06	00:00 - 02:30	2.50	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	25-May-06	00:00 - 02:30	2.50	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	25-May-06	00:00 - 24:00	24.00	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	25-May-06	02:30 - 10:00	7.50	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	25-May-06	10:00 - 15:25	5.42	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	25-May-06	10:00 - 15:25	5.42	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	25-May-06	15:25 - 17:44	2.32	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	25-May-06	15:25 - 17:44	2.32	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	25-May-06	17:44 - 22:15	4.52	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	25-May-06	17:44 - 22:15	4.52	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	25-May-06	22:15 - 22:50	0.58	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	25-May-06	22:15 - 22:50	0.58	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	25-May-06	22:50 - 24:00	1.17	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	25-May-06	22:50 - 24:00	1.17	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	26-May-06	00:00 - 03:52	3.87	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	26-May-06	00:00 - 03:52	3.87	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	26-May-06	03:52 - 05:11	1.32	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	26-May-06	03:52 - 05:11	1.32	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	26-May-06	05:11 - 07:56	2.75	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	26-May-06	05:11 - 07:56	2.75	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	26-May-06	07:56 - 08:48	0.87	Regional D/T	ENV	CUR
M/V Pacific Sword	20324	26-May-06	07:56 - 08:48	0.87	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	26-May-06	08:48 - 10:13	1.42	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	26-May-06	08:48 - 10:13	1.42	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	26-May-06	10:13 - 12:58	2.75	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	26-May-06	10:13 - 12:58	2.75	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	26-May-06	12:58 - 13:45	0.78	Regional D/T	ENV	CUR
M/V Pacific Sword	20324	26-May-06	12:58 - 13:45	0.78	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	26-May-06	13:45 - 15:00	1.25	Recording	RUP	RUP
M/V Pacific Sword	20324	26-May-06	13:45 - 15:00	1.25	Recording	RUP	RUP
SR/V Veritas Viking2	20323	26-May-06	15:00 - 17:45	2.75	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	26-May-06	15:00 - 17:45	2.75	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	26-May-06	17:45 - 17:54	0.15	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	26-May-06	17:45 - 17:54	0.15	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	26-May-06	17:54 - 19:14	1.33	Recording	RUP	RUP
M/V Pacific Sword	20324	26-May-06	17:54 - 19:14	1.33	Recording	RUP	RUP
SR/V Veritas Viking2	20323	26-May-06	19:14 - 21:59	2.75	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	26-May-06	19:14 - 21:59	2.75	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	26-May-06	21:59 - 22:12	0.22	Regional D/T	ENV	CUR
M/V Pacific Sword	20324	26-May-06	21:59 - 22:12	0.22	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	26-May-06	22:12 - 23:19	1.12	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	26-May-06	22:12 - 23:19	1.12	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	26-May-06	23:19 - 24:00	0.68	Technical D/T	SRC	GUN

TIME-USE LOG

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job #: 20323,20324

Summary	Hours	Vessel Days	Percentage of Survey
Total Survey	3128.083	130.337	100.0%

Vessel	Job Number	Date	Time	Total Time	Primary	Secondary	Tertiary
M/V Pacific Sword	20324	26-May-06	23:19 - 24:00	0.68	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	27-May-06	00:00 - 02:04	2.07	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	27-May-06	00:00 - 02:04	2.07	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	27-May-06	02:04 - 03:08	1.07	Regional D/T	ENV	CUR
M/V Pacific Sword	20324	27-May-06	02:04 - 03:08	1.07	Regional D/T	ENV	CUR
SR/V Veritas Viking2	20323	27-May-06	03:08 - 03:49	0.68	Recording	RUP	RUP
M/V Pacific Sword	20324	27-May-06	03:08 - 03:49	0.68	Recording	RUP	RUP
SR/V Veritas Viking2	20323	27-May-06	03:49 - 04:03	0.23	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	27-May-06	03:49 - 04:03	0.23	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	27-May-06	04:03 - 06:48	2.75	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	27-May-06	04:03 - 06:48	2.75	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	27-May-06	06:48 - 07:11	0.38	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	27-May-06	06:48 - 11:57	5.15	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	27-May-06	07:11 - 09:42	2.52	Recording	RECI	RECI
SR/V Veritas Viking2	20323	27-May-06	09:42 - 12:14	2.53	Line Change	LCI	LCI
M/V Pacific Sword	20324	27-May-06	11:57 - 15:12	3.25	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	27-May-06	12:14 - 14:43	2.48	Recording	RECP	RECP
SR/V Veritas Viking2	20323	27-May-06	14:43 - 17:08	2.42	Line Change	LCP	LCP
M/V Pacific Sword	20324	27-May-06	15:12 - 16:49	1.62	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	27-May-06	16:49 - 19:42	2.88	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	27-May-06	17:08 - 19:30	2.37	Recording	RECP	RECP
SR/V Veritas Viking2	20323	27-May-06	19:30 - 22:06	2.60	Line Change	LCP	LCP
M/V Pacific Sword	20324	27-May-06	19:42 - 21:46	2.07	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	27-May-06	21:46 - 24:00	2.23	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	27-May-06	22:06 - 24:00	1.90	Recording	RECP	RECP
SR/V Veritas Viking2	20323	28-May-06	00:00 - 00:29	0.48	Recording	RECP	RECP
M/V Pacific Sword	20324	28-May-06	00:00 - 00:29	0.48	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	28-May-06	00:29 - 03:00	2.52	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	28-May-06	00:29 - 03:14	2.75	Line Change	LCP	LCP
M/V Pacific Sword	20324	28-May-06	03:00 - 05:45	2.75	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	28-May-06	03:14 - 03:20	0.10	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	28-May-06	03:20 - 05:45	2.42	Recording	RECP	RECP
SR/V Veritas Viking2	20323	28-May-06	05:45 - 08:30	2.75	Line Change	LCP	LCP
M/V Pacific Sword	20324	28-May-06	05:45 - 08:30	2.75	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	28-May-06	08:30 - 08:44	0.23	Technical D/T	SRC	GUN
M/V Pacific Sword	20324	28-May-06	08:30 - 08:44	0.23	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	28-May-06	08:44 - 10:25	1.68	Recording	RUP	RUP
M/V Pacific Sword	20324	28-May-06	08:44 - 10:25	1.68	Recording	RUP	RUP
SR/V Veritas Viking2	20323	28-May-06	10:25 - 13:10	2.75	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	28-May-06	10:25 - 13:10	2.75	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	28-May-06	13:10 - 19:07	5.95	Technical D/T	NAV	RGP
M/V Pacific Sword	20324	28-May-06	13:10 - 23:00	9.83	Technical D/T	NAV	RGP
SR/V Veritas Viking2	20323	28-May-06	19:07 - 24:00	4.88	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	28-May-06	23:00 - 24:00	1.00	Technical D/T	NAV	RGP
SR/V Veritas Viking2	20323	29-May-06	00:00 - 00:45	0.75	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	29-May-06	00:00 - 00:45	0.75	Technical D/T	NAV	RGP
SR/V Veritas Viking2	20323	29-May-06	00:45 - 02:13	1.47	Recording	RUP	RUP
M/V Pacific Sword	20324	29-May-06	00:45 - 02:13	1.47	Recording	RUP	RUP
SR/V Veritas Viking2	20323	29-May-06	02:13 - 08:50	6.62	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	29-May-06	02:13 - 08:50	6.62	Line Change	LCUP	LCUP
SR/V Veritas Viking2	20323	29-May-06	08:50 - 12:00	3.17	Service Time	LOG	CRW
M/V Pacific Sword	20324	29-May-06	08:50 - 12:00	3.17	Service Time	LOG	CRW
SR/V Veritas Viking2	20323	29-May-06	12:00 - 24:00	12.00	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	29-May-06	12:00 - 24:00	12.00	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	30-May-06	00:00 - 08:12	8.20	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	30-May-06	00:00 - 08:12	8.20	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	30-May-06	08:12 - 09:23	1.18	Recording	RUP	RUP
M/V Pacific Sword	20324	30-May-06	08:12 - 09:23	1.18	Recording	RUP	RUP
M/V Pacific Sword	20324	30-May-06	09:23 - 10:19	0.93	Service Time	DMOB	RET
SR/V Veritas Viking2	20323	30-May-06	09:23 - 12:08	2.75	Line Change	LCUP	LCUP
M/V Pacific Sword	20324	30-May-06	10:19 - 11:24	1.08	Service Time	DMOB	RET
M/V Pacific Sword	20324	30-May-06	11:24 - 24:00	12.60	Service Time	DMOB	TRV
SR/V Veritas Viking2	20323	30-May-06	12:08 - 13:43	1.58	Regional D/T	ELC	XLC
SR/V Veritas Viking2	20323	30-May-06	13:43 - 16:00	2.28	Recording	RECP	RECP
SR/V Veritas Viking2	20323	30-May-06	16:00 - 18:29	2.48	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	30-May-06	18:29 - 20:52	2.38	Recording	RECI	RECI
SR/V Veritas Viking2	20323	30-May-06	20:52 - 23:10	2.30	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	30-May-06	23:10 - 24:00	0.83	Recording	RECP	RECP
SR/V Veritas Viking2	20323	31-May-06	00:00 - 01:30	1.50	Recording	RECP	RECP

TIME-USE LOG

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job #: 20323,20324

Summary	Hours	Vessel Days	Percentage of Survey
Total Survey	3128.083	130.337	100.0%

Vessel	Job Number	Date	Time	Total Time	Primary	Secondary	Tertiary
M/V Pacific Sword	20324	31-May-06	00:00 - 24:00	24.00	Service Time	DMOB	TRV
SR/V Veritas Viking2	20323	31-May-06	01:30 - 04:14	2.73	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	31-May-06	04:14 - 06:59	2.75	Recording	RECP	RECP
SR/V Veritas Viking2	20323	31-May-06	06:59 - 09:26	2.45	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	31-May-06	09:26 - 12:02	2.60	Recording	RECP	RECP
SR/V Veritas Viking2	20323	31-May-06	12:02 - 14:25	2.38	Line Change	LCP	RECP
SR/V Veritas Viking2	20323	31-May-06	14:25 - 16:56	2.52	Recording	RECI	RECI
SR/V Veritas Viking2	20323	31-May-06	16:56 - 19:20	2.40	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	31-May-06	19:20 - 21:48	2.47	Recording	RECP	RECP
SR/V Veritas Viking2	20323	31-May-06	21:48 - 24:00	2.20	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	1-Jun-06	00:00 - 00:13	0.22	Line Change	LCP	LCP
M/V Pacific Sword	20324	1-Jun-06	00:00 - 00:35	0.58	Service Time	DMOB	TRV
SR/V Veritas Viking2	20323	1-Jun-06	00:13 - 02:44	2.52	Recording	RECP	RECP
M/V Pacific Sword	20324	1-Jun-06	00:35 - 09:00	8.42	Service Time	DMOB	PRT
SR/V Veritas Viking2	20323	1-Jun-06	02:44 - 05:29	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	1-Jun-06	05:29 - 06:47	1.30	Service Time	LOG	CLI
SR/V Veritas Viking2	20323	1-Jun-06	06:47 - 09:13	2.43	Recording	RECP	RECP
M/V Pacific Sword	20324	1-Jun-06	09:00 - 10:00	1.00	Service Time	MOB	CSTM
SR/V Veritas Viking2	20323	1-Jun-06	09:13 - 11:52	2.65	Line Change	LCP	LCP
M/V Pacific Sword	20324	1-Jun-06	10:00 - 24:00	14.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	1-Jun-06	11:52 - 14:14	2.37	Recording	RECP	RECP
SR/V Veritas Viking2	20323	1-Jun-06	14:14 - 16:47	2.55	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	1-Jun-06	16:47 - 19:12	2.42	Recording	RECP	RECP
SR/V Veritas Viking2	20323	1-Jun-06	19:12 - 21:46	2.57	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	1-Jun-06	21:46 - 24:00	2.23	Recording	RECP	RECP
SR/V Veritas Viking2	20323	2-Jun-06	00:00 - 00:07	0.12	Recording	RECP	RECP
M/V Pacific Sword	20324	2-Jun-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	2-Jun-06	00:07 - 02:52	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	2-Jun-06	02:52 - 24:00	21.13	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	3-Jun-06	00:00 - 24:00	24.00	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	3-Jun-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	4-Jun-06	00:00 - 00:07	0.12	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	4-Jun-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	4-Jun-06	00:07 - 02:26	2.32	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	4-Jun-06	02:26 - 04:56	2.50	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	4-Jun-06	04:56 - 10:03	5.12	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	4-Jun-06	10:03 - 12:31	2.47	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	4-Jun-06	12:31 - 15:01	2.50	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	4-Jun-06	15:01 - 17:32	2.52	Recording	RECI	RECI
SR/V Veritas Viking2	20323	4-Jun-06	17:32 - 20:08	2.60	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	4-Jun-06	20:08 - 22:39	2.52	Recording	RECI	RECI
SR/V Veritas Viking2	20323	4-Jun-06	22:39 - 24:00	1.35	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	5-Jun-06	00:00 - 01:24	1.40	Line Change	LCI	LCI
M/V Pacific Sword	20324	5-Jun-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	5-Jun-06	01:24 - 14:10	12.77	Service Time	LOG	RSP
SR/V Veritas Viking2	20323	5-Jun-06	14:10 - 16:37	2.45	Recording	RECI	RECI
SR/V Veritas Viking2	20323	5-Jun-06	16:37 - 19:11	2.57	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	5-Jun-06	19:11 - 21:30	2.32	Recording	RECP	RECP
SR/V Veritas Viking2	20323	5-Jun-06	21:30 - 24:00	2.50	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	6-Jun-06	00:00 - 00:10	0.17	Line Change	LCP	LCP
M/V Pacific Sword	20324	6-Jun-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	6-Jun-06	00:10 - 01:32	1.37	Recording	RECP	RECP
SR/V Veritas Viking2	20323	6-Jun-06	01:32 - 01:36	0.07	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	6-Jun-06	01:36 - 02:32	0.93	Recording	RECP	RECP
SR/V Veritas Viking2	20323	6-Jun-06	02:32 - 05:17	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	6-Jun-06	05:17 - 06:59	1.70	Regional D/T	FISH	FAC
SR/V Veritas Viking2	20323	6-Jun-06	06:59 - 09:21	2.37	Recording	RECP	RECP
SR/V Veritas Viking2	20323	6-Jun-06	09:21 - 11:53	2.53	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	6-Jun-06	11:53 - 14:14	2.35	Recording	RECP	RECP
SR/V Veritas Viking2	20323	6-Jun-06	14:14 - 16:46	2.53	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	6-Jun-06	16:46 - 19:14	2.47	Recording	RECP	RECP
SR/V Veritas Viking2	20323	6-Jun-06	19:14 - 21:43	2.48	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	6-Jun-06	21:43 - 24:00	2.28	Recording	RECP	RECP
SR/V Veritas Viking2	20323	7-Jun-06	00:00 - 00:20	0.33	Recording	RECP	RECP
M/V Pacific Sword	20324	7-Jun-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	7-Jun-06	00:20 - 02:44	2.40	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	7-Jun-06	02:44 - 05:19	2.58	Recording	RECI	RECI
SR/V Veritas Viking2	20323	7-Jun-06	05:19 - 07:46	2.45	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	7-Jun-06	07:46 - 10:23	2.62	Recording	RECI	RECI

TIME-USE LOG

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job #: 20323,20324

Summary	Hours	Vessel Days	Percentage of Survey
Total Survey	3128.083	130.337	100.0%

Vessel	Job Number	Date	Time	Total Time	Primary	Secondary	Tertiary
SR/V Veritas Viking2	20323	7-Jun-06	10:23 - 13:00	2.62	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	7-Jun-06	13:00 - 15:40	2.67	Recording	RECP	RECP
SR/V Veritas Viking2	20323	7-Jun-06	15:40 - 18:24	2.73	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	7-Jun-06	18:24 - 21:08	2.73	Recording	RECI	RECI
SR/V Veritas Viking2	20323	7-Jun-06	21:08 - 23:48	2.67	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	7-Jun-06	23:48 - 24:00	0.20	Recording	RECI	RECI
SR/V Veritas Viking2	20323	8-Jun-06	00:00 - 02:11	2.18	Recording	RECI	RECI
M/V Pacific Sword	20324	8-Jun-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	8-Jun-06	02:11 - 04:54	2.72	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	8-Jun-06	04:54 - 07:24	2.50	Recording	RECP	RECP
SR/V Veritas Viking2	20323	8-Jun-06	07:24 - 09:47	2.38	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	8-Jun-06	09:47 - 12:17	2.50	Recording	RECP	RECP
SR/V Veritas Viking2	20323	8-Jun-06	12:17 - 14:54	2.62	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	8-Jun-06	14:54 - 17:19	2.42	Recording	RECP	RECP
SR/V Veritas Viking2	20323	8-Jun-06	17:19 - 19:46	2.45	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	8-Jun-06	19:46 - 22:07	2.35	Recording	RECP	RECP
SR/V Veritas Viking2	20323	8-Jun-06	22:07 - 24:00	1.88	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	9-Jun-06	00:00 - 00:35	0.58	Line Change	LCP	LCP
M/V Pacific Sword	20324	9-Jun-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	9-Jun-06	00:35 - 03:14	2.65	Recording	RECP	RECP
SR/V Veritas Viking2	20323	9-Jun-06	03:14 - 05:36	2.37	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	9-Jun-06	05:36 - 08:08	2.53	Recording	RECP	RECP
SR/V Veritas Viking2	20323	9-Jun-06	08:08 - 10:32	2.40	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	9-Jun-06	10:32 - 13:07	2.58	Recording	RECP	RECP
SR/V Veritas Viking2	20323	9-Jun-06	13:07 - 15:29	2.37	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	9-Jun-06	15:29 - 18:08	2.65	Recording	RECI	RECI
SR/V Veritas Viking2	20323	9-Jun-06	18:08 - 20:50	2.70	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	9-Jun-06	20:50 - 23:39	2.82	Recording	RECP	RECP
SR/V Veritas Viking2	20323	9-Jun-06	23:39 - 24:00	0.35	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	10-Jun-06	00:00 - 02:01	2.02	Line Change	LCP	LCP
M/V Pacific Sword	20324	10-Jun-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	10-Jun-06	02:01 - 04:35	2.57	Recording	RECP	RECP
SR/V Veritas Viking2	20323	10-Jun-06	04:35 - 07:08	2.55	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	10-Jun-06	07:08 - 09:32	2.40	Recording	RECP	RECP
SR/V Veritas Viking2	20323	10-Jun-06	09:32 - 11:58	2.43	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	10-Jun-06	11:58 - 14:43	2.75	Recording	RECI	RECI
SR/V Veritas Viking2	20323	10-Jun-06	14:43 - 17:28	2.75	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	10-Jun-06	17:28 - 24:00	6.53	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	11-Jun-06	00:00 - 24:00	24.00	Regional D/T	ENV	SWL
M/V Pacific Sword	20324	11-Jun-06	00:00 - 24:00	24.00	Service Time	MOB	TRV
SR/V Veritas Viking2	20323	12-Jun-06	00:00 - 18:09	18.15	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	12-Jun-06	18:09 - 20:48	2.65	Recording	RECP	RECP
SR/V Veritas Viking2	20323	12-Jun-06	20:48 - 23:27	2.65	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	12-Jun-06	23:27 - 24:00	0.55	Recording	RECI	RECI
SR/V Veritas Viking2	20323	13-Jun-06	00:00 - 02:17	2.28	Recording	RECI	RECI
SR/V Veritas Viking2	20323	13-Jun-06	02:17 - 04:56	2.65	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	13-Jun-06	04:56 - 07:40	2.73	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	13-Jun-06	07:40 - 10:25	2.75	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	13-Jun-06	10:25 - 10:29	0.07	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	13-Jun-06	10:29 - 12:49	2.33	Recording	RECP	RECP
SR/V Veritas Viking2	20323	13-Jun-06	12:49 - 15:32	2.72	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	13-Jun-06	15:32 - 15:33	0.02	Technical D/T	SRC	SRIG
SR/V Veritas Viking2	20323	13-Jun-06	15:33 - 22:48	7.25	Technical D/T	SRC	SRIG
SR/V Veritas Viking2	20323	13-Jun-06	22:48 - 24:00	1.20	Recording	RECI	RECI
SR/V Veritas Viking2	20323	14-Jun-06	00:00 - 01:22	1.37	Recording	RECI	RECI
SR/V Veritas Viking2	20323	14-Jun-06	01:22 - 03:54	2.53	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	14-Jun-06	03:54 - 06:32	2.63	Recording	RECP	RECP
SR/V Veritas Viking2	20323	14-Jun-06	06:32 - 09:10	2.63	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	14-Jun-06	09:10 - 11:29	2.32	Recording	RECP	RECP
SR/V Veritas Viking2	20323	14-Jun-06	11:29 - 14:01	2.53	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	14-Jun-06	14:01 - 16:36	2.58	Recording	RECI	RECI
SR/V Veritas Viking2	20323	14-Jun-06	16:36 - 19:23	2.78	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	14-Jun-06	19:23 - 21:44	2.35	Recording	RECI	RECI
SR/V Veritas Viking2	20323	14-Jun-06	21:44 - 24:00	2.27	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	15-Jun-06	00:00 - 00:26	0.43	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	15-Jun-06	00:26 - 02:21	1.92	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	15-Jun-06	02:21 - 24:00	21.65	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	16-Jun-06	00:00 - 19:29	19.48	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	16-Jun-06	19:29 - 22:02	2.55	Recording	RECP	RECP

TIME-USE LOG

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job #: 20323,20324

Summary	Hours	Vessel Days	Percentage of Survey
Total Survey	3128.083	130.337	100.0%

Vessel	Job Number	Date	Time	Total Time	Primary	Secondary	Tertiary
SR/V Veritas Viking2	20323	16-Jun-06	22:02 - 24:00	1.97	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	17-Jun-06	00:00 - 00:32	0.53	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	17-Jun-06	00:32 - 03:04	2.53	Recording	RECI	RECI
SR/V Veritas Viking2	20323	17-Jun-06	03:04 - 05:36	2.53	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	17-Jun-06	05:36 - 07:58	2.37	Recording	RECP	RECP
SR/V Veritas Viking2	20323	17-Jun-06	07:58 - 10:33	2.58	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	17-Jun-06	10:33 - 12:53	2.33	Recording	RECI	RECI
SR/V Veritas Viking2	20323	17-Jun-06	12:53 - 15:18	2.42	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	17-Jun-06	15:18 - 17:39	2.35	Recording	RECP	RECP
SR/V Veritas Viking2	20323	17-Jun-06	17:39 - 20:01	2.37	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	17-Jun-06	20:01 - 22:31	2.50	Recording	RECI	RECI
SR/V Veritas Viking2	20323	17-Jun-06	22:31 - 24:00	1.48	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	18-Jun-06	00:00 - 00:58	0.97	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	18-Jun-06	00:58 - 03:28	2.50	Recording	RECI	RECI
SR/V Veritas Viking2	20323	18-Jun-06	03:28 - 06:07	2.65	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	18-Jun-06	06:07 - 08:10	2.05	Recording	RECI	RECI
SR/V Veritas Viking2	20323	18-Jun-06	08:10 - 10:55	2.75	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	18-Jun-06	10:55 - 11:36	0.68	Regional D/T	ELC	XLC
SR/V Veritas Viking2	20323	18-Jun-06	11:36 - 14:24	2.80	Recording	RECI	RECI
SR/V Veritas Viking2	20323	18-Jun-06	14:24 - 16:52	2.47	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	18-Jun-06	16:52 - 19:40	2.80	Recording	RECP	RECP
SR/V Veritas Viking2	20323	18-Jun-06	19:40 - 22:01	2.35	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	18-Jun-06	22:01 - 24:00	1.98	Recording	RECP	RECP
SR/V Veritas Viking2	20323	19-Jun-06	00:00 - 00:51	0.85	Recording	RECP	RECP
SR/V Veritas Viking2	20323	19-Jun-06	00:51 - 03:24	2.55	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	19-Jun-06	03:24 - 06:12	2.80	Recording	RECP	RECP
SR/V Veritas Viking2	20323	19-Jun-06	06:12 - 08:37	2.42	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	19-Jun-06	08:37 - 11:17	2.67	Recording	RECP	RECP
SR/V Veritas Viking2	20323	19-Jun-06	11:17 - 13:51	2.57	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	19-Jun-06	13:51 - 16:17	2.43	Recording	RECP	RECP
SR/V Veritas Viking2	20323	19-Jun-06	16:17 - 18:38	2.35	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	19-Jun-06	18:38 - 20:59	2.35	Recording	RECP	RECP
SR/V Veritas Viking2	20323	19-Jun-06	20:59 - 23:17	2.30	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	19-Jun-06	23:17 - 24:00	0.72	Recording	RECP	RECP
SR/V Veritas Viking2	20323	20-Jun-06	00:00 - 01:36	1.60	Recording	RECP	RECP
SR/V Veritas Viking2	20323	20-Jun-06	01:36 - 04:01	2.42	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	20-Jun-06	04:01 - 06:30	2.48	Recording	RECI	RECI
SR/V Veritas Viking2	20323	20-Jun-06	06:30 - 08:50	2.33	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	20-Jun-06	08:50 - 11:17	2.45	Recording	RECI	RECI
SR/V Veritas Viking2	20323	20-Jun-06	11:17 - 13:44	2.45	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	20-Jun-06	13:44 - 16:31	2.78	Recording	RECP	RECP
SR/V Veritas Viking2	20323	20-Jun-06	16:31 - 19:03	2.53	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	20-Jun-06	19:03 - 21:09	2.10	Recording	RECP	RECP
SR/V Veritas Viking2	20323	20-Jun-06	21:09 - 24:00	2.85	Service Time	MOB	RSP
SR/V Veritas Viking2	20323	21-Jun-06	00:00 - 14:37	14.62	Service Time	MOB	RSP
SR/V Veritas Viking2	20323	21-Jun-06	14:37 - 14:38	0.02	Service Time	MOB	RSP
SR/V Veritas Viking2	20323	21-Jun-06	14:38 - 15:16	0.63	Recording	RECP	RECP
SR/V Veritas Viking2	20323	21-Jun-06	15:16 - 17:41	2.42	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	21-Jun-06	17:41 - 20:00	2.32	Recording	RECP	RECP
SR/V Veritas Viking2	20323	21-Jun-06	20:00 - 22:45	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	21-Jun-06	22:45 - 23:17	0.53	Regional D/T	ENV	SEA
SR/V Veritas Viking2	20323	21-Jun-06	23:17 - 24:00	0.72	Recording	RECP	RECP
SR/V Veritas Viking2	20323	22-Jun-06	00:00 - 01:48	1.80	Recording	RECP	RECP
SR/V Veritas Viking2	20323	22-Jun-06	01:48 - 04:21	2.55	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	22-Jun-06	04:21 - 06:54	2.55	Recording	RECP	RECP
SR/V Veritas Viking2	20323	22-Jun-06	06:54 - 09:29	2.58	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	22-Jun-06	09:29 - 12:09	2.67	Recording	RECI	RECI
SR/V Veritas Viking2	20323	22-Jun-06	12:09 - 14:54	2.75	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	22-Jun-06	14:54 - 15:26	0.53	Technical D/T	NAV	ACS
SR/V Veritas Viking2	20323	22-Jun-06	15:26 - 17:59	2.55	Recording	RECI	RECI
SR/V Veritas Viking2	20323	22-Jun-06	17:59 - 20:23	2.40	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	22-Jun-06	20:23 - 23:03	2.67	Recording	RECP	RECP
SR/V Veritas Viking2	20323	22-Jun-06	23:03 - 24:00	0.95	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	23-Jun-06	00:00 - 01:25	1.42	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	23-Jun-06	01:25 - 04:18	2.88	Recording	RECP	RECP
SR/V Veritas Viking2	20323	23-Jun-06	04:18 - 07:01	2.72	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	23-Jun-06	07:01 - 09:25	2.40	Recording	RECP	RECP
SR/V Veritas Viking2	20323	23-Jun-06	09:25 - 11:53	2.47	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	23-Jun-06	11:53 - 14:51	2.97	Recording	RECI	RECI

TIME-USE LOG

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job #: 20323,20324

Summary	Hours	Vessel Days	Percentage of Survey
Total Survey	3128.083	130.337	100.0%

Vessel	Job Number	Date	Time	Total Time	Primary	Secondary	Tertiary
SR/V Veritas Viking2	20323	23-Jun-06	14:51 - 17:33	2.70	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	23-Jun-06	17:33 - 19:54	2.35	Recording	RECI	RECI
SR/V Veritas Viking2	20323	23-Jun-06	19:54 - 22:14	2.33	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	23-Jun-06	22:14 - 24:00	1.77	Recording	RECP	RECP
SR/V Veritas Viking2	20323	24-Jun-06	00:00 - 00:36	0.60	Recording	RECP	RECP
SR/V Veritas Viking2	20323	24-Jun-06	00:36 - 03:21	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	24-Jun-06	03:21 - 03:33	0.20	Regional D/T	ENV	SEA
SR/V Veritas Viking2	20323	24-Jun-06	03:33 - 05:51	2.30	Recording	RECP	RECP
SR/V Veritas Viking2	20323	24-Jun-06	05:51 - 08:36	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	24-Jun-06	08:36 - 09:11	0.58	Regional D/T	ENV	SEA
SR/V Veritas Viking2	20323	24-Jun-06	09:11 - 09:14	0.05	Technical D/T	NAV	DMU
SR/V Veritas Viking2	20323	24-Jun-06	09:14 - 11:57	2.72	Recording	RECI	RECI
SR/V Veritas Viking2	20323	24-Jun-06	11:57 - 14:36	2.65	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	24-Jun-06	14:36 - 16:54	2.30	Recording	RECP	RECP
SR/V Veritas Viking2	20323	24-Jun-06	16:54 - 19:37	2.72	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	24-Jun-06	19:37 - 22:09	2.53	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	24-Jun-06	22:09 - 24:00	1.85	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	25-Jun-06	00:00 - 00:33	0.55	Regional D/T	ENV	SWL
SR/V Veritas Viking2	20323	25-Jun-06	00:33 - 03:04	2.52	Recording	RECP	RECP
SR/V Veritas Viking2	20323	25-Jun-06	03:04 - 05:46	2.70	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	25-Jun-06	05:46 - 08:54	3.13	Recording	RECP	RECP
SR/V Veritas Viking2	20323	25-Jun-06	08:54 - 11:22	2.47	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	25-Jun-06	11:22 - 13:45	2.38	Recording	RECI	RECI
SR/V Veritas Viking2	20323	25-Jun-06	13:45 - 16:15	2.50	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	25-Jun-06	16:15 - 19:12	2.95	Recording	RECI	RECI
SR/V Veritas Viking2	20323	25-Jun-06	19:12 - 21:40	2.47	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	25-Jun-06	21:40 - 24:00	2.33	Recording	RECI	RECI
SR/V Veritas Viking2	20323	26-Jun-06	00:00 - 00:22	0.37	Recording	RECI	RECI
SR/V Veritas Viking2	20323	26-Jun-06	00:22 - 02:56	2.57	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	26-Jun-06	02:56 - 05:42	2.77	Recording	RECP	RECP
SR/V Veritas Viking2	20323	26-Jun-06	05:42 - 08:27	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	26-Jun-06	08:27 - 10:49	2.37	Recording	RECI	RECI
SR/V Veritas Viking2	20323	26-Jun-06	10:49 - 13:17	2.47	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	26-Jun-06	13:17 - 15:59	2.70	Recording	RECP	RECP
SR/V Veritas Viking2	20323	26-Jun-06	15:59 - 18:37	2.63	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	26-Jun-06	18:37 - 20:57	2.33	Recording	RECI	RECI
SR/V Veritas Viking2	20323	26-Jun-06	20:57 - 23:25	2.47	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	26-Jun-06	23:25 - 24:00	0.58	Recording	RECI	RECI
SR/V Veritas Viking2	20323	27-Jun-06	00:00 - 01:45	1.75	Recording	RECI	RECI
SR/V Veritas Viking2	20323	27-Jun-06	01:45 - 04:13	2.47	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	27-Jun-06	04:13 - 06:31	2.30	Recording	RECP	RECP
SR/V Veritas Viking2	20323	27-Jun-06	06:31 - 09:08	2.62	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	27-Jun-06	09:08 - 12:01	2.88	Recording	RECP	RECP
SR/V Veritas Viking2	20323	27-Jun-06	12:01 - 14:10	2.15	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	27-Jun-06	14:10 - 16:17	2.12	Recording	RECP	RECP
SR/V Veritas Viking2	20323	27-Jun-06	16:17 - 18:47	2.50	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	27-Jun-06	18:47 - 21:42	2.92	Recording	RECP	RECP
SR/V Veritas Viking2	20323	27-Jun-06	21:42 - 23:57	2.25	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	27-Jun-06	23:57 - 24:00	0.05	Recording	RECP	RECP
SR/V Veritas Viking2	20323	28-Jun-06	00:00 - 02:26	2.43	Recording	RECP	RECP
SR/V Veritas Viking2	20323	28-Jun-06	02:26 - 05:17	2.85	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	28-Jun-06	05:17 - 08:02	2.75	Recording	RECI	RECI
SR/V Veritas Viking2	20323	28-Jun-06	08:02 - 10:37	2.58	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	28-Jun-06	10:37 - 12:39	2.03	Recording	RECI	RECI
SR/V Veritas Viking2	20323	28-Jun-06	12:39 - 15:24	2.75	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	28-Jun-06	15:24 - 16:23	0.98	Regional D/T	OBS	FOB
SR/V Veritas Viking2	20323	28-Jun-06	16:23 - 19:03	2.67	Recording	RECP	RECP
SR/V Veritas Viking2	20323	28-Jun-06	19:03 - 21:08	2.08	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	28-Jun-06	21:08 - 22:55	1.78	Recording	RECP	RECP
SR/V Veritas Viking2	20323	28-Jun-06	22:55 - 24:00	1.08	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	29-Jun-06	00:00 - 01:15	1.25	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	29-Jun-06	01:15 - 03:33	2.30	Recording	RECI	RECI
SR/V Veritas Viking2	20323	29-Jun-06	03:33 - 06:09	2.60	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	29-Jun-06	06:09 - 07:54	1.75	Recording	RECP	RECP
SR/V Veritas Viking2	20323	29-Jun-06	07:54 - 10:27	2.55	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	29-Jun-06	10:27 - 13:06	2.65	Recording	RECP	RECP
SR/V Veritas Viking2	20323	29-Jun-06	13:06 - 15:36	2.50	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	29-Jun-06	15:36 - 17:09	1.55	Recording	RECP	RECP
SR/V Veritas Viking2	20323	29-Jun-06	17:09 - 19:49	2.67	Line Change	LCP	LCP

TIME-USE LOG

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job #: 20323,20324

Summary	Hours	Vessel Days	Percentage of Survey
Total Survey	3128.083	130.337	100.0%

Vessel	Job Number	Date	Time	Total Time	Primary	Secondary	Tertiary
SR/V Veritas Viking2	20323	29-Jun-06	19:49 - 22:34	2.75	Recording	RECI	RECI
SR/V Veritas Viking2	20323	29-Jun-06	22:34 - 24:00	1.43	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	30-Jun-06	00:00 - 00:57	0.95	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	30-Jun-06	00:57 - 02:40	1.72	Recording	RECI	RECI
SR/V Veritas Viking2	20323	30-Jun-06	02:40 - 05:25	2.75	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	30-Jun-06	05:25 - 06:21	0.93	Regional D/T	OBS	FOB
SR/V Veritas Viking2	20323	30-Jun-06	06:21 - 09:17	2.93	Recording	RECP	RECP
SR/V Veritas Viking2	20323	30-Jun-06	09:17 - 11:56	2.65	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	30-Jun-06	11:56 - 13:15	1.32	Recording	RECP	RECP
SR/V Veritas Viking2	20323	30-Jun-06	13:15 - 16:00	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	30-Jun-06	16:00 - 16:25	0.42	Regional D/T	OBS	FOB
SR/V Veritas Viking2	20323	30-Jun-06	16:25 - 19:03	2.63	Recording	RECI	RECI
SR/V Veritas Viking2	20323	30-Jun-06	19:03 - 21:51	2.80	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	30-Jun-06	21:51 - 23:01	1.17	Recording	RECI	RECI
SR/V Veritas Viking2	20323	30-Jun-06	23:01 - 24:00	0.98	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	1-Jul-06	00:00 - 01:46	1.77	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	1-Jul-06	01:46 - 02:11	0.42	Regional D/T	OBS	FOB
SR/V Veritas Viking2	20323	1-Jul-06	02:11 - 04:00	1.82	Recording	RECP	RECP
SR/V Veritas Viking2	20323	1-Jul-06	04:00 - 06:34	2.57	Regional D/T	WLF	MAM
SR/V Veritas Viking2	20323	1-Jul-06	06:34 - 07:34	1.00	Recording	RECP	RECP
SR/V Veritas Viking2	20323	1-Jul-06	07:34 - 10:19	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	1-Jul-06	10:19 - 11:10	0.85	Regional D/T	WLF	MAM
SR/V Veritas Viking2	20323	1-Jul-06	11:10 - 11:12	0.03	Regional D/T	WLF	MAM
SR/V Veritas Viking2	20323	1-Jul-06	11:12 - 12:10	0.97	Recording	RECP	RECP
SR/V Veritas Viking2	20323	1-Jul-06	12:10 - 14:57	2.78	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	1-Jul-06	14:57 - 15:54	0.95	Recording	RECI	RECI
SR/V Veritas Viking2	20323	1-Jul-06	15:54 - 18:39	2.75	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	1-Jul-06	18:39 - 19:19	0.67	Regional D/T	OBS	FOB
SR/V Veritas Viking2	20323	1-Jul-06	19:19 - 22:21	3.03	Recording	RECP	RECP
SR/V Veritas Viking2	20323	1-Jul-06	22:21 - 24:00	1.65	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	2-Jul-06	00:00 - 01:06	1.10	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	2-Jul-06	01:06 - 01:26	0.33	Regional D/T	ELC	XLC
SR/V Veritas Viking2	20323	2-Jul-06	01:26 - 04:03	2.62	Recording	RECP	RECP
SR/V Veritas Viking2	20323	2-Jul-06	04:03 - 06:48	2.75	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	2-Jul-06	06:48 - 07:34	0.77	Regional D/T	ELC	XLC
SR/V Veritas Viking2	20323	2-Jul-06	07:34 - 10:26	2.87	Recording	RECI	RECI
SR/V Veritas Viking2	20323	2-Jul-06	10:26 - 13:11	2.75	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	2-Jul-06	13:11 - 13:40	0.48	Regional D/T	ELC	XLC
SR/V Veritas Viking2	20323	2-Jul-06	13:40 - 16:01	2.35	Recording	RECI	RECI
SR/V Veritas Viking2	20323	2-Jul-06	16:01 - 18:46	2.75	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	2-Jul-06	18:46 - 19:26	0.67	Regional D/T	ELC	XLC
SR/V Veritas Viking2	20323	2-Jul-06	19:26 - 22:09	2.72	Recording	RECI	RECI
SR/V Veritas Viking2	20323	2-Jul-06	22:09 - 24:00	1.85	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	3-Jul-06	00:00 - 00:54	0.90	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	3-Jul-06	00:54 - 01:21	0.45	Regional D/T	ELC	XLC
SR/V Veritas Viking2	20323	3-Jul-06	01:21 - 03:48	2.45	Recording	RECI	RECI
SR/V Veritas Viking2	20323	3-Jul-06	03:48 - 06:18	2.50	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	3-Jul-06	06:18 - 06:57	0.65	Recording	RECI	RECI
SR/V Veritas Viking2	20323	3-Jul-06	06:57 - 09:18	2.35	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	3-Jul-06	09:18 - 09:20	0.03	Technical D/T	NAV	ACS
SR/V Veritas Viking2	20323	3-Jul-06	09:20 - 09:57	0.62	Technical D/T	NAV	ACS
SR/V Veritas Viking2	20323	3-Jul-06	09:57 - 12:22	2.42	Technical D/T	NAV	ACS
SR/V Veritas Viking2	20323	3-Jul-06	12:22 - 12:40	0.30	Technical D/T	NAV	DMU
SR/V Veritas Viking2	20323	3-Jul-06	12:40 - 13:03	0.38	Technical D/T	NAV	DMU
SR/V Veritas Viking2	20323	3-Jul-06	13:03 - 15:52	2.82	Technical D/T	NAV	DMU
SR/V Veritas Viking2	20323	3-Jul-06	15:52 - 15:54	0.03	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	3-Jul-06	15:54 - 15:58	0.07	Recording	RECP	RECP
SR/V Veritas Viking2	20323	3-Jul-06	15:58 - 16:29	0.52	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	3-Jul-06	16:29 - 17:49	1.33	Technical D/T	SRC	GUN
SR/V Veritas Viking2	20323	3-Jul-06	17:49 - 19:10	1.35	Regional D/T	FISH	FAC
SR/V Veritas Viking2	20323	3-Jul-06	19:10 - 19:13	0.05	Recording	RECI	RECI
SR/V Veritas Viking2	20323	3-Jul-06	19:13 - 19:44	0.52	Technical D/T	NAV	DMU
SR/V Veritas Viking2	20323	3-Jul-06	19:44 - 23:34	3.83	Technical D/T	NAV	DMU
SR/V Veritas Viking2	20323	3-Jul-06	23:34 - 24:00	0.43	Recording	RECI	RECI
SR/V Veritas Viking2	20323	4-Jul-06	00:00 - 00:53	0.88	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	4-Jul-06	00:53 - 01:05	0.20	Recording	RECI	RECI
SR/V Veritas Viking2	20323	4-Jul-06	01:05 - 03:50	2.75	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	4-Jul-06	03:50 - 06:22	2.53	Regional D/T	FISH	FAC
SR/V Veritas Viking2	20323	4-Jul-06	06:22 - 09:29	3.12	Recording	RECP	RECP

TIME-USE LOG

Vessel(s) : SR/V Veritas Viking II
 Prospect : Greater Bream 3D
 Client : ExxonMobil
 Dates : 22-Apr-2006 to 13-Jul-2006
 Job #: 20323,20324

Summary	Hours	Vessel Days	Percentage of Survey
Total Survey	3128.083	130.337	100.0%

Vessel	Job Number	Date	Time	Total Time	Primary	Secondary	Tertiary
SR/V Veritas Viking2	20323	4-Jul-06	09:29 - 11:49	2.33	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	4-Jul-06	11:49 - 14:36	2.78	Recording	RECP	RECP
SR/V Veritas Viking2	20323	4-Jul-06	14:36 - 18:47	4.18	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	4-Jul-06	18:47 - 21:24	2.62	Recording	RECP	RECP
SR/V Veritas Viking2	20323	4-Jul-06	21:24 - 22:41	1.28	Line Change	LCP	LCP
SR/V Veritas Viking2	20323	4-Jul-06	22:41 - 22:43	0.03	Technical D/T	SRC	ALF
SR/V Veritas Viking2	20323	4-Jul-06	22:43 - 23:15	0.53	Recording	RECP	RECP
SR/V Veritas Viking2	20323	4-Jul-06	23:15 - 24:00	0.75	Technical D/T	SRC	ALF
SR/V Veritas Viking2	20323	5-Jul-06	00:00 - 01:44	1.73	Technical D/T	SRC	ALF
SR/V Veritas Viking2	20323	5-Jul-06	01:44 - 04:38	2.90	Recording	RECI	RECI
SR/V Veritas Viking2	20323	5-Jul-06	04:38 - 07:15	2.62	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	5-Jul-06	07:15 - 07:57	0.70	Recording	RECI	RECI
SR/V Veritas Viking2	20323	5-Jul-06	07:57 - 11:44	3.78	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	5-Jul-06	11:44 - 12:48	1.07	Recording	RECI	RECI
SR/V Veritas Viking2	20323	5-Jul-06	12:48 - 15:44	2.93	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	5-Jul-06	15:44 - 16:15	0.52	Recording	RECI	RECI
SR/V Veritas Viking2	20323	5-Jul-06	16:15 - 19:30	3.25	Line Change	LCI	LCI
SR/V Veritas Viking2	20323	5-Jul-06	19:30 - 21:27	1.95	Recording	RECI	RECI
SR/V Veritas Viking2	20323	5-Jul-06	21:27 - 24:00	2.55	Service Time	DMOB	RET
SR/V Veritas Viking2	20323	6-Jul-06	00:00 - 20:43	20.72	Service Time	DMOB	RET
SR/V Veritas Viking2	20323	6-Jul-06	20:43 - 24:00	3.28	Service Time	DMOB	TRV
SR/V Veritas Viking2	20323	7-Jul-06	00:00 - 24:00	24.00	Service Time	DMOB	TRV
SR/V Veritas Viking2	20323	8-Jul-06	00:00 - 24:00	24.00	Service Time	DMOB	TRV
SR/V Veritas Viking2	20323	9-Jul-06	00:00 - 24:00	24.00	Service Time	DMOB	TRV
SR/V Veritas Viking2	20323	10-Jul-06	00:00 - 24:00	24.00	Service Time	DMOB	TRV
SR/V Veritas Viking2	20323	11-Jul-06	00:00 - 24:00	24.00	Service Time	DMOB	TRV
SR/V Veritas Viking2	20323	12-Jul-06	00:00 - 24:00	24.00	Service Time	DMOB	TRV
SR/V Veritas Viking2	20323	13-Jul-06	00:00 - 24:00	24.00	Service Time	DMOB	PRT

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-001-190**

Area: **Gippsland Basin, Bass Strait** Sequence: **190**

Prospect: **2006 Greater Bream 3D** Direction: **283.0°** Nav Def: **13**

Job ID: **20323** CMP line range: **N/A** Line type: **Prime**

Type: **2D** No. CMPs: **8** Status: **Complete** Initials: GC/RF/AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	4-Jul-2006	185	06:22	16:22	121	2167	1718	5:58 UTC
FPSP:	4-Jul-2006	185	06:22	16:22	121	2167	1718	
LPSP:	4-Jul-2006	185	09:29	19:29	1407	881	1721	Full volume arrays at 6:18 UTC
EOL LSP:	4-Jul-2006	185	09:29	19:29	1407	881	1721	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-5.1	1.6
Water depth (m)	49	37
RMS noise @ 5 Hz LC (µB)	3.2	3.1
Weather	025°, 5m/s, 1.0m	035°, 6m/s, 1.5m
Source vol. (cu. in.)		
Port		
Stbd	4450	4450
Source pressure (psi)		
Port		
Stbd	1946	1932

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.8-7.3
Str 2	6.6-7.2	6.8-7.3
Str 3	6.7-7.2	7.0-7.3
Str 4	6.8-7.2	6.9-7.2
Str 5	6.8-7.3	6.8-7.2
Str 6	6.7-7.2	6.8-7.3
Str 7	6.8-7.2	6.8-7.2
Str 8	6.9-7.2	6.8-7.3

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.
Line shot in 2D mode using Stbd source
GCS90 - False error reading "depth error 19.8m" from SOL to SP 2030.
Swell noise visible on RMS display
Recording log files 250 & 251 not present d/t logging barn crash

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	290			339 (Phase)	3, 16		
S4:	106, 110, 148, 177				127, 178, 233, 353, 358, 359		
S5:	75				86, 88, 326		
S6:	49, 116, 158, 161, 307				29, 37, 91, 205, 303		
S7:	89, 100, 166, 202, 229, 269, 285		360				
S8:	198						

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-001-190**Seq: **190**Dir: **283.0°**

FILE	SP	TAPE	BAD	
99-110	/	1718		SOT - SOL NOISE FILES
111-120	2177-2168			APPROACH SHOTS
121	2167	1718		FSP @ 06:22 UTC
121	2167	1718		FPSP @ 06:22 UTC
469	1819	1718		EOT
470	1818	1719		SOT
840	1448	1719		EOT
841	1447	1720		SOT
1211	1077	1720		EOT
1212	1076	1721		SOT
1407	881	1721		LPSP @ 09:29 UTC
1407	881	1721		LSP @ 09:29 UTC
1408-1412	880-876			NAV PROCESSING SHOTS
1413-1422	/	1721		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-001-190**Seq: **190**Dir: **283.0°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **2D**

Line name: **G06A-001-190**
 Sequence: **190**
 Direction: **283.0°** Nav. Def: **13**
 CMP line range: **N/A** Line type: **Prime**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	4-Jul-2006	185	06:22	16:22	121	2167	1718
FPSP:	4-Jul-2006	185	06:22	16:22	121	2167	1718
LPSP:	4-Jul-2006	185	09:29	19:29	1407	881	1721
EOL LSP	4-Jul-2006	185	09:29	19:29	1407	881	1721

GENERAL INFORMATION

	SOL	EOL
FA (°)	-5.1	1.6
Water depth (m)	49	37
RMS Noise (µB)	3.2	3.1
Weather	025°, 5m/s, 1.0m	035°, 6m/s, 1.5m
Source volume (cu in): Port		
Stbd	4450	4450
Source pressure (psi): Port		
Stbd	1946	1932

TOTALS INFORMATION

Recorded SPs	1287
Recorded km	24.131
Production time (hh:mm)	03:07
Production files	1287
Production SPs	1287
Production km	24.131
Production CMP km	193.050

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.3	3.6	2.1
HDOP	0.8	3.3	1.4
V1G2 PDOP	1.4	3.6	2.2
HDOP	0.8	3.3	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.2	4.19
Speed through water (m/s)	1.9	2.4	2.1	4.13
Feather angle (°)	-6.1	1.1	-3.8	
Gyro (P) (°)	278.2	297.2	285.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.2	525.2	522.0
Str 1-2	74.0	76.4	75.4
Str 2-3	74.3	76.3	75.3
Str 3-4	73.0	75.9	74.4
Str 4-5	67.4	72.8	70.3
Str 5-6	74.4	78.1	76.7
Str 6-7	71.8	74.4	73.3
Str 7-8	75.2	77.3	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.0	39.4	37.2
Port-Subarray			
Outer-Centre	7.3	8.3	7.8
Centre-Inner	8.4	9.5	8.9
Stbd Subarray			
Centre-Inner	7.7	8.6	8.2
Outer-Centre	6.7	7.5	7.1

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49,116,158,161,307			
Str 7	89,100,166, 202, 229,		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	88, 326, 352	
Str 6	91, 205	
Str 7	164, 251	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.06

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.
 Line shot in 2D mode using Stbd source
 GCS90 - False error reading "depth error 19.8m" from SOL to SP 2030.
 Swell noise visible on RMS display
 Recording log files 250 & 251 not present d/t logging barn crash

PROCESSING QC COMMENTS

Mild to moderate level of swell noise affecting 5% to 10% of traces.
 Strum and head wave energy is observed along the line

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-002-192**
 Area: **Gippsland Basin, Bass Strait** Sequence: **192**
 Prospect: **2006 Greater Bream 3D** Direction: **92.1°** Nav Def: **13**
 Job ID: **20323** CMP line range: **NA** Line type: **Prime**
 Type: **2D** No. CMPs: **8** Status: **Complete**
 Initials: **NC/RA/LT**
 Log Status: **Final**

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	4-Jul-2006	185	18:47	4:47	121	1001	1727	18:10 UTC
FPSP:	4-Jul-2006	185	18:47	4:47	121	1001	1727	
LPSP:	4-Jul-2006	185	21:24	7:24	1203	2083	1730	Full volume arrays at 18:30 UTC
EOL LSP:	4-Jul-2006	185	21:24	7:24	1203	2083	1730	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	4.8	-1.0
Water depth (m)	48	55
RMS noise @ 5 Hz LC (µB)	3.2	6.1
Weather	280°, 3m/s, 1.5m	020°, 5m/s, 1.5m
Source vol. (cu. in.)		
Stbd	4450	4450
Source pressure (psi)		
Stbd	1945	1940

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.1	6.8-7.2
Str 2	6.7-7.0	6.9-7.4
Str 3	6.7-7.1	6.8-7.1
Str 4	6.8-7.1	6.8-7.2
Str 5	6.7-7.1	6.9-7.3
Str 6	6.8-7.2	6.9-7.1
Str 7	6.5-7.1	6.8-7.3
Str 8	6.8-7.2	6.8-7.4

SOL/EOL Comments

Screw noise still visible on EOL Noise files

Overall Line Observations

All gun strings operating with gun # 3 as spare.
 Line shot in 2D mode using Stbd source.
 Gun depths occasionally fluctuating d/t swell, max 6.7m
 SP 1830 - EOL: Screw/ Rig noise H-T @ 30µB (Max) from port side

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	83			290 (Phase)	3, 16		
S4:	106, 110, 148				127, 353		
S5:	75				88, 326, 333		
S6:	120, 158				20, 29, 91, 205		
S7:	166, 202, 229, 269, 285		130,360	100 (Phase)		164	
S8:							

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-002-192**Seq: **192**Dir: **92.1°**

FILE	SP	TAPE	BAD	
89-98	/	1727		GUN S4 SIGNATURE TEST
99-110	/	1727		SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1727		FSP @ 18:47 UTC
121	1001	1727		FPSP @ 18:47 UTC
224	1104		Bad	Delta Error: S-1: 1.1
459	1339	1727		EOT
460	1340	1728		SOT
830	1710	1728		EOT
831	1711	1729		SOT
938	1818		Bad	Delta Error: S-1: 1.1
950	1830			Screw noise/ Rig reflection H-T @ 30µB (Max) from port side
1041	1921		Bad	Delta Error: S-1: 1.1
1079	1959		Bad	Delta Error: S-1: 1.2
1080	1960		Bad	Delta Error: S-1: 1.1
1087	1967		Bad	Delta Error: S-1: 1.1
1100	1980		Bad	Delta Error: S-1: 1.2
1201	2081	1729		EOT
1202	2082	1730		SOT
1203	2083	1730		LPSP @ 21:24 UTC
1203	2083	1730		LSP @ 21:24 UTC
1204-1208	2084-2088			NAV PROCESSING SHOTS
1209-1218	/	1730		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-002-192**Seq: **192**Dir: **92.1°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	120
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Single Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of active source arrays:	1
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Single source acquisition mode, dual source in-water geometry Starboard array active, port array passive.	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-002-192**

Area: **Gippsland Basin, Bass Strait** Sequence: **192** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **092.1°** Nav Def: **13**

Job ID: **20323** CMP line range: **NA** Line type: **Prime**

Type: **2D** No. CMPs: **8** Status: **Complete** Log Status: Final

Initials: vq hh vt at

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	4-Jul-2006	185	18:47	4:47	1001	4.8	-33	280°, 3m/s, 1.5m
FPSP:	4-Jul-2006	185	18:47	4:47	1001			
LPSP:	4-Jul-2006	185	21:24	7:24	2083			
EOL LSP:	4-Jul-2006	185	21:24	7:24	2083	-1	-8.9	020°, 5m/s, 1.5m
	UTC offset:			10.0				

Separations (m)		SOL	EOL	Sources overall:		Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	512	515	Sub arrays:	PO-PC	35.4	36.0	
Per streamer:	Str 1-2	75	75		PC-PI	8.1	6.5	
	Str 2-3	75	75		SI-SC	9.1	7.5	
	Str 3-4	75	72		SC-SO	8.1	7.2	
	Str 4-5	67	63			8.0	7.6	
	Str 5-6	79	78					
	Str 6-7	74	74					
	Str 7-8	77	76					

P2/94 filename: **G06A-002-192.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_13**

Backup tape: **Tape 3 Seq 4**

Observations disabled etc.

Acoustics: S2A2 Intermittent

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1001	18:47	4:47	SOL, FSP
1001	18:47	4:47	FPSP
1821	20:48	6:48	Vessel abeam Bream A - CPA 1289
1835	20:50	6:50	S1 abeam Bream A CPA - 930m
1856	20:53	6:53	Azimuth thruster down
2083	21:24	7:24	LPSP
2083	21:24	7:24	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan

Chief Navigator: Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **2D**

Line name: **G06A-002-192**
 Sequence: **192**
 Direction: **92.1°** Nav. Def: **13**
 CMP line range: **NA** Line type: **Prime**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	4-Jul-2006	185	18:47	04:47	121	1001	1727
FPSP:	4-Jul-2006	185	18:47	04:47	121	1001	1727
LPSP:	4-Jul-2006	185	21:24	07:24	1203	2083	1730
EOL LSP	4-Jul-2006	185	21:24	07:24	1203	2083	1730

GENERAL INFORMATION

	SOL	EOL
FA (°)	4.8	-1
Water depth (m)	48	55
RMS Noise (µB)	3.2	6.1
Weather	280°, 3m/s, 1.5m	020°, 5m/s, 1.5m
Source volume (cu in): Stbd	4450	4450
Source pressure (psi): Stbd	1945	1940

TOTALS INFORMATION

Recorded SPs	1083
Recorded km	20.306
Production time (hh:mm)	02:37
Production files	1083
Production SPs	1083
Production km	20.306
Production CMP km	162.450

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	120
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	7 / 0.65%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.7	2.0
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.8	2.1
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.3	2.1	4.17
Speed through water (m/s)	1.6	2.2	2.0	3.85
Feather angle (°)	-0.6	5.0	2.5	
Gyro (P) (°)	86.2	94.9	90.1	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	519.5	525.7	521.8
Str 1-2	74.4	76.6	75.5
Str 2-3	74.5	76.2	75.3
Str 3-4	73.1	76.5	74.7
Str 4-5	64.9	70.2	67.5
Str 5-6	77.5	80.2	78.8
Str 6-7	72.9	74.4	73.7
Str 7-8	75.4	77.3	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.3	37.9	35.4
Port-Subarray	7.7	8.3	8.0
Outer-Centre	8.1	9.2	8.8
Centre-Inner	7.2	8.2	7.8
Stbd Subarray	7.7	8.5	8.1
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83			290 (Phase)
Str 4	106, 110, 148			
Str 5	75			
Str 6	120,158			
Str 7	166, 202, 229, 269, 285		130,360	100 (Phase)
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	88,326,352,	
Str 6	91,205,	
Str 7	164,251,	
Str 8	318	

SHOT / TRACE EDITS:**SPs:****TOTAL SHOTS**

Timing (delta) errors >1.0ms:	1104, 1818, 1921, 1959, 1960, 1967, 1980	7
Autofires / Misfires:		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 Line shot in 2D mode using Stbd source.
 Gun depths occasionally fluctuating d/t swell, max 6.7m
 SP 1830 - EOL: Screw/ Rig noise H-T @ 30µB (Max) from port side

PROCESSING QC COMMENTS

Negligible swell noise. Low seps S4-5 d/t WSP 3.8kts
 Strum and head wave energy is observed along the line
 Localised noise from starboard side as passing rig loading supply vessel, amplitude ~ 20ubar

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-003-191**
 Area: **Gippsland Basin, Bass Strait** Sequence: **191**
 Prospect: **2006 Greater Bream 3D** Direction: **145.9°** Nav Def: **13**
 Job ID: **20323** CMP line range: **N/A** Line type: **Prime**
 Type: **2D** No. CMPs: **8** Status: **Complete** Initials: GC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	4-Jul-2006	185	11:49	21:49	121	1001	1723	11:20	
FPSP:	4-Jul-2006	185	11:49	21:49	121	1001	1723		
LPSP:	4-Jul-2006	185	14:36	0:36	1261	2141	1726		
EOL LSP:	4-Jul-2006	185	14:36	0:36	1261	2141	1726	11:40	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-6.3	-4.9
Water depth (m)	38	52
RMS noise @ 5 Hz LC (µB)	4.4	4
Weather	040°, 4m/s, 2.0m	330°, 3m/s, 1.0m
Source vol. (cu. in.)		
Stbd	4450	4450
Source pressure (psi)		
Stbd	1935	1936

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.1	6.8-7.1
Str 2	6.9-7.3	6.8-7.1
Str 3	6.8-7.2	6.9-7.3
Str 4	6.8-7.2	6.6-7.2
Str 5	6.7-7.2	6.9-7.2
Str 6	6.8-7.3	6.8-7.4
Str 7	6.9-7.3	6.9-7.2
Str 8	6.8-7.4	6.9-7.3

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.
 Line shot in 2D mode using Stbd source.
 SP 1323 Gun S-4 disabled d/t misfires and Spare gun S-3 enabled. Vol still 4450 cu.in
 SP 1486 Gun S-10 disabled d/t flagged autofires and Spare gun S-12 enabled. Vol still 4450 cu.in

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:				305 (Phase)	304,305		
S3:	83			290 (Phase)			
S4:	106, 110, 148				127		
S5:	75				86,88,326		
S6:	120,158				29,37,91,205,303		
S7:	166, 202, 229, 269, 285		130,360	100 (Phase)	251		
S8:							

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-003-191**Seq: **191**Dir: **145.9°**

FILE	SP	TAPE	BAD	
99-110	/	1723		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1723		FSP @ 11:49 UTC
121	1001	1723		FPSP @ 11:49 UTC
422	1302		Bad	Misfire: S-4
440	1320		Bad	Misfire: S-4
443	1323		Bad	Misfire: S-4 Gun S-4 disabled. Spare gun S-3 enabled
444	1324		Bad	Misfire: S-3
445	1325		Bad	Delta Error: S-3: 1.3
469	1349	1723		EOT
470	1350	1724		SOT
587	1467		Bad	Autofire: S-10
590	1470		Bad	Autofire: S-10
594	1474		Bad	Autofire: S-10
602	1482		Bad	Autofire: S-10
603	1483		Bad	Autofire: S-10
605	1485		Bad	Volume Error - Expected Volume: 4450 Actual Volume: 4120
606	1486		Bad	Autofire: S-12 Gun S-10 disabled. Spare gun S-12 enabled
607	1487		Bad	Delta Error: S-12: 1.9
816	1696		Bad	Delta Error: S-12: -1.1
829	1709		Bad	Autofire: S-12
835	1715		Bad	Delta Error: S-12: 1.2
840	1720	1724		EOT
841	1721	1725		SOT
899	1779		Bad	Pressure Error: String 4: 1882
900	1780		Bad	Pressure Error: String 4: 1894
902	1782		Bad	Pressure Error: String 4: 1878
903	1783		Bad	Pressure Error: String 4: 1882
1025	1905		Bad	Autofire: S-12
1054	1934			Volume Error - Expected Volume: 4450 Actual Volume: 4780
1063	1943			Volume Error - Expected Volume: 4450 Actual Volume: 4780
1068	1948			Volume Error - Expected Volume: 4450 Actual Volume: 4780
1071	1951			Volume Error - Expected Volume: 4450 Actual Volume: 4780
1078	1958			Volume Error - Expected Volume: 4450 Actual Volume: 4780
1082	1962			Volume Error - Expected Volume: 4450 Actual Volume: 4780
1083	1963			Volume Error - Expected Volume: 4450 Actual Volume: 4780
1086	1966			Volume Error - Expected Volume: 4450 Actual Volume: 4780
1087	1967		Bad	Misfire: S-10 d/t switching gun mode from 'Spare' to 'Off'
1211	2091	1725		EOT
1212	2092	1726		SOT
1213	2093		Bad	Delta Error: S-1: 1.1
1261	2141	1726		LPSP @ 14:36 UTC
1261	2141	1726		LSP @ 14:36 UTC
1262-1266	2142-2146			NAV PROCESSING SHOTS
1267-1276	/	1726		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-003-191**Seq: **191**Dir: **145.9°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	120
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Single Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of active source arrays:	1
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Single source acquisition mode, dual source in-water geometry Starboard array active, port array passive.	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **2D**

Line name: **G06A-003-191**
 Sequence: **191**
 Direction: **145.9°** Nav. Def: **13**
 CMP line range: **N/A** Line type: **Prime**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	4-Jul-2006	185	11:49	21:49	121	1001	1723
FPSP:	4-Jul-2006	185	11:49	21:49	121	1001	1723
LPSP:	4-Jul-2006	185	14:36	00:36	1261	2141	1726
EOL LSP	4-Jul-2006	185	14:36	00:36	1261	2141	1726

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.3	-4.9
Water depth (m)	38	52
RMS Noise (µB)	4.4	4
Weather	040°, 4m/s, 2.0m	330°, 3m/s, 1.0m
Source volume (cu in): Stbd	4450	4450
Source pressure (psi): Stbd	1935	1936

TOTALS INFORMATION

Recorded SPs	1141
Recorded km	21.394
Production time (hh:mm)	02:47
Production files	1141
Production SPs	1141
Production km	21.394
Production CMP km	171.150

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	120
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	18 / 1.58%
Missed SPs / %	0 / 0%
Other bad SPs / %	5 / 0.44%

GPS

	Min	Max	Mean
V1G1 PDOP	1.9	3.4	2.4
HDOP	1.0	2.1	1.4
V1G2 PDOP	1.9	3.4	2.5
HDOP	1.0	2.2	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.2	2.1	4.15
Speed through water (m/s)	1.9	2.3	2.2	4.18
Feather angle (°)	-10.0	-4.4	-8.0	
Gyro (P) (°)	144.6	156.5	151.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.9	524.5	519.1
Str 1-2	74.0	76.5	75.1
Str 2-3	74.5	76.3	75.4
Str 3-4	73.1	76.3	74.7
Str 4-5	67.2	72.2	69.6
Str 5-6	73.9	77.6	75.8
Str 6-7	71.1	74.1	72.6
Str 7-8	74.9	77.3	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.5	39.2	35.5
Port Subarray	7.5	8.3	7.8
Outer-Centre	8.4	9.3	8.8
Centre-Inner	7.4	8.3	7.9
Stbd Subarray	6.8	7.8	7.2
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83			290 (Phase)
Str 4	106, 110, 148			
Str 5	75			
Str 6	120,158			
Str 7	166, 202, 229, 269, 285		130,360	100 (Phase)
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	88,326,352,	
Str 6	91,205,	
Str 7	164,251,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1325, 1487, 1696, 1715, 2093	5
Autofires / Misfires :	1302,1320,1323,1324, 1467, 1470, 1474, 1482, 1483, 1486, 1709, 1905, 1967	13
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:	1485, 1779, 1780, 1782, 1783	5
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

TOTAL SHOTS

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 Line shot in 2D mode using Stbd source.
 SP 1323 Gun S-4 disabled d/t misfires and Spare gun S-3 enabled. Vol still 4450 cu.in
 SP 1486 Gun S-10 disabled d/t flagged autofires and Spare gun S-12 enabled. Vol still 4450 cu.in

PROCESSING QC COMMENTS

Mild swell noise affecting <5% of traces.
 Strum and head wave energy is observed along the line
 Shots flagged with a larger than expected volume error were qc'd, and the amplitude spectra appeared normal, compared to adjacent shots

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1008P1-113**
 Area: **Gippsland Basin, Bass Strait** Sequence: **113**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **9**
 Job ID: **20323** CMP line range: **1001-1016** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	17-Jun-2006	168	15:18	1:18	121	1997	1436	14:50	
FPSP:	17-Jun-2006	168	15:18	1:18	121	1997	1436		
LPSP:	17-Jun-2006	168	17:39	3:39	1237	881	1439		
EOL LSP:	17-Jun-2006	168	17:39	3:39	1237	881	1439	18:10	
				UTC Offset:	10.0				

Full volume arrays at 18:10 UTC

	SOL	EOL
Feather angle (°)	3.8	5.1
Water depth (m)	57	67
RMS noise @ 5 Hz LC (µB)	3.6	4.6
Weather	260°, 10m/s, 1.5m	270°, 9m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1970	1967
Stbd	1973	1969

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.5	6.8-7.2
Str 2	6.9-7.3	6.9-7.2
Str 3	6.9-7.2	6.8-7.3
Str 4	6.9-7.3	6.8-7.2
Str 5	6.8-7.2	6.9-7.2
Str 6	6.9-7.2	6.9-7.3
Str 7	6.8-7.3	6.8-7.2
Str 8	6.8-7.2	6.9-7.3

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 4's as Spare

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295			305 (Phase)			
S3:				290, 339 (Phase)	3		
S4:	52, 61, 106				127		
S5:					86, 88, 326		
S6:	49, 120, 158				29,37,91,205,303		
S7:	100, 202, 285				203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1008P1-113**Seq: **113**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1436		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1436		FSP @ 15:18 UTC
121	1997	1436		FPSP @ 15:18 UTC
469	1649	1436		EOT
470	1648	1437		SOT
840	1278	1437		EOT
841	1277	1438		SOT
1211	907	1438		EOT
1212	906	1439		SOT
1237	881	1439		LPSP @ 17:39 UTC
1237	881	1439		LSP @ 17:39 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1439		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1008P1-113**Seq: **113**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1008P1-113**
 Sequence: **113**
 Direction: **190.5°** Nav. Def: **9**
 CMP line range: **1001-1016** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	17-Jun-2006	168	15:18	01:18	121	1997	1436
FPSP:	17-Jun-2006	168	15:18	01:18	121	1997	1436
LPSP:	17-Jun-2006	168	17:39	03:39	1237	881	1439
EOL LSP	17-Jun-2006	168	17:39	03:39	1237	881	1439

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	3.8	5.1
Water depth (m)	57	67
RMS Noise (µB)	3.6	4.6
Weather	260°, 10m/s, 1.5m	270°, 9m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1970	1967
Stbd	1973	1969

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:21
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	2.9	2.2
HDOP	1.0	2.2	1.3
V1G2 PDOP	1.7	3.0	2.4
HDOP	1.0	2.3	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.6	2.5	4.82
Speed through water (m/s)	1.8	2.3	2.2	4.21
Feather angle (°)	3.6	6.6	5.5	
Gyro (P) (°)	182.0	198.6	190.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.0	530.4	525.6
Str 1-2	73.5	76.7	75.3
Str 2-3	73.1	76.2	74.6
Str 3-4	70.6	75.0	72.8
Str 4-5	71.5	77.4	74.4
Str 5-6	77.4	80.6	79.0
Str 6-7	72.2	75.0	73.6
Str 7-8	74.6	77.0	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.7	39.1	36.6
Port Subarray			
Outer-Centre	8.1	9.3	8.6
Centre-Inner	7.5	8.8	8.4
Stbd Subarray			
Centre-Inner	8.0	9.4	8.7
Outer-Centre	6.9	7.7	7.3

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305 (Phase)
Str 3				290, 339
Str 4	52, 61, 106			
Str 5				
Str 6	49, 120, 158			
Str 7	100, 202, 285			
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 175, 178	
Str 5	86, 326	
Str 6	91, 205, 303	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.13

ONLINE COMMENTS

All gunstrings operating with gun # 4's as Spare

PROCESSING QC COMMENTS

Bursts of moderate swell noise affecting <10% traces, penetrating occasionally to 3sec twt.
 Strum and head wave energy apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1008F1-115**
 Area: **Gippsland Basin, Bass Strait** Sequence: **115**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **9**
 Job ID: **20323** CMP line range: **1001-1016** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	18-Jun-2006	169	00:58	10:58	121	1997	1444	0:30	
FPSP:	18-Jun-2006	169	00:58	10:58	121	1997	1444		
LPSP:	18-Jun-2006	169	03:28	13:28	1237	881	1447		
EOL LSP:	18-Jun-2006	169	03:28	13:28	1237	881	1447	0:50	
				UTC Offset:	10.0				

Full volume arrays at 0:50 UTC

	SOL	EOL
Feather angle (°)	-1.6	8.9
Water depth (m)	57	67
RMS noise @ 5 Hz LC (µB)	4.6	4.2
Weather	265°, 6m/s, 2.0m	230°, 7m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1972	1975
Stbd	1976	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.9-7.4
Str 2	6.9-7.2	6.8-7.2
Str 3	6.7-7.2	6.8-7.3
Str 4	6.8-7.3	6.8-7.1
Str 5	6.9-7.3	6.7-7.2
Str 6	6.8-7.2	6.6-7.1
Str 7	6.8-7.4	6.9-7.2
Str 8	6.7-7.2	6.8-7.4

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3's as Spare
 Mild swell noise visible on RMS Display for all streamers

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295			305 (Phase)			
S3:				290, 339 (Phase)	3		
S4:	52, 61, 106				127		
S5:					86, 88, 326		
S6:	49, 120, 158				29,37,91,205,303		
S7:	100, 202, 285				203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1008F1-115**Seq: **115**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1444		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1444		FSP @ 00:58 UTC
121	1997	1444		FPSP @ 00:58 UTC
469	1649	1444		EOT
470	1648	1445		SOT
840	1278	1445		EOT
841	1277	1446		SOT
1211	907	1446		EOT
1212	906	1447		SOT
1237	881	1447		LPSP @ 03:28 UTC
1237	881	1447		LSP @ 03:28 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1447		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1008F1-115**Seq: **115**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1008F1-115**
 Sequence: **115**
 Direction: **190.5°** Nav. Def: **9**
 CMP line range: **1001-1016** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	18-Jun-2006	169	00:58	10:58	121	1997	1444
FPSP:	18-Jun-2006	169	00:58	10:58	121	1997	1444
LPSP:	18-Jun-2006	169	03:28	13:28	1237	881	1447
EOL LSP	18-Jun-2006	169	03:28	13:28	1237	881	1447

GENERAL INFORMATION

	SOL	EOL
FA (°)	-1.6	8.9
Water depth (m)	57	67
RMS Noise (µB)	4.6	4.2
Weather	265°, 6m/s, 2.0m	230°, 7m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1972	1975
Stbd	1976	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:30
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	5.0	2.8
HDOP	1.0	2.2	1.5
V1G2 PDOP	1.6	5.0	3.1
HDOP	1.0	2.2	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.5	2.3	4.53
Speed through water (m/s)	1.8	2.5	2.2	4.29
Feather angle (°)	-1.2	9.6	5.0	
Gyro (P) (°)	177.6	199.3	186.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.7	531.6	523.3
Str 1-2	73.1	77.3	75.2
Str 2-3	71.9	76.4	74.2
Str 3-4	71.2	75.7	73.5
Str 4-5	68.5	76.2	72.8
Str 5-6	75.3	81.0	78.3
Str 6-7	71.8	75.0	73.5
Str 7-8	73.6	77.6	75.7

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.7	39.2	36.5
Port Subarray			
Outer-Centre	7.8	9.0	8.4
Centre-Inner	7.9	9.1	8.5
Stbd Subarray			
Centre-Inner	7.7	8.9	8.2
Outer-Centre	7.1	7.9	7.5

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305 (Phase)
Str 3				290, 339
Str 4	52, 61, 106			
Str 5				
Str 6	49, 120, 158			
Str 7	100, 202, 285			
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	127, 175	
Str 5	326, 352	
Str 6	29, 91, 205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.08

ONLINE COMMENTS

All gunstrings operating with gun # 3's as Spare
 Mild swell noise visible on RMS Display for all streamers

PROCESSING QC COMMENTS

Occasional mild to moderate swell bursts affecting 5 to 10 %of traces.
 Strum and headwave energy apparent.
 Diffraction event observed midway along line

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1024P1-111**
 Area: **Gippsland Basin, Bass Strait** Sequence: **111**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **9**
 Job ID: **20323** CMP line range: **1017-1032** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RA/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	17-Jun-2006	168	05:36	15:36	121	1997	1428	5:00	
FPSP:	17-Jun-2006	168	05:36	15:36	121	1997	1428		
LPSP:	17-Jun-2006	168	07:58	17:58	1237	881	1431		
EOL LSP:	17-Jun-2006	168	07:58	17:58	1237	881	1431	5:20	
				UTC Offset:	10.0				

Full volume arrays at 5:20 UTC

	SOL	EOL
Feather angle (°)	7.8	-6.3
Water depth (m)	58	67
RMS noise @ 5 Hz LC (µB)	5.1	5.6
Weather	270°, 10m/s, 1.5m	255°, 10m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1973
Stbd	1975	1970

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.4	6.9-7.3
Str 2	6.9-7.3	6.8-7.2
Str 3	6.8-7.3	6.8-7.2
Str 4	6.7-7.4	6.8-7.2
Str 5	6.8-7.3	6.8-7.3
Str 6	6.9-7.2	6.8-7.2
Str 7	6.8-7.4	6.9-7.2
Str 8	6.8-7.4	6.8-7.0

SOL/EOL Comments

SOL Noise files generated with feather angle > 10° (Stbd)

Overall Line Observations

All gunstrings operating with gun # 4's as Spare
 Mild swell noise visible on RMS Display for all streamers

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295			305 (Phase)			
S3:				290, 339 (Phase)	3		
S4:	52, 61, 106				127		
S5:					86, 88, 326		
S6:	49, 120, 158				29,37,91,205,303		
S7:	100, 202, 285				203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard **Observers:** 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1024P1-111**Seq: **111**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1428		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1428		FSP @ 05:36 UTC
121	1997	1428		FPSP @ 05:36 UTC
469	1649	1428		EOT
470	1648	1429		SOT
840	1278	1429		EOT
841	1277	1430		SOT
1211	907	1430		EOT
1212	906	1431		SOT
1237	881	1431		LPSP @ 07:58 UTC
1237	881	1431		LSP @ 07:58 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1431		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1024P1-111**Seq: **111**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1024P1-111**
 Sequence: **111**
 Direction: **190.5°** Nav. Def: **9**
 CMP line range: **1017-1032** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	17-Jun-2006	168	05:36	15:36	121	1997	1428
FPSP:	17-Jun-2006	168	05:36	15:36	121	1997	1428
LPSP:	17-Jun-2006	168	07:58	17:58	1237	881	1431
EOL LSP	17-Jun-2006	168	07:58	17:58	1237	881	1431

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	7.8	-6.3
Water depth (m)	58	67
RMS Noise (µB)	5.1	5.6
Weather	270°, 10m/s, 1.5m	255°, 10m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1973
Stbd	1975	1970

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:22
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.7	2.0
HDOP	0.8	1.4	1.0
V1G2 PDOP	1.5	3.6	2.1
HDOP	0.8	1.8	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.6	2.4	4.76
Speed through water (m/s)	1.9	2.4	2.2	4.25
Feather angle (°)	-5.8	8.1	0.6	
Gyro (P) (°)	188.3	207.8	200.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.8	534.6	528.8
Str 1-2	73.9	77.1	75.5
Str 2-3	73.4	76.8	75.5
Str 3-4	71.8	75.9	73.6
Str 4-5	69.5	78.7	74.7
Str 5-6	77.1	82.5	79.7
Str 6-7	72.3	74.8	73.6
Str 7-8	74.5	77.6	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.1	39.7	37.2
Port Subarray	8.0	9.1	8.5
Outer-Centre	7.5	8.7	8.2
Centre-Inner	8.0	9.6	9.0
Stbd Subarray	7.1	8.3	7.5
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305 (Phase)
Str 3				290, 339
Str 4	52, 61, 106			
Str 5				
Str 6	49, 120, 158			
Str 7	100, 202, 285			
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	127, 178, 233	
Str 5	326	
Str 6	29, 91, 205	
Str 7	203, 236	
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.15

ONLINE COMMENTS

All gunstrings operating with gun # 4's as Spare
 Mild swell noise visible on RMS Display for all streamers

PROCESSING QC COMMENTS

Mild to moderate swell energy throughout, affecting 10 to 20% traces, occasionally penetrating beyond 3 sec twt.
 Swell energy is getting weaker and data quality improved after SP 1400
 Strum and head wave energy also apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1040P1-108**
 Area: **Gippsland Basin, Bass Strait** Sequence: **108**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1033-1048** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **DNP**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	15-Jun-2006	166	00:26	10:26	121	1997	1414	23:45	
FPSP:	15-Jun-2006	166	00:26	10:26	121	1997	1414		
LPSP:	15-Jun-2006	166	02:21	12:21	984	1134	1416		
EOL LSP:	15-Jun-2006	166	02:21	12:21	984	1134	1416	0:05	
				UTC Offset:	10.0				

Full volume arrays at 0:05 UTC

	SOL	EOL
Feather angle (°)	2.5	4.5
Water depth (m)	58	64
RMS noise @ 5 Hz LC (µB)	6.5	N/A
Weather	270°, 18m/s, 2.0m	275°, 17m/s, 2.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1982	1979
Stbd	1985	1981

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.6-7.3
Str 2	7.0-7.3	6.8-7.2
Str 3	6.8-7.2	6.6-7.2
Str 4	6.9-7.3	6.8-7.4
Str 5	6.9-7.2	6.7-7.3
Str 6	6.8-7.1	6.7-7.2
Str 7	6.9-7.2	6.8-7.5
Str 8	6.8-7.3	6.7-7.2

SOL/EOL Comments

Line DNP'd d/t swell noise effecting up to 75% of traces. LSP # 1134 @ 02:21 UTC

Overall Line Observations

All gunstrings operating with gun # 3's as Spare
 Guns depths fluctuating d/t swell conditions
 Swell noise visible on RMS Display for all streamers

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295, 312		282	305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	52,106				127		
S5:	75				86, 88, 326		
S6:	49,120				29,37,91,205,303		
S7:	89, 202, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1414		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1414		FSP @ 00:26 UTC
121	1997	1414		FPSP @ 00:26 UTC
469	1649	1414		EOT
470	1648	1415		SOT
840	1278	1415		EOT
841	1277	1416		SOT
984	1134	1416		LPSP @ 02:21 UTC
984	1134	1416		LSP @ 02:21 UTC

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1040P1-108**Seq: **108**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1040P1-108**
 Sequence: **108**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1033-1048** Line type: **Prime**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	15-Jun-2006	166	00:26	10:26	121	1997	1414
FPSP:	15-Jun-2006	166	00:26	10:26	121	1997	1414
LPSP:	15-Jun-2006	166	02:21	12:21	984	1134	1416
EOL LSP	15-Jun-2006	166	02:21	12:21	984	1134	1416

GENERAL INFORMATION

	SOL	EOL
FA (°)	2.5	4.5
Water depth (m)	58	64
RMS Noise (µB)	6.5	N/A
Weather	270°, 18m/s, 2.0m	275°, 17m/s, 2.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1982	1979
Stbd	1985	1981

TOTALS INFORMATION

Recorded SPs	864
Recorded km	16.200
Production time (hh:mm)	01:55
Production files	864
Production SPs	864
Production km	16.200
Production CMP km	259.200

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	5.0	2.7
HDOP	0.8	2.0	1.2
V1G2 PDOP	2.0	5.0	3.1
HDOP	0.9	2.0	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.6	2.4	4.57
Speed through water (m/s)	1.4	2.6	2.0	3.95
Feather angle (°)	3.1	6.7	5.5	
Gyro (P) (°)	195.7	211.1	203.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.8	529.1	521.8
Str 1-2	73.1	77.3	75.1
Str 2-3	73.0	76.4	74.7
Str 3-4	66.9	76.0	71.0
Str 4-5	66.6	76.3	71.6
Str 5-6	76.9	80.9	78.9
Str 6-7	72.5	75.1	73.9
Str 7-8	75.1	78.0	76.7

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	30.7	37.9	34.3
Port Subarray	7.4	8.8	7.9
Outer-Centre	6.8	8.7	7.8
Stbd Subarray	8.0	9.5	8.7
Centre-Inner	8.3	9.5	8.8
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295, 312		282	305 (Phase)
Str 3			339	290 (Phase)
Str 4	52,106			
Str 5	75			
Str 6	49,120			
Str 7	89, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4		
Str 5		
Str 6		
Str 7		
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: <input type="text"/>

ONLINE COMMENTS

All gunstrings operating with gun # 3's as Spare
 Guns depths fluctuating d/t swell conditions
 Swell noise visible on RMS Display for all streamers

PROCESSING QC COMMENTS

Shots show about 60 % traces affected by moderate swell noise towards end of lines
 Strum and head wave energy also apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1040P2-109**
 Area: **Gippsland Basin, Bass Strait** Sequence: **109**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **9**
 Job ID: **20323** CMP line range: **1033-1048** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	16-Jun-2006	167	19:29	5:29	121	1997	1419	19:00	
FPSP:	16-Jun-2006	167	19:29	5:29	121	1997	1419		
LPSP:	16-Jun-2006	167	22:02	8:02	1237	881	1422		
EOL LSP:	16-Jun-2006	167	22:02	8:02	1237	881	1422	19:20	
				UTC Offset:	10.0				

Full volume arrays at 19:20 UTC

	SOL	EOL
Feather angle (°)	-4.7	-6.7
Water depth (m)	58	65
RMS noise @ 5 Hz LC (µB)	5	6.9
Weather	250°, 9m/s, 2.0m	220°, 7m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1981	1972
Stbd	1981	1976

Streamer Depths (m)

	SOL	EOL
Str 1	6.5-7.1	6.9-7.3
Str 2	6.8-7.2	6.7-7.2
Str 3	6.7-7.3	6.8-7.3
Str 4	6.8-7.4	6.8-7.4
Str 5	6.9-7.3	6.5-7.1
Str 6	6.7-7.2	6.8-7.2
Str 7	6.8-7.3	6.7-7.3
Str 8	6.8-7.4	6.8-7.4

SOL/EOL Comments

Overall Line Observations

Original line G06A-1040P1-108 DNP'd d/t excessive swell noise
 All gunstrings operating with gun # 3's as Spare
 Random gun depth errors d/t swell conditions
 Gun separations between Port sub arrays occasionally out of spec (High separations)

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295			305 (Phase)			
S3:	83		339	290 (Phase)	3		
S4:	106				127, 167		
S5:					86, 88, 326		
S6:	49,117,158,299				29,37,91,205,303		
S7:	89, 100,166,202, 229,285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1419		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1419		FSP @ 19:29 UTC
121	1997	1419		FPSP @ 19:29 UTC
469	1649	1419		EOT
470	1648	1420		SOT
840	1278	1420		EOT
841	1277	1421		SOT
1211	907	1421		EOT
1212	906	1422		SOT
1237	881	1422		LPSP @ 22:02 UTC
1237	881	1422		LSP @ 22:02 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1422		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1040P2-109**Seq: **109**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1040P2-109**
 Area: **Gippsland Basin, Bass Strait** Sequence: **109** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **9**
 Job ID: **20323** CMP line range: **1033-1048** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: sg, vq, hh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	16-Jun-2006	167	19:29	5:29	1997	-4.7	194	250°, 9m/s, 2.0m
FPSP:	16-Jun-2006	167	19:29	5:29	1997			
LPSP:	16-Jun-2006	167	22:02	8:02	881			
EOL LSP:	16-Jun-2006	167	22:02	8:02	881	-6.7	472	220°, 7m/s, 2.0m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall: Str 1-8	532	533
Per streamer: Str 1-2	75	75
Str 2-3	76	77
Str 3-4	74	73
Str 4-5	77	77
Str 5-6	79	80
Str 6-7	74	74
Str 7-8	77	77

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	8.6	8.6
	PC-PO	9.8	9.2
	SI-SC	9.2	8.8
	SC-SO	7.6	8.0

P2/94 filename: G06A-104P2-109.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 3 Seq 1

Observations disabled etc.

Acoustics: G1A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	19:29	5:29	SOL, FSP
1997	19:29	5:29	FPSP
			Port side guns mid to inner wide separation 9.4 - 9.8 m intermittently though out line
881	22:02	8:02	LPSP
881	22:02	8:02	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1040P2-109**
 Sequence: **109**
 Direction: **190.5°** Nav. Def: **9**
 CMP line range: **1033-1048** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	16-Jun-2006	167	19:29	05:29	121	1997	1419
FPSP:	16-Jun-2006	167	19:29	05:29	121	1997	1419
LPSP:	16-Jun-2006	167	22:02	08:02	1237	881	1422
EOL LSP	16-Jun-2006	167	22:02	08:02	1237	881	1422

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-4.7	-6.7
Water depth (m)	58	65
RMS Noise (µB)	5	6.9
Weather	250°, 9m/s, 2.0m	220°, 7m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1981	1972
Stbd	1981	1976

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:33
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.1	1.8
HDOP	0.8	1.1	0.9
V1G2 PDOP	1.4	2.5	1.8
HDOP	0.8	1.3	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.5	2.3	4.45
Speed through water (m/s)	1.5	2.6	2.2	4.34
Feather angle (°)	-7.8	-3.6	-6.2	
Gyro (P) (°)	191.4	206.0	198.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	522.6	534.1	529.3
Str 1-2	73.4	76.6	74.9
Str 2-3	74.8	77.4	76.2
Str 3-4	70.6	75.1	72.7
Str 4-5	71.8	79.7	76.0
Str 5-6	77.4	81.7	79.9
Str 6-7	71.5	75.0	73.4
Str 7-8	74.7	78.1	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.1	40.9	37.9
Port Subarray	8.0	8.9	8.4
Outer-Centre	8.6	10.1	9.2
Centre-Inner	8.2	9.4	8.8
Stbd Subarray	7.1	8.1	7.7
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106			
Str 5				
Str 6	49,117,158,299			
Str 7	89, 100,166,202, 229,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	127, 167	
Str 5	86, 326	
Str 6	29, 91, 205	
Str 7	203, 285	
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.18

ONLINE COMMENTS

Original line G06A-1040P1-108 DNP'd d/t excessive swell noise
 All gunstrings operating with gun # 3's as Spare
 Random gun depth errors d/t swell conditions
 Gun separations between Port sub arrays occasionally out of spec (High separations)

PROCESSING QC COMMENTS

Moderate swell throughout, affecting 10 to 20% traces, occasionally penetrating beyond 2sec twt.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1056P1-100**
 Area: **Gippsland Basin, Bass Strait** Sequence: **100**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1049-1064** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **DNP**

Initials: GC/RA/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	13-Jun-2006	164	04:56	14:56	121	1997	1383	4:20	
FPSP:	13-Jun-2006	164	04:56	14:56	121	1997	1383		
LPSP:	13-Jun-2006	164	07:40	17:40	1237	881	1386		
EOL LSP:	13-Jun-2006	164	07:40	17:40	1237	881	1386	4:40	
				UTC Offset:	10.0				

Full volume arrays at 4:40 UTC

	SOL	EOL
Feather angle (°)	-2.9	-12.2
Water depth (m)	58	66
RMS noise @ 5 Hz LC (µB)	5.3	6.6
Weather	260°, 10m/s, 1.5m	250°, 12m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1971
Stbd	1975	1976

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.4-7.3
Str 2	6.7-7.3	6.7-7.2
Str 3	6.9-7.3	6.8-7.4
Str 4	6.9-7.4	6.5-7.1
Str 5	6.9-7.3	6.8-7.3
Str 6	6.8-7.2	6.8-7.3
Str 7	6.7-7.3	6.7-7.3
Str 8	6.8-7.5	6.8-7.4

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3's as Spare
 Swell noise visible on RMS Display for all streamers
 Guns at fluctuating depth d/t Wx
 Line deemed DNP by clients d/t severity of swell noise

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295, 312			305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	106				127		
S5:					86, 88, 326		
S6:	116, 158, 299				29,37,91,205,303		
S7:	89, 100, 202, 229, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1056P1-100**Seq: **100**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1056P1-100**
 Area: **Gippsland Basin, Bass Strait** Sequence: **100** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1049-1064** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **DNP** Log Status: Final

Initials: nh df mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	13-Jun-2006	164	04:56	14:56	1997	-2.9	336	260°, 10m/s, 1.5m
FPSP:	13-Jun-2006	164	04:56	14:56	1997			
LPSP:	13-Jun-2006	164	07:40	17:40	881			
EOL LSP:	13-Jun-2006	164	07:40	17:40	881	-12.2	803	250°, 12m/s, 1.5m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall: Str 1-8	525	520
Per streamer: Str 1-2	76	73
Str 2-3	75	74
Str 3-4	72	71
Str 4-5	74	74
Str 5-6	80	78
Str 6-7	73	72
Str 7-8	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	7.3	7.9
	PC-PO	8.2	8.8
	SI-SC	7.4	8.5
	SC-SO	8.1	7.4

P2/94 filename: G06A-1056P1-100.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 1 Seq 2

Observations disabled etc.

Acoustics: G1A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	4:56	14:56	SOL, FSP
1997	4:56	14:56	FPSP
1536	6:00	16:00	F/A > -10.0°
1240	6:43	16:43	F/A < -10.0°
1222	6:45	16:45	F/A > -10.0°
881	7:40	17:40	LPSP
881	7:40	17:40	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1056P1-100**
 Sequence: **100**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1049-1064** Line type: **Prime**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	13-Jun-2006	164	04:56	14:56	121	1997	1383
FPSP:	13-Jun-2006	164	04:56	14:56	121	1997	1383
LPSP:	13-Jun-2006	164	07:40	17:40	1237	881	1386
EOL LSP	13-Jun-2006	164	07:40	17:40	1237	881	1386

GENERAL INFORMATION

	SOL	EOL
FA (°)	-2.9	-12.2
Water depth (m)	58	66
RMS Noise (µB)	5.3	6.6
Weather	260°, 10m/s, 1.5m	250°, 12m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1971
Stbd	1975	1976

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:44
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.9	2.3
HDOP	0.8	2.0	1.2
V1G2 PDOP	1.5	16.7	2.7
HDOP	0.8	3.9	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.8	2.4	2.1	4.16
Speed through water (m/s)	0.0	2.4	2.2	4.32
Feather angle (°)	-12.3	-2.8	-8.6	
Gyro (P) (°)	203.1	218.0	210.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	510.1	527.1	519.5
Str 1-2	71.7	76.6	74.0
Str 2-3	73.5	76.7	75.1
Str 3-4	67.9	73.1	70.3
Str 4-5	69.7	76.8	73.6
Str 5-6	75.6	80.9	78.8
Str 6-7	70.5	74.1	72.3
Str 7-8	73.2	77.3	75.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.2	37.8	35.1
Port Subarray	7.1	8.2	7.7
Outer-Centre	7.8	8.9	8.3
Stbd Subarray	7.8	9.1	8.5
Centre-Inner	7.1	7.9	7.5
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	106			
Str 5				
Str 6	116, 158, 299			
Str 7	89, 100, 202, 229, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3	3	
Str 4	127, 233	
Str 5		
Str 6	29, 91, 205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.11

ONLINE COMMENTS

All gunstrings operating with gun # 3's as Spare
 Swell noise visible on RMS Display for all streamers
 Guns at fluctuating depth d/t Wx
 Line deemed DNP by clients d/t severity of swell noise

PROCESSING QC COMMENTS

Up to 20 to 25% traces affected by moderate swell. Swell energy within wild to medium level.
 Strum and head wave energy observed.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1056P2-102**
 Area: **Gippsland Basin, Bass Strait** Sequence: **102**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1049-1064** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **DNP**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	13-Jun-2006	164	15:32	1:32	121	1997	1391	15:00 UTC
FPSP:	13-Jun-2006	164	15:32	1:32	121	1997	1391	
LPSP:	13-Jun-2006	164	15:32	1:32	126	1994	1391	Full volume arrays at 15:20 UTC
EOL LSP:	13-Jun-2006	164	15:32	1:32	126	1994	1391	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-2.8	-2.8
Water depth (m)	58	
RMS noise @ 5 Hz LC (µB)	4.7	
Weather	290°, 12m/s, 1.5m	***, *m/s, *.m
Source vol. (cu. in.)		
Port	4450	
Stbd	4450	
Source pressure (psi)		
Port	1973	
Stbd	1978	

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.4	
Str 2	6.9-7.3	
Str 3	6.9-7.3	
Str 4	6.8-7.2	
Str 5	6.9-7.3	
Str 6	6.7-7.4	
Str 7	6.8-7.4	
Str 8	6.7-7.4	

SOL/EOL Comments

Overall Line Observations

Original line G06A -1056P1 -100 was DNP'd by client d/t excessive ambient noise
 All gunstrings operating with gun # 3's as Spare
 Swell noise visible on RMS Display for all streamers
 Guns at fluctuating depth d/t Wx
 Line terminated d/t gun separations between port outer to port centre.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295, 312			305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	106				127		
S5:					86, 88, 326		
S6:	116, 158, 299				29,37,91,205,303		
S7:	89, 100, 202, 229, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1391		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1391		FSP @ 15:32 UTC
121	1997	1391		FPSP @ 15:32 UTC
126	1994	1391		LPSP @ 15:32 UTC
126	1994	1391		LSP @ 15:32 UTC
127-131	1993-1989			NAV PROCESSING SHOTS
132-141	/	1391		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1056P2-102**Seq: **102**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1056P2-102**
 Area: **Gippsland Basin, Bass Strait** Sequence: **102** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1049-1064** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **DNP** Log Status: Final

Initials: sg, vq, hh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	13-Jun-2006	164	15:32	1:32	1997	-2.8	311	290°, 12m/s, 1.5m
FPSP:	13-Jun-2006	164	15:32	1:32	1997			
LPSP:	13-Jun-2006	164	15:32	1:32	1994			
EOL LSP:	13-Jun-2006	164	15:32	1:32	1994	-2.8	311	****, *m/s, *.m
UTC offset:				10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	528	528	33.1	33.1	
Per streamer:	Str 1-2	75	75	PI-PC	4.9	4.9
	Str 2-3	76	76	PC-PO	8.2	8.2
	Str 3-4	81	81	SI-SC	8.0	8.0
	Str 4-5	65	65	SC-SO	7.1	7.1
	Str 5-6	82	82			
	Str 6-7	74	74			
	Str 7-8	77	77			

P2/94 filename: G06A-1056P2-102.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 1 Seq 4

Observations disabled etc.

Acoustics: G1A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	15:32	1:32	SOL, FSP Low gun seps on Port Outer / Port Center before SOL
1997	15:32	1:32	FPSP Line abandoned d/t gun sep's
1994	15:32	1:32	LPSP
1994	15:32	1:32	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1056P2-102**
 Sequence: **102**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1049-1064** Line type: **Prime**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	13-Jun-2006	164	15:32	01:32	121	1997	1391
FPSP:	13-Jun-2006	164	15:32	01:32	121	1997	1391
LPSP:	13-Jun-2006	164	15:32	01:32	126	1994	1391
EOL LSP	13-Jun-2006	164	15:32	01:32	126	1994	1391

GENERAL INFORMATION

	SOL	EOL
FA (°)	-2.8	-2.8
Water depth (m)	58	
RMS Noise (µB)	4.7	
Weather	290°, 12m/s, 1.5m	****, *m/s, *.*m
Source volume (cu in): Port	4450	
Stbd	4450	
Source pressure (psi): Port	1973	
Stbd	1978	

TOTALS INFORMATION

Recorded SPs	4
Recorded km	0.075
Production time (hh:mm)	00:00
Production files	6
Production SPs	4
Production km	0.075
Production CMP km	1.200

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP			
HDOP			
V1G2 PDOP			
HDOP			

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)				0.00
Speed through water (m/s)				0.00
Feather angle (°)				
Gyro (P) (°)				

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8			
Str 1-2			
Str 2-3			
Str 3-4			
Str 4-5			
Str 5-6			
Str 6-7			
Str 7-8			

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source			
Port-Subarray			
Outer-Centre			
Centre-Inner			
Stbd Subarray			
Centre-Inner			
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	106			
Str 5				
Str 6	116, 158, 299			
Str 7	89, 100, 202, 229, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4		
Str 5		
Str 6		
Str 7		
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: <input type="text"/>

ONLINE COMMENTS

Original line G06A -1056P1 -100 was DNP'd by client d/t excessive ambient noise
 All gunstrings operating with gun # 3's as Spare
 Swell noise visible on RMS Display for all streamers
 Guns at fluctuating depth d/t Wx
 Line terminated d/t gun separations between port outer to port centre.

PROCESSING QC COMMENTS

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1056P3-104**
 Area: **Gippsland Basin, Bass Strait** Sequence: **104**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1049-1064** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RA/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	14-Jun-2006	165	03:54	13:54	121	1997	1397	03:10 UTC
FPSP:	14-Jun-2006	165	03:54	13:54	121	1997	1397	
LPSP:	14-Jun-2006	165	06:32	16:32	1237	881	1400	Full volume arrays at 03:30 UTC
EOL LSP:	14-Jun-2006	165	06:32	16:32	1237	881	1400	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	2.9	-12.8
Water depth (m)	59	66
RMS noise @ 5 Hz LC (µB)	4.7	6.5
Weather	275°, 12m/s, 2.0m	260°, 12m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1980	1966
Stbd	1980	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.6-7.3
Str 2	6.9-7.4	6.8-7.5
Str 3	6.8-7.2	6.6-7.2
Str 4	6.8-7.3	6.8-7.4
Str 5	6.9-7.3	6.8-7.3
Str 6	6.9-7.1	6.8-7.3
Str 7	6.9-7.2	6.8-7.1
Str 8	6.8-7.2	6.8-7.3

SOL/EOL Comments

Overall Line Observations

Original line G06A -1056P1 -100 was DNP'd by client d/t excessive ambient noise
 Original line G06A - 1056P2 - 102 was deemed DNP d/t narrow separation (4.9m) between port outer and port middle gun string
 All gunstrings operating with gun # 3's as Spare
 Swell noise visible on RMS Display affecting up to 50% of all streamers
 Guns at fluctuating depth d/t Wx

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295, 312			305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	21,110				127, 167		
S5:	75				86, 88, 326		
S6:	49,120				29,37,91,205,303		
S7:	89, 100, 202, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1397		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1397		FSP @ 03:54 UTC
121	1997	1397		FPSP @ 03:54 UTC
469	1649	1397		EOT
470	1648	1398		SOT
504	1614			S8C12-13 running shallow at 5.5m (min)
574	1544			S8C14-16 running deep at 9m (max) d/t vane wash
630	1488			S8C12-16 back @ depth
840	1278	1398		EOT
841	1277	1399		SOT
1211	907	1399		EOT
1212	906	1400		SOT
1237	881	1400		LPSP @ 06:32 UTC
1237	881	1400		LSP @ 06:32 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1400		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1056P3-104**Seq: **104**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1056P3-104**

Area: **Gippsland Basin, Bass Strait** Sequence: **104** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**

Job ID: **20323** CMP line range: **1049-1064** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: nh df mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	14-Jun-2006	165	03:54	13:54	1997	2.9	275	275°, 12m/s, 2.0m
FPSP:	14-Jun-2006	165	03:54	13:54	1997			
LPSP:	14-Jun-2006	165	06:32	16:32	881			
EOL LSP:	14-Jun-2006	165	06:32	16:32	881	-12.8	843	260°, 12m/s, 2.0m
UTC offset:				10.0				

Separations (m)

	SOL	EOL
Streamer overall:	523	520
Per streamer:		
Str 1-8	75	74
Str 2-3	75	75
Str 3-4	73	72
Str 4-5	71	71
Str 5-6	77	79
Str 6-7	73	72
Str 7-8	76	75

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	8.0	8.0
	PC-PO	8.3	8.5
	SI-SC	8.0	8.6
	SC-SO	6.8	7.2

P2/94 filename: **G06A-1056P3-104.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_8**

Backup tape: **Tape 2 Seq 1**

Observations disabled etc.

Acoustics: G1A2 intermittent, S2A2 intermittent comms

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1997	03:54	13:54	SOL, FSP
1997	03:54	13:54	FPSP
1177	05:46	15:46	F/A > -10.0°
881	06:32	16:32	LPSP
881	06:32	16:32	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Vera Quinlan/Sam Griffiths/Howard Hewison**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Darryl Fletcher/Mikhael Malofeev**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1056P3-104**
 Sequence: **104**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1049-1064** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	14-Jun-2006	165	03:54	13:54	121	1997	1397
FPSP:	14-Jun-2006	165	03:54	13:54	121	1997	1397
LPSP:	14-Jun-2006	165	06:32	16:32	1237	881	1400
EOL LSP	14-Jun-2006	165	06:32	16:32	1237	881	1400

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	2.9	-12.8
Water depth (m)	59	66
RMS Noise (µB)	4.7	6.5
Weather	275°, 12m/s, 2.0m	260°, 12m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1980	1966
Stbd	1980	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:38
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.9	2.5
HDOP	0.8	2.0	1.3
V1G2 PDOP	1.7	17.2	3.0
HDOP	0.9	4.0	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.5	2.2	4.32
Speed through water (m/s)	2.0	2.3	2.2	4.22
Feather angle (°)	-15.0	3.2	-4.9	
Gyro (P) (°)	192.7	218.1	209.1	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	508.2	531.0	521.3
Str 1-2	70.8	76.4	74.2
Str 2-3	73.6	76.7	75.2
Str 3-4	69.6	76.2	72.9
Str 4-5	67.9	76.2	72.2
Str 5-6	76.0	80.5	78.4
Str 6-7	70.2	74.6	72.8
Str 7-8	73.1	77.4	75.6

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.0	39.1	35.2
Port Subarray			
Outer-Centre	7.1	8.4	7.7
Centre-Inner	7.6	9.2	8.3
Stbd Subarray			
Centre-Inner	7.8	9.0	8.3
Outer-Centre	6.9	7.6	7.3

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	21,110			
Str 5	75			
Str 6	49,120			
Str 7	89, 100, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	127, 167	
Str 5	326	
Str 6	91, 205, 303	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.72

ONLINE COMMENTS

Original line G06A -1056P1 -100 was DNP'd by client d/t excessive ambient noise
 Original line G06A - 1056P2 - 102 was deemed DNP d/t narrow seperation (4.9m) between port outer and port middle gun string
 All gunstrings operating with gun # 3's as Spare
 Swell noise visible on RMS Display affecting up to 50% of all streamers
 Guns at fluctuating depth d/t Wx

PROCESSING QC COMMENTS

Mild to moderate energy level of swell noise observed on the shots gathers.
 Strum and head wave energy also apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1056F1-106**
 Area: **Gippsland Basin, Bass Strait** Sequence: **106**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1049-1064** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS,MW,LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	14-Jun-2006	165	14:01	0:01	121	1997	1406	13:15 UTC
FPSP:	14-Jun-2006	165	14:01	0:01	121	1997	1406	
LPSP:	14-Jun-2006	165	16:36	2:36	1237	881	1409	Full volume arrays at 13:35 UTC
EOL LSP:	14-Jun-2006	165	16:36	2:36	1237	881	1409	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	0.7	-4.4
Water depth (m)	58	67
RMS noise @ 5 Hz LC (µB)	5.2	4.4
Weather	280°, 12m/s, 1.5m	270°, 12m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1973	1968
Stbd	1978	1973

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.4	6.9-7.2
Str 2	6.9-7.2	6.8-7.3
Str 3	6.8-7.2	6.7-7.2
Str 4	6.9-7.2	6.8-7.2
Str 5	6.9-7.1	6.9-7.4
Str 6	6.8-7.3	6.9-7.2
Str 7	6.8-7.2	6.8-7.3
Str 8	6.8-7.2	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3's as Spare

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295, 312		282	305 (Phase)			
S3:			339	290 (Phase)			
S4:	52,106				127		
S5:	75				86, 88, 326		
S6:	49,120				29,37,91,205,303		
S7:	89, 202, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1056F1-106**

Seq: **106**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1406		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1406		FSP @ 14:01 UTC
121	1997	1406	Bad	FPSP @ 14:01 UTC. Delta Error: P-10: 1.3
133	1985		Bad	Delta Error: P-10: -1.3
223	1895		Bad	Delta Error: P-20: 1.1
263	1855		Bad	Delta Error: P-10: 1.2
267	1851		Bad	Delta Error: P-10: 1.2
469	1649	1406		EOT
470	1648	1407		SOT
840	1278	1407		EOT
841	1277	1408		SOT
1211	907	1408		EOT
1212	906	1409		SOT
1237	881	1409		LPSP @ 16:36 UTC
1237	881	1409		LSP @ 16:36 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1409		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1056F1-106**Seq: **106**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1056F1-106**
 Sequence: **106**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1049-1064** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	14-Jun-2006	165	14:01	00:01	121	1997	1406
FPSP:	14-Jun-2006	165	14:01	00:01	121	1997	1406
LPSP:	14-Jun-2006	165	16:36	02:36	1237	881	1409
EOL LSP	14-Jun-2006	165	16:36	02:36	1237	881	1409

GENERAL INFORMATION

	SOL	EOL
FA (°)	0.7	-4.4
Water depth (m)	58	67
RMS Noise (µB)	5.2	4.4
Weather	280°, 12m/s, 1.5m	270°, 12m/s, 2.0m
Source volume (cu in):	Port 4450	4450
	Stbd 4450	4450
Source pressure (psi):	Port 1973	1968
	Stbd 1978	1973

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:35
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	5 / 0.45%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	0.9	2.1	1.3
HDOP	1.7	3.4	2.3
V1G2 PDOP	1.0	2.3	1.4
HDOP	1.7	3.4	2.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.3	2.3	4.39
Speed through water (m/s)	2.0	2.4	2.2	4.26
Feather angle (°)	-3.9	3.2	-0.2	
Gyro (P) (°)	192.9	211.4	201.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	522.9	531.2	527.7
Str 1-2	73.8	76.4	75.2
Str 2-3	74.1	76.8	75.5
Str 3-4	71.4	75.7	73.4
Str 4-5	71.5	77.7	74.4
Str 5-6	76.5	81.0	79.1
Str 6-7	72.6	74.6	73.7
Str 7-8	75.4	77.7	76.5

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.3	38.1	35.5
Port Subarray	7.4	8.9	7.9
Outer-Centre	8.1	9.1	8.6
Stbd Subarray	7.8	9.3	8.4
Centre-Inner	6.7	7.5	7.2
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295, 312		282	305 (Phase)
Str 3			339	290 (Phase)
Str 4	52,106			
Str 5	75			
Str 6	49,120			
Str 7	89, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2	292	
Str 3	3	
Str 4	127, 167	
Str 5	86, 326	
Str 6	91, 205, 303	
Str 7	203	
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1997, 1985, 1895, 1855, 1851		5
Autofires / Misfires :			0
Missed SPs (NDR):			0
Extraction errors:			0
NAVS / ITB errors:			0
Other Bad shots:			0
Other Bad Traces:			0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage:	0.11

TOTAL SHOTS

ONLINE COMMENTS

All gunstrings operating with gun # 3's as Spare

PROCESSING QC COMMENTS

HMP sma / 2drms intermittently above 2m from sp 1500 to EOL

Mild to moderate swell bursts affecting up to 10% traces observed. Occasionally penetrating beyond 3 secs twt. Strum and head wave energy also apparent.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1072P1-098**
 Area: **Gippsland Basin, Bass Strait** Sequence: **098**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1065-1080** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	12-Jun-2006	163	18:09	04:09	122	1997	1375	17:40	UTC
FPSP:	12-Jun-2006	163	18:09	04:09	122	1997	1375		
LPSP:	12-Jun-2006	163	20:48	06:48	1238	881	1378		
EOL LSP:	12-Jun-2006	163	20:48	06:48	1238	881	1378	18:00	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-4.7	0.2
Water depth (m)	58	65
RMS noise @ 5 Hz LC (µB)	6	5.6
Weather	270°, 11m/s, 1.5m	270°, 9m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1975
Stbd	1978	1981

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.9-7.1
Str 2	6.8-7.2	6.9-7.2
Str 3	7.7-7.2	6.9-7.1
Str 4	6.8-7.3	6.9-7.2
Str 5	6.9-7.1	6.8-7.3
Str 6	6.9-7.2	6.8-7.2
Str 7	6.9-7.1	7.7-7.2
Str 8	6.9-7.2	6.8-7.3

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3's as Spare
 Depth errors occuring on guns d/t swell conditions

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295, 312			305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	106				127		
S5:					86, 88, 326		
S6:	116, 158, 299				29,37,91,205,303		
S7:	89, 100, 202, 229, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1072P1-098

Seq:

098

Dir:

190.5°

FILE	SP	TAPE	BAD	
99-110	/	1375		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
122	1997	1375		FSP @ 18:09 UTC
122	1997	1375		FPSP @ 18:09 UTC
328	1791		Bad	Delta Error: P-10: -1.1
346	1773		Bad	Delta Error: P-10: 1.2
386	1733		Bad	Delta Error: P-10: 1.5
469	1650	1375		EOT
470	1649	1376		SOT
840	1279	1376		EOT
841	1278	1377		SOT
1211	908	1377		EOT
1212	907	1378		SOT
1238	881	1378		LPSP @ 20:48 UTC
1238	881	1378		LSP @ 20:48 UTC
1239-1243	880-876			NAV PROCESSING SHOTS
1244-1253	/	1378		EOT - NOISE FILES

Abbreviations used and their meanings:

AF Gun Autofire
 CAD Cable Depths
 CDP Common Depth Point
 MSRS Multiple Streamer Recording System
 MSTP Multiple Streamer Telemetry Processor
 DNP Do Not Process
 D/T Due To
 D/E Delta Error
 M/F Misfire
 M/O Moveout
 RTNU Real Time Navigation Unit

LGSP Last Good Shotpoint
 LPSP Last Production (Chargeable) Shotpoint
 LSP Last Shotpoint
 MARS Marine Angle Ranging System
 NAV Navigation
 GCS90 Gun Controller
 RN Reel Number
 SAP Source Air Pressure
 S/I Seismic Interference
 NAVS Short Nav Header
 NCN Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1072P1-098**

Seq: **098**

Dir: **190.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1072P1-098**
 Sequence: **098**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1065-1080** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	12-Jun-2006	163	18:09	04:09	122	1997	1375
FPSP:	12-Jun-2006	163	18:09	04:09	122	1997	1375
LPSP:	12-Jun-2006	163	20:48	06:48	1238	881	1378
EOL LSP	12-Jun-2006	163	20:48	06:48	1238	881	1378

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	-4.7	0.2
Water depth (m)	58	65
RMS Noise (µB)	6	5.6
Weather	270°, 11m/s, 1.5m	270°, 9m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1975
Stbd	1978	1981

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:39
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	3 / 0.27%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.5	2.2	1.9
HDOP	0.8	1.3	1.0
V1G2 PDOP	1.6	3.0	1.9
HDOP	1.0	2.1	1.0

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.2	4.28
Speed through water (m/s)	1.7	2.4	2.1	4.08
Feather angle (°)	-4.0	0.8	-1.7	
Gyro (P) (°)	190.7	207.4	199.2	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	525.3	534.9	529.9
Str 1-2	73.4	76.9	75.2
Str 2-3	74.6	77.1	75.7
Str 3-4	69.3	73.5	71.4
Str 4-5	72.6	81.4	77.2
Str 5-6	77.8	82.7	80.0
Str 6-7	72.4	74.8	73.7
Str 7-8	75.1	78.1	76.7

	Min	Max	Mean
Source-Source Port-Stbd	34.1	40.4	37.1
Port Subarray Outer-Centre	7.6	8.5	8.0
Centre-Inner	9.0	10.1	9.5
Stbd Subarray Centre-Inner	8.2	9.4	8.7
Outer-Centre	8.4	9.2	8.8

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	106			
Str 5				
Str 6	116, 158, 299			
Str 7	89, 100, 202, 229, 285		130	
Str 8				

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3	3	
Str 4	127, 233	
Str 5		
Str 6	29, 37, 91, 205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1791, 1773, 1733	3
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.08

ONLINE COMMENTS

All gunstrings operating with gun # 3's as Spare
 Depth errors occurring on guns d/t swell conditions

PROCESSING QC COMMENTS

Up to 20% traces affected by moderate swell. Occasional bursts reach throughout record length

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1088P1-095**
 Area: **Gippsland Basin, Bass Strait** Sequence: **095**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1081-1096** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC,RA,AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	10-Jun-2006	161	02:01	12:01	121	1997	1358	1:12	
FPSP:	10-Jun-2006	161	02:01	12:01	121	1997	1358		
LPSP:	10-Jun-2006	161	04:35	14:35	1237	881	1361		
EOL LSP:	10-Jun-2006	161	04:35	14:35	1237	881	1361	1:45	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	2.5	-9.8
Water depth (m)	59	66
RMS noise @ 5 Hz LC (µB)	3.2	3.1
Weather	280°, 5m/s, 1.0m	260°, 5m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1985	1980
Stbd	1985	1985

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.3	6.9-7.1
Str 2	6.9-7.2	6.9-7.2
Str 3	6.9-7.2	6.9-7.1
Str 4	6.8-7.2	6.8-7.2
Str 5	6.9-7.2	6.8-7.1
Str 6	6.9-7.3	6.9-7.2
Str 7	6.8-7.2	6.9-7.3
Str 8	6.8-7.2	6.8-7.1

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83		339	290 (Phase)	3		
S4:	106, 110				127		
S5:	75				86, 88, 326		
S6:	49, 116, 120, 158				29,37,91,205,303		
S7:	89, 100, 166, 202, 229, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1358		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1358		FSP @ 02:01 UTC
121	1997	1358		FPSP @ 02:01 UTC
308	1810			S8C14 running shallow @ approx 5.6m (Max)
325	1793			S8C14 back at target depth
469	1649	1358		EOT
470	1648	1359		SOT
840	1278	1359		EOT
841	1277	1360		SOT
1211	907	1360		EOT
1212	906	1361		SOT
1237	881	1361		LPSP @ 04:35 UTC
1237	881	1361		LSP @ 04:35 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1361		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1088P1-095**Seq: **095**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1088P1-095**
 Area: **Gippsland Basin, Bass Strait** Sequence: **095** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1081-1096** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: sg, vq, hh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	10-Jun-2006	161	02:01	12:01	1997	2.5	325	280°, 5m/s, 1.0m
FPSP:	10-Jun-2006	161	02:01	12:01	1997			
LPSP:	10-Jun-2006	161	04:35	14:35	881			
EOL LSP:	10-Jun-2006	161	04:35	14:35	881	-9.8	724	260°, 5m/s, 1.0m
	UTC offset:			10.0				

Separations (m)

	SOL	EOL
Streamer overall: Str 1-8	525	525
Per streamer: Str 1-2	76	75
Str 2-3	75	75
Str 3-4	76	75
Str 4-5	71	74
Str 5-6	77	78
Str 6-7	74	73
Str 7-8	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	8.7	8.8
	PC-PO	9.0	8.6
	SI-SC	8.5	8.6
	SC-SO	7.6	7.6

P2/94 filename: G06A-1088P1-095.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 4 Seq 2

Observations disabled etc.

Acoustics: G1A2 intermittent S2A2 intermittent comms
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	2:01	12:01	SOL, FSP
1997	2:01	12:01	FPSP
1981	2:03	12:03	S4/S5 sep < 67.5m (one shot only)
1962	2:05	12:05	S4/S5 sep < 67.5m (one shot only)
1087	4:05	14:05	F/A > -10.0°
894	4:33	14:33	F/A < -10.0°
881	4:35	14:35	LPSP
881	4:35	14:35	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1088P1-095**
 Sequence: **095**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1081-1096** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	10-Jun-2006	161	02:01	12:01	121	1997	1358
FPSP:	10-Jun-2006	161	02:01	12:01	121	1997	1358
LPSP:	10-Jun-2006	161	04:35	14:35	1237	881	1361
EOL LSP	10-Jun-2006	161	04:35	14:35	1237	881	1361

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	2.5	-9.8
Water depth (m)	59	66
RMS Noise (µB)	3.2	3.1
Weather	280°, 5m/s, 1.0m	260°, 5m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1985	1980
Stbd	1985	1985

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:34
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	5.0	2.8
HDOP	1.0	2.2	1.5
V1G2 PDOP	1.6	5.0	3.1
HDOP	1.0	2.2	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.5	2.3	4.41
Speed through water (m/s)	2.1	2.5	2.2	4.32
Feather angle (°)	-10.8	2.5	-5.5	
Gyro (P) (°)	190.5	208.3	199.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	502.2	528.2	521.0
Str 1-2	73.0	76.7	74.8
Str 2-3	73.9	76.5	75.4
Str 3-4	72.6	77.3	75.2
Str 4-5	65.3	74.8	71.0
Str 5-6	72.1	79.5	76.3
Str 6-7	69.6	73.9	72.4
Str 7-8	72.7	77.5	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.3	39.5	35.6
Port Subarray			
Outer-Centre	8.1	9.4	8.8
Centre-Inner	7.7	9.5	8.5
Stbd Subarray			
Centre-Inner	7.6	8.9	8.3
Outer-Centre	6.9	8.0	7.4

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106, 110			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2	351	
Str 3	3	
Str 4	127	
Str 5	326, 358	
Str 6	91, 205, 303	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.13

ONLINE COMMENTS

PROCESSING QC COMMENTS

No discernible swell noise.
 Strum and head wave energy observed.
 Diffraction energy observed midway along line.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1088F1-097**

Area: **Gippsland Basin, Bass Strait** Sequence: **097**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**

Job ID: **20323** CMP line range: **1081-1096** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: GC,RA,AD/NS,MW,LT

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	10-Jun-2006	161	11:58	21:58	121	1997	1369	10:50	
FPSP:	10-Jun-2006	161	11:58	21:58	121	1997	1369		
LPSP:	10-Jun-2006	161	14:43	0:43	1237	881	1372		
EOL LSP:	10-Jun-2006	161	14:43	0:43	1237	881	1372	11:10	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-1.4	-4
Water depth (m)	59	66
RMS noise @ 5 Hz LC (µB)	3.2	6.4
Weather	250°, 8m/s, 1.0m	235°, 16m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1974	1977
Stbd	1983	1983

Streamer Depths (m)

	SOL	EOL
Str 1	6.6-7.4	6.9-7.1
Str 2	6.7-7.3	6.8-7.2
Str 3	6.8-7.4	6.4-7.3
Str 4	6.8-7.3	6.9-7.2
Str 5	6.6-7.3	6.8-7.3
Str 6	6.8-7.4	6.7-7.2
Str 7	6.7-7.2	6.9-7.1
Str 8	6.8-7.2	6.8-7.4

SOL/EOL Comments

Overall Line Observations

All Gunstrings operating with gun # 3's as Spare
Gun depths flagging at erratic depths d/t deteriorating sea state

Birds bad/poll disabled: S6C12 - Polling disabled

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	106, 110				127		
S5:	75				86, 88, 326		
S6:	49, 116, 120, 158, 161				29,37,91,205,303		
S7:	89, 100, 166, 202, 229, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1088F1-097**Seq: **097**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1369		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1369		FSP @ 11:58 UTC
121	1997	1369		FPSP @ 11:58 UTC
469	1649	1369		EOT
470	1648	1370		SOT
533	1585		Bad	Delta Error: P-10: -1.2
538	1580			S8C14-16 running shallow @ approx. 5.7-6.2m
629	1489			S3C3 running shallow @ approx. 5.8m
655	1463			S3C3 back at target depth
840	1278	1370		EOT
841	1277	1371		SOT
1211	907	1371		EOT
1212	906	1372		SOT
1237	881	1372		LPSP @ 14:43 UTC
1237	881	1372		LSP @ 14:43 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1372		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1088F1-097**Seq: **097**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1088F1-097**
 Sequence: **097**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1081-1096** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	10-Jun-2006	161	11:58	21:58	121	1997	1369
FPSP:	10-Jun-2006	161	11:58	21:58	121	1997	1369
LPSP:	10-Jun-2006	161	14:43	00:43	1237	881	1372
EOL LSP	10-Jun-2006	161	14:43	00:43	1237	881	1372

GENERAL INFORMATION

	SOL	EOL
FA (°)	-1.4	-4.2
Water depth (m)	59	66
RMS Noise (µB)	3.2	6.4
Weather	250°, 8m/s, 1.0m	235°, 16m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1974	1977
Stbd	1983	1983

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:45
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	0.7	1.7	1.2
HDOP	1.3	3.4	2.3
V1G2 PDOP	0.8	2.2	1.3
HDOP	1.5	3.2	2.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.3	2.1	4.10
Speed through water (m/s)	2.0	2.4	2.2	4.34
Feather angle (°)	-6.2	-0.5	-3.0	
Gyro (P) (°)	191.9	212.8	201.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.9	532.5	526.6
Str 1-2	73.2	76.4	74.9
Str 2-3	74.5	76.9	75.7
Str 3-4	71.1	76.9	74.1
Str 4-5	68.8	77.8	73.8
Str 5-6	73.8	80.7	78.3
Str 6-7	71.7	74.9	73.5
Str 7-8	74.0	77.8	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	31.8	39.4	35.4
Port Subarray			
Outer-Centre	7.7	8.9	8.3
Centre-Inner	7.8	9.3	8.7
Stbd Subarray			
Centre-Inner	7.3	8.7	8.0
Outer-Centre	7.5	9.0	8.2

Birds bad: S6C12 - Polling disabled
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3			339	290 (Phase)
Str 4	106, 110			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	89, 100, 166, 202, 229,		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109, 340	
Str 2		
Str 3	3	
Str 4	69, 127	
Str 5	326	
Str 6	29, 37, 91, 205, 303	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1585	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.47

ONLINE COMMENTS

All Gunstrings operating with gun # 3's as Spare
 Gun depths flagging at erratic depths d/t deteriorating sea state

PROCESSING QC COMMENTS

No swell noise at SOL, but mild to moderate swell creeping in toward EOL.
 Strum and head wave energy apparent.

SR/V Veritas Viking II



Client: **Esso Australia Pty. Ltd.** **G06A-1104P1-091**

Area: **Gippsland Basin, Bass Strait** **091**

Prospect: **2006 Greater Bream 3D** **190.5°** Nav Def: **8**

Job ID: **20323** **1097-1112** Line type: **Prime**

Type: **3D** **16** Status: **Complete**

Initials: GC,RA,AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	Local Time	File	SP	Tape	Soft start commenced at	
SOL FSP:	9-Jun-2006	160	15:36	121	1997	1339	at	04:45 UTC
FPSP:	9-Jun-2006	160	15:36	121	1997	1339		
LPSP:	9-Jun-2006	160	18:08	1237	881	1342	Full volume arrays at	05:05 UTC
EOL LSP:	9-Jun-2006	160	18:08	1237	881	1342		
			10.0					

	SOL	EOL
Feather angle (°)	-4.7	6
Water depth (m)	58	66
RMS noise @ 5 Hz LC (µB)	3.2	3.2
Weather	115°, 6 m/s, 0.5m	070°, 5m/s, 0.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1990	1983
Stbd	1983	1986

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.6-7.3	6.9-7.2
Str 2	6.9-7.4	6.8-7.1
Str 3	6.9-7.2	6.9-7.3
Str 4	6.8-7.2	6.9-7.2
Str 5	6.9-7.3	6.8-7.2
Str 6	6.7-7.2	6.6-7.2
Str 7	6.9-7.4	6.9-7.3
Str 8	6.6-7.2	6.7-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test			Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Other	Noisy	Spiking	Weak
S1:				340		
S2:	295		305 (Phase)			
S3:	83		290	3		
S4:	106, 110			127		
S5:	75			86, 88, 326		
S6:	49, 116, 120, 158, 229			29,37,91,205,303		
S7:	89, 100, 166, 202, 285			203,285		
S8:				318,340		

Vessel Manager:	Howie Grizaard	00:00-12:00	Neil Shelley, Michael Wells, Larry Tan
Operations Supervisor:	Glenn Cassim	12:00-00:00	Greg Campbell, Rashid Anwar, Anthony Doyle
Chief Observer:	Les Hayden		

SR/V Veritas Viking II



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1104P1-091**

Seq: **091**

Dir: **190.5°**

Streamers - TUS Guardian

Number of streamers: 8
 Number of channels per streamer: 360
 Group length: 12.5
 Receivers / Group: 12
 Receiver Type: TS020 PZT ceramic

Number of compasses per streamer: 19 (20 on S1 & S8)
 Active streamer length: 4500
 Nominal separation between streamers: 75

Near channel inline offset: 75
 Far channel inline offset: 4563

Nominal streamer depth : 7
 Streamer depth fluctuation allowed : 0.5

Total horizontal separation: 525
 Total vertical separation: 0

Auxiliary channels: 12
 Time break recorded on aux channel 1 from 1000 ms
 Near field data recorded on aux channels 1-12 first 2000 ms

Streamer designation:

Channel designation:

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold: 60
 Sample interval: 2 ms
 Record length: 6144 ms
 Total number of channels (incl. auxiliary): 2892

Streamer 1 : Recorded as dataset 1 channels 1 - 360
 Streamer 2 : Recorded as dataset 2 channels 1 - 360
 Streamer 3 : Recorded as dataset 3 channels 1 - 360
 Streamer 4 : Recorded as dataset 4 channels 1 - 360
 Streamer 5 : Recorded as dataset 5 channels 1 - 360
 Streamer 6 : Recorded as dataset 6 channels 1 - 360
 Streamer 7 : Recorded as dataset 7 channels 1 - 360
 Auxiliary: Recorded as dataset 8 channels 1 - 12
 Streamer 8 : Recorded as dataset 9 channels 1 - 360

Low cut recording filter: 3(12) Hz(dB/oct)
 High cut recording filter: 206(276) Hz(dB/oct)
 Digital filter delay: None
 Notch filter: None
 QC filter: 5(18) Hz(dB/oct)
 Recording medium: 3590
 Tape format: SEGD
 Recording format: 8036
 Recording time delay: 0 ms

Comments:

Hydrophone sensitivity: 20 μ volts / μ bar
Recording polarity: Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation: 37.5
 Source separation fluctuation allowed: 3.75

Nominal source depth: 6
 Source depth fluctuation allowed: 0.5

Overall source array width: 16
 Overall source array length: 16.5
 Number of source arrays: 2
 Number of active elements per array: 9
 Number of spare elements per array: 3

Number of sub arrays per source array: 3
 Sub array length: 16.5
 Sub array separation: 8
 Sub array separation fluctation allowed: 1.5

Nominal source array pressure: 2000
 Specified minimum array pressure: 1900
 Nominal operating volume per array: 4450
 Specified minimum operating volume: NA

Source shotpoint interval: 18.75
 Individual source shotpoint interval: 37.5

Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source

Positoning

Navigation System

Primary: Veripos Ultra
 Secondary: Veripos Standard
 Tertiary: C-Nav

Positioning System

Source: DigiCOURSE Acoustic Network
 Seamap STORM/ Buoylink RGPS

Streamer front/end: DigiCOURSE Acoustic Ranging (CMX)
 Seamap STORM/ Buoylink RGPS

Streamer shape: DigiCOURSE 5011 Compass Birds
 DigiCOURSE Acoustic Ranging (CMX)
 Seamap STORM/ Buoylink RGPS

Echosounder: Kongsberg Simrad EA500

Integrated Navigation System: CSL Spectra v10.9.01

Datum transformation: Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1104P1-091**
 Sequence: **091**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1097-1112** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	9-Jun-2006	160	05:36	15:36	121	1997	1339
FPSP:	9-Jun-2006	160	05:36	15:36	121	1997	1339
LPSP:	9-Jun-2006	160	08:08	18:08	1237	881	1342
EOL LSP	9-Jun-2006	160	08:08	18:08	1237	881	1342

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-4.7	5.8
Water depth (m)	58	66
RMS Noise (µB)	3.2	3.2
Weather	115°, 6 m/s, 0.5m	070°, 5m/s, 0.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1990	1983
Stbd	1983	1986

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:32
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.9	2.2
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.5	3.6	2.2
HDOP	0.8	1.8	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.47
Speed through water (m/s)	2.1	2.3	2.2	4.28
Feather angle (°)	-5.1	6.3	0.2	
Gyro (P) (°)	174.6	199.3	184.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	511.9	533.5	523.5
Str 1-2	72.8	76.4	74.7
Str 2-3	72.5	76.6	74.9
Str 3-4	72.5	79.2	76.2
Str 4-5	67.3	76.5	71.4
Str 5-6	74.0	80.5	76.9
Str 6-7	71.1	74.3	73.1
Str 7-8	74.8	77.8	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source Port-Stbd	33.5	40.5	37.2
Port Subarray Outer-Centre	6.8	8.6	7.7
Centre-Inner	7.6	9.2	8.4
Stbd Subarray Centre-Inner	7.8	9.1	8.3
Outer-Centre	7.1	8.3	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290
Str 4	106, 110			
Str 5	75			
Str 6	49, 116, 120, 158, 229			
Str 7	89, 100, 166, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2	351	
Str 3	3	
Str 4	127	
Str 5	326, 352	
Str 6	91, 205, 303	
Str 7		
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1455	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.42

ONLINE COMMENTS

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Diffraction observed on shots at 3.5 to 4 sec timegate at the midway of the line.
 Mild screw noise, and strum visible. Head wave noise observed along the line due to data is clean due to the calm sea condition

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1104F1-093**
 Area: **Gippsland Basin, Bass Strait** Sequence: **093**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1097-1112** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	9-Jun-2006	160	15:29	1:29	121	1997	1348	15:05 UTC
FPSP:	9-Jun-2006	160	15:29	1:29	121	1997	1348	
LPSP:	9-Jun-2006	160	18:08	4:08	1237	881	1351	Full volume arrays at 15:25 UTC
EOL LSP:	9-Jun-2006	160	18:08	4:08	1237	881	1351	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-3.8	5
Water depth (m)	58	65
RMS noise @ 5 Hz LC (µB)	3.3	3
Weather	160°, 1m/s, 0.5m	Calm, 0.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1988	1977
Stbd	1989	1984

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.1	6.9-7.2
Str 2	6.8-7.2	6.9-7.1
Str 3	6.9-7.1	7.0-7.3
Str 4	6.9-7.1	6.9-7.2
Str 5	6.7-7.2	7.0-7.2
Str 6	6.9-7.1	6.6-7.1
Str 7	6.8-7.4	6.8-7.1
Str 8	6.8-7.3	6.9-7.3

SOL/EOL Comments

Overall Line Observations

Files 79-98 Gun signature tests conducted on Gun P-27

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)	351		
S3:	83		339	290 (Phase)	3		
S4:	106, 110				127		
S5:	75				86, 88, 326		
S6:	49, 116, 120, 158				29,37,91,205,303		
S7:	89, 100, 166, 202, 229, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1104F1-093**

Seq: **093**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
79-98	N/A	1348		GUN SIGNATURE TEST CONDUCTED ON GUN P-27
99-110	/	1348		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1348		FSP @ 15:29 UTC
121	1997	1348		FPSP @ 15:29 UTC
449	1669	1348		EOT
450	1668	1349		SOT
820	1298	1349		EOT
821	1297	1350		SOT
1191	927	1350		EOT
1192	926	1351		SOT
1237	881	1351		LPSP @ 18:08 UTC
1237	881	1351		LSP @ 18:08 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1351		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1104F1-093**Seq: **093**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1104F1-093**

Area: **Gippsland Basin, Bass Strait** Sequence: **093** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**

Job ID: **20323** CMP line range: **1097-1112** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: sg, vq, hh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	9-Jun-2006	160	15:29	1:29	1997	-3.8	357	160°, 1m/s, 0.5m
FPSP:	9-Jun-2006	160	15:29	1:29	1997			
LPSP:	9-Jun-2006	160	18:08	4:08	881			
EOL LSP:	9-Jun-2006	160	18:08	4:08	881	4.7	126	Calm, 0.5m
	UTC offset:			10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL	
Streamer overall:	Str 1-8	519	524		35.1	36.1	
Per streamer:	Str 1-2	75	76	Sub arrays:	PI-PC	8.8	8.2
	Str 2-3	75	75		PC-PO	8.6	8.7
	Str 3-4	77	77		SI-SC	7.5	8.1
	Str 4-5	69	73		SC-SO	7.4	7.4
	Str 5-6	74	75				
	Str 6-7	73	73				
	Str 7-8	76	75				

P2/94 filename: **G06A-1104F1-093.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_8**

Backup tape: **Tape3 Seq5**

Observations disabled etc.

Acoustics: G1A2 intermittent

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1997	15:29	1:29	E.Posn 1 shot b4 sol - d/t stbd side acu ranges SOL, FSP
1997	15:29	1:29	FPSP
			S7 looking a little short / S8 long from SOL
881	18:08	4:08	LPSP
881	18:08	4:08	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Vera Quinlan/Sam Griffiths/Howard Hewison**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Darryl Fletcher/Mikhael Malofeev**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1104F1-093**
 Sequence: **093**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1097-1112** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	9-Jun-2006	160	15:29	01:29	121	1997	1348
FPSP:	9-Jun-2006	160	15:29	01:29	121	1997	1348
LPSP:	9-Jun-2006	160	18:08	04:08	1237	881	1351
EOL LSP	9-Jun-2006	160	18:08	04:08	1237	881	1351

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-3.8	4.7
Water depth (m)	58	65
RMS Noise (µB)	3.3	3
Weather	160°, 1m/s, 0.5m	Calm, 0.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1988	1977
Stbd	1989	1984

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:39
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	0.9	2.1	1.2
HDOP	1.7	2.9	2.2
V1G2 PDOP	1.0	2.3	1.4
HDOP	1.7	3.0	2.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.2	4.28
Speed through water (m/s)	2.1	2.3	2.2	4.23
Feather angle (°)	-6.3	5.1	-1.6	
Gyro (P) (°)	178.7	198.3	187.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	511.5	530.0	521.5
Str 1-2	73.7	76.0	75.0
Str 2-3	73.9	76.5	75.4
Str 3-4	73.0	78.6	76.5
Str 4-5	66.2	74.9	71.0
Str 5-6	73.4	78.6	75.1
Str 6-7	71.8	74.2	73.2
Str 7-8	72.6	76.8	75.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.4	38.9	35.6
Port Subarray			
Outer-Centre	7.4	8.9	8.3
Centre-Inner	7.8	9.3	8.6
Stbd Subarray			
Centre-Inner	7.2	8.4	7.8
Outer-Centre	7.2	8.4	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106, 110			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 88, 326	
Str 6	29, 37, 91, 205, 303	
Str 7		
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

Files 79-98 Gun signature tests conducted on Gun P-27

PROCESSING QC COMMENTS

Shots free from any discernible swell noise.
 Mild strum, and head wave energy apparent. Out of plane diffraction observed.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1104F2-198**

Area: **Gippsland Basin, Bass Strait** Sequence: **198**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **14**

Job ID: **20323** CMP line range: **1097-1112** Line type: **Infill**

Type: **3D** No. CMPs: **16** Status: **Pending** Initials: NC/ RA/ LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	5-Jul-2006	186	19:30	5:30	121	1700	1741	19:00	
FPSP:	5-Jul-2006	186	19:30	5:30	121	1700	1741		
LPSP:	5-Jul-2006	186	21:27	7:27	940	881	1743		
EOL LSP:	5-Jul-2006	186	21:27	7:27	940	881	1743	19:20	
				UTC Offset:	10.0				

Full volume arrays at 19:20 UTC

	SOL	EOL
Feather angle (°)	1.2	-5.1
Water depth (m)	56	65
RMS noise @ 5 Hz LC (µB)	6.9	10.5
Weather	250°, 14m/s, 1.5m	240°, 15m/s, 3.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1980	1987
Stbd	1980	1987

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.8-7.2
Str 2	6.6-7.5	6.7-7.7
Str 3	6.8-7.3	6.6-8.8
Str 4	6.8-7.4	6.8-7.8
Str 5	6.9-7.2	6.8-7.5
Str 6	6.8-7.2	5.9-7.2
Str 7	6.9-7.4	6.8-7.2
Str 8	6.9-7.4	6.3-7.4

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.
Swell bursts up to 30µB affecting 25% of traces Average RMS noise values rising from 7µB - 15µB
Fluctuating gun depths d/t swell. Max 7.1m, min 4.7m
Fluctuating bird depths d/t swell. Max 8.5m, min 5.3m

Birds bad/poll disabled:

Birds deep/shallow: S3C4 indicating running deep, max 11.5m

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	83			290 (Phase)			
S4:	106,110,177,311				178		
S5:	75				86, 88, 326		
S6:	49,116,120,158,161,315				29, 37, 91, 205, 303, 360		
S7:	89,166, 202, 229, 269, 285		100,360			164, 251	
S8:	198						

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1104F2-198**Seq: **198**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1741		SOT - SOL NOISE FILES
111-120	1710-1701			APPROACH SHOTS
121	1700	1741		FSP @ 19:30 UTC
121	1700	1741		FPSP @ 19:30 UTC
469	1352	1741		EOT
470	1351	1742		SOT
625	1196			S3C4- C1 deep, C4 indicating max 11.5m
677	1144			S3C3-C1 back at target depth but still fluctuating, min 6.0m
840	981	1742		EOT
841	980	1743		SOT
940	881	1743		LPSP @ 21:27 UTC
940	881	1743		LSP @ 21:27 UTC
941-945	880-876			NAV PROCESSING SHOTS
946-956	/	1743		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1104F2-198**Seq: **198**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1104F2-198**
 Area: **Gippsland Basin, Bass Strait** Sequence: **198** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **14**
 Job ID: **20323** CMP line range: **1097-1112** Line type: **Infill**
 Type: **3D** No. CMPs **16** Status: **Pending** Log Status: Final

Initials: vq, hh, at, vt

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	5-Jul-2006	186	19:30	5:30	1700	1.2	47.9	250°, 14m/s, 1.5m
FPSP:	5-Jul-2006	186	19:30	5:30	1700			
LPSP:	5-Jul-2006	186	21:27	7:27	881			
EOL LSP:	5-Jul-2006	186	21:27	7:27	881	-5.1	255.6	240°, 15m/s, 3.0m
			UTC offset: 10.0					

Separations (m)		SOL	EOL	Sources overall:		Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	522	515	Sub arrays:	PO-PC	35.0	32.2	
Per streamer:	Str 1-2	76	76		PC-PI	7.1	7.9	
	Str 2-3	74	76		SI-SC	8.7	8.8	
	Str 3-4	70	70		SC-SO	8.2	7.6	
	Str 4-5	72	67			7.7	8.4	
	Str 5-6	79	78					
	Str 6-7	74	74					
	Str 7-8	77	75					

P2/94 filename: G06A-1104F2-198.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_14
 Backup tape: Tape 4 Seq 5

Observations disabled etc.

Acoustics: S2A2 intermittent . Port side guns poor d/t weather
 RGPS:
 Compasses: Compasses noisy d/t weather
 Other: Zone 1 (mainly from sp 1700 - 1540), Zone 4 (mainly from sp 1250 - 881)

SP	UTC	Local Time	Comments
1700	19:30	5:30	SOL, FSP
1700	19:30	5:30	FPSP
			Port side gun acoustics poor d/t weather. Compasses noisy
881	21:27	7:27	LPSP
881	21:27	7:27	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1104F2-198**
 Sequence: **198**
 Direction: **190.5°** Nav. Def: **14**
 CMP line range: **1097-1112** Line type: **Infill**
 No. CMPs: **16** Status: **Pending**

Obs Initials: **NC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	5-Jul-2006	186	19:30	05:30	121	1700	1741
FPSP:	5-Jul-2006	186	19:30	05:30	121	1700	1741
LPSP:	5-Jul-2006	186	21:27	07:27	940	881	1743
EOL LSP	5-Jul-2006	186	21:27	07:27	940	881	1743

GENERAL INFORMATION

	SOL	EOL
FA (°)	1.2	-5.1
Water depth (m)	56	65
RMS Noise (µB)	6.9	10.5
Weather	250°, 14m/s, 1.5m	240°, 15m/s, 3.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1980	1987
Stbd	1980	1987

TOTALS INFORMATION

Recorded SPs	820
Recorded km	15.375
Production time (hh:mm)	01:57
Production files	820
Production SPs	820
Production km	15.375
Production CMP km	246.000

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.6	1.9
HDOP	0.8	1.4	1.0
V1G2 PDOP	1.4	2.6	1.9
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.4	2.2	4.27
Speed through water (m/s)	1.5	2.4	2.1	4.06
Feather angle (°)	-4.7	1.7	-1.3	
Gyro (P) (°)	201.2	217.3	207.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	510.8	526.5	521.3
Str 1-2	73.9	77.7	75.9
Str 2-3	74.1	76.6	75.5
Str 3-4	65.2	77.1	70.7
Str 4-5	60.2	76.4	70.3
Str 5-6	75.3	81.1	78.4
Str 6-7	71.9	75.4	74.0
Str 7-8	74.1	78.0	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	27.1	37.4	33.8
Port Subarray	7.1	8.2	7.7
Outer-Centre	7.7	9.1	8.5
Stbd Subarray	7.6	9.2	8.5
Centre-Inner	7.5	8.8	8.1
Outer-Centre			

Birds bad:
 Birds depths: S3C4 indicating running deep, max 11.5m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83			290 (Phase)
Str 4	106,110,177,311			
Str 5	75			
Str 6	49,116,120,158,161,315			
Str 7	89,166, 202, 229, 269,		100,360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	88,326,352,	
Str 6	91,205,	
Str 7	164,251,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 4.41

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.
 Swell bursts up to 30µB affecting 25% of traces Average RMS noise values rising from 7µB - 15µB
 Fluctuating gun depths d/t swell. Max 7.1m, min 4.7m
 Fluctuating bird depths d/t swell. Max 8.5m, min 5.3m

PROCESSING QC COMMENTS

Moderate to high swell noise affecting >25% of traces, increasing towards EOL

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1120P1-089**
 Area: **Gippsland Basin, Bass Strait** Sequence: **089**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1113-1128** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	8-Jun-2006	159	19:46	5:46	121	1997	1328	19:15 UTC
FPSP:	8-Jun-2006	159	19:46	5:46	121	1997	1328	
LPSP:	8-Jun-2006	159	22:07	8:07	1237	881	1331	Full volume arrays at 19:40 UTC
EOL LSP:	8-Jun-2006	159	22:07	8:07	1237	881	1331	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	5.9	9.1
Water depth (m)	58	66
RMS noise @ 5 Hz LC (µB)	2.8	2.9
Weather	120°, 3m/s, 0.5m	090°, 3m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1966	1982
Stbd	1974	1982

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.2	6.9-7.2
Str 2	6.9-7.2	6.9-7.1
Str 3	6.9-7.1	6.9-7.1
Str 4	6.8-7.1	6.8-7.4
Str 5	6.9-7.2	6.9-7.2
Str 6	6.9-7.1	6.9-7.2
Str 7	6.9-7.1	6.9-7.1
Str 8	6.8-7.4	6.8-7.1

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83		339	290	3		
S4:	106, 110				127		
S5:	75				86, 88, 326		
S6:	49, 116, 120, 158, 229				29,37,91,205,303		
S7:	89, 100, 166, 202, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1328		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1328		FSP @ 19:46 UTC
121	1997	1328		FPSP @ 19:46 UTC
469	1649	1328		EOT
470	1648	1329		SOT
840	1278	1329		EOT
841	1277	1330		SOT
1211	907	1330		EOT
1212	906	1331		SOT
1237	881	1331		LPSP @ 22:07 UTC
1237	881	1331		LSP @ 22:07 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1331		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1120P1-089**Seq: **089**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1120P1-089**
 Sequence: **089**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1113-1128** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	8-Jun-2006	159	19:46	05:46	121	1997	1328
FPSP:	8-Jun-2006	159	19:46	05:46	121	1997	1328
LPSP:	8-Jun-2006	159	22:07	08:07	1237	881	1331
EOL LSP	8-Jun-2006	159	22:07	08:07	1237	881	1331

GENERAL INFORMATION

	SOL	EOL
FA (°)	5.9	9.1
Water depth (m)	58	66
RMS Noise (µB)	2.8	2.9
Weather	120°, 3m/s, 0.5m	090°, 3m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1966	1982
Stbd	1974	1982

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:21
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.1	1.8
HDOP	0.8	1.1	1.0
V1G2 PDOP	1.4	2.5	1.9
HDOP	0.8	1.3	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.6	2.5	4.83
Speed through water (m/s)	2.1	2.3	2.2	4.24
Feather angle (°)	6.3	10.8	8.7	
Gyro (P) (°)	172.6	187.3	179.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	508.6	523.4	517.6
Str 1-2	72.7	75.9	74.5
Str 2-3	71.7	75.2	73.7
Str 3-4	72.3	77.0	75.3
Str 4-5	67.2	73.6	70.1
Str 5-6	73.9	78.1	75.9
Str 6-7	71.4	73.9	72.8
Str 7-8	73.5	76.6	75.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.2	39.0	36.3
Port Subarray	7.0	8.7	7.8
Outer-Centre	8.0	9.4	8.6
Stbd Subarray	7.5	9.0	8.1
Centre-Inner	7.1	8.0	7.6
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290
Str 4	106, 110			
Str 5	75			
Str 6	49, 116, 120, 158, 229			
Str 7	89, 100, 166, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 88, 326	
Str 6	29, 37, 91, 205, 303	
Str 7		
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent.

Client: **Esso Australia Pty. Ltd.**Line Name: **G06A-1136P1-087**Area: **Gippsland Basin, Bass Strait**Sequence: **087**Prospect: **2006 Greater Bream 3D**Direction: **190.5°**Nav Def: **8**Job ID: **20323**CMP line range: **1129-1144**Line type: **Prime**Type: **3D**No. CMPs: **16**Status: **Complete**Initials: GC,RA,AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	8-Jun-2006	159	09:47	19:47	121	1997	1318	09:10	
FPSP:	8-Jun-2006	159	09:47	19:47	121	1997	1318		
LPSP:	8-Jun-2006	159	12:17	22:17	1237	881	1321		
EOL LSP:	8-Jun-2006	159	12:17	22:17	1237	881	1321	09:30	
				UTC Offset:	10.0				

Full volume arrays at 09:30 UTC

	SOL	EOL
Feather angle (°)	2.5	-1
Water depth (m)	58	65
RMS noise @ 5 Hz LC (µB)	2.8	3.4
Weather	Light airs, 1.0m	Light airs, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1985	1980
Stbd	1985	1985

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.9-7.2
Str 2	6.7-7.4	6.9-7.1
Str 3	6.7-7.4	7.0-7.3
Str 4	6.9-7.3	6.9-7.2
Str 5	6.9-7.4	6.8-7.2
Str 6	6.8-7.3	6.8-7.1
Str 7	6.9-7.3	6.9-7.1
Str 8	6.9-7.3	6.8-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83		339	290	3, 16, 69		
S4:	106, 110				41, 127, 318		
S5:	75				35, 86, 88, 326, 358		
S6:	49, 120, 158				37, 91		
S7:	89, 100, 202, 229, 285		130		189, 203		
S8:					137, 172		

Vessel Manager: Howie Grizaard

Observers: 00:00-12:00

Neil Shelley, Michael Wells, Larry Tan

Operations Supervisor: Glenn Cassim

12:00-00:00

Greg Campbell, Rashid Anwar, Anthony Doyle

Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1136P1-087**Seq: **087**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1318		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1318		FSP @ 09:47 UTC
121	1997	1318		FPSP @ 09:47 UTC
469	1649	1318		EOT
470	1648	1319		SOT
840	1278	1319		EOT
841	1277	1320		SOT
1211	907	1320		EOT
1212	906	1321		SOT
1237	881	1321		LPSP @ 12:17 UTC
1237	881	1321		LSP @ 12:17 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1321		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1136P1-087**Seq: **087**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1136P1-087**

Area: **Gippsland Basin, Bass Strait** Sequence: **087** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**

Job ID: **20323** CMP line range: **1129-1144** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: mm df nh
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	8-Jun-2006	159	09:47	19:47	1997	2.5	164	Light airs, 1.0m
FPSP:	8-Jun-2006	159	09:47	19:47	1997			
LPSP:	8-Jun-2006	159	12:17	22:17	881			
EOL LSP:	8-Jun-2006	159	12:17	22:17	881	-0.7	163	Light airs, 1.0m
			UTC offset: 10.0					

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	526	526			37.5	36.8
Per streamer:	Str 1-2	76	76	Sub arrays:	PI-PC	8.7	8.7
	Str 2-3	76	76		PC-PO	8.1	8.2
	Str 3-4	71	76		SI-SC	8.4	8.7
	Str 4-5	71	71		SC-SO	8.0	8.0
	Str 5-6	75	77				
	Str 6-7	74	73				
	Str 7-8	76	77				

P2/94 filename: **G06A-1136P1-087.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_8**

Backup tape: **Tape 2 Seq 4**

Observations disabled etc.

Acoustics: **G1A2 intermittent**

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1997	09:47	19:47	SOL, FSP
1997	09:47	19:47	FPSP
1334	11:17	21:17	S4/S5 Sep under 67.5m
1319	11:19	21:19	S4/S5 Sep over 67.5m
881	12:17	22:17	LPSP
881	12:17	22:17	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison**

Chief Navigator: **Jeremy Collins** **12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1136P1-087**
 Sequence: **087**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1129-1144** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	8-Jun-2006	159	09:47	19:47	121	1997	1318
FPSP:	8-Jun-2006	159	09:47	19:47	121	1997	1318
LPSP:	8-Jun-2006	159	12:17	22:17	1237	881	1321
EOL LSP	8-Jun-2006	159	12:17	22:17	1237	881	1321

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	2.5	-0.7
Water depth (m)	58	65
RMS Noise (µB)	2.8	3.4
Weather	Light airs, 1.0m	Light airs, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1985	1980
Stbd	1985	1985

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:30
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.2	2.1	1.7
HDOP	0.7	1.0	0.9
V1G2 PDOP	1.3	2.1	1.7
HDOP	0.8	1.0	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.5	2.3	4.53
Speed through water (m/s)	2.1	2.4	2.2	4.37
Feather angle (°)	-2.3	3.3	0.6	
Gyro (P) (°)	179.2	197.5	188.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.3	529.5	525.2
Str 1-2	74.0	76.6	75.4
Str 2-3	74.1	76.4	75.4
Str 3-4	72.1	78.4	76.1
Str 4-5	65.9	74.0	70.9
Str 5-6	74.6	80.1	77.6
Str 6-7	72.2	74.4	73.4
Str 7-8	75.3	77.3	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	31.7	40.1	37.0
Port Subarray			
Outer-Centre	7.5	9.2	8.4
Centre-Inner	7.1	9.0	8.1
Stbd Subarray			
Centre-Inner	7.9	9.1	8.5
Outer-Centre	7.4	8.4	7.9

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290
Str 4	106, 110			
Str 5	75			
Str 6	49, 120, 158			
Str 7	89, 100, 202, 229, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 88, 326	
Str 6	29, 37, 91, 205, 303	
Str 7	203, 285	
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.06

ONLINE COMMENTS

PROCESSING QC COMMENTS

No discernable swell noise on shots.
 Mild strumming, and head wave energy apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1152P1-083**
 Area: **Gippsland Basin, Bass Strait** Sequence: **083**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1145 - 1160** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	7-Jun-2006	158	13:00	23:00	121	1997	1301	12:25 UTC
FPSP:	7-Jun-2006	158	13:00	23:00	121	1997	1301	
LPSP:	7-Jun-2006	158	15:40	1:40	1237	881	1304	Full volume arrays at 12:45 UTC
EOL LSP:	7-Jun-2006	158	15:40	1:40	1237	881	1304	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-7.2	1
Water depth (m)	57	65
RMS noise @ 5 Hz LC (µB)	3.5	3.2
Weather	Light airs, 1.0m	240°, 5m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1985	1979
Stbd	1985	1983

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.1	6.9-7.2
Str 2	6.8-7.2	6.8-7.3
Str 3	6.9-7.3	6.9-7.2
Str 4	6.8-7.1	6.9-7.4
Str 5	6.9-7.1	6.8-7.2
Str 6	6.9-7.3	6.9-7.2
Str 7	6.9-7.1	6.8-7.1
Str 8	6.8-7.3	6.9-7.2

SOL/EOL Comments

Overall Line Observations

Gun 4's spared out

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83		339	290	3, 16, 69		
S4:	106, 110				127, 318		
S5:	75				35, 86, 88, 326, 358		
S6:	49, 120, 158						
S7:	89, 100, 202, 229, 285		130		189, 203		
S8:					137, 172		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1301		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1301		FSP @ 13:00 UTC
121	1997	1301		FPSP @ 13:00 UTC
469	1649	1301		EOT
470	1648	1302		SOT
542	1576		Bad	Delta Error: S-10: -1.2
840	1278	1302		EOT
841	1277	1303		SOT
936	1182		Bad	Delta Error: S-10: -1.1
938	1180		Bad	Delta Error: S-10: -1.1
1211	907	1303		EOT
1212	906	1304		SOT
1237	881	1304		LPSP @ 15:40 UTC
1237	881	1304		LSP @ 15:40 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1304		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1152P1-083**Seq: **083**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1152P1-083**
 Area: **Gippsland Basin, Bass Strait** Sequence: **083** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1145 - 1160** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: df , nh , mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	7-Jun-2006	158	13:00	23:00	1997	-7.2	521	Light airs, 1.0m
FPSP:	7-Jun-2006	158	13:00	23:00	1997			
LPSP:	7-Jun-2006	158	15:40	1:40	881			
EOL LSP:	7-Jun-2006	158	15:40	1:40	881	1.4	264	240°, 5m/s, 1.0m
			UTC offset: 10.0					

Separations (m)

	SOL	EOL
Streamer overall: Str 1-8	523	525
Per streamer: Str 1-2	74	75
Str 2-3	76	76
Str 3-4	74	73
Str 4-5	71	72
Str 5-6	77	78
Str 6-7	73	74
Str 7-8	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	7.9	8.5
	PC-PO	8.0	7.9
	SI-SC	8.7	8.5
	SC-SO	8.3	8.3

P2/94 filename: G06A-1152P1-083.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 1 Seq 5

Observations disabled etc.

Acoustics: G1A2 intermitent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	13:00	23:00	SOL, FSP
1997	13:00	23:00	FPSP Zone 1's buried due to feather mismatch
881	15:40	1:40	LPSP
881	15:40	1:40	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1152P1-083**
 Sequence: **083**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1145 - 1160** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	7-Jun-2006	158	13:00	23:00	121	1997	1301
FPSP:	7-Jun-2006	158	13:00	23:00	121	1997	1301
LPSP:	7-Jun-2006	158	15:40	01:40	1237	881	1304
EOL LSP	7-Jun-2006	158	15:40	01:40	1237	881	1304

GENERAL INFORMATION

	SOL	EOL
FA (°)	-7.2	1.4
Water depth (m)	57	65
RMS Noise (µB)	3.5	3.2
Weather	Light airs, 1.0m	240°, 5m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1985	1979
Stbd	1985	1983

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:40
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	3 / 0.27%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.0	2.1	1.4
HDOP	1.7	3.4	2.4
V1G2 PDOP	1.0	2.2	1.5
HDOP	1.9	3.4	2.6

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.2	4.22
Speed through water (m/s)	2.0	2.4	2.2	4.23
Feather angle (°)	-7.8	1.7	-4.4	
Gyro (P) (°)	182.3	202.7	192.1	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	512.1	527.6	522.8
Str 1-2	72.8	76.3	74.5
Str 2-3	74.3	76.7	75.6
Str 3-4	69.9	76.1	73.7
Str 4-5	65.0	74.0	71.6
Str 5-6	75.0	80.2	77.8
Str 6-7	70.9	74.5	73.1
Str 7-8	75.0	77.8	76.5

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.1	40.8	36.6
Port Subarray	7.3	8.9	8.1
Outer-Centre	7.4	8.9	8.2
Stbd Subarray	7.5	8.8	8.3
Centre-Inner	7.5	9.3	8.2
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290
Str 4	106, 110			
Str 5	75			
Str 6	49, 120, 158			
Str 7	89, 100, 202, 229, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 88, 326	
Str 6	91, 205	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1576, 1182, 1180	3
Autofires / Misfires:		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

TOTAL SHOTS

ONLINE COMMENTS

Gun 4's spared out

PROCESSING QC COMMENTS

Occasional mild swell apparent on shots.
 Strumming, and head wave energy visible.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1152F1-085**
 Area: **Gippsland Basin, Bass Strait** Sequence: **085**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1145-1160** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	7-Jun-2006	158	23:48	9:48	121	1997	1309	23:20	
FPSP:	7-Jun-2006	158	23:48	9:48	121	1997	1309		
LPSP:	8-Jun-2006	159	02:11	12:11	1237	881	1312		
EOL LSP:	8-Jun-2006	159	02:11	12:11	1237	881	1312	23:45	
				UTC Offset:	10.0				

Full volume arrays at 23:45 UTC

	SOL	EOL
Feather angle (°)	1.1	-3.9
Water depth (m)	58	64
RMS noise @ 5 Hz LC (µB)	2.9	2.7
Weather	290°, 5m/s, 1.0m	245°, 4m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1984	1985
Stbd	1986	1985

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.2	6.8-7.3
Str 2	6.8-7.3	6.9-7.3
Str 3	6.8-7.1	6.8-7.1
Str 4	6.9-7.2	6.8-7.2
Str 5	6.9-7.5	6.9-7.4
Str 6	6.9-7.1	6.9-7.2
Str 7	6.7-7.2	6.8-7.4
Str 8	6.8-7.4	6.6-7.3

SOL/EOL Comments

Overall Line Observations

SP 1450, Paying out 2m on Port and Stbd vane to increase separation with S4/S5

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83		339	290	3		
S4:	106, 110				127		
S5:	75				86, 88, 326		
S6:	49, 120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 202, 229, 285		130		189, 203		
S8:					137, 172		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-109	/	1309		SOT - SOL NOISE FILES
110	/			SOL NOISE FILES - Gun noise on file
111-120	2007-1998			APPROACH SHOTS
121	1997	1309		FSP @ 23:48 UTC
121	1997	1309		FPSP @ 23:48 UTC
211	1907	1309		Last Shotpoint of day
469	1649	1309		EOT
470	1648	1310		SOT
668	1450			Paying out 2m on Port and Stbd vane to increase separation with S4/S5
840	1278	1310		EOT
841	1277	1311		SOT
1211	907	1311		EOT
1212	906	1312		SOT
1237	881	1312		LPSP @ 02:11 UTC
1237	881	1312		LSP @ 02:11 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1312		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1152F1-085**Seq: **085**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1152F1-085**

Area: **Gippsland Basin, Bass Strait** Sequence: **085** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**

Job ID: **20323** CMP line range: **1145-1160** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: sg, vq, hh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	7-Jun-2006	158	23:48	9:48	1997	1.1	135	290°, 5m/s, 1.0m
FPSP:	7-Jun-2006	158	23:48	9:48	1997			
LPSP:	8-Jun-2006	159	02:11	12:11	881			
EOL LSP:	8-Jun-2006	159	02:11	12:11	881	-3.9	213	245°, 4m/s, 1.0m
UTC offset:				10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL	
Streamer overall:	Str 1-8	523	521	35.3	36.6		
Per streamer:	Str 1-2	76	75	Sub arrays:	PI-PC	8.1	8.2
	Str 2-3	76	76	PC-PO	8.6	8.6	
	Str 3-4	75	76	SI-SC	8.7	7.9	
	Str 4-5	69	69	SC-SO	8.4	8.3	
	Str 5-6	78	78				
	Str 6-7	73	73				
	Str 7-8	76	76				

P2/94 filename: **G06A-1152F1-085.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_8**

Backup tape: **Tape2 Seq2**

Observations disabled etc.

Acoustics: G1A2 intermittent

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1997	23:48	9:48	SOL, FSP
1997	23:48	9:48	FPSP
1907	23:59	9:59	Last Shot point of the day
1516	0:43	10:43	S4/S5 Sep's < 67.5 m
1431	1:00	11:00	S4/S5 Sep's > 67.5m
881	2:11	12:11	LPSP
881	2:11	12:11	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Vera Quinlan/Sam Griffiths/Howard Hewison**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Darryl Fletcher/Mikhael Malofeev**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1152F1-085**
 Sequence: **085**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1145-1160** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	7-Jun-2006	158	23:48	09:48	121	1997	1309
FPSP:	7-Jun-2006	158	23:48	09:48	121	1997	1309
LPSP:	8-Jun-2006	159	02:11	12:11	1237	881	1312
EOL LSP	8-Jun-2006	159	02:11	12:11	1237	881	1312

GENERAL INFORMATION

	SOL	EOL
FA (°)	1.1	-3.9
Water depth (m)	58	64
RMS Noise (µB)	2.9	2.7
Weather	290°, 5m/s, 1.0m	245°, 4m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1984	1985
Stbd	1986	1985

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:23
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.1	2.1
HDOP	0.8	1.2	1.0
V1G2 PDOP	1.6	3.1	2.2
HDOP	0.8	1.2	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.5	2.4	4.74
Speed through water (m/s)	2.1	2.5	2.2	4.26
Feather angle (°)	-4.6	1.3	-2.3	
Gyro (P) (°)	183.3	203.2	193.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.5	528.9	524.0
Str 1-2	73.5	76.1	74.7
Str 2-3	74.3	76.7	75.6
Str 3-4	74.0	78.1	76.0
Str 4-5	65.1	73.7	69.9
Str 5-6	75.5	80.8	78.4
Str 6-7	71.7	74.3	73.1
Str 7-8	75.0	77.5	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.5	39.7	36.6
Port Subarray			
Outer-Centre	7.5	8.7	8.2
Centre-Inner	7.4	9.0	8.4
Stbd Subarray			
Centre-Inner	7.8	9.0	8.4
Outer-Centre	7.5	8.8	8.2

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290
Str 4	106, 110			
Str 5	75			
Str 6	49, 120, 158			
Str 7	89, 100, 202, 229, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2	351	
Str 3	3	
Str 4	127	
Str 5	86, 88, 326, 352	
Str 6	91, 205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.04

ONLINE COMMENTS

SP 1450, Paying out 2m on Port and Stbd vane to increase separation with S4/S5

PROCESSING QC COMMENTS

No swell noise observed from every 200th shot interval QC samples
 Diffraction observed on shots
 Mild screw noise, and strum visible. Head wave noise observed along the line due to data is clean due to the calm sea condition

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1168P1- 058**
 Area: **Gippsland Basin, Bass Strait** Sequence: **058**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **6**
 Job ID: **20323** CMP line range: **1161-1176** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/RA
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	30-May-2006	150	13:43	23:43	121	1997	1194	13:10	
FPSP:	30-May-2006	150	13:43	23:43	121	1997	1194		
LPSP:	30-May-2006	150	16:00	2:00	1237	881	1197		
EOL LSP:	30-May-2006	150	16:00	2:00	1237	881	1197	13:30	
				UTC Offset:	10.0				

Full volume arrays at 13:30 UTC

	SOL	EOL
Feather angle (°)	4.8	5
Water depth (m)	59	65
RMS noise @ 5 Hz LC (µB)	5.5	4.2
Weather	110°, 12m/s, 1.5m	100°, 7m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1990	1990
Stbd	1990	1990

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.9-7.2
Str 2	6.9-7.2	6.9-7.3
Str 3	6.8-7.3	6.8-7.1
Str 4	6.9-7.2	6.9-7.2
Str 5	6.7-7.5	6.8-7.5
Str 6	6.7-7.3	6.9-7.2
Str 7	7.0-7.2	6.9-7.3
Str 8	6.7-7.4	6.8-7.4

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled: S1C19, S2C11, S2C13, S6C9 Polling disabled.

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:				305			
S3:	83,290						
S4:	116,124,318				127,318		
S5:	75,153				86,88,139		
S6:	49,216				205		
S7:	89		130				
S8:							

Vessel Manager: Howie Grizaard **Observers:** 00:00-12:00 Neil Shelley, Michael Wells, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Larry Tan
Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1168P1- 058**

Seq: **058**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1194		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1194		FSP @ 13:43 UTC
121	1997	1194		FPSP @ 13:43 UTC
469	1649	1194		EOT
470	1648	1195		SOT
840	1278	1195		EOT
841	1277	1196		SOT
897	1221		Bad	Delta Error: P-23: -1.3
1211	907	1196		EOT
1212	906	1197		SOT
1237	881	1197		LPSP @ 16:00 UTC
1237	881	1197		LSP @ 16:00 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1253	/	1197		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1168P1- 058**Seq: **058**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1168P1- 058**
 Sequence: **058**
 Direction: **190.5°** Nav. Def: **6**
 CMP line range: **1161-1176** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	30-May-2006	150	13:43	23:43	121	1997	1194
FPSP:	30-May-2006	150	13:43	23:43	121	1997	1194
LPSP:	30-May-2006	150	16:00	02:00	1237	881	1197
EOL LSP	30-May-2006	150	16:00	02:00	1237	881	1197

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	4.8	5.3
Water depth (m)	59	65
RMS Noise (µB)	5.5	4.2
Weather	110°, 12m/s, 1.5m	100°, 7m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1990	1990
Stbd	1990	1990

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:17
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.9	3.4	2.5
HDOP	1.0	2.1	1.5
V1G2 PDOP	1.9	3.4	2.6
HDOP	1.0	2.2	1.6

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.6	2.5	4.94
Speed through water (m/s)	1.7	2.3	2.1	4.01
Feather angle (°)	5.1	7.5	6.5	
Gyro (P) (°)	172.8	183.0	177.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.0	520.3	516.7
Str 1-2	73.9	76.2	75.1
Str 2-3	74.1	76.0	75.1
Str 3-4	73.9	77.4	75.7
Str 4-5	73.3	78.9	76.0
Str 5-6	65.5	69.3	67.4
Str 6-7	72.0	74.0	73.1
Str 7-8	73.1	75.3	74.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.6	38.2	35.8
Port Subarray			
Outer-Centre	7.9	8.7	8.3
Centre-Inner	7.6	8.5	8.0
Stbd Subarray			
Centre-Inner	7.3	8.6	7.9
Outer-Centre	7.6	8.8	8.1

Birds bad: S1C19, S2C11, S2C13, S6C9 Polling disabled.
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	83,290			
Str 4	116,124,318			
Str 5	75,153			
Str 6	49,216			
Str 7	89		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	91, 205, 303	
Str 7	203	
Str 8		318

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1221	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.27

ONLINE COMMENTS

PROCESSING QC COMMENTS

Swell noise affecting up to 10% traces on shots, penetrating to 3sec twt.
 Mild strum noise evident on all str.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1184P1-060**
 Area: **Gippsland Basin, Bass Strait** Sequence: **060**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **6**
 Job ID: **20323** CMP line range: **1177-1192** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS,MW,LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	30-May-2006	150	23:10	9:10	121	1997	1202	22:40	
FPSP:	30-May-2006	150	23:10	9:10	121	1997	1202		
LPSP:	31-May-2006	151	01:30	11:30	1235	881	1205		
EOL LSP:	31-May-2006	151	01:30	11:30	1235	881	1205	23:05	
				UTC Offset:	10.0				

Full volume arrays at 23:05 UTC

	SOL	EOL
Feather angle (°)	2.0	10
Water depth (m)	57	65
RMS noise @ 5 Hz LC (µB)	4.2	3.3
Weather	275°, 2m/s, 1.5m	275°, 2m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1973	1969
Stbd	1979	1976

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.8-7.5
Str 2	6.8-7.2	6.9-7.2
Str 3	6.8-7.3	6.9-7.3
Str 4	6.8-7.2	6.9-7.2
Str 5	6.8-7.5	6.8-7.2
Str 6	6.9-7.2	6.8-7.2
Str 7	6.9-7.3	6.8-7.3
Str 8	6.9-7.2	6.8-7.2

SOL/EOL Comments

Overall Line Observations

Random swell noise outbreak seen on QC screens and Plots
 Bird S5C4 running shallow, effecting traces 15 to 50 showing noise on QC screens.

Birds bad/poll disabled: S1C19, S5C4 polling disabled

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:				305			
S3:	83,290						
S4:	116,124,318				127,318		
S5:	75,153				139		
S6:	49,216				96,206,303		
S7:	89		130		203		
S8:							

Vessel Manager: Howie Grizaard **Observers:** 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1184P1-060**Seq: **060**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1202		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1202		FSP @ 23:10 UTC
121	1997	1202		FPSP @ 23:10 UTC
343	1775		Bad	Misfire: P-8
469	1649	1202		EOT
470	1648	1203		SOT
502	1616			LSP of the Day
	1571		Missed	Missed Shotpoint
668	1449		Bad	Misfire: P-8
840	1277	1203		EOT
841	1278	1204		SOT
1135	982		Bad	Delta Error: S-23: -1.1
	956		Missed	Missed Shotpoint
1211	905	1204		EOT
1212	904	1205		SOT
1235	881	1205		LPSP @ 01:30 UTC
1235	881	1205		LSP @ 01:30 UTC
1236-1240	880-876			NAV PROCESSING SHOTS
1241-1250	/	1205		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1184P1-060**Seq: **060**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1184P1-060**
 Sequence: **060**
 Direction: **190.5°** Nav. Def: **6**
 CMP line range: **1177-1192** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	30-May-2006	150	23:10	09:10	121	1997	1202
FPSP:	30-May-2006	150	23:10	09:10	121	1997	1202
LPSP:	31-May-2006	151	01:30	11:30	1235	881	1205
EOL LSP	31-May-2006	151	01:30	11:30	1235	881	1205

GENERAL INFORMATION

	SOL	EOL
FA (°)	2	10
Water depth (m)	57	65
RMS Noise (µB)	4.2	3.3
Weather	275°, 2m/s, 1.5m	275°, 2m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1973	1969
Stbd	1979	1976

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:20
Production files	1115
Production SPs	1117
Production km	20.944
Production CMP km	335.100

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.6	2.0
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.6	3.0	2.2
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.6	2.5	4.86
Speed through water (m/s)	1.5	2.3	2.1	4.10
Feather angle (°)	2.1	12.4	6.5	
Gyro (P) (°)	166.4	190.7	178.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	493.1	525.1	514.9
Str 1-2	71.6	76.4	74.9
Str 2-3	71.5	76.4	74.8
Str 3-4	70.9	77.8	75.5
Str 4-5	69.8	78.1	74.7
Str 5-6	64.7	72.7	68.4
Str 6-7	70.1	74.1	72.8
Str 7-8	70.3	76.3	74.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	30.6	38.2	34.4
Port Subarray	7.6	8.8	8.3
Outer-Centre	7.3	8.5	7.8
Stbd Subarray	6.8	8.3	7.6
Centre-Inner	7.2	8.5	7.8
Outer-Centre			

Birds bad: S1C19, S5C4 polling disabled

Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	83,290			
Str 4	116,124,318			
Str 5	75,153			
Str 6	49,216			
Str 7	89		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	91, 205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:**SPs:****TOTAL SHOTS**

Timing (delta) errors >1.0ms:	982	1
Autofires / Misfires :	1775,1449	2
Missed SPs (NDR):	1571,956	2
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.59

ONLINE COMMENTS

Random swell noise outbreak seen on QC screens and Plots
 Bird S5C4 running shallow, effecting traces 15 to 50 showing noise on QC screens.

PROCESSING QC COMMENTS

Occasional swell bursts affecting < 10% traces. Off end and broadside diffractons observed. Mild strum noise apparent.
 Work boat's screw noise appeared on the noise analysis map while coming back to vessel. Affecting from starboard streamers at SOL's SP 1997 to SP 1872; accrossing channel 2599 to the stern.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1200P1-062**
 Area: **Gippsland Basin, Bass Strait** Sequence: **062**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **7**
 Job ID: **20323** CMP line range: **1193-1208** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RA/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	31-May-2006	151	09:26	19:26	121	1997	1211	09:00	
FPSP:	31-May-2006	151	09:26	19:26	121	1997	1211		
LPSP:	31-May-2006	151	12:02	22:02	1237	881	1214		
EOL LSP:	31-May-2006	151	12:02	22:02	1237	881	1214	09:20	
				UTC Offset:	10.0				

Full volume arrays at 09:20 UTC

	SOL	EOL
Feather angle (°)	-7.6	-2
Water depth (m)	56	64
RMS noise @ 5 Hz LC (µB)	4.8	4.7
Weather	100°, 6m/s, 1m	92°, 10m/s, 1m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1985	1985
Stbd	1985	1985

Streamer Depths (m)

	SOL	EOL
Str 1	7.0-7.4	6.8-7.3
Str 2	6.9-7.2	6.9-7.3
Str 3	6.9-7.2	6.9-7.2
Str 4	6.8-7.2	6.7-7.1
Str 5	6.6-7.2	6.9-7.5
Str 6	6.8-7.2	6.8-7.2
Str 7	6.9-7.2	6.8-7.3
Str 8	6.6-7.1	6.7-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:			282	305			
S3:	290		339				
S4:	106,124,126,318		116		127		
S5:	75,155,157		153		136,139		
S6:	49,120,158				96,206,303		
S7:	89,100,202,285		130		203		
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1200P1-062**Seq: **062**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1211		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1211		FSP @ 09:26 UTC
121	1997	1211		FPSP @ 09:26 UTC
121	1997			S5C19 running deep @ approx. 8.1m
312	1806			S8C16 running deep @ approx. 8.0m
350	1768			S8C16 back at target depth
469	1649	1211		EOT
470	1648	1212		SOT
586	1532			S8C14-16 running deep @ approx. 8.8m (max)
610	1508			S8C14-C16 back at target depth
840	1278	1212		EOT
841	1277	1213		SOT
1211	907	1213		EOT
1212	906	1214		SOT
1237	881	1214		LPSP @ 12:02 UTC
1237	881	1214		LSP @ 12:02 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1253	/	1214		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1200P1-062**Seq: **062**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1200P1-062**
 Area: **Gippsland Basin, Bass Strait** Sequence: **062** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **7**
 Job ID: **20323** CMP line range: **1193-1208** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: nh , df , mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	31-May-2006	151	09:26	19:26	1997	-7.6	355	100°, 6m/s, 1m
FPSP:	31-May-2006	151	09:26	19:26	1997			
LPSP:	31-May-2006	151	12:02	22:02	881			
EOL LSP:	31-May-2006	151	12:02	22:02	881	-1.8	-8.9	92°, 10m/s, 1m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	520	522
Per streamer:		
Str 1-8	74	75
Str 2-3	75	76
Str 3-4	76	77
Str 4-5	77	77
Str 5-6	70	68
Str 6-7	72	73
Str 7-8	77	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	7.0	7.7
	PC-PO	7.1	7.4
	SI-SC	8.2	8.0
	SC-SO	9.3	8.6

P2/94 filename: G06A-1200P1-062.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_7
 Backup tape: Tape 1 Seq 4

Observations disabled etc.

Acoustics:
 RGPS:
 Compasses: S5C19 KO'ed
 Other:

SP	UTC	Local Time	Comments
1997	09:26	19:26	SOL, FSP
1997	09:26	19:26	FPSP
1686	10:10	20:10	S5 - S6 Separation less than 67.5m
1654	10:14	20:14	S5 - S6 Separation greater than 67.5m
881	12:02	22:02	LPSP
881	12:02	22:02	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1200P1-062**
 Sequence: **062**
 Direction: **190.5°** Nav. Def: **7**
 CMP line range: **1193-1208** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	31-May-2006	151	09:26	19:26	121	1997	1211
FPSP:	31-May-2006	151	09:26	19:26	121	1997	1211
LPSP:	31-May-2006	151	12:02	22:02	1237	881	1214
EOL LSP	31-May-2006	151	12:02	22:02	1237	881	1214

GENERAL INFORMATION

	SOL	EOL
FA (°)	-7.6	-1.8
Water depth (m)	56	64
RMS Noise (µB)	4.8	4.7
Weather	100°, 6m/s, 1m	92°, 10m/s, 1m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1985	1985
Stbd	1985	1985

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:36
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.2	2.1	1.6
HDOP	0.7	1.0	0.9
V1G2 PDOP	1.3	2.1	1.7
HDOP	0.8	1.0	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.2	4.35
Speed through water (m/s)	2.1	2.5	2.3	4.54
Feather angle (°)	-7.7	-1.3	-5.4	
Gyro (P) (°)	178.3	202.2	188.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	508.4	524.7	519.9
Str 1-2	73.3	76.0	74.5
Str 2-3	73.3	76.5	75.3
Str 3-4	74.4	78.3	76.5
Str 4-5	70.8	80.9	76.1
Str 5-6	65.3	71.9	68.6
Str 6-7	70.4	74.0	72.8
Str 7-8	73.9	77.4	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.8	38.9	35.7
Port Subarray	7.6	8.5	8.0
Centre-Inner	6.8	8.1	7.5
Stbd Subarray	7.0	8.4	7.8
Outer-Centre	7.9	9.3	8.6

Birds bad:
 Birds depths: S5C19 frequently running deep @ approx. 7.8m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290		339	
Str 4	106,124,126,318		116	
Str 5	75,155,157		153	
Str 6	49,120,158			
Str 7	89,100,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	205, 303	
Str 7	203, 285	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.57

ONLINE COMMENTS

PROCESSING QC COMMENTS

Negligible swell noise on shots.
 Mild strumming observed on all cables.
 Mild screw noise apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1216P1-064**
 Area: **Gippsland Basin, Bass Strait** Sequence: **064**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **7**
 Job ID: **20323** CMP line range: **1209-1224** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	
SOL FSP:	31-May-2006	151	19:20	5:20	121	1997	1219	Soft start commenced at 18:45 UTC
FPSP:	31-May-2006	151	19:20	5:20	121	1997	1219	
LPSP:	31-May-2006	151	21:48	7:48	1237	881	1222	Full volume arrays at 19:10 UTC
EOL LSP:	31-May-2006	151	21:48	7:48	1237	881	1222	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-2.0	-5.1
Water depth (m)	56	64
RMS noise @ 5 Hz LC (µB)	4.5	5.5
Weather	100°, 12m/s, 1.5m	100°, 11m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1973	1976
Stbd	1972	1973

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.2	6.8-7.2
Str 2	6.9-7.4	6.9-7.3
Str 3	6.8-7.3	6.8-7.2
Str 4	6.9-7.5	6.7-7.2
Str 5	6.8-7.9	6.9-7.3
Str 6	6.8-7.3	6.8-7.3
Str 7	6.8-7.5	6.8-7.2
Str 8	6.9-7.4	6.8-7.2

SOL/EOL Comments

Noise files 1251-1252 not recorded on Syntrak logging barn data d/t logging barn crash but were recorded to tape

Overall Line Observations

Birds bad/poll disabled:
 Birds deep/shallow: S5C19 occasionally running deep @ approx. 7.5-8.0m. Min. 6.5m Max. 8.7m. Average 7.8m

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:							
S2:			282	305			
S3:	290		339				
S4:	106,124,126,318		116				
S5:	75,155,157		153				
S6:	49,120,158						
S7:	89,100,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1219		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1219		FSP @ 19:20 UTC
121	1997	1219		FPSP @ 19:20 UTC
469	1649	1219		EOT
470	1648	1220		SOT
703	1415		Bad	Delta Error: P-10: -1.1
840	1278	1220		EOT
841	1277	1221		SOT
1211	907	1221		EOT
1212	906	1221		SOT
1237	881	1222		LPSP @ 21:48 UTC
1237	881	1222		LSP @ 21:48 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1222		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1216P1-064**Seq: **064**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1216P1-064**
 Sequence: **064**
 Direction: **190.5°** Nav. Def: **7**
 CMP line range: **1209-1224** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **L.T.**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	31-May-2006	151	19:20	05:20	121	1997	1219
FPSP:	31-May-2006	151	19:20	05:20	121	1997	1219
LPSP:	31-May-2006	151	21:48	07:48	1237	881	1222
EOL LSP	31-May-2006	151	21:48	07:48	1237	881	1222

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-2	-5.1
Water depth (m)	56	64
RMS Noise (µB)	4.5	5.5
Weather	100°, 12m/s, 1.5m	100°, 11m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1973	1976
Stbd	1972	1973

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:28
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.2	1.9
HDOP	0.8	1.3	1.0
V1G2 PDOP	1.7	3.0	2.0
HDOP	1.0	2.1	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.4	2.4	4.58
Speed through water (m/s)	2.1	2.5	2.3	4.50
Feather angle (°)	-5.8	-1.8	-4.6	
Gyro (P) (°)	179.4	195.8	186.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	514.9	523.6	520.0
Str 1-2	73.5	76.6	75.0
Str 2-3	73.9	76.7	75.4
Str 3-4	73.1	77.2	75.4
Str 4-5	74.6	81.7	77.8
Str 5-6	65.2	70.2	67.6
Str 6-7	70.8	74.3	72.8
Str 7-8	74.6	77.7	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.0	39.0	35.8
Port Subarray			
Outer-Centre	7.4	8.2	7.8
Centre-Inner	7.1	8.5	7.6
Stbd Subarray			
Centre-Inner	7.3	8.6	7.9
Outer-Centre	8.4	9.8	8.9

Birds bad:
 Birds depths: S5C19 occasionally running deep @ approx. 7.5-8.0m. Min. 6.5m Max. 8.7m. Average 7.8m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290		339	
Str 4	106,124,126,318		116	
Str 5	75,155,157		153	
Str 6	49,120,158			
Str 7	89,100,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109, 340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1415	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.43

ONLINE COMMENTS

PROCESSING QC COMMENTS

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1232P1-066**
 Area: **Gippsland Basin, Bass Strait** Sequence: **066**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **7**
 Job ID: **20323** CMP line range: **1225-1240** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RA/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	1-Jun-2006	152	06:47	16:47	128	1997	1228	6:15 UTC
FPSP:	1-Jun-2006	152	06:47	16:47	128	1997	1228	
LPSP:	1-Jun-2006	152	09:13	19:13	1244	881	1231	Full volume arrays at 6:35 UTC
EOL LSP:	1-Jun-2006	152	09:13	19:13	1244	881	1231	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	5.4	-11
Water depth (m)	57	64
RMS noise @ 5 Hz LC (µB)	2.5	4.8
Weather	170°, 5m/s, 1m	130°, 7m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1977
Stbd	1975	1978

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.4	6.9-7.2
Str 2	6.9-7.3	6.8-7.1
Str 3	6.9-7.2	6.9-7.2
Str 4	6.9-7.1	7.0-7.3
Str 5	6.7-7.5	6.9-7.3
Str 6	6.8-7.2	6.9-7.3
Str 7	6.9-7.3	6.8-7.1
Str 8	6.5-7.1	6.7-7.2

SOL/EOL Comments

Overall Line Observations

All Gun 3's used as Spare Only

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:			282	305			
S3:	83,290		339				
S4:	116,126,318		124		128		
S5:	75,108,113,155,157		153		86,89,136		
S6:	49,120,158				205		
S7:	89,100,166,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1232P1-066**

Seq: **066**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
79-88	/	1228		GUN SIGNATURE TEST (P-19)
89-105	/	1228		GUN SIGNATURE TEST (P-20)
106-117	/	1228		SOT - SOL NOISE FILES
118-127	2007-1998			APPROACH SHOTS
128	1997	1228		FSP @ 06:47 UTC
128	1997	1228		FPSP @ 06:47 UTC
347	1778			S8C16 running shallow @ approx 6.3m
387	1738			S8C16 back at target depth
449	1676	1228		EOT
450	1675	1229		SOT
820	1305	1229		EOT
821	1304	1230		SOT
1191	934	1230		EOT
1192	933	1231		SOT
1244	881	1231		LPSP @ 09:13 UTC
1244	881	1231		LSP @ 09:13 UTC
1245-1249	880-876			NAV PROCESSING SHOTS
1250-1260	/	1231		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1232P1-066**Seq: **066**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1232P1-066**
 Sequence: **066**
 Direction: **190.5°** Nav. Def: **7**
 CMP line range: **1225-1240** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	1-Jun-2006	152	06:47	16:47	128	1997	1228
FPSP:	1-Jun-2006	152	06:47	16:47	128	1997	1228
LPSP:	1-Jun-2006	152	09:13	19:13	1244	881	1231
EOL LSP	1-Jun-2006	152	09:13	19:13	1244	881	1231

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	5.4	-11
Water depth (m)	57	64
RMS Noise (µB)	2.5	4.8
Weather	170°, 5m/s, 1m	130°, 7m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1977
Stbd	1975	1978

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:26
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.5	1.8
HDOP	0.8	1.4	0.9
V1G2 PDOP	1.4	2.6	1.8
HDOP	0.8	1.4	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.4	4.65
Speed through water (m/s)	2.0	2.5	2.3	4.39
Feather angle (°)	-10.5	5.2	-4.8	
Gyro (P) (°)	182.0	203.2	193.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	505.7	522.2	514.2
Str 1-2	72.4	76.6	74.4
Str 2-3	73.0	76.2	74.9
Str 3-4	72.9	77.1	75.2
Str 4-5	67.8	79.7	72.5
Str 5-6	66.4	71.0	69.0
Str 6-7	70.0	74.0	72.4
Str 7-8	74.7	77.1	76.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.3	37.9	35.4
Port Subarray			
Outer-Centre	7.0	8.3	7.6
Centre-Inner	7.2	8.7	8.0
Stbd Subarray			
Centre-Inner	6.6	8.1	7.5
Outer-Centre	7.5	9.3	8.1

Birds bad:
 Birds depths: S5C19 frequently running deep @ 8.4m (Max)

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	83,290		339	
Str 4	116,126,318		124	
Str 5	75,108,113,155,157		153	
Str 6	49,120,158			
Str 7	89,100,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109, 340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.47

ONLINE COMMENTS

All Gun 3's used as Spare Only

PROCESSING QC COMMENTS

Less than 5% of mild energy swell noise evident on the data.
 Mild strumming and mild screw noise apparent all strms.
 Off end diffraction energy evident for a short period.
 Head wave noise observed along the line.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1248F1- 072**
 Area: **Gippsland Basin, Bass Strait** Sequence: **072**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1241 - 1256** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	4-Jun-2006	155	15:01	1:01	122	1997	1254	14:30 UTC
FPSP:	4-Jun-2006	155	15:01	1:01	122	1997	1254	
LPSP:	4-Jun-2006	155	17:32	3:32	1238	881	1257	Full volume arrays at 14:55 UTC
EOL LSP:	4-Jun-2006	155	17:32	3:32	1238	881	1257	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-0.2	11
Water depth (m)	56	65
RMS noise @ 5 Hz LC (µB)	7	4.8
Weather	145°, 10m/s, 2.0m	180°, 6m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1973	1970
Stbd	1979	1977

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.8-7.4
Str 2	6.9-7.4	6.8-7.1
Str 3	6.7-7.2	6.8-7.4
Str 4	6.6-7.1	6.8-7.1
Str 5	6.8-7.4	6.9-7.3
Str 6	6.8-7.1	6.9-7.4
Str 7	6.8-7.4	6.7-7.2
Str 8	6.8-7.1	6.6-7.1

SOL/EOL Comments

Overall Line Observations

Files 59-78 Conducted gun signature test on gun P-12
 Files 79-99 Conducted gun signature test on gun P-13

Birds bad/poll disabled: S5C14 Polling disabled. S6C4 Bad compass

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305			
S3:	290		339				
S4:	43,61,110				127		
S5:				151	135, 136, 137, 151		
S6:	49,116,120,158				104, 205		
S7:	89,166,202,285		130		164, 203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1248F1- 072**

Seq: **072**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
59-78	N/A	1254		GUN SIGNATURE TEST ON GUN P-12
79-99	N/A	1254		GUN SIGNATURE TEST ON GUN P-13
100-111	/			SOT - SOL NOISE FILES
112-121	2007-1998	1254		APPROACH SHOTS
122	1997	1254		FSP @ 15:01 UTC
122	1997	1254		FPSP @ 15:01 UTC
429	1690	1254		EOT
430	1689	1255		SOT
800	1319	1255		EOT
801	1318	1256		SOT
1171	948	1256		EOT
1172	947	1257		SOT
1238	881	1257		LPSP @ 17:32 UTC
1238	881	1257		LSP @ 17:32 UTC
1239-1243	880-876			NAV PROCESSING SHOTS
1244-1253	/	1257		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1248F1- 072**Seq: **072**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1248F1- 072**
 Area: **Gippsland Basin, Bass Strait** Sequence: **072** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1241 - 1256** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: sg, vq, hh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	4-Jun-2006	155	15:01	1:01	1997	-0.2	-88	145°, 10m/s, 2.0m
FPSP:	4-Jun-2006	155	15:01	1:01	1997			
LPSP:	4-Jun-2006	155	17:32	3:32	881			
EOL LSP:	4-Jun-2006	155	17:32	3:32	881	10.6	-584	180°, 6m/s, 1.5m
			UTC offset: 10.0					

Separations (m)

	SOL	EOL
Streamer overall: Str 1-8	524	518
Per streamer: Str 1-2	75	75
Str 2-3	76	76
Str 3-4	75	74
Str 4-5	75	71
Str 5-6	75	74
Str 6-7	74	73
Str 7-8	76	75

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	8.0	8.3
	PC-PO	7.9	8.1
	SI-SC	8.1	7.7
	SC-SO	8.9	8.6

P2/94 filename: G06A-1248F1-072.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 3 Seq 4

Observations disabled etc.

Acoustics:
 RGPS:
 Compasses: S5C14 S4C6 Koed
 Other:

SP	UTC	Local Time	Comments
1997	15:01	1:01	SOL, FSP
1997	15:01	1:01	FPSP
1039	17:11	3:11	Feather angle > 10°
881	17:32	3:32	LPSP
881	17:32	3:32	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1248F1- 072**
 Sequence: **072**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1241 - 1256** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **L.T.**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	4-Jun-2006	155	15:01	01:01	122	1997	1254
FPSP:	4-Jun-2006	155	15:01	01:01	122	1997	1254
LPSP:	4-Jun-2006	155	17:32	03:32	1238	881	1257
EOL LSP	4-Jun-2006	155	17:32	03:32	1238	881	1257

GENERAL INFORMATION

	SOL	EOL
FA (°)	-0.2	10.6
Water depth (m)	56	65
RMS Noise (µB)	7	4.8
Weather	145°, 10m/s, 2.0m	180°, 6m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1973	1970
Stbd	1979	1977

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:31
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	0.9	2.1	1.3
HDOP	1.7	3.4	2.3
V1G2 PDOP	1.0	2.3	1.5
HDOP	1.7	3.4	2.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.3	4.49
Speed through water (m/s)	1.5	2.4	2.1	4.14
Feather angle (°)	0.1	11.4	5.8	
Gyro (P) (°)	167.2	184.2	177.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	503.0	525.5	517.5
Str 1-2	71.6	77.0	74.4
Str 2-3	72.9	77.1	75.2
Str 3-4	71.5	77.3	74.3
Str 4-5	69.3	75.4	72.1
Str 5-6	70.6	77.1	74.0
Str 6-7	71.1	74.8	73.1
Str 7-8	71.4	77.2	74.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.1	39.6	36.2
Port Subarray			
Outer-Centre	7.3	8.8	8.1
Centre-Inner	7.8	9.1	8.5
Stbd Subarray			
Centre-Inner	7.1	8.4	7.7
Outer-Centre	7.7	9.2	8.5

Birds bad: S5C14 Polling disabled. S6C4 Bad compass
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290		339	
Str 4	43,61,110			
Str 5				151
Str 6	49,116,120,158			
Str 7	89,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2	310	
Str 3		
Str 4	127	
Str 5	151	
Str 6	104, 205	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.18

ONLINE COMMENTS

Files 59-78 Conducted gun signature test on gun P-12
 Files 79-99 Conducted gun signature test on gun P-13

PROCESSING QC COMMENTS

Shots show 10-15% traces affected by moderate swell noise. Penetrating 3sec twt, occasionally higher.
 Mild strum noise evident.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1248P1-068**
 Area: **Gippsland Basin, Bass Strait** Sequence: **068**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **7**
 Job ID: **20323** CMP line range: **1241-1256** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	1-Jun-2006	152	16:47	2:47	120	1997	1236	16:15 UTC
FPSP:	1-Jun-2006	152	16:47	2:47	120	1997	1236	
LPSP:	1-Jun-2006	152	19:12	5:12	1236	881	1239	Full volume arrays at 16:40 UTC
EOL LSP:	1-Jun-2006	152	19:12	5:12	1236	881	1239	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	4.0	-3.5
Water depth (m)	57	65
RMS noise @ 5 Hz LC (µB)	6	6.7
Weather	150°, 12m/s, 2.0m	150°, 13m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1976	1971
Stbd	1980	1975

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.3	6.8-7.9
Str 2	6.8-7.5	6.8-7.2
Str 3	6.8-7.3	6.9-7.3
Str 4	6.8-7.4	6.8-7.2
Str 5	6.8-7.9	6.9-7.3
Str 6	6.8-7.2	6.8-7.5
Str 7	6.9-7.3	6.8-7.3
Str 8	6.8-7.2	6.8-7.4

SOL/EOL Comments

Overall Line Observations

Random swell noise outbreak seen on QC screens and plots

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:			282	305			
S3:	83,290		339				
S4:	116,126,318		124		128		
S5:	75,108,113,155,157		153		136, 139		
S6:	49,120,158				205		
S7:	89,100,166,202,285		130		203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1236		SOT - SOL NOISE FILES
111-119	2007-1998			APPROACH SHOTS
120	1997	1236		FSP @ 16:47 UTC
120	1997	1236		FPSP @ 16:47 UTC
469	1648	1236		EOT
470	1646	1237		SOT
840	1277	1237		EOT
841	1276	1238		SOT
1211	906	1238		EOT
1212	905	1239		SOT
1236	881	1239		LPSP @ 19:12 UTC
1236	881	1239		LSP @ 19:12 UTC
1237-1241	880-876			NAV PROCESSING SHOTS
1242-1251	/	1239		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1248P1-068**Seq: **068**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1248P1-068**

Area: **Gippsland Basin, Bass Strait** Sequence: **068** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **7**

Job ID: **20323** CMP line range: **1241-1256** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: SG hh vq

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	1-Jun-2006	152	16:47	2:47	1997	4	-414	150°, 12m/s, 2.0m
FPSP:	1-Jun-2006	152	16:47	2:47	1997			
LPSP:	1-Jun-2006	152	19:12	5:12	881			
EOL LSP:	1-Jun-2006	152	19:12	5:12	881	-3.5	-306	150°, 13m/s, 2.0m
UTC offset:				10.0				

Separations (m)

	SOL	EOL	SOL	EOL
Streamer overall:	Str 1-8	521	521	
Per streamer:	Str 1-2	76	75	
	Str 2-3	75	75	
	Str 3-4	77	76	
	Str 4-5	77	79	
	Str 5-6	72	73	
	Str 6-7	74	74	
	Str 7-8	75	76	
	Sources overall:	Port-Stbd	35.0	37.0
Sub arrays:	PI-PC	7.6	7.7	
	PC-PO	8.3	8.1	
	SI-SC	7.2	7.4	
	SC-SO	9.2	9.1	

P2/94 filename: **G06A-1248P1-068.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_7**

Backup tape: **Tape 2 Seq 5**

Observations disabled etc.

Acoustics: G1A2 intermittent

RGPS:

Compasses: S5C19 KO

Other:

SP	UTC	Local Time	Comments
1997	16:47	2:47	SOL, FSP
1997	16:47	2:47	FPSP
1580	17:40	3:40	S5/S6 front end separations < 67.5m
881	19:12	5:12	LPSP
881	19:12	5:12	EOL, LSP S5/S6 front end sep's remained < 67.5m from SP 1580

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** Vera Quinlan/Sam Griffiths/Howard Hewison

Chief Navigator: **Jeremy Collins** **12:00-00:00** Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1248P1-068**
 Sequence: **068**
 Direction: **190.5°** Nav. Def: **7**
 CMP line range: **1241-1256** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	1-Jun-2006	152	16:47	02:47	120	1997	1236
FPSP:	1-Jun-2006	152	16:47	02:47	120	1997	1236
LPSP:	1-Jun-2006	152	19:12	05:12	1236	881	1239
EOL LSP	1-Jun-2006	152	19:12	05:12	1236	881	1239

GENERAL INFORMATION

	SOL	EOL
FA (°)	4	-3.5
Water depth (m)	57	65
RMS Noise (µB)	6	6.7
Weather	150°, 12m/s, 2.0m	150°, 13m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1976	1971
Stbd	1980	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:25
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	2.8	2.1
HDOP	1.0	2.1	1.3
V1G2 PDOP	1.7	3.0	2.3
HDOP	1.0	2.3	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.4	4.68
Speed through water (m/s)	1.8	2.4	2.2	4.34
Feather angle (°)	-3.4	4.6	1.6	
Gyro (P) (°)	168.6	189.4	178.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.3	523.3	519.5
Str 1-2	72.9	77.8	75.4
Str 2-3	74.0	77.8	75.8
Str 3-4	72.9	78.3	76.0
Str 4-5	73.9	81.2	77.4
Str 5-6	63.0	69.7	66.4
Str 6-7	71.1	75.7	73.1
Str 7-8	72.7	77.9	75.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	31.8	37.9	35.2
Port Subarray			
Outer-Centre	7.3	8.4	7.8
Centre-Inner	7.6	8.8	8.2
Stbd Subarray			
Centre-Inner	6.8	8.0	7.5
Outer-Centre	8.5	9.7	9.1

Birds bad:
 Birds depths: S5C19 running deep @ approx. 7.6-8.0m. Max. 8.6m Average. 7.8m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	83,290		339	
Str 4	116,126,318		124	
Str 5	75,108,113,155,157		153	
Str 6	49,120,158			
Str 7	89,100,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 1.80

ONLINE COMMENTS

Random swell noise outbreak seen on QC screens and plots

PROCESSING QC COMMENTS

Moderate swell noise affecting 5-10% traces, occasionally penetrating beyond 2500msec.
 Screw noise and strum noise evident.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1264P1-075**
 Area: **Gippsland Basin, Bass Strait** Sequence: **075**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1257-1272** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	5-Jun-2006	156	19:11	05:11	121	1997	1267	18:40 UTC
FPSP:	5-Jun-2006	156	19:11	05:11	121	1997	1267	
LPSP:	5-Jun-2006	156	21:30	07:30	1235	883	1270	Full volume arrays at 19:05 UTC
EOL LSP:	5-Jun-2006	156	21:31	07:31	1237	881	1270	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	7.7	4
Water depth (m)	56	69
RMS noise @ 5 Hz LC (µB)	4.2	3.6
Weather	180°, 4m/s, 1.0m	Calm 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1976	1978
Stbd	1982	1981

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.2	6.9-7.2
Str 2	6.9-7.4	6.9-7.2
Str 3	6.8-7.3	6.8-7.3
Str 4	6.8-7.5	6.8-7.1
Str 5	6.8-7.6	6.9-7.4
Str 6	6.8-7.3	6.7-7.1
Str 7	6.9-7.2	6.9-7.1
Str 8	6.8-7.1	6.8-7.1

SOL/EOL Comments

Overall Line Observations

Files 79-98 Gun signature tests conducted on Gun S-12
 No gun signature tests conducted on Gun S-13 d/t missfires. Unable to get gun to fire. Gun S-13 spared out for this line
LGSP 883 @ 21:30 UTC D/T engineers accidentally tripping out compressors
 SP's 882-881 recorded to tape but bad shotpoints D/T pressure errors
 Line Complete

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305			
S3:	290		339				
S4:					128		
S5:				151	86		
S6:	49,120,158				205		
S7:	89,166,202,229		130		203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
79-98	N/A	1267		GUN SIGNATURE TEST CONDUCTED ON GUN S-12
***	***	***		NO GUN SIGNATURE TEST CONDUCTED ON GUN S-13 D/T MISFIRES
99-110	/	1267		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1267		FSP @ 19:11 UTC
121	1997	1267		FPSP @ 19:11 UTC
449	1669	1267		EOT
450	1668	1268		SOT
820	1298	1268		EOT
821	1297	1269		SOT
1191	927	1269		EOT
1192	926	1270		SOT
1235	883	1270		LPSP @ 21:30 UTC
1237	881	1270		LSP @ 21:31 UTC
1238-1242	882-878			NAV PROCESSING SHOTS
1243-1252	/	1270		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1264P1-075**Seq: **075**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1264P1-075**

Area: **Gippsland Basin, Bass Strait** Sequence: **075** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**

Job ID: **20323** CMP line range: **1257-1272** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: sg, hh, vq

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	5-Jun-2006	156	19:11	05:11	1997	7.7	-305	180°, 4m/s, 1.0m
FPSP:	5-Jun-2006	156	19:11	05:11	1997			
LPSP:	5-Jun-2006	156	21:30	07:30	883			
EOL LSP:	5-Jun-2006	156	21:31	07:31	881	3.7	-502	Calm 1.0m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	519	524
Per streamer:		
Str 1-8	76	76
Str 1-2	75	76
Str 2-3	75	74
Str 3-4	68	72
Str 4-5	76	77
Str 5-6	73	74
Str 6-7	76	76

	SOL	EOL
Sources overall: Port-Stbd	35.3	35.9
Sub arrays:		
PI-PC	8.5	8.6
PC-PO	8.1	7.9
SI-SC	7.8	7.9
SC-SO	8.7	8.5

P2/94 filename: G06A-1264P1-075.0.p294

LMN: 20323_Bream.LMN

SCN: 20323_Bream.SCN

RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN

Acoustic file: 20323_8

Backup tape: Tape 4 Seq 2

Observations disabled etc.

Acoustics: G1A2 intermittent

RGPS:

Compasses: S6C4 Bad Bias

Other:

SP	UTC	Local Time	Comments
1997	19:11	05:11	SOL, FSP WSP < 4.2 Knots d/t client request
1997	19:11	05:11	FPSP
1170	20:55	06:55	S4/S5 sep's < 67.5
1098	21:04	07:04	S4/S5 sep's > 67.5
883	21:30	07:30	LPSP
881	21:31	07:31	EOL, LSP

Vessel Manager: Howie Grizaard **Navigators:** 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison

Chief Navigator : Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1264P1-075**
 Sequence: **075**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1257-1272** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **N.S.**
 Proc Initials: **MB**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	5-Jun-2006	156	19:11	05:11	121	1997	1267
FPSP:	5-Jun-2006	156	19:11	05:11	121	1997	1267
LPSP:	5-Jun-2006	156	21:30	07:30	1235	883	1270
EOL LSP	5-Jun-2006	156	21:31	07:31	1237	881	1270

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	7.7	3.7
Water depth (m)	56	69
RMS Noise (µB)	4.2	3.6
Weather	180°, 4m/s, 1.0m	Calm 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1976	1978
Stbd	1982	1981

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:19
Production files	1115
Production SPs	1115
Production km	20.906
Production CMP km	334.500

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.2	1.9
HDOP	0.8	1.3	1.0
V1G2 PDOP	1.6	3.0	1.9
HDOP	1.0	2.1	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.6	2.5	4.85
Speed through water (m/s)	2.0	2.3	2.1	4.17
Feather angle (°)	3.6	8.1	5.1	
Gyro (P) (°)	175.2	191.7	183.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	503.0	524.2	519.2
Str 1-2	72.4	76.7	75.1
Str 2-3	73.1	76.6	75.3
Str 3-4	69.0	75.9	73.6
Str 4-5	61.7	73.0	69.5
Str 5-6	74.7	79.2	77.1
Str 6-7	71.9	74.3	73.3
Str 7-8	73.6	76.8	75.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	30.1	38.6	35.8
Port Subarray			
Outer-Centre	7.1	9.1	8.4
Centre-Inner	7.2	8.9	8.2
Stbd Subarray			
Centre-Inner	7.3	8.4	7.9
Outer-Centre	7.9	9.1	8.4

Birds bad: **S6C4 Bad compass**
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290		339	
Str 4				
Str 5				151
Str 6	49,120,158			
Str 7	89,166,202,229		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 326	
Str 6	91, 205	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.04

ONLINE COMMENTS

Files 79-98 Gun signature tests conducted on Gun S-12
 No gun signature tests conducted on Gun S-13 d/t misfires. Unable to get gun to fire. Gun S-13 spared out for this line
 LGSP 883 @ 21:30 UTC D/T engineers accidentally tripping out compressors
 SP's 882-881 recorded to tape but bad shotpoints D/T pressure errors
 Line Complete

PROCESSING QC COMMENTS

Occasional incidences of mild to moderate swell, affecting <5% traces.
 Out of plane diffraction observed midway along line.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1280P1-077**
 Area: **Gippsland Basin, Bass Strait** Sequence: **077**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1273-1288** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RA/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	6-Jun-2006	157	06:59	16:59	121	1997	1275	06:20	
FPSP:	6-Jun-2006	157	06:59	16:59	121	1997	1275		
LPSP:	6-Jun-2006	157	09:21	19:21	1237	881	1278		
EOL LSP:	6-Jun-2006	157	09:21	19:21	1237	881	1278	06:40	
				UTC Offset:	10.0				

Full volume arrays at 06:40 UTC

	SOL	EOL
Feather angle (°)	3.2	2.0
Water depth (m)	56	64
RMS noise @ 5 Hz LC (µB)	3.3	3.4
Weather	160°, 2m/s, 1.0m	160°, 2m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1972	1974
Stbd	1973	1980

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.8-7.2
Str 2	6.6-7.2	6.8-7.1
Str 3	6.9-7.3	6.9-7.2
Str 4	6.9-7.2	6.9-7.2
Str 5	6.8-7.2	6.8-7.3
Str 6	6.6-7.2	6.9-7.3
Str 7	6.8-7.3	6.9-7.2
Str 8	6.9-7.4	6.9-7.1

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305			
S3:	290		339				
S4:					128		
S5:				151	86		
S6:	49,120,158				205		
S7:	89,166,202,229		130		203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1280P1-077**

Seq: **077**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1275		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1275		FSP @ 06:59 UTC
121	1997	1275		FPSP @ 06:59 UTC
469	1649	1275		EOT
470	1648	1276		SOT
840	1278	1276		EOT
841	1277	1277		SOT
1211	907	1277		EOT
1212	906	1278		SOT
1237	881	1278		LPSP @ 09:21 UTC
1237	881	1278		LSP @ 09:21 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1278		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1280P1-077**Seq: **077**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1280P1-077**
 Sequence: **077**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1273-1288** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **GC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	6-Jun-2006	157	06:59	16:59	121	1997	1275
FPSP:	6-Jun-2006	157	06:59	16:59	121	1997	1275
LPSP:	6-Jun-2006	157	09:21	19:21	1237	881	1278
EOL LSP	6-Jun-2006	157	09:21	19:21	1237	881	1278

GENERAL INFORMATION

	SOL	EOL
FA (°)	3.2	2
Water depth (m)	56	64
RMS Noise (µB)	3.3	3.4
Weather	160°, 2m/s, 1.0m	160°, 2m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1972	1974
Stbd	1973	1980

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:22
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.6	1.9
HDOP	0.8	1.3	1.0
V1G2 PDOP	1.5	4.5	1.9
HDOP	0.8	2.2	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.5	4.79
Speed through water (m/s)	2.0	2.3	2.2	4.27
Feather angle (°)	2.6	6.2	4.3	
Gyro (P) (°)	175.2	190.1	183.1	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	509.0	523.9	518.6
Str 1-2	73.2	76.5	75.2
Str 2-3	73.4	76.0	74.8
Str 3-4	70.2	75.2	73.2
Str 4-5	64.8	73.4	70.1
Str 5-6	74.4	78.5	76.5
Str 6-7	72.0	74.4	73.4
Str 7-8	74.0	76.6	75.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	30.7	38.0	35.5
Port Subarray			
Outer-Centre	7.1	8.6	7.8
Centre-Inner	7.4	9.0	8.3
Stbd Subarray			
Centre-Inner	7.3	8.3	7.8
Outer-Centre	7.9	9.6	8.6

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290		339	
Str 4				
Str 5				151
Str 6	49,120,158			
Str 7	89,166,202,229		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5		
Str 6	91, 205, 303	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.13

ONLINE COMMENTS

PROCESSING QC COMMENTS

No swell noise observed from every 200th shot interval QC samples
 Out of plane diffraction observed midway along line starting at 3.5 sec.
 Mild screw noise, and strum visible. Head wave noise observed along the line due to data is clean due to the calm sea condition



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1296P1-079**
 Area: **Gippsland Basin, Bass Strait** Sequence: **079**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1289-1304** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	6-Jun-2006	157	16:46	02:46	121	1997	1284	at	16:15
FPSP:	6-Jun-2006	157	16:46	02:46	121	1997	1284		
LPSP:	6-Jun-2006	157	19:14	05:14	1237	881	1287	Full volume arrays at	16:40
EOL LSP:	6-Jun-2006	157	19:14	05:14	1237	881	1287		UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	1.2	11
Water depth (m)	56	64
RMS noise @ 5 Hz LC (µB)	3.8	3.3
Weather	120°, 7m/s, 1.0m	090°, 4m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1977	1982
Stbd	1980	1986

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.2	6.9-7.2
Str 2	6.9-7.4	6.9-7.2
Str 3	6.8-7.3	6.8-7.1
Str 4	6.8-7.2	6.9-7.4
Str 5	6.9-7.1	6.8-7.1
Str 6	6.8-7.2	6.8-7.2
Str 7	6.7-7.4	6.8-7.3
Str 8	6.9-7.2	6.8-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83			290, 339	3, 16, 69		
S4:	106, 110				127, 318		
S5:	75				35, 86, 88, 326, 358		
S6:	116, 120, 158						
S7:	89, 100, 166, 202, 285		130		189		
S8:					137, 172		

Vessel Manager:	Howie Grizaard	Observers:	00:00-12:00	Neil Shelley, Michael Wells, Larry Tan
Operations Supervisor:	Glenn Cassim		12:00-00:00	Greg Campbell, Rashid Anwar, Anthony Doyle
Chief Observer:	Les Hayden			



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1296P1-079

Seq:

079

Dir:

190.5°

FILE	SP	TAPE	BAD	
99-110	/	1284		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1284		FSP @ 16:46 UTC
121	1997	1284		FPSP @ 16:46 UTC
469	1649	1284		EOT
470	1648	1285		SOT
840	1278	1285		EOT
841	1277	1286		SOT
1211	907	1286		EOT
1212	906	1287		SOT
1237	881	1287		LPSP @ 19:14 UTC
1237	881	1287		LSP @ 19:14 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1287		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1296P1-079**

Seq: **079**

Dir: **190.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1296P1-079**
 Area: **Gippsland Basin, Bass Strait** Sequence: **079** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1289-1304** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Initials: sg, hh, vq
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	6-Jun-2006	157	16:46	02:46	1997	1.2	-298	120°, 7m/s, 1.0m
FPSP:	6-Jun-2006	157	16:46	02:46	1997			
LPSP:	6-Jun-2006	157	19:14	05:14	881			
EOL LSP:	6-Jun-2006	157	19:14	05:14	881	11.1	837	090°, 4m/s, 1.0m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	524	519			36.3	36.4		
Per streamer:	Str 1-2	75	75			7.8	7.8		
	Str 2-3	76	74			8.3	8.5		
	Str 3-4	75	74			7.8	7.7		
	Str 4-5	73	72			8.5	8.2		
	Str 5-6	77	75						
	Str 6-7	74	73						
	Str 7-8	76	75						

P2/94 filename: G06A-1296P1.079.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 1 Seq 1

Observations disabled etc.

Acoustics: G1A2 Intermittent
 RGPS:
 Compasses: S5C14 K0'd
 Other:

SP	UTC	Local Time	Comments
			Wsp @ 4.2 knts D/T client request
1997	16:46	02:46	SOL, FSP
1997	16:46	02:46	FPSP
1173	18:37	04:37	G1 - G2 source separation < 34m
1080	18:48	04:48	G1 - G2 source separation > 34m
935	19:07	05:07	FA > 10°
881	19:14	05:14	LPSP
881	19:14	05:14	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewisor
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1296P1-079**
 Sequence: **079**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1289-1304** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **N.S.**
 Proc Initials: **MB**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	6-Jun-2006	157	16:46	02:46	121	1997	1284
FPSP:	6-Jun-2006	157	16:46	02:46	121	1997	1284
LPSP:	6-Jun-2006	157	19:14	05:14	1237	881	1287
EOL LSP	6-Jun-2006	157	19:14	05:14	1237	881	1287

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	1.2	11.1
Water depth (m)	56	64
RMS Noise (µB)	3.8	3.3
Weather	120°, 7m/s, 1.0m	090°, 4m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1977	1982
Stbd	1980	1986

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:28
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.0	2.1	1.2
HDOP	1.7	2.9	2.1
V1G2 PDOP	1.0	2.3	1.4
HDOP	1.7	3.0	2.3

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.5	2.4	4.59
Speed through water (m/s)	2.0	2.3	2.1	4.15
Feather angle (°)	1.4	11.9	6.5	
Gyro (P) (°)	170.0	186.0	178.7	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	497.3	524.5	516.1
Str 1-2	72.1	76.1	74.6
Str 2-3	70.1	76.0	73.8
Str 3-4	67.4	76.0	73.2
Str 4-5	64.7	74.8	71.4
Str 5-6	72.8	78.1	75.4
Str 6-7	70.7	74.1	72.8
Str 7-8	72.2	76.7	74.8

	Min	Max	Mean
Source-Source Port-Stbd	30.9	39.6	36.0
Port Subarray Outer-Centre	6.9	8.6	7.8
Centre-Inner	7.3	9.2	8.5
Stbd Subarray Centre-Inner	7.2	8.3	7.8
Outer-Centre	7.4	8.9	8.2

Birds bad: **S5C14 Disabled polling**
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83			290, 339
Str 4	106, 110			
Str 5	75			
Str 6	116, 120, 158			
Str 7	89, 100, 166, 202, 285		130	
Str 8				

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 88, 326	
Str 6	91, 205, 303	
Str 7	164, 203	
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.04

ONLINE COMMENTS

PROCESSING QC COMMENTS

No discernable swell noise.
 Strumming evident. Head wave energy also apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1296F1-081**
 Area: **Gippsland Basin, Bass Strait** Sequence: **081**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1289-1304** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC,RA,AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	7-Jun-2006	158	02:44	12:44	121	1997	1292	at	12:00
FPSP:	7-Jun-2006	158	02:44	12:44	121	1997	1292		
LPSP:	7-Jun-2006	158	05:19	15:19	1236	881	1295	Full volume arrays at	12:25
EOL LSP:	7-Jun-2006	158	05:19	15:19	1236	881	1295		
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-1.7	3.6
Water depth (m)	55	64
RMS noise @ 5 Hz LC (µB)	3.8	2.9
Weather	100°, 3m/s, 1.0m	240°, 2m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1985	1965
Stbd	1985	1967

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.8-7.1
Str 2	6.9-7.3	6.9-7.3
Str 3	6.9-7.2	6.9-7.1
Str 4	6.8-7.2	6.9-7.1
Str 5	6.9-7.3	6.9-7.2
Str 6	6.9-7.3	7.1-7.3
Str 7	6.9-7.2	6.9-7.2
Str 8	6.9-7.2	6.8-7.3

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83			290, 339	3, 16, 69		
S4:	106, 110				127, 318		
S5:	75				35, 86, 88, 326, 358		
S6:	116, 120, 158						
S7:	89, 100, 166, 202, 285		130		189		
S8:					137, 172, 337		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1296F1-081**Seq: **081**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1296F1-081**
 Area: **Gippsland Basin, Bass Strait** Sequence: **081** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1289-1304** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: nh df mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	7-Jun-2006	158	02:44	12:44	1997	-1.7	38	100°, 3m/s, 1.0m
FPSP:	7-Jun-2006	158	02:44	12:44	1997			
LPSP:	7-Jun-2006	158	05:19	15:19	881			
EOL LSP:	7-Jun-2006	158	05:19	15:19	881	3.6	-458	240°, 2m/s, 1.0m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall: Str 1-8	522	520
Per streamer: Str 1-2	75	75
Str 2-3	76	74
Str 3-4	74	75
Str 4-5	70	71
Str 5-6	77	78
Str 6-7	73	73
Str 7-8	77	75

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	8.3	8.2
	PC-PO	9.0	8.4
	SI-SC	7.7	7.7
	SC-SO	8.6	8.4

P2/94 filename: G06A-1296F1-081.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 1 Seq 3

Observations disabled etc.

Acoustics: G1A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	2:44	12:44	SOL, FSP
1997	2:44	12:44	FPSP
1040	4:58	14:58	S4/S5 separation < 67.5m
1003	5:03	15:03	S4/S5 separation > 67.5m
881	5:19	15:19	LPSP
881	5:19	15:19	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1296F1-081**
 Sequence: **081**
 Direction: **190.5°** Nav. Def: **8**
 CMP line range: **1289-1304** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	7-Jun-2006	158	02:44	12:44	121	1997	1292
FPSP:	7-Jun-2006	158	02:44	12:44	121	1997	1292
LPSP:	7-Jun-2006	158	05:19	15:19	1236	881	1295
EOL LSP	7-Jun-2006	158	05:19	15:19	1236	881	1295

GENERAL INFORMATION

	SOL	EOL
FA (°)	-1.7	3.6
Water depth (m)	55	64
RMS Noise (µB)	3.8	2.9
Weather	100°, 3m/s, 1.0m	240°, 2m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1985	1965
Stbd	1985	1967

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:35
Production files	1116
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	1 / 0.09%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	5.0	2.7
HDOP	1.0	2.1	1.5
V1G2 PDOP	1.6	5.0	2.9
HDOP	1.0	2.2	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.2	4.37
Speed through water (m/s)	2.1	2.3	2.2	4.30
Feather angle (°)	-2.6	4.3	0.7	
Gyro (P) (°)	176.5	197.2	187.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	508.1	525.7	520.5
Str 1-2	72.9	76.5	75.1
Str 2-3	72.3	76.6	75.3
Str 3-4	69.2	75.6	73.4
Str 4-5	64.5	73.7	70.4
Str 5-6	74.2	79.8	77.1
Str 6-7	72.0	74.2	73.3
Str 7-8	73.9	77.3	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.2	40.1	35.6
Port Subarray	7.1	8.8	8.1
Outer-Centre	7.7	9.1	8.5
Stbd Subarray	7.3	8.2	7.7
Centre-Inner	7.5	8.8	8.2
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83			290, 339
Str 4	106, 110			
Str 5	75			
Str 6	116, 120, 158			
Str 7	89, 100, 166, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	326	
Str 6	91, 205, 303	
Str 7	203	
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):	977	1
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.10

ONLINE COMMENTS

PROCESSING QC COMMENTS

Negligible swell observed on shots.
 Strum noise and head wave energy evident all strms.
 Out of plane diffraction midway along line.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1312P1-105**
 Area: **Gippsland Basin, Bass Strait** Sequence: **105**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1305-1320** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RA/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	14-Jun-2006	165	09:10	19:10	121	1001	1401	08:35 UTC
FPSP:	14-Jun-2006	165	09:10	19:10	121	1001	1401	
LPSP:	14-Jun-2006	165	11:29	21:29	1235	2117	1404	Full volume arrays at 08:55 UTC
EOL LSP:	14-Jun-2006	165	11:29	21:29	1235	2117	1404	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	13.2	2.3
Water depth (m)	63	55
RMS noise @ 5 Hz LC (µB)	4.5	3.4
Weather	270°, 16m/s, 2.0m	280°, 12m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1976	1980
Stbd	1977	1980

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.3	6.8-7.2
Str 2	6.7-7.4	6.7-7.1
Str 3	6.8-7.4	6.7-7.3
Str 4	6.6-7.2	6.8-7.4
Str 5	6.5-7.3	6.8-7.2
Str 6	6.7-7.4	6.9-7.3
Str 7	6.7-7.4	6.8-7.4
Str 8	6.8-7.4	6.8-7.3

SOL/EOL Comments

SOL noise file generated with feather angle >10° (Stbd)

Overall Line Observations

All gunstrings operating with gun # 3's as Spare
 Swell noise visible on RMS Display for all streamers
 Guns at fluctuating depth d/t Wx

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295, 312			305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	21,110				127		
S5:	75				86, 88, 326		
S6:	49,120				29,37,91,205,303		
S7:	89, 100, 202, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1312P1-105**Seq: **105**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1401		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1401		FSP @ 09:10 UTC
121	1001	1401		FPSP @ 09:10 UTC
	1015		Missed	Missed Shotpoint d/t vessel speed
	1017		Missed	Missed Shotpoint d/t vessel speed
136	1018		Bad	Pressure Error: String 6: 1897 d/t vessel speed
137	1019		Bad	Pressure Error: String 6: 1896 d/t vessel speed
469	1351	1401		EOT
470	1352	1402		SOT
581	1463		Bad	Delta Error: P-10: -1.1
840	1722	1402		EOT
841	1723	1403		SOT
1211	2093	1403		EOT
1212	2094	1404		SOT
1235	2117	1404		LPSP @ 11:29 UTC
1235	2117	1404		LSP @ 11:29 UTC
1236-1240	2118-2122			NAV PROCESSING SHOTS
1241-1250	/	1404		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1312P1-105**Seq: **105**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1312P1-105**
 Area: **Gippsland Basin, Bass Strait** Sequence: **105** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1305-1320** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: df , nh , mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	14-Jun-2006	165	09:10	19:10	1001	13.2	-595	270°, 16m/s, 2.0m
FPSP:	14-Jun-2006	165	09:10	19:10	1001			
LPSP:	14-Jun-2006	165	11:29	21:29	2117			
EOL LSP:	14-Jun-2006	165	11:29	21:29	2117	2.3	-651	280°, 12m/s, 1.5m
UTC offset:				10.0				

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	514	524			35.9	36.5
Per streamer:	Str 1-2	75	76	Sub arrays:	PI-PC	7.9	7.6
	Str 2-3	73	76		PC-PO	7.3	7.3
	Str 3-4	75	76		SI-SC	7.1	8.2
	Str 4-5	74	74		SC-SO	7.7	7.4
	Str 5-6	71	73				
	Str 6-7	72	73				
	Str 7-8	74	77				

P2/94 filename: G06A-1312P1-105.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 2 Seq 2

Observations disabled etc.

Acoustics: G1A2 intermittent, S2A2 intermittent comms
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	09:10	19:10	On run-in, wind and tide inhibiting vessel movement towards coverage SOL, FSP
1001	09:10	19:10	FPSP NB Depleted coverage Z3, Z4 at SOL due to crab angle in excess of 30° NB F/A > 10.0° at SOL
1017	09:12	19:12	S5/S6 separation < 67.5m
1020	09:12	19:12	S5/S6 separation > 67.5m
1375	09:56	19:56	F/A < 10.0°
1807	10:50	20:50	TB4 TB5 Separation > 150 m.
1911	11:03	21:03	TB4 TB5 Separation < 150 m.
2117	11:29	21:29	LPSP
2117	11:29	21:29	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1312P1-105**
 Sequence: **105**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1305-1320** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	14-Jun-2006	165	09:10	19:10	121	1001	1401
FPSP:	14-Jun-2006	165	09:10	19:10	121	1001	1401
LPSP:	14-Jun-2006	165	11:29	21:29	1235	2117	1404
EOL LSP	14-Jun-2006	165	11:29	21:29	1235	2117	1404

GENERAL INFORMATION

	SOL	EOL
FA (°)	13.2	2.3
Water depth (m)	63	55
RMS Noise (µB)	4.5	3.4
Weather	270°, 16m/s, 2.0m	280°, 12m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1976	1980
Stbd	1977	1980

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:19
Production files	1115
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	2 / 0.18%
Other bad SPs / %	2 / 0.18%

GPS

	Min	Max	Mean
V1G1 PDOP	1.2	2.1	1.6
HDOP	0.7	1.0	0.9
V1G2 PDOP	1.2	2.1	1.7
HDOP	0.8	1.0	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.7	2.5	4.89
Speed through water (m/s)	1.8	2.3	2.0	3.98
Feather angle (°)	1.7	15.7	7.4	
Gyro (P) (°)	0.0	359.9	326.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	496.5	529.8	519.9
Str 1-2	70.4	77.1	74.9
Str 2-3	69.8	76.4	74.4
Str 3-4	72.2	79.1	76.8
Str 4-5	69.6	77.2	73.7
Str 5-6	66.6	75.4	72.3
Str 6-7	69.3	74.3	72.7
Str 7-8	71.4	77.3	75.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.0	40.3	36.4
Port Subarray	7.4	8.3	7.8
Outer-Centre	7.4	8.8	8.1
Stbd Subarray	7.0	8.5	7.9
Centre-Inner	6.7	8.1	7.5
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	21,110			
Str 5	75			
Str 6	49,120			
Str 7	89, 100, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2	305	
Str 3		
Str 4	127, 167, 175, 233	
Str 5	326, 352	
Str 6	37, 91, 205, 303	
Str 7	203	
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1463	1
Autofires / Misfires :		0
Missed SPs (NDR):	1015,1017	2
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:	1018,1019	2
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.39

TOTAL SHOTS

ONLINE COMMENTS

All gunstrings operating with gun # 3's as Spare
 Swell noise visible on RMS Display for all streamers
 Guns at fluctuating depth d/t Wx

PROCESSING QC COMMENTS

Shots show 10 to 15 % traces affected by mild to moderate swell noise.
 Diffraction energy observed midway along line at 4.5 to 5 sec.
 Strum and head wave energy also apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1312F1-107**
 Area: **Gippsland Basin, Bass Strait** Sequence: **107**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1305-1320** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	14-Jun-2006	165	19:23	5:23	122	1001	1410	18:55 UTC
FPSP:	14-Jun-2006	165	19:23	5:23	122	1001	1410	
LPSP:	14-Jun-2006	165	21:44	7:44	1237	2117	1413	Full volume arrays at 19:15 UTC
EOL LSP:	14-Jun-2006	165	21:44	7:44	1237	2117	1413	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	17.2	7.9
Water depth (m)	62	55
RMS noise @ 5 Hz LC (µB)	4.8	4.3
Weather	270°, 15m/s, 1.5m	270°, 17m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1974	1976
Stbd	1977	1979

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.4	6.9-7.3
Str 2	6.9-7.6	6.9-7.3
Str 3	6.8-7.5	6.9-7.3
Str 4	6.8-7.3	6.8-7.2
Str 5	6.8-7.4	6.9-7.5
Str 6	6.8-7.3	6.8-7.1
Str 7	6.8-7.4	6.7-7.3
Str 8	6.8-7.3	6.9-7.2

SOL/EOL Comments

Noise files recorded with feather angle > 15° Stbd

Overall Line Observations

All gunstrings operating with gun # 3's as Spare
 Guns depths fluctuating d/t swell conditions
 SP 1461 Gun S-10 deactivated d/t misfires. Gun S-12 activated. Stbd Array Volume = 4450 cuin.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295, 312		282	305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	52,106				127		
S5:	75				86, 88, 326		
S6:	49,120				29,37,91,205,303		
S7:	89, 202, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1312F1-107**Seq: **107**Dir: **10.5°**

FILE	SP	TAPE	BAD	
59-77	/	1410		GUN SIGNATURE TEST (P-10)
78-99	/	1410		GUN SIGNATURE TEST (P-11)
100-111	/	1410		SOT - SOL NOISE FILES
112-121	991-1000			APPROACH SHOTS
122	1001	1410		FSP @ 19:23 UTC
122	1001	1410		FPSP @ 19:23 UTC
429	1308	1410		EOT
430	1309	1411		SOT
449	1328		Bad	Misfire: S-10
497	1376		Bad	Misfire: S-10
569	1448		Bad	Misfire: S-10
581	1460		Bad	Misfire: S-10
582	1461			Gun S-10 deactivated. Gun S-12 activated. Stbd Array Volume = 4450 cuin.
744	1623		Bad	Autofire: S-12. No autofire observed on seisnet screen or QC displays
800	1679	1411		EOT
801	1680	1412		SOT
1155	2034		Bad	Autofire: S-12. No autofire observed on seisnet screen or QC displays
1171	2050	1412		EOT
1172	2051	1413		SOT
	2073		Missed	Missed Shotpoint
1237	2117	1413		LPSP @ 21:44 UTC
1237	2117	1413		LSP @ 21:44 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1413		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1312F1-107**Seq: **107**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1312F1-107**
 Sequence: **107**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1305-1320** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **N.S.**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	14-Jun-2006	165	19:23	05:23	122	1001	1410
FPSP:	14-Jun-2006	165	19:23	05:23	122	1001	1410
LPSP:	14-Jun-2006	165	21:44	07:44	1237	2117	1413
EOL LSP	14-Jun-2006	165	21:44	07:44	1237	2117	1413

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	17.2	7.9
Water depth (m)	62	55
RMS Noise (µB)	4.8	4.3
Weather	270°, 15m/s, 1.5m	270°, 17m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1974	1976
Stbd	1977	1979

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:21
Production files	1116
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	6 / 0.54%
Missed SPs / %	1 / 0.09%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.1	1.8
HDOP	0.8	1.1	1.0
V1G2 PDOP	1.4	2.5	1.9
HDOP	0.8	1.3	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.6	2.5	4.81
Speed through water (m/s)	1.6	2.2	1.9	3.76
Feather angle (°)	4.6	17.2	10.7	
Gyro (P) (°)	332.5	351.2	341.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	495.3	527.7	514.3
Str 1-2	70.2	77.7	74.2
Str 2-3	69.5	76.3	73.5
Str 3-4	73.2	79.9	76.8
Str 4-5	68.5	76.5	72.5
Str 5-6	67.7	74.1	70.9
Str 6-7	69.6	73.9	72.1
Str 7-8	70.1	76.9	74.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	31.3	38.0	34.6
Port Subarray	7.5	9.0	8.3
Outer-Centre	8.0	9.5	8.8
Centre-Inner	6.8	8.3	7.5
Stbd Subarray	6.8	8.4	7.8
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295, 312		282	305 (Phase)
Str 3			339	290 (Phase)
Str 4	52,106			
Str 5	75			
Str 6	49,120			
Str 7	89, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2	186	
Str 3	3	
Str 4	127, 167	
Str 5	86	
Str 6	29, 37, 91, 205	
Str 7	203	
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :	1328, 1376, 1448, 1460, 1623, 2034	6
Missed SPs (NDR):	2073	1
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.74

ONLINE COMMENTS

All gunstrings operating with gun # 3's as Spare
 Guns depths fluctuating d/t swell conditions
 SP 1461 Gun S-10 deactivated d/t misfires. Gun S-12 activated. Stbd Array Volume = 4450 cuin.

PROCESSING QC COMMENTS

Occasional moderate swell bursts, affecting up to 10% traces when apparent. Strum and headwave energy observed, together with a diffraction event midway along libne.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1312F2-110**
 Area: **Gippsland Basin, Bass Strait** Sequence: **110**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **9**
 Job ID: **20323** CMP line range: **1305-1320** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	17-Jun-2006	168	00:32	10:32	121	1001	1423	0:05	
FPSP:	17-Jun-2006	168	00:32	10:32	121	1001	1423		
LPSP:	17-Jun-2006	168	03:04	13:04	1237	2117	1426		
EOL LSP:	17-Jun-2006	168	03:04	13:04	1237	2117	1426	0:25	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	0.2	-7.4
Water depth (m)	62	55
RMS noise @ 5 Hz LC (µB)	5.5	3.9
Weather	260°, 8m/s, 2.0m	280°, 10m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1976	1974
Stbd	1978	1979

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.7-7.3	6.7-7.3
Str 2	6.9-7.2	6.7-7.4
Str 3	6.7-7.4	6.9-7.3
Str 4	6.8-7.2	6.7-7.1
Str 5	6.8-7.3	6.8-7.4
Str 6	6.8-7.2	6.8-7.3
Str 7	6.7-7.4	6.9-7.3
Str 8	6.8-7.3	6.6-7.2

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 4's as Spare
 Mild swell noise visible on RMS Display for all streamers
 F2 line d/t acquiring coverage missed during 1312F1-107

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295			305 (Phase)			
S3:	83		339	290 (Phase)	3		
S4:	106				127		
S5:					86, 88, 326		
S6:	49,117,158,299				29,37,91,205,303		
S7:	89, 100,166,202, 229,285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1312F2-110**

Seq: **110**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1423		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1423		FSP @ 00:32 UTC
121	1001	1423		FPSP @ 00:32 UTC
469	1349	1423		EOT
470	1350	1424		SOT
840	1720	1424		EOT
841	1721	1425		SOT
1014	1894		Bad	NAVS
1211	2091	1425		EOT
1212	2092	1426		SOT
1237	2117	1426		LPSP @ 03:04 UTC
1237	2117	1426		LSP @ 03:04 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1426		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1312F2-110**Seq: **110**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1312F2-110**
 Sequence: **110**
 Direction: **10.5°** Nav. Def: **9**
 CMP line range: **1305-1320** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	17-Jun-2006	168	00:32	10:32	121	1001	1423
FPSP:	17-Jun-2006	168	00:32	10:32	121	1001	1423
LPSP:	17-Jun-2006	168	03:04	13:04	1237	2117	1426
EOL LSP	17-Jun-2006	168	03:04	13:04	1237	2117	1426

GENERAL INFORMATION

	SOL	EOL
FA (°)	0.2	-7.4
Water depth (m)	62	55
RMS Noise (µB)	5.5	3.9
Weather	260°, 8m/s, 2.0m	280°, 10m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1976	1974
Stbd	1978	1979

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:32
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	1 / 0.09%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	5.0	2.9
HDOP	0.9	2.2	1.4
V1G2 PDOP	2.0	5.0	3.2
HDOP	0.9	2.2	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.5	2.3	4.47
Speed through water (m/s)	1.9	2.5	2.2	4.23
Feather angle (°)	-9.2	0.4	-5.1	
Gyro (P) (°)	0.0	359.9	10.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.5	530.9	525.9
Str 1-2	73.0	76.8	74.9
Str 2-3	74.6	77.2	75.9
Str 3-4	72.4	76.7	74.7
Str 4-5	70.6	77.9	74.8
Str 5-6	72.5	78.7	76.2
Str 6-7	70.8	74.7	73.0
Str 7-8	73.9	78.4	76.5

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	36.1	42.2	39.0
Port Subarray			
Outer-Centre	7.5	8.7	8.1
Centre-Inner	6.6	8.1	7.4
Stbd Subarray			
Centre-Inner	7.7	8.9	8.3
Outer-Centre	7.2	8.2	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106			
Str 5				
Str 6	49,117,158,299			
Str 7	89, 100,166,202, 229,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	127, 167, 233	
Str 5	326	
Str 6	29, 91, 205	
Str 7	203	
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1894	1
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.18

ONLINE COMMENTS

All gunstrings operating with gun # 4's as Spare
 Mild swell noise visible on RMS Display for all streamers
 F2 line d/t acquiring coverage missed during 1312F1-107

PROCESSING QC COMMENTS

Moderate swell throughout, affecting 10 to 20% traces, occasionally penetrating beyond 1sec twt.
 Swell energy is getting weaker and data quality improved after SP 1400
 Diffraction energy observed midway along line at 4.5 to 5 sec.
 Strum and head wave energy also apparent.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1312F3-112**

Area: **Gippsland Basin, Bass Strait** Sequence: **112**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **9**

Job ID: **20323** CMP line range: **1305-1320** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RA/AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	17-Jun-2006	168	10:33	20:33	121	1001	1432	09:50	
FPSP:	17-Jun-2006	168	10:33	20:33	121	1001	1432		
LPSP:	17-Jun-2006	168	12:53	22:53	1236	2117	1435		
EOL LSP:	17-Jun-2006	168	12:53	22:53	1236	2117	1435	10:10	
				UTC Offset:	10.0				

Full volume arrays at 10:10 UTC

	SOL	EOL
Feather angle (°)	17.1	5.1
Water depth (m)	60	56
RMS noise @ 5 Hz LC (µB)	4.6	3.4
Weather	280°, 10m/s, 2.0m	285°, 8m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1973	1973
Stbd	1976	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.7-7.3
Str 2	6.8-7.3	6.8-7.3
Str 3	6.7-7.3	6.8-7.3
Str 4	6.7-7.3	6.7-7.3
Str 5	6.8-7.4	6.8-7.4
Str 6	6.8-7.4	6.8-7.4
Str 7	6.6-7.4	6.8-7.3
Str 8	6.5-7.3	6.7-7.4

SOL/EOL Comments

SOL noise generated with feather angle > 10° (Stbd)

Overall Line Observations

F3 line d/t acquiring coverage missed during 1312F1-107 & 1312F2-110
All gunstrings operating with gun # 4's as Spare
Mild swell noise visible on RMS Display for all streamers

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295			305 (Phase)			
S3:				290, 339 (Phase)	3		
S4:	52, 61, 106				127		
S5:					86, 88, 326		
S6:	49, 120, 158				29,37,91,205,303		
S7:	100, 202, 285				203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1432		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1432		FSP @ 10:33 UTC
121	1001	1432		FPSP @ 10:33 UTC
	1105		Missed	Missed SP
289	1170			S1C15-17 running deep @ approx. 7.6-8.5m
319	1200			S1C15-17 back at target depth
469	1350	1432		EOT
470	1351	1433		SOT
840	1721	1433		EOT
841	1722	1434		SOT
1211	2092	1434		EOT
1212	2093	1435		SOT
1236	2117	1435		LPSP @ 12:53 UTC
1236	2117	1435		LSP @ 12:53 UTC
1237-1241	2118-2122			NAV PROCESSING SHOTS
1242-1251	/	1435		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1312F3-112**Seq: **112**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1312F3-112**
 Area: **Gippsland Basin, Bass Strait** Sequence: **112** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **9**
 Job ID: **20323** CMP line range: **1305-1320** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: nh df mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	17-Jun-2006	168	10:33	20:33	1001	17.1	-184	280°, 10m/s, 2.0m
FPSP:	17-Jun-2006	168	10:33	20:33	1001			
LPSP:	17-Jun-2006	168	12:53	22:53	2117			
EOL LSP:	17-Jun-2006	168	12:53	22:53	2117	5.1	-240	285°, 8m/s, 2.0m
	UTC offset:			10.0				

Separations (m)

	Str	SOL	EOL
Streamer overall:	Str 1-8	529	528
Per streamer:	Str 1-2	76	75
	Str 2-3	76	76
	Str 3-4	77	76
	Str 4-5	76	76
	Str 5-6	75	76
	Str 6-7	73	74
	Str 7-8	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	8.4	8.2
	PC-PO	7.7	8.4
	SI-SC	8.2	8.2
	SC-SO	7.6	7.2

P2/94 filename: **G06A-1312F3-112.1.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_9**
 Backup tape: **Tape 3 Seq 4**

Observations disabled etc.

Acoustics: **G1A2 S2A2 intermittent**
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	10:33	20:33	SOL, FSP
1001	10:33	20:33	FPSP NB F/A > 10.0°
1584	11:46	21:46	F/A < 10.0°
2117	12:53	22:53	LPSP
2117	12:53	22:53	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Vera Quinlan/Sam Griffiths/Howard Hewison**
 Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Darryl Fletcher/Mikhael Malofeev**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1312F3-112**
 Sequence: **112**
 Direction: **10.5°** Nav. Def: **9**
 CMP line range: **1305-1320** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	17-Jun-2006	168	10:33	20:33	121	1001	1432
FPSP:	17-Jun-2006	168	10:33	20:33	121	1001	1432
LPSP:	17-Jun-2006	168	12:53	22:53	1236	2117	1435
EOL LSP	17-Jun-2006	168	12:53	22:53	1236	2117	1435

GENERAL INFORMATION

	SOL	EOL
FA (°)	17.1	5.1
Water depth (m)	60	56
RMS Noise (µB)	4.6	3.4
Weather	280°, 10m/s, 2.0m	285°, 8m/s, 2.0m
Source volume (cu in):	Port 4450	4450
Stbd	4450	4450
Source pressure (psi):	Port 1973	1973
Stbd	1976	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:20
Production files	1116
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	1 / 0.09%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.3	2.7	1.8
HDOP	0.7	1.5	1.0
V1G2 PDOP	1.5	3.0	2.0
HDOP	0.8	1.7	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.6	2.5	4.87
Speed through water (m/s)	1.9	2.2	2.1	4.07
Feather angle (°)	0.6	17.1	9.1	
Gyro (P) (°)	0.0	359.9	198.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	492.1	528.8	517.7
Str 1-2	70.3	77.3	74.7
Str 2-3	68.9	76.6	73.8
Str 3-4	69.6	77.1	74.1
Str 4-5	68.5	77.4	73.4
Str 5-6	69.7	77.3	74.3
Str 6-7	69.1	74.5	72.6
Str 7-8	70.3	77.2	74.8

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.2	40.9	37.5
Port Subarray	7.7	8.8	8.2
Stbd Subarray	6.9	8.5	7.6
Outer-Centre	7.6	8.9	8.3
Centre-Inner	6.9	8.1	7.5

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305 (Phase)
Str 3				290, 339
Str 4	52, 61, 106			
Str 5				
Str 6	49, 120, 158			
Str 7	100, 202, 285			
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2	186	
Str 3		
Str 4	105, 127	
Str 5	86, 88, 326	
Str 6	37, 91, 205, 303	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):	1105	1
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.39

ONLINE COMMENTS

F3 line d/t acquiring coverage missed during 1312F1-107 & 1312F2-110
 All gunstrings operating with gun # 4's as Spare
 Mild swell noise visible on RMS Display for all streamers

PROCESSING QC COMMENTS

Moderate swell noise throughout, 10-15% traces affected, occasionally penetrating 2 sec twt.
 Diffraction event midway along line
 Strum and headwave energy apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1312F4-114**
 Area: **Gippsland Basin, Bass Strait** Sequence: **114**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **9**
 Job ID: **20323** CMP line range: **1305-1320** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	17-Jun-2006	168	20:01	6:01	121	1001	1440	19:30 UTC
FPSP:	17-Jun-2006	168	20:01	6:01	121	1001	1440	
LPSP:	17-Jun-2006	168	22:31	8:31	1237	2117	1443	Full volume arrays at 19:50 UTC
EOL LSP:	17-Jun-2006	168	22:31	8:31	1237	2117	1443	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	5.3	7.6
Water depth (m)	61	55
RMS noise @ 5 Hz LC (µB)	4.2	3.3
Weather	270°, 7m/s, 1.0m	320°, 7m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1970	1970
Stbd	1971	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.2	6.9-7.1
Str 2	6.9-7.1	6.8-7.2
Str 3	6.7-7.2	6.9-7.3
Str 4	6.8-7.2	6.9-7.2
Str 5	6.9-7.1	6.7-7.2
Str 6	6.8-7.2	6.9-7.1
Str 7	6.9-7.3	6.7-7.2
Str 8	6.9-7.2	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 4's as Spare

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295			305 (Phase)			
S3:				290, 339 (Phase)	3		
S4:	52, 61, 106				127		
S5:					86, 88, 326		
S6:	49, 120, 158				29,37,91,205,303		
S7:	100, 202, 285				203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1440		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1440		FSP @ 20:01 UTC
121	1001	1440		FPSP @ 20:01 UTC
469	1349	1440		EOT
470	1350	1441		SOT
480	1720	1441		EOT
481	1721	1442		SOT
1211	2091	1442		EOT
1212	2092	1443		SOT
1237	2117	1443		LPSP @ 22:31 UTC
1237	2117	1443		LSP @ 22:31 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1443		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1312F4-114**Seq: **114**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1312F4-114**
 Area: **Gippsland Basin, Bass Strait** Sequence: **114** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **9**
 Job ID: **20323** CMP line range: **1305-1320** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: sg, vq, hh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	17-Jun-2006	168	20:01	6:01	1001	5.3	177	270°, 7m/s, 1.0m
FPSP:	17-Jun-2006	168	20:01	6:01	1001			
LPSP:	17-Jun-2006	168	22:31	8:31	2117			
EOL LSP:	17-Jun-2006	168	22:31	8:31	2117	7.6	-63	320°, 7m/s, 1.5m
UTC offset:				10.0				

Separations (m)

	SOL	EOL
Streamer overall: Str 1-8	529	527
Per streamer: Str 1-2	75	75
Str 2-3	76	76
Str 3-4	75	76
Str 4-5	75	75
Str 5-6	77	76
Str 6-7	74	73
Str 7-8	77	77

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	8.1	8.9
	PC-PO	7.5	8.1
	SI-SC	8.4	8.4
	SC-SO	7.6	7.3

P2/94 filename: G06A-1312F4-114.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_9
 Backup tape: Tape 4 Seq 1

Observations disabled etc.

Acoustics: G1A2 S2A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	20:01	6:01	SOL, FSP
1001	20:01	6:01	FPSP
			Dropping BSP to 4.5 from 4.7 d/t pressure errors
2117	22:31	8:31	LPSP
2117	22:31	8:31	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1312F4-114**
 Sequence: **114**
 Direction: **10.5°** Nav. Def: **9**
 CMP line range: **1305-1320** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	17-Jun-2006	168	20:01	06:01	121	1001	1440
FPSP:	17-Jun-2006	168	20:01	06:01	121	1001	1440
LPSP:	17-Jun-2006	168	22:31	08:31	1237	2117	1443
EOL LSP	17-Jun-2006	168	22:31	08:31	1237	2117	1443

GENERAL INFORMATION

	SOL	EOL
FA (°)	5.3	7.6
Water depth (m)	61	55
RMS Noise (µB)	4.2	3.3
Weather	270°, 7m/s, 1.0m	320°, 7m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1970	1970
Stbd	1971	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:30
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.6	1.8
HDOP	0.8	1.4	1.0
V1G2 PDOP	1.4	2.6	1.9
HDOP	0.8	1.4	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.54
Speed through water (m/s)	1.9	2.3	2.1	4.02
Feather angle (°)	4.7	11.1	8.0	
Gyro (P) (°)	0.0	359.9	246.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	505.8	528.2	520.0
Str 1-2	72.4	77.2	74.8
Str 2-3	70.8	76.6	74.1
Str 3-4	71.1	76.5	74.1
Str 4-5	70.6	76.7	73.8
Str 5-6	71.9	77.7	75.1
Str 6-7	70.8	74.8	72.8
Str 7-8	73.1	76.9	75.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.4	41.5	37.8
Port Subarray	7.6	9.4	8.2
Stbd Subarray	7.0	9.1	7.7
Centre-Inner	7.3	9.0	8.2
Outer-Centre	6.9	8.0	7.4

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305 (Phase)
Str 3				290, 339
Str 4	52, 61, 106			
Str 5				
Str 6	49, 120, 158			
Str 7	100, 202, 285			
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109, 340	
Str 2		
Str 3		
Str 4	127, 177	
Str 5	86, 326	
Str 6	29, 37, 91, 205, 303	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.08

ONLINE COMMENTS

All gunstrings operating with gun # 4's as Spare

PROCESSING QC COMMENTS

Occasional mild to moderate swell bursts affecting <5% traces.
 Strum and headwave energy apparent.
 Diffraction event observed midway along line

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1312F5-116**
 Area: **Gippsland Basin, Bass Strait** Sequence: **116**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **1305-1320** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RA/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	18-Jun-2006	169	06:07	16:07	121	1001	1449	5:00	
FPSP:	18-Jun-2006	169	06:07	16:07	121	1001	1449		
LPSP:	18-Jun-2006	169	08:10	18:10	910	1790	1451		
EOL LSP:	18-Jun-2006	169	08:10	18:10	910	1790	1451	5:20	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-6.5	3.1
Water depth (m)	62	57
RMS noise @ 5 Hz LC (µB)	4	2.6
Weather	280°, 5m/s, 1.5m	220°, 3m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1970	1970
Stbd	1970	1974

Streamer Depths (m)

	SOL	EOL
Str 1	6.6-7.3	6.9-7.4
Str 2	6.8-7.4	6.8-7.4
Str 3	6.7-7.3	6.7-7.2
Str 4	6.8-7.2	6.8-7.4
Str 5	6.7-7.3	6.8-7.3
Str 6	6.8-7.5	6.7-7.3
Str 7	6.6-7.4	6.9-7.3
Str 8	6.7-7.3	6.8-7.3

SOL/EOL Comments

Overall Line Observations

F5 line d/t acquiring coverage missed during 1312F1-107, 1312F2-110, 1312F3-112 & 1312F4-114
 All gunstrings operating with Gun #4 as spare

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295			305 (Phase)			
S3:	83,			290, 339 (Phase)	3		
S4:	106				127		
S5:	75				86, 88, 326		
S6:	120, 158				29,37,91,205,303		
S7:	89, 100, 202, 229, 285, 360		130		203		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1312F5-116**Seq: **116**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1312F5-116**
 Sequence: **116**
 Direction: **10.5°** Nav. Def: **10**
 CMP line range: **1305-1320** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **GC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	18-Jun-2006	169	06:07	16:07	121	1001	1449
FPSP:	18-Jun-2006	169	06:07	16:07	121	1001	1449
LPSP:	18-Jun-2006	169	08:10	18:10	910	1790	1451
EOL LSP	18-Jun-2006	169	08:10	18:10	910	1790	1451

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.5	3.1
Water depth (m)	62	57
RMS Noise (µB)	4	2.6
Weather	280°, 5m/s, 1.5m	220°, 3m/s, 1.5m
Source volume (cu in):	Port 4450	4450
Stbd	4450	4450
Source pressure (psi):	Port 1970	1970
Stbd	1970	1974

TOTALS INFORMATION

Recorded SPs	790
Recorded km	14.813
Production time (hh:mm)	02:03
Production files	790
Production SPs	790
Production km	14.813
Production CMP km	237.000

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.6	1.9
HDOP	0.8	1.3	1.0
V1G2 PDOP	1.5	2.9	1.9
HDOP	0.8	1.5	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.1	2.0	3.89
Speed through water (m/s)	2.1	2.3	2.2	4.29
Feather angle (°)	-6.1	3.8	0.7	
Gyro (P) (°)	1.0	14.6	8.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.0	528.2	524.4
Str 1-2	73.4	77.4	75.1
Str 2-3	73.6	76.8	75.1
Str 3-4	71.5	76.2	74.0
Str 4-5	71.1	75.6	73.2
Str 5-6	74.6	78.7	77.0
Str 6-7	72.3	74.6	73.5
Str 7-8	74.3	78.2	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.6	40.3	37.7
Port Subarray	8.1	9.1	8.7
Outer-Centre	7.8	8.9	8.3
Stbd Subarray	7.5	8.4	7.8
Centre-Inner	6.8	7.6	7.2
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305 (Phase)
Str 3	83,			290, 339
Str 4	106			
Str 5	75			
Str 6	120, 158			
Str 7	89, 100, 202, 229, 285,		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	127, 175	
Str 5	326, 352	
Str 6	29, 91, 205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

ONLINE COMMENTS

F5 line d/t acquiring coverage missed during 1312F1-107, 1312F2-110, 1312F3-112 & 1312F4-114
 All gunstrings operating with Gun #4 as spare

PROCESSING QC COMMENTS

Occasional mild level swell's energy bursts affecting 5 % of traces.
 Strum and headwave energy apparent.
 Diffraction event observed midway along line after 5.5 sec timezone

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1328P1-101**
 Area: **Gippsland Basin, Bass Strait** Sequence: **101**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1321-1336** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RA/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	13-Jun-2006	164	10:29	20:29	120	1001	1387	09:50 UTC
FPSP:	13-Jun-2006	164	10:29	20:29	120	1001	1387	
LPSP:	13-Jun-2006	164	12:49	22:49	1236	2117	1390	Full volume arrays at 10:10 UTC
EOL LSP:	13-Jun-2006	164	12:49	22:49	1236	2117	1390	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	3.0	-2.6
Water depth (m)	63	55
RMS noise @ 5 Hz LC (µB)	5.2	4.6
Weather	290°, 12m/s, 1.5m	290°, 13m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1985	1973
Stbd	1985	1973

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.9-7.4
Str 2	6.8-7.3	6.9-7.4
Str 3	6.8-7.2	6.9-7.2
Str 4	6.6-7.1	6.8-7.3
Str 5	6.9-7.3	6.8-7.2
Str 6	6.7-7.3	6.8-7.2
Str 7	6.7-7.2	6.8-7.4
Str 8	6.7-7.3	6.8-7.4

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3's as Spare
 Swell noise visible on RMS Display for all streamers
 Guns at fluctuating depth d/t Wx

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295, 312			305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	106				127		
S5:					86, 88, 326		
S6:	116, 158, 299				29,37,91,205,303		
S7:	89, 100, 202, 229, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1328P1-101**

Seq: **101**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-109	/	1387		SOT - SOL NOISE FILES
110-119	991-1000			APPROACH SHOTS
120	1001	1387		FSP @ 10:29 UTC
120	1001	1387		FPSP @ 10:29 UTC
228	1109		Bad	Delta Error: P-4: 1.1
234	1115		Bad	Delta Error: P-4: 1.1
300	1181		Bad	Delta Error: P-4: -1.1
302	1183		Bad	Delta Error: P-4: -1.2
308	1189		Bad	Delta Error: P-4: 1.2
469	1350	1387		EOT
470	1351	1388		SOT
840	1721	1388		EOT
841	1722	1389		SOT
1211	2092	1389		EOT
1212	2093	1390		SOT
1236	2117	1390		LPSP @ 12:49 UTC
1236	2117	1390		LSP @ 12:49 UTC
1237-1241	2118-2122			NAV PROCESSING SHOTS
1242-1251	/	1390		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1328P1-101**Seq: **101**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1328P1-101**
 Area: **Gippsland Basin, Bass Strait** Sequence: **101** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1321-1336** Line type: **Prime** Initials: df , nh . mm
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	13-Jun-2006	164	10:29	20:29	1001	3	-511	290°, 12m/s, 1.5m
FPSP:	13-Jun-2006	164	10:29	20:29	1001			
LPSP:	13-Jun-2006	164	12:49	22:49	2117			
EOL LSP:	13-Jun-2006	164	12:49	22:49	2117	-2.6	-443	290°, 13m/s, 1.5m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	528	527
Per streamer:		
Str 1-8	76	75
Str 1-2	76	76
Str 2-3	76	76
Str 3-4	76	76
Str 4-5	76	76
Str 5-6	74	74
Str 6-7	74	72
Str 7-8	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
PI-PC		7.1	7.2
PC-PO		7.4	7.6
SI-SC		7.7	8.2
SC-SO		8.0	7.8

P2/94 filename: **G06A-1328P1-101.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_8**
 Backup tape: **Tape 1 Seq 3**

Observations disabled etc.

Acoustics: **G1A2 intermittent**
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	10:29	20:29	SOL, FSP
1001	10:29	20:29	FPSP
1110	10:43	20:43	TB4 -TB5 sep > 150m
2117	12:49	22:49	LPSP
2117	12:49	22:49	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison**
 Chief Navigator: **Jeremy Collins** **12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1328P1-101**
 Sequence: **101**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1321-1336** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	13-Jun-2006	164	10:29	20:29	120	1001	1387
FPSP:	13-Jun-2006	164	10:29	20:29	120	1001	1387
LPSP:	13-Jun-2006	164	12:49	22:49	1236	2117	1390
EOL LSP	13-Jun-2006	164	12:49	22:49	1236	2117	1390

GENERAL INFORMATION

	SOL	EOL
FA (°)	3	-2.6
Water depth (m)	63	55
RMS Noise (µB)	5.2	4.6
Weather	290°, 12m/s, 1.5m	290°, 13m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1985	1973
Stbd	1985	1973

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:20
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	5 / 0.45%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.3	2.3	1.8
HDOP	0.7	1.2	0.9
V1G2 PDOP	1.5	2.3	1.9
HDOP	0.8	1.2	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.6	2.5	4.86
Speed through water (m/s)	1.8	2.4	2.2	4.34
Feather angle (°)	-2.4	3.0	-0.1	
Gyro (P) (°)	0.0	359.9	220.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	522.8	531.1	527.2
Str 1-2	74.0	76.8	75.3
Str 2-3	74.1	77.3	75.8
Str 3-4	73.4	77.3	75.4
Str 4-5	72.6	79.7	76.1
Str 5-6	71.9	78.4	75.1
Str 6-7	71.8	74.3	73.1
Str 7-8	75.1	77.6	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.5	40.1	37.4
Port Subarray	7.0	7.6	7.6
Outer-Centre	7.3	8.6	8.0
Stbd Subarray	7.6	9.0	8.4
Centre-Inner	7.5	8.8	8.1
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	106			
Str 5				
Str 6	116, 158, 299			
Str 7	89, 100, 202, 229, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3	3	
Str 4	127, 233	
Str 5	86, 326	
Str 6	29, 37, 91, 205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:**SPs:**

	SPs:	TOTAL SHOTS
Timing (delta) errors >1.0ms:	1109, 1115, 1181, 1183, 1189	5
Autofires / Misfires:		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.23

ONLINE COMMENTS

All gunstrings operating with gun # 3's as Spare
 Swell noise visible on RMS Display for all streamers
 Guns at fluctuating depth d/t Wx

PROCESSING QC COMMENTS

shots show 10 to 20% traces affected by mild to moderate swell noise. Occasionally these break the water bottom.
 Strum and head wave energy also apparent.

Client: **Esso Australia Pty. Ltd.**Line Name: **G06A-1328F1-103**Area: **Gippsland Basin, Bass Strait**Sequence: **103**Prospect: **2006 Greater Bream 3D**Direction: **10.5°**Nav Def: **8**Job ID: **20323**CMP line range: **1321-1336**Line type: **Prog.Infill**Type: **3D**No. CMPs: **16**Status: **Complete**Initials: NS/MW/LT
Log Status: Final**SOL / EOL Information**

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	13-Jun-2006	164	22:48	8:48	121	1001	1393	at	22:25
FPSP:	13-Jun-2006	164	22:48	8:48	121	1001	1393		
LPSP:	14-Jun-2006	165	01:22	11:22	1237	2117	1396	Full volume arrays at	22:45
EOL LSP:	14-Jun-2006	165	01:22	11:22	1237	2117	1396		UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-4.3	-7.5
Water depth (m)	61	56
RMS noise @ 5 Hz LC (µB)	4.3	4.3
Weather	300°, 12m/s, 1.5m	290°, 12m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1969	1974
Stbd	1974	1977

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.7-7.1
Str 2	6.6-7.2	6.8-7.1
Str 3	6.5-7.2	6.8-7.2
Str 4	6.7-7.4	6.9-7.3
Str 5	6.6-7.3	6.8-7.3
Str 6	6.8-7.3	6.7-7.2
Str 7	6.7-7.2	6.8-7.3
Str 8	6.5-7.1	6.8-7.3

SOL/EOL Comments**Overall Line Observations**

All gunstrings operating with gun # 3's as Spare
Swell noise visible on RMS display for all streamers
Guns depths fluctuating d/t sea state and swell conditions

Birds bad/poll disabled: Birds deep/shallow: **Status of Streamer Traces:**

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295, 312			305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	21,110				127		
S5:	75				86, 88, 326		
S6:	49,120				29,37,91,205,303		
S7:	89, 100, 202, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard

Observers: 00:00-12:00

Neil Shelley, Michael Wells, Larry Tan

Operations Supervisor: Glenn Cassim

12:00-00:00

Greg Campbell, Rashid Anwar, Anthony Doyle

Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1393		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1393		FSP @ 22:48 UTC
121	1001	1393		FPSP @ 22:48 UTC
183	1063		Bad	Delta Error: P-10: -1.2
469	1349	1393		EOT
470	1350	1394		SOT
650	1530	1394		Last shotpoint of day
840	1720	1394		EOT
841	1721	1395		SOT
1211	2091	1395		EOT
1212	2092	1396		SOT
1237	2117	1396		LPSP @ 01:22 UTC
1237	2117	1396		LSP @ 01:22 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1396		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1328F1-103**Seq: **103**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1328F1-103**
 Sequence: **103**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1321-1336** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **N.S.**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	13-Jun-2006	164	22:48	08:48	121	1001	1393
FPSP:	13-Jun-2006	164	22:48	08:48	121	1001	1393
LPSP:	14-Jun-2006	165	01:22	11:22	1237	2117	1396
EOL LSP	14-Jun-2006	165	01:22	11:22	1237	2117	1396

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-4.3	-7.5
Water depth (m)	61	56
RMS Noise (µB)	4.3	4.3
Weather	300°, 12m/s, 1.5m	290°, 12m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1969	1974
Stbd	1974	1977

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:34
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.1	2.1
HDOP	0.8	1.4	1.0
V1G2 PDOP	1.6	3.1	2.3
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.38
Speed through water (m/s)	1.8	2.4	2.2	4.25
Feather angle (°)	-8.1	-4.2	-6.7	
Gyro (P) (°)	0.0	359.9	9.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.7	529.5	524.6
Str 1-2	73.8	76.3	75.0
Str 2-3	74.7	77.1	75.9
Str 3-4	74.5	78.0	76.5
Str 4-5	69.9	77.7	73.6
Str 5-6	71.8	76.7	74.6
Str 6-7	71.4	74.0	72.6
Str 7-8	75.1	77.8	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.4	40.0	36.9
Port Subarray			
Outer-Centre	7.2	8.3	7.8
Centre-Inner	7.4	8.3	7.8
Stbd Subarray			
Centre-Inner	7.4	8.6	8.1
Outer-Centre	7.3	8.3	7.8

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	21,110			
Str 5	75			
Str 6	49,120			
Str 7	89, 100, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3	3	
Str 4	127, 167, 233	
Str 5	326	
Str 6	91, 205, 303	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1063	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.34

ONLINE COMMENTS

All gunstrings operating with gun # 3's as Spare
 Swell noise visible on RMS display for all streamers
 Guns depths fluctuating d/t sea state and swell conditions

PROCESSING QC COMMENTS

Shots show 15 to 20 % traces affected by mild to moderate swell noise. Occasionally these break the water bottom.
 Diffraction energy observed midway along line at 4.5 to 5 sec.
 Strum and head wave energy also apparent.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1328F2-197**
 Area: **Gippsland Basin, Bass Strait** Sequence: **197**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **14**
 Job ID: **20323** CMP line range: **1321-1336** Line type: **Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	5-Jul-2006	186	15:44	01:44	121	1300	1740	15:10	UTC
FPSP:	5-Jul-2006	186	15:44	01:44	121	1300	1740		
LPSP:	5-Jul-2006	186	16:15	02:15	370	1550	1740		
EOL LSP:	5-Jul-2006	186	16:15	02:15	370	1550	1740	15:30	UTC
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	1.8	2.3
Water depth (m)	57	55
RMS noise @ 5 Hz LC (µB)	3.5	4
Weather	300°, 15m/s, 1.0m	300°, 15m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1975
Stbd	1975	1980

Streamer Depths (m)

	SOL	EOL
Str 1	6.6-7.4	6.9-7.2
Str 2	6.9-7.4	7.0-7.2
Str 3	6.8-7.3	6.9-7.2
Str 4	6.7-7.4	7.0-7.1
Str 5	6.8-7.5	6.8-7.1
Str 6	6.8-7.3	6.9-7.1
Str 7	6.6-7.4	6.9-7.1
Str 8	6.6-7.4	6.9-7.1

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.
 Reflection from pipeline seen throughout line. H-T at max 20 µB

Birds bad/poll disabled:
 Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	83			290 (Phase)			
S4:	106,110,177,311				178		
S5:	75				86, 88, 326		
S6:	49,116,120,158,161,315				29, 37, 91, 205, 303, 360		
S7:	89,166, 202, 229, 269, 285		100,360			164	
S8:	198						

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1328F2-197

Seq:

197

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1740		SOT - SOL NOISE FILES
111-120	1290-1299			APPROACH SHOTS
121	1300	1740		FSP @ 15:44 UTC
121	1300	1740		FPSP @ 15:44 UTC
331	1510		Missed	Missed shotpoint d/t vessel speed
370	1550	1740		LPSP @ 16:15 UTC
370	1550	1740		LSP @ 16:15 UTC
371-375	1551-1555			NAV PROCESSING SHOTS
376-386	/	1740		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1328F2-197**

Seq: **197**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1328F2-197**
 Sequence: **197**
 Direction: **10.5°** Nav. Def: **14**
 CMP line range: **1321-1336** Line type: **Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **MB**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	5-Jul-2006	186	15:44	01:44	121	1300	1740
FPSP:	5-Jul-2006	186	15:44	01:44	121	1300	1740
LPSP:	5-Jul-2006	186	16:15	02:15	370	1550	1740
EOL LSP	5-Jul-2006	186	16:15	02:15	370	1550	1740

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	1.8	2.3
Water depth (m)	57	55
RMS Noise (µB)	3.5	4
Weather	300°, 15m/s, 1.0m	300°, 15m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1975
Stbd	1975	1980

Recorded SPs	251
Recorded km	4.706
Production time (hh:mm)	00:31
Production files	250
Production SPs	251
Production km	4.706
Production CMP km	75.300

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	1 / 0.4%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.7	2.9	2.4
HDOP	1.2	1.5	1.3
V1G2 PDOP	1.8	2.9	2.7
HDOP	1.2	1.5	1.5

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.5	4.82
Speed through water (m/s)	1.9	2.2	2.1	3.99
Feather angle (°)	1.7	3.1	2.7	
Gyro (P) (°)	349.9	357.1	352.5	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.8	527.5	521.6
Str 1-2	74.7	76.5	75.6
Str 2-3	74.3	76.0	75.3
Str 3-4	74.6	77.7	76.0
Str 4-5	66.7	73.9	70.3
Str 5-6	73.1	76.7	75.0
Str 6-7	72.1	74.3	73.4
Str 7-8	75.0	77.0	76.1

	Min	Max	Mean
Source-Source Port-Stbd	32.0	37.8	34.5
Port Subarray Outer-Centre	7.4	8.2	7.8
Centre-Inner	8.5	9.5	9.0
Stbd Subarray Centre-Inner	7.3	8.2	7.8
Outer-Centre	8.2	8.9	8.6

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83			290 (Phase)
Str 4	106,110,177,311			
Str 5	75			
Str 6	49,116,120,158,161,315			
Str 7	89,166, 202, 229, 269, 285		100,360	
Str 8	198			

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	88,326,352,	
Str 6	91,205,	
Str 7	164,251,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):	1510	1
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.00

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 Reflection from pipeline seen throughout line. H-T at max 20 µB

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.
 Diffraction noise from rig/pipeline at 5 sec throughout line

SR/V Veritas Viking II

Observers Line Log

Client: **Esso Australia Pty. Ltd.**Line Name: **G06A-1344P1-096**Area: **Gippsland Basin, Bass Strait**Sequence: **096**Prospect: **2006 Greater Bream 3D**Direction: **10.5°**Nav Def: **8**Job ID: **20323**CMP line range: **1337-1352**Line type: **Prime**Type: **3D**No. CMPs: **16**Status: **Complete**Initials: GC/RA/AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	10-Jun-2006	161	07:08	17:08	121	1001	1364	06:15	
FPSP:	10-Jun-2006	161	07:08	17:08	121	1001	1364		
LPSP:	10-Jun-2006	161	09:32	19:32	1236	2117	1367		
EOL LSP:	10-Jun-2006	161	09:32	19:32	1236	2117	1367	06:35	
			UTC Offset:	10.0					

Full volume arrays at 06:35 UTC

	SOL	EOL
Feather angle (°)	4.7	-3
Water depth (m)	61	55
RMS noise @ 5 Hz LC (µB)	2.9	2.4
Weather	100°, 6m/s, 0.5m	240°, 10m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1978	1981
Stbd	1983	1983

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.1	6.8-7.3
Str 2	6.9-7.2	6.9-7.3
Str 3	6.8-7.2	6.8-7.2
Str 4	6.7-7.2	6.9-7.3
Str 5	6.9-7.2	6.9-7.3
Str 6	6.8-8.2	6.8-7.2
Str 7	6.8-7.2	6.9-7.4
Str 8	6.8-7.3	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All Gunstrings operating with #3 as Spare

Birds bad/poll disabled: S6C12 - Polling disabled

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	106, 110				127		
S5:	75				86, 88, 326		
S6:	49, 116, 120, 158, 161				29,37,91,205,303		
S7:	89, 100, 166, 202, 229, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard

Observers: 00:00-12:00

Neil Shelley, Michael Wells, Larry Tan

Operations Supervisor: Glenn Cassim

12:00-00:00

Greg Campbell, Rashid Anwar, Anthony Doyle

Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1364		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1364		FSP @ 07:08 UTC
121	1001	1364		FPSP @ 07:08 UTC
170-200	1050-1080			Vane wash noise observed on RMS Display affecting channels 268-313 on Str 8
469	1349	1364		EOT
470	1350	1365		SOT
840	1720	1365		EOT
841	1721	1366		SOT
	2021		Missed	Missed SP
1211	2092	1366		EOT
1212	2093	1367		SOT
1236	2117	1367		LPSP @ 09:32 UTC
1236	2117	1367		LSP @ 09:32 UTC
1237-1241	2118-2122			NAV PROCESSING SHOTS
1242-1251	/	1367		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1344P1-096**Seq: **096**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1344P1-096**

Area: **Gippsland Basin, Bass Strait** Sequence: **096** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **8**

Job ID: **20323** CMP line range: **1337-1352** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: df , nh , mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	10-Jun-2006	161	07:08	17:08	1001	4.7	-585	100°, 6m/s, 0.5m
FPSP:	10-Jun-2006	161	07:08	17:08	1001			
LPSP:	10-Jun-2006	161	09:32	19:32	2117			
EOL LSP:	10-Jun-2006	161	09:32	19:32	2117	-3.3	-399	240°, 10m/s, 1.0m
			UTC offset:	10.0				

Separations (m)

	Str	SOL	EOL
Streamer overall:	Str 1-8	523	528
Per streamer:	Str 1-2	75	75
	Str 2-3	75	76
	Str 3-4	75	77
	Str 4-5	73	76
	Str 5-6	75	75
	Str 6-7	73	73
	Str 7-8	77	77

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	8.2	7.9
	PC-PO	8.4	7.9
	SI-SC	7.8	8.6
	SC-SO	7.9	7.9

P2/94 filename: **G06A-1344P1-096.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_8**

Backup tape: **Tape 4 Seq 3**

Observations disabled etc.

Acoustics: G1A2 intermittent S2A2 intermittent comms

RGPS:

Compasses: S6C12 KO'd

Other:

SP	UTC	Local Time	Comments
1001	07:08	17:08	SOL, FSP
1001	07:08	17:08	FPSP Zone1's buried at SOL due to feather mismatch
2117	09:32	19:32	LPSP
2117	09:32	19:32	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** Vera Quinlan/Sam Griffiths/Howard Hewison

Chief Navigator: **Jeremy Collins** **12:00-00:00** Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1344P1-096**
 Sequence: **096**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1337-1352** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	10-Jun-2006	161	07:08	17:08	121	1001	1364
FPSP:	10-Jun-2006	161	07:08	17:08	121	1001	1364
LPSP:	10-Jun-2006	161	09:32	19:32	1236	2117	1367
EOL LSP	10-Jun-2006	161	09:32	19:32	1236	2117	1367

GENERAL INFORMATION

	SOL	EOL
FA (°)	4.7	-3.3
Water depth (m)	61	55
RMS Noise (µB)	2.9	2.4
Weather	100°, 6m/s, 0.5m	240°, 10m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1978	1981
Stbd	1983	1983

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:24
Production files	1116
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	1 / 0.09%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	2.6	1.9
HDOP	0.8	1.3	1.0
V1G2 PDOP	1.6	2.6	1.9
HDOP	0.9	1.3	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.4	4.70
Speed through water (m/s)	2.1	2.3	2.2	4.32
Feather angle (°)	-3.7	5.4	1.6	
Gyro (P) (°)	0.0	359.9	25.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	517.2	532.8	525.8
Str 1-2	73.9	76.4	75.2
Str 2-3	74.1	76.5	75.5
Str 3-4	74.6	78.4	76.7
Str 4-5	69.5	77.8	73.9
Str 5-6	72.1	77.1	74.9
Str 6-7	72.4	74.3	73.3
Str 7-8	74.9	77.4	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.7	41.7	37.5
Port Subarray			
Outer-Centre	7.4	9.0	8.1
Centre-Inner	7.7	9.5	8.7
Stbd Subarray			
Centre-Inner	7.3	8.9	8.1
Outer-Centre	7.2	8.5	7.7

Birds bad: S6C12 - Polling disabled
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3			339	290 (Phase)
Str 4	106, 110			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	89, 100, 166, 202, 229,		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	326	
Str 6	29, 37, 91, 205, 303	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):	2021	1
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.11

ONLINE COMMENTS

All Gunstrings operating with #3 as Spare

PROCESSING QC COMMENTS

No discernible swell on shots.
 Strum and head wave energy observed.
 Diffraction midway along line.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1344F1-099**
 Area: **Gippsland Basin, Bass Strait** Sequence: **099**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1337-1352** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	12-Jun-2006	163	23:27	9:27	121	1001	1379	22:50 UTC
FPSP:	12-Jun-2006	163	23:27	9:27	121	1001	1379	
LPSP:	13-Jun-2006	164	02:17	12:17	1237	2117	1382	Full volume arrays at 23:10 UTC
EOL LSP:	13-Jun-2006	164	02:17	12:17	1237	2117	1382	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-9.2	-7
Water depth (m)	62	55
RMS noise @ 5 Hz LC (µB)	4.2	3.3
Weather	290°, 12m/s, 2.0m	300°, 4m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1974	1980
Stbd	1977	1980

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.7-7.2	6.8-7.3
Str 2	6.8-7.1	6.8-7.1
Str 3	6.9-7.3	6.8-7.3
Str 4	6.8-7.2	6.9-7.2
Str 5	6.9-7.3	6.9-7.3
Str 6	6.9-7.3	6.8-7.3
Str 7	6.7-7.1	6.8-7.5
Str 8	6.6-7.6	6.5-7.2

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3's as Spare
 Depth errors occurring on guns d/t swell conditions
 Swell noise visible on RMS Display for all streamers
 SP 2006 - Deploy Sr 7 out by 10m d/t inadequate separation between S7 and 8
 SP 2006 - S8C1-4 set to 6.5m and S7C1-4 set to 7.5m

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295, 312			305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	106				18,41,88,90,127,233		
S5:					64,96,267,326		
S6:	116, 158, 299				29,37,64,91,205,303		
S7:	89, 100, 202, 229, 285		130		204,223,305		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1379		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1379		FSP @ 23:27 UTC
121	1001	1379		FPSP @ 23:27 UTC
332	1212			Last SP of day
469	1349	1379		EOT
470	1350	1380		SOT
840	1720	1380		EOT
841	1721	1381		SOT
1126	2006			Deploy str 7 10m d/t inadequate separation b/w 7 and 8
1126	2006			S8C1-4 set to 6.5m and S7C1-4 set to 7.5m
1211	2091	1381		EOT
1212	2092	1382		SOT
1237	2117	1382		LPSP @ 02:17 UTC
1237	2117	1382		LSP @ 02:17 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1382		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1344F1-099**Seq: **099**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1344F1-099**
 Area: **Gippsland Basin, Bass Strait** Sequence: **099** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1337-1352** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: sg vq hh nh df mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	12-Jun-2006	163	23:27	9:27	1001	-9.2	-93	290°, 12m/s, 2.0m
FPSP:	12-Jun-2006	163	23:27	9:27	1001			
LPSP:	13-Jun-2006	164	02:17	12:17	2117			
EOL LSP:	13-Jun-2006	164	02:17	12:17	2117	-7.2	-140	300°, 4m/s, 1.5m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL	
Streamer overall:	Str 1-8	526	522		39.9	39.9	
Per streamer:	Str 1-2	74	75	Sub arrays:	PI-PC	7.6	7.3
	Str 2-3	76	76		PC-PO	7.2	8.5
	Str 3-4	74	73		SI-SC	9.4	7.7
	Str 4-5	77	75		SC-SO	7.2	6.8
	Str 5-6	76	75				
	Str 6-7	73	72				
	Str 7-8	77	75				

P2/94 filename: G06A-1344F1-099.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 1 Seq1

Observations disabled etc.

Acoustics: G1A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	23:27	9:27	SOL, FSP
1001	23:27	9:27	FPSP
1159	23:52	9:52	G2R2 - G2R3 separations < 6.5
1169	23:53	9:53	G2R2 - G2R3 separations > 6.5
2006	1:59	11:59	TB7-TB8 < 10m S7 C1-C4 - 7.5m S8 C C1-C4 6.5m TB7 out 10m
2034	2:03	12:03	Lowered WSP from 4.8kts to 4.3 kts
2117	2:17	12:17	LPSP
2117	2:17	12:17	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1344F1-099**
 Sequence: **099**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1337-1352** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	12-Jun-2006	163	23:27	09:27	121	1001	1379
FPSP:	12-Jun-2006	163	23:27	09:27	121	1001	1379
LPSP:	13-Jun-2006	164	02:17	12:17	1237	2117	1382
EOL LSP	13-Jun-2006	164	02:17	12:17	1237	2117	1382

GENERAL INFORMATION

	SOL	EOL
FA (°)	-9.2	-7.2
Water depth (m)	62	55
RMS Noise (µB)	4.2	3.3
Weather	290°, 12m/s, 2.0m	300°, 4m/s, 1.5m
Source volume (cu in):	Port 4450	4450
Stbd	4450	4450
Source pressure (psi):	Port 1974	1980
Stbd	1977	1980

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:50
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	4.9	2.4
HDOP	0.8	1.9	1.1
V1G2 PDOP	1.6	4.9	2.5
HDOP	0.8	1.9	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.1	2.1	4.00
Speed through water (m/s)	1.9	2.5	2.2	4.32
Feather angle (°)	-9.4	-4.8	-6.7	
Gyro (P) (°)	1.1	17.8	8.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	514.9	529.1	523.6
Str 1-2	73.5	76.4	74.7
Str 2-3	75.0	76.9	76.0
Str 3-4	71.2	75.1	73.4
Str 4-5	71.4	78.7	75.1
Str 5-6	71.8	78.3	75.6
Str 6-7	69.1	73.9	72.4
Str 7-8	74.8	78.0	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	36.0	41.4	39.0
Port Subarray	7.0	8.0	7.5
Outer-Centre	7.6	9.0	8.3
Stbd Subarray	7.8	9.1	8.5
Centre-Inner	6.4	7.5	6.9
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	106			
Str 5				
Str 6	116, 158, 299			
Str 7	89, 100, 202, 229, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3	3	
Str 4	127, 233	
Str 5		
Str 6	29, 91, 205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.45

ONLINE COMMENTS

All gunstrings operating with gun # 3's as Spare
 Depth errors occurring on guns d/t swell conditions
 Swell noise visible on RMS Display for all streamers
 SP 2006 - Deploy Sr 7 out by 10m d/t inadequate separation between S7 and 8
 SP 2006 - S8C1-4 set to 6.5m and S7C1-4 set to 7.5m

PROCESSING QC COMMENTS

Up to 15% traces affected by moderate swell.
 Strum and head wave energy observed.
 Diffraction midway along line.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1344F2-195**
 Area: **Gippsland Basin, Bass Strait** Sequence: **195**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **14**
 Job ID: **20323** CMP line range: **1337-1352** Line type: **Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	5-Jul-2006	186	07:15	17:15	121	1001	1737	6:40	
FPSP:	5-Jul-2006	186	07:15	17:15	121	1001	1737		
LPSP:	5-Jul-2006	186	07:57	17:57	426	1306	1737		
EOL LSP:	5-Jul-2006	186	07:59	17:59	441	1321	1737	7:00	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-2.3	-21.0
Water depth (m)	60.8	56
RMS noise @ 5 Hz LC (µB)	3	3.2
Weather	350°, 7m/s, 1.0m	320°, 6m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1972	1971
Stbd	1980	1976

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.8-7.2
Str 2	6.9-7.2	6.9-7.4
Str 3	6.9-7.2	6.9-8.0
Str 4	6.8-7.3	6.8-7.2
Str 5	6.9-7.3	6.8-7.2
Str 6	6.8-7.3	6.7-7.3
Str 7	6.8-7.4	6.8-7.4
Str 8	6.9-7.3	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.
Z4 infill

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	83			290 (Phase)			
S4:	106,110,177,311				127		
S5:	75				86, 88, 326		
S6:	49,116,120,158,161,315				29, 37, 91, 205, 303		
S7:	89,166, 202, 229, 269, 285		100,360				
S8:	198						

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1344F2-195**

Seq: **195**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1737		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1737		FSP @ 07:15 UTC ZONE 4 Infill
121	1001	1737		FPSP @ 07:15 UTC
426	1306	1737		LPSP @ 07:57 UTC
441	1321	1737		LSP @ 07:59 UTC
442 - 451	/	1737		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1344F2-195**Seq: **195**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1344F2-195**
 Sequence: **195**
 Direction: **10.5°** Nav. Def: **14**
 CMP line range: **1337-1352** Line type: **Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	5-Jul-2006	186	07:15	17:15	121	1001	1737
FPSP:	5-Jul-2006	186	07:15	17:15	121	1001	1737
LPSP:	5-Jul-2006	186	07:57	17:57	426	1306	1737
EOL LSP	5-Jul-2006	186	07:59	17:59	441	1321	1737

GENERAL INFORMATION

	SOL	EOL
FA (°)	-2.3	-21
Water depth (m)	60.8	56
RMS Noise (µB)	3	3.2
Weather	350°, 7m/s, 1.0m	320°, 6m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1972	1971
Stbd	1980	1976

TOTALS INFORMATION

Recorded SPs	321
Recorded km	6.019
Production time (hh:mm)	00:42
Production files	306
Production SPs	306
Production km	5.738
Production CMP km	91.800

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	3.6	2.8
HDOP	1.3	3.3	2.3
V1G2 PDOP	1.8	3.6	2.9
HDOP	1.3	3.3	2.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.3	4.39
Speed through water (m/s)	2.0	2.3	2.2	4.18
Feather angle (°)	-1.9	3.5	0.8	
Gyro (P) (°)	0.0	359.9	136.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	508.2	526.0	518.5
Str 1-2	73.1	77.6	75.3
Str 2-3	72.2	76.5	74.6
Str 3-4	71.3	76.9	73.8
Str 4-5	63.7	70.7	67.7
Str 5-6	73.7	80.5	77.6
Str 6-7	71.9	74.5	73.4
Str 7-8	74.3	77.5	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	31.0	39.2	36.0
Port-Subarray	6.9	8.6	7.5
Outer-Centre	7.7	9.2	8.5
Stbd Subarray	7.0	8.2	7.7
Centre-Inner	7.0	8.6	7.8
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83			290 (Phase)
Str 4	106,110,177,311			
Str 5	75			
Str 6	49,116,120,158,161,315			
Str 7	89,166, 202, 229, 269,		100,360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	88, 326, 352	
Str 6	91, 205	
Str 7	164, 251	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.37

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 Z4 infill

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.
 Diffraction noise appeared at 4.5 sec time gate near EOL



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1360P1-094**
 Area: **Gippsland Basin, Bass Strait** Sequence: **094**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1353-1368** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	9-Jun-2006	160	20:50	06:50	121	1001	1353	20:20	UTC
FPSP:	9-Jun-2006	160	20:50	06:50	121	1001	1353		
LPSP:	9-Jun-2006	160	23:39	09:39	1237	2117	1356		
EOL LSP:	9-Jun-2006	160	23:39	09:39	1237	2117	1356	20:40	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-9.3	-6
Water depth (m)	61	54
RMS noise @ 5 Hz LC (µB)	4	3.7
Weather	Calm, 0.5m	310°, 7m/s, 0.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1977	1978
Stbd	1980	1980

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.9-7.2
Str 2	6.9-7.1	6.8-7.3
Str 3	6.9-7.1	6.8-7.2
Str 4	6.9-7.2	6.8-7.1
Str 5	6.8-7.1	6.8-7.2
Str 6	6.9-7.1	6.6-7.2
Str 7	6.8-7.2	6.9-7.3
Str 8	6.8-7.1	6.8-7.1

SOL/EOL Comments

Noise files recorded with WSP @ 4.6kts

Overall Line Observations

SP 1256 Stbd paravane deployed 10m to mark

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83		339	290 (Phase)	3		
S4:	106, 110				127		
S5:	75				86, 88, 326		
S6:	49, 116, 120, 158				29,37,91,205,303		
S7:	89, 100, 166, 202, 229, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1360P1-094

Seq:

094

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1353		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1353		FSP @ 20:50 UTC
121	1001	1353		FPSP @ 20:50 UTC
469	1349	1353		EOT
470	1350	1354		SOT
840	1720	1354		EOT
841	1721	1355		SOT
1211	2091	1355		EOT
1212	2092	1356		SOT
1237	2117	1356		LPSP @ 23:39 UTC
1237	2117	1356		LSP @ 23:39 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1356		EOT - NOISE FILES

Abbreviations used and their meanings:

AF Gun Autofire
 CAD Cable Depths
 CDP Common Depth Point
 MSRS Multiple Streamer Recording System
 MSTP Multiple Streamer Telemetry Processor
 DNP Do Not Process
 D/T Due To
 D/E Delta Error
 M/F Misfire
 M/O Moveout
 RTNU Real Time Navigation Unit

LGSP Last Good Shotpoint
 LPSP Last Production (Chargeable) Shotpoint
 LSP Last Shotpoint
 MARS Marine Angle Ranging System
 NAV Navigation
 GCS90 Gun Controller
 RN Reel Number
 SAP Source Air Pressure
 S/I Seismic Interference
 NAVS Short Nav Header
 NCN Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1360P1-094**

Seq: **094**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1360P1-094**
 Area: **Gippsland Basin, Bass Strait** Sequence: **094** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1353-1368** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Initials: sg, vq, hh
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	9-Jun-2006	160	20:50	06:50	1001	-9.3	22	Calm, 0.5m
FPSP:	9-Jun-2006	160	20:50	06:50	1001			
LPSP:	9-Jun-2006	160	23:39	09:39	2117			
EOL LSP:	9-Jun-2006	160	23:39	09:39	2117	-6	-219	310°, 7m/s, 0.5m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	518	529					35.2	37.4
Per streamer:	Str 1-2	74	74			Sub arrays:	PI-PC	8.2	7.9
	Str 2-3	76	76				PC-PO	8.8	8.6
	Str 3-4	75	76				SI-SC	8.1	8.4
	Str 4-5	69	74				SC-SO	7.4	7.4
	Str 5-6	75	78						
	Str 6-7	72	73						
	Str 7-8	76	77						

P2/94 filename: G06A-1360P1-094.1.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 4 Seq 1

Observations disabled etc.

Acoustics: G1A2 & S2A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	20:50	06:50	SOL, FSP S4/S5 sep's < 67.5 Before SOL
1001	20:50	06:50	FPSP
1071	21:01	07:01	S4/S5 > 67.5
1025	20:54	06:54	Source array sep's (G1 - G2) < 32
1065	21:00	07:00	Source array sep's (G1 - G2) > 32
1196	21:21	07:21	S4/S5 sep's < 67.5
1200	21:21	07:21	Source array sep's (G1 - G2) < 32
1230	21:26	07:26	Source array sep's (G1 - G2) > 32
1256	21:30	07:30	Went out on Starboard Paravane
1283	21:34	07:34	S4/S5 > 67.5
2117	23:39	09:39	LPSP
2117	23:39	09:39	EOL, LSP S4/S5 sep's frequently < 67.5 until paravane movement

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewisor
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1360P1-094**
 Sequence: **094**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1353-1368** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **N.S.**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	9-Jun-2006	160	20:50	06:50	121	1001	1353
FPSP:	9-Jun-2006	160	20:50	06:50	121	1001	1353
LPSP:	9-Jun-2006	160	23:39	09:39	1237	2117	1356
EOL LSP	9-Jun-2006	160	23:39	09:39	1237	2117	1356

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	-9.3	-6
Water depth (m)	61	54
RMS Noise (µB)	4	3.7
Weather	Calm, 0.5m	310°, 7m/s, 0.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1977	1978
Stbd	1980	1980

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:49
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.4	2.6	1.9
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.6	2.0
HDOP	0.8	1.4	1.1

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.2	2.1	4.08
Speed through water (m/s)	2.1	2.4	2.2	4.28
Feather angle (°)	-9.9	-4.4	-6.9	
Gyro (P) (°)	6.3	22.6	14.1	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	505.5	532.8	522.9
Str 1-2	73.6	75.6	74.7
Str 2-3	74.6	76.7	75.8
Str 3-4	73.3	77.7	75.9
Str 4-5	61.3	77.3	71.5
Str 5-6	67.9	79.5	76.2
Str 6-7	70.2	74.0	72.6
Str 7-8	74.3	77.5	76.3

	Min	Max	Mean
Source-Source Port-Stbd	29.7	40.4	36.1
Port Subarray Outer-Centre	7.2	8.4	7.9
Centre-Inner	7.5	9.1	8.4
Stbd Subarray Centre-Inner	7.1	9.0	8.1
Outer-Centre	7.1	8.0	7.5

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106, 110			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		130	
Str 8				

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 88, 326	
Str 6	29, 37, 91, 205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS: SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.12

ONLINE COMMENTS

SP 1256 Stbd paravane deployed 10m to mark

PROCESSING QC COMMENTS

No discernible swell noise.
 Strum and head wave energy observed.
 Diffraction energy observed midway along line

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1376P1-092**
 Area: **Gippsland Basin, Bass Strait** Sequence: **092**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1369-1384** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC, RA, AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	9-Jun-2006	160	10:32	20:32	121	1001	1343	9:50	
FPSP:	9-Jun-2006	160	10:32	20:32	121	1001	1343		
LPSP:	9-Jun-2006	160	13:07	23:07	1237	2117	1346		
EOL LSP:	9-Jun-2006	160	13:07	23:07	1237	2117	1346	10:10	
				UTC Offset:	10.0				

Full volume arrays at 10:10 UTC

	SOL	EOL
Feather angle (°)	-5.4	1
Water depth (m)	61	54
RMS noise @ 5 Hz LC (µB)	3.1	2.8
Weather	078°, 5m/s, 1.0m	060°, 5m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4230
Stbd	4450	4450
Source pressure (psi)		
Port	1983	1980
Stbd	1985	1983

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.2	6.8-7.3
Str 2	6.9-7.2	7.0-7.4
Str 3	6.9-7.2	6.9-7.3
Str 4	6.8-7.2	6.8-7.3
Str 5	6.9-7.2	6.9-7.3
Str 6	6.9-7.2	6.9-7.4
Str 7	6.7-7.3	6.8-7.2
Str 8	6.8-7.3	6.9-7.3

SOL/EOL Comments

Overall Line Observations

SP 2027 - Gun P-2 disabled as per dropout specs, new vol 4230cu/in

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83		339	290	3		
S4:	106, 110				127		
S5:	75				86, 88, 326		
S6:	49, 116, 120, 158, 229				29,37,91,205,303		
S7:	89, 100, 166, 202, 285		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1376P1-092**Seq: **092**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1376P1-092**
 Area: **Gippsland Basin, Bass Strait** Sequence: **092** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1369-1384** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: nh df mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	9-Jun-2006	160	10:32	20:32	1001	-5.4	10.8	078°, 5m/s, 1.0m
FPSP:	9-Jun-2006	160	10:32	20:32	1001			
LPSP:	9-Jun-2006	160	13:07	23:07	2117			
EOL LSP:	9-Jun-2006	160	13:07	23:07	2117	0.8	-274	060°, 5m/s, 1.0m
			UTC offset: 10.0					

Separations (m)

	SOL	EOL
Streamer overall:	517	520
Per streamer:		
Str 1-8	75	75
Str 1-2	76	75
Str 2-3	75	75
Str 3-4	69	70
Str 4-5	78	77
Str 5-6	73	73
Str 6-7	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
PI-PC		8.1	7.8
PC-PO		8.2	8.1
SI-SC		7.6	7.9
SC-SO		7.8	7.7

P2/94 filename: G06A-1376P1-092.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 3 Seq 4

Observations disabled etc.

Acoustics: G1A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	10:32	20:32	SOL, FSP
1001	10:32	20:32	FPSP
1864	12:34	22:34	S4/S5 sep < 67.5m
1876	12:35	22:35	S4/S5 sep > 67.5m
2117	13:07	23:07	LPSP
2117	13:07	23:07	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1376P1-092**
 Sequence: **092**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1369-1384** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	9-Jun-2006	160	10:32	20:32	121	1001	1343
FPSP:	9-Jun-2006	160	10:32	20:32	121	1001	1343
LPSP:	9-Jun-2006	160	13:07	23:07	1237	2117	1346
EOL LSP	9-Jun-2006	160	13:07	23:07	1237	2117	1346

GENERAL INFORMATION

	SOL	EOL
FA (°)	-5.4	0.8
Water depth (m)	61	54
RMS Noise (µB)	3.1	2.8
Weather	078°, 5m/s, 1.0m	060°, 5m/s, 1.0m
Source volume (cu in): Port	4450	4230
Stbd	4450	4450
Source pressure (psi): Port	1983	1980
Stbd	1985	1983

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:35
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	4 / 0.36%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.3	2.3	1.8
HDOP	0.7	1.2	0.9
V1G2 PDOP	1.5	2.3	1.9
HDOP	0.8	1.2	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.2	4.37
Speed through water (m/s)	2.1	2.4	2.3	4.38
Feather angle (°)	-5.6	4.8	0.6	
Gyro (P) (°)	2.5	17.7	9.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	514.4	523.6	519.8
Str 1-2	74.0	76.7	75.2
Str 2-3	73.7	76.2	75.2
Str 3-4	73.1	78.0	75.3
Str 4-5	66.2	72.7	69.8
Str 5-6	73.5	78.3	76.1
Str 6-7	72.2	74.2	73.3
Str 7-8	73.4	76.5	75.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	30.6	37.2	33.5
Port Subarray	7.3	8.5	7.9
Outer-Centre	7.0	8.6	8.0
Stbd Subarray	7.2	8.3	7.7
Centre-Inner	7.3	8.4	7.8
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290
Str 4	106, 110			
Str 5	75			
Str 6	49, 116, 120, 158, 229			
Str 7	89, 100, 166, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 88, 326	
Str 6	29, 37, 91, 205, 303	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1907,1927,1941,2027	4
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.05

TOTAL SHOTS

ONLINE COMMENTS

SP 2027 - Gun P-2 disabled as per dropout specs, new vol 4230cu/in

PROCESSING QC COMMENTS

Negligible external noise - no discernible swell.
 Strum and head wave energy visible.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1392P1-090**
 Area: **Gippsland Basin, Bass Strait** Sequence: **090**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1385-1400** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	9-Jun-2006	160	00:35	10:35	121	1001	1333	23:35 UTC
FPSP:	9-Jun-2006	160	00:35	10:35	121	1001	1333	
LPSP:	9-Jun-2006	160	03:14	13:14	1236	2117	1336	Full volume arrays at 0:05 UTC
EOL LSP:	9-Jun-2006	160	03:14	13:14	1236	2117	1336	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-0.4	4.2
Water depth (m)	61	54
RMS noise @ 5 Hz LC (µB)	3.1	2.3
Weather	070°, 5m/s, 1.0m	045°, 3m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1977	1979
Stbd	1978	1980

Streamer Depths (m)

	SOL	EOL
Str 1	7.0-7.3	6.9-7.2
Str 2	6.9-7.2	7.0-7.4
Str 3	6.9-7.1	6.8-7.2
Str 4	6.9-7.2	6.8-7.3
Str 5	6.8-7.1	6.8-7.3
Str 6	6.9-7.2	6.9-7.2
Str 7	6.9-7.1	6.9-7.3
Str 8	7.0-7.2	6.9-7.3

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:	295		282	305 (Phase)			
S3:	83		339	290	127		
S4:	106, 110						
S5:	75				326		
S6:	49, 116, 120, 158, 229				29,37,91,205,303		
S7:	89, 100, 166, 202, 285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1392P1-090**Seq: **090**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1333		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1333		FSP @ 00:35 UTC
121	1001	1333		FPSP @ 00:35 UTC
469	1349	1333		EOT
470	1350	1334		SOT
840	1720	1334		EOT
841	1721	1335		SOT
962	1842			S8C13 & S8C14 running shallow @ min 5.5m
1005	1885			S8C13 & S8C14 back @ depth
	2000		Missed	Missed SP
1211	2092	1335		EOT
1212	2093	1336		SOT
1236	2117	1336		LPSP @ 03:14 UTC
1236	2117	1336		LSP @ 03:14 UTC
1237-1241	2118-2122			NAV PROCESSING SHOTS
1242-1251	/	1336		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1392P1-090**Seq: **090**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1392P1-090**
 Sequence: **090**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1385-1400** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	9-Jun-2006	160	00:35	10:35	121	1001	1333
FPSP:	9-Jun-2006	160	00:35	10:35	121	1001	1333
LPSP:	9-Jun-2006	160	03:14	13:14	1236	2117	1336
EOL LSP	9-Jun-2006	160	03:14	13:14	1236	2117	1336

GENERAL INFORMATION

	SOL	EOL
FA (°)	-0.4	4.2
Water depth (m)	61	54
RMS Noise (µB)	3.1	2.3
Weather	070°, 5m/s, 1.0m	045°, 3m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1977	1979
Stbd	1978	1980

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:39
Production files	1116
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	1 / 0.09%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	5.0	2.8
HDOP	0.8	2.0	1.3
V1G2 PDOP	1.9	5.0	3.1
HDOP	0.8	2.0	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.4	2.2	4.26
Speed through water (m/s)	2.1	2.5	2.2	4.34
Feather angle (°)	-0.2	7.3	3.8	
Gyro (P) (°)	0.0	359.9	21.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.9	529.3	521.8
Str 1-2	72.8	76.3	74.9
Str 2-3	72.5	76.2	74.5
Str 3-4	72.5	78.5	75.6
Str 4-5	64.3	72.9	70.0
Str 5-6	75.1	79.6	77.5
Str 6-7	72.0	74.2	73.2
Str 7-8	74.8	77.2	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.9	40.2	36.8
Port Subarray	7.2	8.8	8.0
Centre-Inner	8.0	9.2	8.6
Stbd Subarray	7.3	8.7	8.2
Outer-Centre	7.3	8.0	7.7

Birds bad:

Birds depths: S8C13 & S8C14 running shallow min 5.5m sp's 1842 - 1885

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290
Str 4	106, 110			
Str 5	75			
Str 6	49, 116, 120, 158, 229			
Str 7	89, 100, 166, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 326, 358	
Str 6	91, 205, 303	
Str 7		
Str 8	318	

SHOT / TRACE EDITS:**SPs:****TOTAL SHOTS**

Timing (delta) errors >1.0ms:		0
Autofires / Misfires:		0
Missed SPs (NDR):	2000	1
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.16

ONLINE COMMENTS**PROCESSING QC COMMENTS**

Shots free from any discernable swell noise.
 Diffraction observed on shots at 3.5 to 4 sec timegate at the midway along the line.
 Mild screw noise, and strum visible. Head wave noise observed along the line due to data is clean due to the calm sea condition

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1408P1-088**
 Area: **Gippsland Basin, Bass Strait** Sequence: **088**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1401-1416** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	8-Jun-2006	159	14:54	0:54	121	1001	1323	at	14:10
FPSP:	8-Jun-2006	159	14:54	0:54	121	1001	1323		
LPSP:	8-Jun-2006	159	17:19	3:19	1237	2117	1326	Full volume arrays at	14:45
EOL LSP:	8-Jun-2006	159	17:19	3:19	1237	2117	1326		
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	2.8	0
Water depth (m)	60	54
RMS noise @ 5 Hz LC (µB)	3	2
Weather	Light airs, 0.5m	270°, 5m/s, 0.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1982	1979
Stbd	1984	1985

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.9-7.1
Str 2	6.9-7.2	7.0-7.3
Str 3	6.9-7.3	6.8-7.2
Str 4	7.0-7.5	6.9-7.2
Str 5	6.8-7.1	6.8-7.1
Str 6	6.9-7.3	6.9-7.2
Str 7	6.9-7.2	6.9-7.1
Str 8	6.8-7.2	6.9-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83		339	290	3		
S4:	106, 110				127		
S5:	75				86, 88, 326		
S6:	49, 120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 202, 229, 285		130		203, 285		
S8:					340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1408P1-088**Seq: **088**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1323		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1323		FSP @ 14:54 UTC
121	1001	1323		FPSP @ 14:54 UTC
469	1349	1323		EOT
470	1350	1324		SOT
840	1720	1324		EOT
841	1721	1325		SOT
1211	2091	1325		EOT
1212	2092	1326		SOT
1237	2117	1326		LPSP @ 17:19 UTC
1237	2117	1326		LSP @ 17:19 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1326		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1408P1-088**Seq: **088**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1408P1-088**
 Sequence: **088**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1401-1416** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	8-Jun-2006	159	14:54	00:54	121	1001	1323
FPSP:	8-Jun-2006	159	14:54	00:54	121	1001	1323
LPSP:	8-Jun-2006	159	17:19	03:19	1237	2117	1326
EOL LSP	8-Jun-2006	159	17:19	03:19	1237	2117	1326

GENERAL INFORMATION

	SOL	EOL
FA (°)	2.8	0.2
Water depth (m)	60	54
RMS Noise (µB)	3	2
Weather	Light airs, 0.5m	270°, 5m/s, 0.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1982	1979
Stbd	1984	1985

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:25
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	0.9	2.1	1.3
HDOP	1.7	3.4	2.3
V1G2 PDOP	1.0	2.3	1.4
HDOP	1.7	3.4	2.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.4	4.66
Speed through water (m/s)	2.1	2.3	2.2	4.28
Feather angle (°)	0.7	4.9	3.0	
Gyro (P) (°)	1.0	17.2	9.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	517.4	528.7	524.6
Str 1-2	73.7	76.5	75.5
Str 2-3	73.7	76.1	75.1
Str 3-4	72.9	77.5	75.9
Str 4-5	67.8	73.4	70.4
Str 5-6	75.2	79.4	77.9
Str 6-7	72.3	74.4	73.4
Str 7-8	75.4	77.3	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.8	39.8	36.6
Port Subarray			
Outer-Centre	7.5	8.5	8.1
Centre-Inner	8.0	9.3	8.7
Stbd Subarray			
Centre-Inner	7.6	8.7	8.3
Outer-Centre	7.1	8.3	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290
Str 4	106, 110			
Str 5	75			
Str 6	49, 120, 158			
Str 7	89, 100, 202, 229, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 88, 326	
Str 6	29, 37, 91, 205, 303	
Str 7	203	
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

ONLINE COMMENTS

PROCESSING QC COMMENTS

occasional mild swell bursts, verging on negligible.
 Strum and head wave energy apparent.
 Diffraction energy observed midway along line, moving to off end - probably stationary pipeline diffractor source.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1424P1-086**
 Area: **Gippsland Basin, Bass Strait** Sequence: **086**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1417-1432** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RA/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	8-Jun-2006	159	04:54	14:54	121	1001	1314	13:45 UTC
FPSP:	8-Jun-2006	159	04:54	14:54	121	1001	1314	
LPSP:	8-Jun-2006	159	07:24	17:24	1237	2117	1317	
EOL LSP:	8-Jun-2006	159	07:24	17:24	1237	2117	1317	Full volume arrays at 14:05 UTC
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	0.4	-2.6
Water depth (m)	60	54
RMS noise @ 5 Hz LC (µB)	2.6	2.2
Weather	340°, 2m/s, 1.0m	Light airs, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1980
Stbd	1982	1982

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	7.0-7.3
Str 2	6.7-7.1	6.7-7.3
Str 3	6.7-7.1	6.9-7.2
Str 4	6.7-7.3	6.9-7.1
Str 5	6.9-7.3	6.9-7.2
Str 6	6.7-7.2	7.0-7.1
Str 7	6.7-7.2	6.8-7.2
Str 8	6.9-7.2	6.9-7.3

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83		339	290	3, 16, 69		
S4:	106, 110				41, 127, 318		
S5:	75				35, 86, 88, 326, 358		
S6:	49, 120, 158				37, 91		
S7:	89, 100, 202, 229, 285		130		189, 203		
S8:					137, 172		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1424P1-086**

Seq: **086**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1314		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1314		FSP @ 04:54 UTC
121	1001	1314		FPSP @ 04:54 UTC
469	1349	1314		EOT
470	1350	1315		SOT
706	1586		Bad	NAVS
840	1720	1315		EOT
841	1721	1316		SOT
1211	2091	1316		EOT
1212	2092	1317		SOT
1237	2117	1317		LPSP @ 07:24 UTC
1237	2117	1317		LSP @ 07:24 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1317		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1424P1-086**Seq: **086**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1424P1-086**
 Sequence: **086**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1417-1432** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **GC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	8-Jun-2006	159	04:54	14:54	121	1001	1314
FPSP:	8-Jun-2006	159	04:54	14:54	121	1001	1314
LPSP:	8-Jun-2006	159	07:24	17:24	1237	2117	1317
EOL LSP	8-Jun-2006	159	07:24	17:24	1237	2117	1317

GENERAL INFORMATION

	SOL	EOL
FA (°)	0.4	-2.6
Water depth (m)	60	54
RMS Noise (µB)	2.6	2.2
Weather	340°, 2m/s, 1.0m	Light airs, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1980
Stbd	1982	1982

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:30
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	1 / 0.09%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.9	2.4
HDOP	0.8	2.0	1.2
V1G2 PDOP	1.5	15.8	3.0
HDOP	0.8	3.7	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.51
Speed through water (m/s)	2.1	2.3	2.2	4.29
Feather angle (°)	-2.1	2.6	0.2	
Gyro (P) (°)	1.4	16.7	10.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.9	530.9	523.9
Str 1-2	74.1	76.3	75.1
Str 2-3	73.9	76.5	75.5
Str 3-4	73.6	77.5	75.9
Str 4-5	66.3	74.3	69.8
Str 5-6	74.8	80.6	77.7
Str 6-7	72.4	74.1	73.3
Str 7-8	75.4	77.5	76.6

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.3	40.3	36.6
Port Subarray			
Outer-Centre	7.4	8.5	8.1
Centre-Inner	7.9	9.1	8.4
Stbd Subarray			
Centre-Inner	7.6	8.7	8.2
Outer-Centre	7.6	8.6	8.1

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290
Str 4	106, 110			
Str 5	75			
Str 6	49, 120, 158			
Str 7	89, 100, 202, 229, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 88, 326, 358	
Str 6	91, 205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1586	1
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.06

ONLINE COMMENTS

PROCESSING QC COMMENTS

No swell noise observed from every 200th shot interval QC samples
 Diffraction observed on shots in reverse move out direction at far offset.
 Mild screw noise, and strum visible. Head wave noise observed along the line due to data is clean due to the calm sea condition

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1440P1-002**
 Area: **Gippsland Basin, Bass Strait** Sequence: **002**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **2**
 Job ID: **20323** CMP line range: **1433-1448** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **DNP** Initials: SH,DY/MO,MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	10-May-2006	130	13:33	23:33	121	1001	1007	13:10	
FPSP:	10-May-2006	130	13:33	23:33	121	1001	1007		
LPSP:	10-May-2006	130	16:07	02:07	1237	2117	1010		
EOL LSP:	10-May-2006	130	16:07	02:07	1237	2117	1010	13:30	
UTC Offset:				10.0					

	SOL	EOL
Feather angle (°)	5	7
Water depth (m)	60	54
RMS noise @ 5 Hz LC (µB)	3.8	2.6
Weather	WF3, 1.5m	NWF4, 1.5m
Source vol. (cu. in.)		
Port	4450	4275
Stbd	4450	4450
Source pressure (psi)		
Port	1970	1965
Stbd	1965	1965

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.4	6.8-7.5
Str 2	6.8-7.5	6.9-7.2
Str 3	6.8-7.5	6.9-7.3
Str 4	6.9-7.2	6.9-7.3
Str 5	6.8-7.2	6.9-7.4
Str 6	6.8-7.4	6.8-7.2
Str 7	6.8-7.5	6.6-7.1
Str 8	6.8-7.5	6.8-7.3

SOL/EOL Comments

Overall Line Observations

SP 1137, P-14 disabled D/T air leak. New Port Array Volume 4275cu.in.
 SP 1219 to 1245, pulling in all streamers and vanes 5m.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:							
S2:			282	305			
S3:	290						
S4:	249		257	258			
S5:	103,108,153						
S6:							
S7:	285		130				
S8:							

Vessel Manager: Howie Grizaard **Observers:** 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1440P1-002

Seq:

002

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1007		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1007		FSP @ 13:33 UTC Pressure Error: String 1,String 2, String 3
121	1001	1007		FPSP @ 13:33 UTC
122	1002		Bad	Misfire: S-2, Pressure Error:String 4: 1890 String 5: 1881 String 6: 1891
123	1003		Bad	Pressure Error: String 1: 1886 String 2: 1894 String 3: 1886
124	1004		Bad	Pressure Error: String 4: 1889 String 5: 1881 String 6: 1892
125	1005		Bad	Pressure Error: String 1: 1890 String 2: 1896 String 3: 1889
126	1006		Bad	Misfire: S-20, Pressure Error: String 4: 1893 String 5: 1888 String 6: 1896
127	1007		Bad	Pressure Error: String 1: 1896 String 3: 1894
128	1008		Bad	Misfire: S-20, Pressure Error: String 4: 1840 String 5: 1838 String 6: 1864
129	1009			FGSP @ 13:35 UTC
220	1100		Bad	Autofire: P-21 (non-active)
225	1105		Bad	Misfire: P-14 Pressure Error: String 2: 1897
251	1131		Bad	Misfire: P-14 Pressure Error: String 2: 1895
257	1137			P-14 disabled. New Port Array Volume 4275cu.in.
339	1219			Pulling all streamers and vanes in 5m
365	1245			All streamers and vanes in 5m
469	1349	1007		EOT
470	1350	1008		SOT
480	1360		Bad	Autofire: P-21 / No autofire seen on QC screens
500	1380		Bad	Autofire: P-21 / No autofire seen on QC screens
777	1657		Bad	Delta Error: P-10: 3.5
824	1704		Bad	Autofire: P-21 / No autofire seen on QC screens
840	1720	1008		EOT
841	1721	1009		SOT
942	1822		Bad	Misfire: S-20
1069	1949		Bad	Misfire: P-21
1211	2091	1009		EOT
1212	2092	1010		SOT
1237	2117	1010		LPSP @ 16:07 UTC
1237	2117	1010		LSP @ 16:07 UTC
1238-1242				NAV PROCESSING SHOTS
1243-1252		1010		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1440P1-002**Seq: **002**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 2000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctuation allowed:	2.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m

Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1440P1-002**

Area: **Gippsland Basin, Bass Strait** Sequence: **002** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **2**

Job ID: **20323** CMP line range: **1433-1448** Line type: **Prime**

Type: **3D** No. CMPs **16** Status: **DNP** Initials: nh sd cb ml
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	10-May-2006	130	13:33	23:33	1001	5	0	38847
FPSP:	10-May-2006	130	13:33	23:33	1001			
LPSP:	10-May-2006	130	16:07	02:07	2117			
EOL LSP:	10-May-2006	130	16:07	02:07	2117	7	2	NWF4, 1.5m
			UTC offset:	10.0				

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	529	559	Sub arrays:	PI-PC	40.4	39.0
Per streamer:	Str 1-2	75	75		PC-PO	7.2	7.5
	Str 2-3	75	78		SI-SC	7.5	7.8
	Str 3-4	76	78		SC-SO	7.6	7.1
	Str 4-5	84	81			6.8	7.1
	Str 5-6	70	70				
	Str 6-7	74	74				
	Str 7-8	76	77				

P2/94 filename: **G06A-1440P1-002.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_1**

Backup tape: **Tape 1 Seq 2**

Observations disabled etc.

Acoustics: S4A3 dead

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1001	13:33	23:33	SOL, FSP
1001	13:33	23:33	FPSP
	14:05	00:05	coming in 5 m on all streamers and vanes d/t seps
	14:09	00:09	all streamers and vanes in 5 m
2117	16:07	02:07	LPSP
2117	16:07	02:07	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1440P1-002**
 Sequence: **002**
 Direction: **10.5°** Nav. Def: **2**
 CMP line range: **1433-1448** Line type: **Prime**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **mo**
 Proc Initials: **MB**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	10-May-2006	130	13:33	23:33	121	1001	1007
FPSP:	10-May-2006	130	13:33	23:33	121	1001	1007
LPSP:	10-May-2006	130	16:07	02:07	1237	2117	1010
EOL LSP	10-May-2006	130	16:07	02:07	1237	2117	1010

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	5	7
Water depth (m)	60	54
RMS Noise (µB)	3.8	2.6
Weather	WF3, 1.5m	NWF4, 1.5m
Source volume (cu in): Port	4450	4275
Stbd	4450	4450
Source pressure (psi): Port	1970	1965
Stbd	1965	1965

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:34
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	12 / 1.07%
Missed SPs / %	0 / 0%
Other bad SPs / %	4 / 0.36%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.8	1.8
HDOP	0.8	1.2	1.0
V1G2 PDOP	1.5	2.8	2.0
HDOP	0.8	1.2	1.0
V1G3 HDOP	0.0	0.0	0.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.5	2.3	4.43
Speed through water (m/s)	0.0	2.3	2.0	3.87
Feather angle (°)	4.9	8.3	7.4	
Gyro (P) (°)	0.0	359.9	262.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.2	528.6	524.2
Str 1-2	73.5	76.3	75.0
Str 2-3	73.7	76.1	75.1
Str 3-4	74.0	78.7	76.6
Str 4-5	75.3	84.7	80.3
Str 5-6	67.1	71.0	69.1
Str 6-7	72.1	74.0	73.2
Str 7-8	73.9	76.2	75.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.4	40.8	38.1
Port Subarray	6.8	7.8	7.3
Centre-Inner	7.5	8.4	7.9
Stbd Subarray	6.6	7.4	7.0
Centre-Inner	6.6	7.3	6.9

Birds bad:
 Birds depths: SP 1437 - 1460, S8C17 to C14 birds running deep d/t vane wash.

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4	249		257	258
Str 5	103,108,153			
Str 6				
Str 7	285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4		
Str 5		
Str 6		
Str 7		
Str 8		

SHOT / TRACE EDITS:

SPs:	TOTAL SHOTS
Timing (delta) errors >1.0ms:	1657
Autofires / Misfires :	1002,1006,1008,1100,1105,1131,1360,1380,1704,1822,1949
Missed SPs (NDR):	0
Extraction errors:	0
NAVS / ITB errors:	0
Other Bad shots:	1003,1004,1005,1007
Other Bad Traces:	0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.0 to 8.0 m
Percentage:	

ONLINE COMMENTS

SP 1137, P-14 disabled D/T air leak. New Port Array Volume 4275cu.in.
 SP 1219 to 1245, pulling in all streamers and vanes 5m.

PROCESSING QC COMMENTS

DNP d/t line out of contract specifications

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1440P2-004**
 Area: **Gippsland Basin, Bass Strait** Sequence: **004**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **3**
 Job ID: **20323** CMP line range: **1433-1448** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Incomplete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	
SOL FSP:	11-May-2006	131	04:06	14:06	121	1001	1016	Soft start commenced at 3:35 UTC
FPSP:	11-May-2006	131	04:06	14:06	121	1001	1016	
LPSP:	11-May-2006	131	05:53	15:53	982	1862	1019	Full volume arrays at 3:55 UTC
EOL LSP:	11-May-2006	131	06:26	16:26	1237	2117	1019	
UTC Offset:				10.0				

	SOL	EOL
Feather angle (°)	6.30	5.10
Water depth (m)	60	55
RMS noise @ 5 Hz LC (µB)	3.5	2.5
Weather	NW F3, 1.5m	NW F3, 1m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1952	1962
Stbd	1951	1959

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.3	6.8-7.5
Str 2	6.8-7.1	6.9-7.2
Str 3	6.9-7.2	7.0-7.2
Str 4	6.9-7.2	6.9-7.2
Str 5	6.9-7.3	6.8-7.3
Str 6	6.8-7.2	6.9-7.2
Str 7	6.8-7.1	6.9-7.2
Str 8	6.8-7.2	6.9-7.6

SOL/EOL Comments

Overall Line Observations

SP 1863-1914 d/t low pressure
 DNP SP 1863-2117 d/t minimum length of 5 km per segment

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:			282	305			
S3:	290						
S4:	249		257	258	127,318		
S5:	103,108,153				88		
S6:					29,37,311,316		
S7:	285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1440P2-004

Seq:

004

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-108	/	1016		SOT - SOL NOISE FILES
109-120	#REF!			APPROACH SHOTS
121	1001	1016		FSP @ 04:06 UTC
121	1001	1016		FPSP @ 04:06 UTC
200	1080		Bad	Misfire: S-20
202	1082		Bad	Misfire: S-20
216	1096		Bad	Misfire: S-20
221	1101		Bad	Delta Error: P-8: 1.2
222	1102		Bad	Misfire: S-20
469	1349	1016		EOT
470	1350	1017		SOT
840	1720	1017		EOT
841	1721	1018		SOT
982	1862			LPSP @ 05:53 UTC - before sources below minimum pressure d/t an air leak.
				DNP SP 1863-2117 due to segment less than required line length (5 km)
983-1023	1863-1914			Do Not Process - sources below minimum pressure d/t an air leak.
1035	1915			FGSP @ 06:00 UTC - after sources above minimum pressure
1211	2091	1018		EOT
1212	2092	1019		SOT
1085	1965		Bad	Misfire: P-21
1237	2117	1019		LSP @ 06:26 UTC
1238-1242	#REF!			NAV PROCESSING SHOTS
1243-1252	/	1019		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1440P2-004**Seq: **004**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 2000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctuation allowed:	2.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m

Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1440P2-004**

Area: **Gippsland Basin, Bass Strait** Sequence: **004** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **3**

Job ID: **20323** CMP line range: **1433-1448** Line type: **Prime**

Type: **3D** No. CMPs **16** Status: **Incomplete** Initials: nh sg
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	11-May-2006	131	04:06	14:06	1001	6.3	1.3	38848
FPSP:	11-May-2006	131	04:06	14:06	1001			
LPSP:	11-May-2006	131	05:53	15:53	1862			
EOL LSP:	11-May-2006	131	06:26	16:26	2117	5.1	2.9	NW F3, 1m
UTC offset:				10.0				

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	515	521	Sub arrays:	PI-PC	38.2	37.3
Per streamer:	Str 1-2	75	76		PC-PO	7.3	7.4
	Str 2-3	75	76		SI-SC	7.4	7.6
	Str 3-4	75	77		SC-SO	8.2	7.9
	Str 4-5	73	74			6.8	6.3
	Str 5-6	70	70				
	Str 6-7	73	74				
	Str 7-8	75	75				

P2/94 filename: **G06A-1440P2-004.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_1**

Backup tape: **Tape 1 Seq 4**

Observations disabled etc.

Acoustics: S4A3 dead

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1001	4:06	14:06	SOL, FSP
1001	4:06	14:06	FPSP
1862	5:53	15:53	LGSP, Pressure leak on guns
1915	6:00	16:00	FGSP
			LGSP called back to 1862 due there being only 3.8km from the LGSP to the EOL
1862	5:53	15:53	LPSP
2117	6:26	16:26	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1440P2-004**
 Sequence: **004**
 Direction: **10.5°** Nav. Def: **3**
 CMP line range: **1433-1448** Line type: **Prime**
 No. CMPs: **16** Status: **Incomplete**

Obs Initials: **SH,DY**
 Proc Initials: **MB**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	11-May-2006	131	04:06	14:06	121	1001	1016
FPSP:	11-May-2006	131	04:06	14:06	121	1001	1016
LPSP:	11-May-2006	131	05:53	15:53	982	1862	1019
EOL LSP	11-May-2006	131	06:26	16:26	1237	2117	1019

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	6.3	5.1
Water depth (m)	60	55
RMS Noise (µB)	3.5	2.5
Weather	NW F3, 1.5m	NW F3, 1m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1952	1962
Stbd	1951	1959

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	01:47
Production files	862
Production SPs	862
Production km	16.163
Production CMP km	258.600

ERROR STATISTICS

Source errors / %	6 / 0.7%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	5.1	2.6
HDOP	0.9	2.1	1.4
V1G2 PDOP	1.5	5.1	2.9
HDOP	0.9	2.1	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.6	2.5	4.82
Speed through water (m/s)	1.9	2.4	2.2	4.22
Feather angle (°)	5.4	7.6	6.5	
Gyro (P) (°)	0.0	359.9	13.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	514.7	522.9	518.6
Str 1-2	73.7	76.2	75.0
Str 2-3	74.0	76.3	75.0
Str 3-4	75.0	77.9	76.7
Str 4-5	70.6	75.7	73.2
Str 5-6	69.1	71.4	70.3
Str 6-7	72.3	74.2	73.4
Str 7-8	74.0	76.0	75.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.4	39.5	37.3
Port Subarray	6.5	7.7	7.1
Outer-Centre	6.8	8.3	7.4
Stbd Subarray	7.2	8.7	7.9
Outer-Centre	6.2	7.1	6.6
Centre-Inner			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4	249		257	258
Str 5	103,108,153			
Str 6				
Str 7	285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3	341	
Str 4	127, 318	
Str 5	88	
Str 6	311, 316	
Str 7		
Str 8	340	

SHOT / TRACE EDITS:

SPs:	TOTAL SHOTS
Timing (delta) errors >1.0ms:	1101
Autofires / Misfires :	1080, 1082, 1096, 1102, 1965
Missed SPs (NDR):	
Extraction errors:	
NAVS / ITB errors:	
Other Bad shots:	
Other Bad Traces:	
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m
Percentage:	0.38

ONLINE COMMENTS

SP 1863-1914 d/t low pressure
 DNP SP 1863-2117 d/t minimum length of 5 km per segment

PROCESSING QC COMMENTS

Clean line - no noise issues of note

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1440P3-193**

Area: **Gippsland Basin, Bass Strait** Sequence: **193**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **14**

Job ID: **20323** CMP line range: **1433-1448** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	4-Jul-2006	185	22:41	8:41	121	1850	1731	22:00	
FPSP:	4-Jul-2006	185	22:43	8:43	134	1863	1731		
LPSP:	4-Jul-2006	185	23:15	9:15	388	2117	1731		
EOL LSP:	4-Jul-2006	185	23:15	9:15	388	2117	1731	22:20	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	5.0	5.2
Water depth (m)	54	53
RMS noise @ 5 Hz LC (µB)	2.5	3
Weather	090°, 7m/s, 2.0m	090°, 7m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4315	4315
Source pressure (psi)		
Port	1975	1980
Stbd	1975	1980

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.2	6.9-7.1
Str 2	7.1-7.4	6.9-7.4
Str 3	6.6-7.4	7.1-7.3
Str 4	6.9-7.3	6.8-7.2
Str 5	6.9-7.4	6.9-7.3
Str 6	6.7-7.4	6.9-7.1
Str 7	6.9-7.4	6.8-7.1
Str 8	6.9-7.2	6.9-7.1

SOL/EOL Comments

Gun S-8 disabled prior to SOL d/t autofires. Stbd array vol - 4315cuin

Overall Line Observations

All gun strings operating with gun # 3 as spare.
Overlap 'A' SPs 1850-1862 allow 5km minimum line length
Original seq 004 had air leak

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	290			339 (Phase)			
S4:	106, 110, 148, 177				127		
S5:	75				86, 88, 326, 352		
S6:	49, 116, 158, 161, 307				20, 29, 37, 91, 205, 303, 360		
S7:	89, 100, 166, 202, 229, 269, 285		360		164		
S8:	198						

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1731		SOT - SOL NOISE FILES
111-120	1840-1849			APPROACH SHOTS
121	1850	1731		FSP @ 22:41 UTC FIRST OVERLAP 'A' SHOT
134	1863	1731		FPSP @ 22:43 UTC
388	2117	1731		LPSP @ 23:15 UTC
388	2117	1731		LSP @ 23:15 UTC
389-393	2118-2122			NAV PROCESSING SHOTS
394-403	/	1731		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1440P3-193**Seq: **193**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1440P3-193**
 Sequence: **193**
 Direction: **10.5°** Nav. Def: **14**
 CMP line range: **1433-1448** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	4-Jul-2006	185	22:41	08:41	121	1850	1731
FPSP:	4-Jul-2006	185	22:43	08:43	134	1863	1731
LPSP:	4-Jul-2006	185	23:15	09:15	388	2117	1731
EOL LSP	4-Jul-2006	185	23:15	09:15	388	2117	1731

GENERAL INFORMATION

	SOL	EOL
FA (°)	5	5.2
Water depth (m)	54	53
RMS Noise (µB)	2.5	3
Weather	090°, 7m/s, 2.0m	090°, 7m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4315	4315
Source pressure (psi): Port	1975	1980
Stbd	1975	1980

TOTALS INFORMATION

Recorded SPs	268
Recorded km	5.025
Production time (hh:mm)	00:32
Production files	255
Production SPs	255
Production km	4.781
Production CMP km	76.500

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	3.0	2.1
HDOP	0.8	1.2	0.9
V1G2 PDOP	1.8	3.0	2.5
HDOP	0.8	1.2	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.5	2.5	2.5	4.87
Speed through water (m/s)	2.1	2.3	2.2	4.24
Feather angle (°)	5.1	5.7	5.3	
Gyro (P) (°)	1.3	5.1	3.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	519.1	522.9	521.2
Str 1-2	74.0	76.1	75.0
Str 2-3	73.6	75.1	74.5
Str 3-4	73.2	75.5	74.3
Str 4-5	68.1	71.3	69.7
Str 5-6	77.1	79.6	78.5
Str 6-7	72.6	74.3	73.4
Str 7-8	75.3	76.5	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.5	38.9	37.1
Port Subarray	7.5	8.1	7.8
Outer-Centre	8.6	9.5	8.9
Stbd Subarray	7.4	8.1	7.8
Centre-Inner	7.2	7.8	7.6
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49,116,158,161,307			
Str 7	89,100,166, 202, 229,		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109,340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	88,326,352,	
Str 6	91,205,	
Str 7	164,251,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 Overlap 'A' SPs 1850-1862 allow 5km minimum line length
 Original seq 004 had air leak

PROCESSING QC COMMENTS

Negligible swell noise
 Strum and head wave energy is observed along the line

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1456P1-006**
 Area: **Gippsland Basin, Bass Strait** Sequence: **006**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1449-1464** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	11-May-2006	131	14:34	00:34	119	1001	1025	14:00	
FPSP:	11-May-2006	131	14:34	00:34	119	1001	1025		
LPSP:	11-May-2006	131	16:56	02:56	1235	2117	1028		
EOL LSP:	11-May-2006	131	16:56	02:56	1235	2117	1028	14:20	
UTC Offset:				10.0					

	SOL	EOL
Feather angle (°)	4.2	6
Water depth (m)	60	54
RMS noise @ 5 Hz LC (µB)	3.6	2.7
Weather	NW F6, 1.5m	WNW F4, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1952	1968
Stbd	1950	1964

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.6-7.4	6.9-7.3
Str 2	6.8-7.2	6.8-7.3
Str 3	6.9-7.2	6.8-7.3
Str 4	6.9-7.3	6.9-7.1
Str 5	6.9-7.3	6.8-7.2
Str 6	6.9-7.2	6.8-7.2
Str 7	6.8-7.2	6.9-7.3
Str 8	6.5-7.2	6.9-7.7

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:			282	305			
S3:	290						
S4:	249		257	258	127,318		
S5:	103,108,153				88		
S6:					37,311,316		
S7:	285		130				
S8:						340	

Vessel Manager: Howie Grizaard **Observers:** 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1456P1-006**

Seq: **006**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-108	/	1025		SOT - SOL NOISE FILES
109-118	991-1000			APPROACH SHOTS
119	1001	1025		FSP @ 14:34 UTC
119	1001	1025		FPSP @ 14:34 UTC
418 - 568	1300 - 1450			Low Gun pressure d/t vessel speed, minimum 1903 PSI
430	1312		Bad	Autofire: P-21 not seen on QC screen
469	1351	1025		EOT
470	1352	1026		SOT
840	1722	1026		EOT
841	1723	1027		SOT
1211	2093	1027		EOT
1235	2117	1028		LPSP @ 16:56 UTC
1235	2117	1028		LSP @ 16:56 UTC
1236-1240	2118-2122			NAV PROCESSING SHOTS
1241-1250	/	1028		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1456P1-006**Seq: **006**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 2000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctuation allowed:	2.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1456P1-006**

Area: **Gippsland Basin, Bass Strait** Sequence: **006** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **4**

Job ID: **20323** CMP line range: **1449-1464** Line type: **Prime**

Type: **3D** No. CMPs **16** Status: **Complete** Initials: cb, ml
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	11-May-2006	131	14:34	00:34	1001	4.2	101	NW F6, 1.5m
FPSP:	11-May-2006	131	14:34	00:34	1001			
LPSP:	11-May-2006	131	16:56	02:56	2117			
EOL LSP:	11-May-2006	131	16:56	02:56	2117	6	0.5	WNW F4, 1.5m
			UTC offset:	10.0				

Separations (m)

		SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	520	521	Sub arrays:	PI-PC	37.5	38.0
Per streamer:	Str 1-2	74	76		PC-PO	7.2	7.1
	Str 2-3	75	75		SI-SC	7.7	7.0
	Str 3-4	76	77		SC-SO	8.0	7.8
	Str 4-5	77	76			6.9	7.3
	Str 5-6	69	69				
	Str 6-7	73	73				
	Str 7-8	75	76				

P2/94 filename: **G06A1456P1-006.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_4**

Backup tape: **Tape Seq**

Observations disabled etc.

Acoustics: S4A3 dead & KO, S2A1 low batt & failed @ SP 2077

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1001	14:34	00:34	SOL, FSP
1001	14:34	00:34	FPSP
1316	15:13	01:13	Passing 1150m East of Bream B
2077	16:51	02:51	S2A1 low batt and failed
2117	16:56	02:56	LPSP
2117	16:56	02:56	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1456P1-006**
 Sequence: **006**
 Direction: **10.5°** Nav. Def: **4**
 CMP line range: **1449-1464** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **mo**
 Proc Initials: **RF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	11-May-2006	131	14:34	00:34	119	1001	1025
FPSP:	11-May-2006	131	14:34	00:34	119	1001	1025
LPSP:	11-May-2006	131	16:56	02:56	1235	2117	1028
EOL LSP	11-May-2006	131	16:56	02:56	1235	2117	1028

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	4.2	6
Water depth (m)	60	54
RMS Noise (µB)	3.6	2.7
Weather	NW F6, 1.5m	WNW F4, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1952	1968
Stbd	1950	1964

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:22
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.8	2.0
HDOP	0.8	1.7	1.1
V1G2 PDOP	1.6	2.8	2.1
HDOP	0.9	1.7	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.6	2.4	4.76
Speed through water (m/s)	1.9	2.5	2.2	4.24
Feather angle (°)	4.2	7.7	6.7	
Gyro (P) (°)	0.0	359.9	339.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	514.8	522.3	519.2
Str 1-2	73.3	76.1	74.8
Str 2-3	73.8	75.7	74.8
Str 3-4	74.9	78.3	76.8
Str 4-5	73.3	78.5	76.1
Str 5-6	67.3	71.1	68.9
Str 6-7	72.0	73.8	73.0
Str 7-8	73.5	76.1	74.8

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	36.3	41.0	38.6
Port Subarray	6.7	7.4	7.0
Centre-Inner	6.9	8.0	7.4
Stbd Subarray	7.2	8.8	8.0
Centre-Inner	6.2	7.4	6.8

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4	249		257	258
Str 5	103,108,153			
Str 6				
Str 7	285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3	341	
Str 4	127, 318	
Str 5	88	
Str 6	311, 316	
Str 7	285	
Str 8	340	

SHOT / TRACE EDITS: SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :	1312	1
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.04

ONLINE COMMENTS

PROCESSING QC COMMENTS

Slight towing strum on streamer 2, 6 and 8
 Autofire at SP 1312 visually checked and looks OK

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1472P1-008**
 Area: **Gippsland Basin, Bass Strait** Sequence: **008**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1465-1480** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	12-May-2006	132	03:46	13:46	121	1001	1033
FPSP:	12-May-2006	132	03:46	13:46	121	1001	1033
LPSP:	12-May-2006	132	06:20	16:20	1237	2117	1036
EOL LSP:	12-May-2006	132	06:20	16:20	1237	2117	1036
				UTC Offset:	10.0		

Soft start commenced at **3:15** UTC
 Full volume arrays at **3:35** UTC

	SOL	EOL
Feather angle (°)	8.3	8
Water depth (m)	60	54
RMS noise @ 5 Hz LC (µB)	3.8	3.1
Weather	W 10.3m/s, 1.5m	W 11m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1930	1960
Stbd	1925	1959

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.5	6.9-7.6
Str 2	7.1-7.4	6.9-7.2
Str 3	6.9-7.3	6.9-7.2
Str 4	6.9-7.2	6.8-7.1
Str 5	6.9-7.3	7.1-7.3
Str 6	6.7-7.2	6.8-7.2
Str 7	6.8-7.3	6.7-7.2
Str 8	6.4-8.2	6.3-7.2

SOL/EOL Comments

Overall Line Observations

Slight swell noise observed on shot displays.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:				305			
S3:	290						
S4:	116		257	258	127,318		
S5:	108		153				
S6:			13		37,311,316		
S7:	89, 285		130				
S8:	134				340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1472P1-008**Seq: **008**Dir: **10.5°**

FILE	SP	TAPE	BAD	
79-88	894-903	1033		SOT - Gun signature test S-10
89-98	906-916	1033		Gun signature test S-11
99-108	/	1033		SOL NOISE FILES
109-120	991-1000			APPROACH SHOTS
				BSP reduced from 4.5 to 4.0kts. D/T low source pressure
121	1001	1033		FSP @ 03:46 UTC
121	1001	1033		FPSP @ 03:46 UTC
160	1040			BSP increased to 4.5knots
240	1120			S7 out 10m D/T narrow S7-S8 seps. S7C1-C4 set to 7.5m & S8C1-C4 set to 6.5m
320	1200			S7 in 10m. S7 & S8 depth @ 7.0m
449	1329	1033		EOT
450	1330	1034		SOT
820	1700	1034		EOT
821	1701	1035		SOT
994	1874			Autofire: P-21 flagged, not found after QC
1191	2071	1035		EOT
1192	2072	1036		SOT
1237	2117	1036		LPSP @ 06:20 UTC
1237	2117	1036		LSP @ 06:20 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1036		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1472P1-008**Seq: **008**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 2000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	2.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1472P1-008**

Area: **Gippsland Basin, Bass Strait** Sequence: **008** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **4**

Job ID: **20323** CMP line range: **1465-1480** Line type: **Prime**

Type: **3D** No. CMPs **16** Status: **Complete** Initials: nh sg
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	12-May-2006	132	03:46	13:46	1001	8.3	105	W 10.3m/s,1.5m
FPSP:	12-May-2006	132	03:46	13:46	1001			
LPSP:	12-May-2006	132	06:20	16:20	2117			
EOL LSP:	12-May-2006	132	06:20	16:20	2117	7.8	35.8	W 11m/s, 1.5m
UTC offset:				10.0				

Separations (m)		SOL	EOL	Sources overall:		Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	516	516	Sub arrays:	PI-PC	40.0	36.8	
Per streamer:	Str 1-2	75	75		PC-PO	7.5	7.8	
	Str 2-3	74	75		SI-SC	7.4	7.2	
	Str 3-4	78	77		SC-SO	8.0	8.1	
	Str 4-5	74	73			7.0	7.5	
	Str 5-6	70	69					
	Str 6-7	73	73					
	Str 7-8	75	75					

P2/94 filename: **G06A-1472P1-008.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_4**

Backup tape: **Tape 2 Seq 3**

Observations disabled etc.

Acoustics: S4A3, S2A1 dead & KO, G1A2 intermittent

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1001	3:46	13:46	SOL, FSP BSP down to 4.0kts. Low source pressure
1001	3:46	13:46	FPSP
1040	3:52	13:52	BSP back to 4.5knots
1115	4:02	14:02	TB7 TB8 < 10m separation
1120	4:03	14:03	TB7 out 10m S7 C1-C4 set to 7.5m S8 C1 -C4 set to 6.5m
1187	4:12	14:12	TB7 TB8 > 15m separation
1200	4:13	14:13	TB7 in 10m S7 & S8 back to 7.0m
1290	4:25	14:25	Vessel passing abeam 900m of Bream B
1523	4:58	14:58	F/A > 10.0° starboard
1752	5:30	15:30	Max F/A 11.0°
1810	5:38	15:38	F/A < 10.0 °
2117	6:20	16:20	LPSP
2117	6:20	16:20	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1472P1-008**
 Sequence: **008**
 Direction: **10.5°** Nav. Def: **4**
 CMP line range: **1465-1480** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	12-May-2006	132	03:46	13:46	121	1001	1033
FPSP:	12-May-2006	132	03:46	13:46	121	1001	1033
LPSP:	12-May-2006	132	06:20	16:20	1237	2117	1036
EOL LSP	12-May-2006	132	06:20	16:20	1237	2117	1036

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	8.3	7.8
Water depth (m)	60	54
RMS Noise (µB)	3.8	3.1
Weather	W 10.3m/s, 1.5m	W 11m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1930	1960
Stbd	1925	1959

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:34
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	5.1	2.6
HDOP	0.9	2.2	1.3
V1G2 PDOP	1.5	5.1	2.8
HDOP	0.9	2.1	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.3	4.41
Speed through water (m/s)	0.0	2.3	2.0	3.92
Feather angle (°)	7.7	11.0	9.3	
Gyro (P) (°)	345.4	359.9	352.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	507.6	520.1	514.0
Str 1-2	73.1	76.6	74.5
Str 2-3	72.8	75.7	74.4
Str 3-4	74.9	78.6	76.5
Str 4-5	70.4	76.6	72.7
Str 5-6	67.3	70.7	69.2
Str 6-7	71.6	74.3	72.8
Str 7-8	71.5	75.2	73.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.5	40.9	38.1
Port Subarray	6.9	7.7	7.3
Outer-Centre	7.0	8.1	7.6
Centre-Inner	7.2	8.5	8.0
Stbd Subarray	6.3	7.6	6.9
Outer-Centre			
Centre-Inner			

Birds bad:
 Birds depths: S8C17-C14 fluctuating depths SP1018-1036 max. 9.6m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	290			
Str 4	116		257	258
Str 5	108		153	
Str 6			13	
Str 7	89, 285		130	
Str 8	134			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3		
Str 4	127, 318	
Str 5		
Str 6	311, 316	
Str 7		
Str 8	131, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :	1874	1
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.69

ONLINE COMMENTS

Slight swell noise observed on shot displays.

PROCESSING QC COMMENTS

Occasional slight towing strum on streamer 8
 Occasional slight swell bursts affecting < 5% of traces
 Autofire visually checked and looks OK

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1488P1-010**
 Area: **Gippsland Basin, Bass Strait** Sequence: **010**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1481-1496** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	12-May-2006	132	14:15	0:15	119	1001	1042	13:50	UTC
FPSP:	12-May-2006	132	14:15	0:15	119	1001	1042		
LPSP:	12-May-2006	132	16:45	2:45	1235	2117	1045		
EOL LSP:	12-May-2006	132	16:45	2:45	1235	2117	1045	14:10	UTC
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	4.3	8
Water depth (m)	61	53
RMS noise @ 5 Hz LC (µB)	4.5	3.7
Weather	283° 12m/s, 1.5m	270° 12m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1973	1965
Stbd	1969	1970

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.3	6.8-7.3
Str 2	6.6-7.3	6.8-7.2
Str 3	6.9-7.3	6.8-7.2
Str 4	6.8-7.3	6.5-7.2
Str 5	6.7-7.3	6.8-7.4
Str 6	6.9-7.3	6.8-7.3
Str 7	6.9-7.3	6.8-7.7
Str 8	6.6-7.3	6.3-7.3

SOL/EOL Comments

Overall Line Observations

SP 1443, Gun P-21 disabled, Gun P-22 enabled, Port array Volume 4450 cu in.

Birds bad/poll disabled:

Birds deep/shallow: S8C18-C13 fluctuating depths min. 5.5m max. 9.4m.

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:			282	305			
S3:	290						
S4:			257	258	127,318		
S5:	153			89	88		
S6:	13				13,14,37,311,316		
S7:	285		130	89			
S8:	134				128,131,134		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-108	/	1042		SOT - SOL NOISE FILES
109-118	991-1000			APPROACH SHOTS
119	1001	1042		FSP @ 14:15 UTC
119	1001	1042		FPSP @ 14:15 UTC
146	1028			Autofire: P-21 flagged, not found after QC
149	1031			Autofire: P-21 flagged, not found after QC
390	1272			Autofire: P-21 flagged, not found after QC
399	1281			Autofire: P-21 flagged, not found after QC
469	1351	1042		EOT
470	1352	1043		SOT
493	1375			Autofire: P-21 flagged, not found after QC
496	1378			Autofire: P-21 flagged, not found after QC
544	1426			Autofire: P-21 flagged, not found after QC
560	1442			Autofire: P-21 flagged, not found after QC
561	1443			Gun P-21 disabled, Gun P-22 enabled, Port array Volume 4450 cu in.
628	1510		Bad	Delta Error: S-11: 1.1
673	1555		Bad	Delta Error: P-12: -1.2
840	1722	1043		EOT
841	1723	1044		SOT
1166	2048		Bad	Delta Error: S-11: -1.1
1211	2093	1044		EOT
1212	2094	1045		SOT
1235	2117	1045		LPSP @ 16:45 UTC
1235	2117	1045		LSP @ 16:45 UTC
1236-1240	2118-2122			NAV PROCESSING SHOTS
1241-1251	/	1045		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1488P1-010**Seq: **010**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	66 metres
Far channel inline offset:	4552 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 2000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1488P1-010**
 Area: **Gippsland Basin, Bass Strait** Sequence: **010** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1481-1496** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: cb ml
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	12-May-2006	132	14:15	0:15	1001	4.3	320	283° 12 m/s 1.5
FPSP:	12-May-2006	132	14:15	0:15	1001			
LPSP:	12-May-2006	132	16:45	2:45	2117			
EOL LSP:	12-May-2006	132	16:45	2:45	2117	8.2	49	270° 12m/s, 2.0m
	UTC offset:			10.0				

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	521	520			39.0	38.0
Per streamer:	Str 1-2	75	76	Sub arrays:	PI-PC	7.3	7.8
	Str 2-3	77	75		PC-PO	7.3	7.3
	Str 3-4	74	76		SI-SC	7.7	8.0
	Str 4-5	69	75		SC-SO	7.0	7.3
	Str 5-6	73	69				
	Str 6-7	73	73				
	Str 7-8	79	75				

P2/94 filename: **G06A-1488P1-010.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**
 BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_4**
 Backup tape: **Tape 2 Seq 5**

Observations disabled etc.

Acoustics: S4A3, S2A1 dead & KO, G1A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	14:15	0:15	SOL, FSP
1001	14:15	0:15	FPSP
1046	14:21	0:21	Azimuth thruster deployed, may cause interference with echosounder. thruster deployed for close pass requirement
1300	14:56		Trouser effect on streamers Vessel abeam of BreamB 874m, vane expected to pass 574 m
2117	16:45	2:45	LPSP
2117	16:45	2:45	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**
 Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1488P1-010**
 Sequence: **010**
 Direction: **10.5°** Nav. Def: **4**
 CMP line range: **1481-1496** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	12-May-2006	132	14:15	00:15	119	1001	1042
FPSP:	12-May-2006	132	14:15	00:15	119	1001	1042
LPSP:	12-May-2006	132	16:45	02:45	1235	2117	1045
EOL LSP	12-May-2006	132	16:45	02:45	1235	2117	1045

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	66
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	4.3	8.2
Water depth (m)	61	53
RMS Noise (µB)	4.5	3.7
Weather	283° 12m/s, 1.5m	270° 12m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1973	1965
Stbd	1969	1970

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:30
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	11 / 0.98%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.8	1.9
HDOP	0.8	1.3	1.1
V1G2 PDOP	1.5	2.8	2.1
HDOP	0.8	1.7	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.53
Speed through water (m/s)	0.0	2.4	2.1	4.08
Feather angle (°)	3.9	9.1	7.0	
Gyro (P) (°)	0.0	359.9	347.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	505.8	522.9	515.8
Str 1-2	72.7	76.8	74.8
Str 2-3	73.1	76.2	74.7
Str 3-4	74.5	78.3	76.7
Str 4-5	69.8	78.6	74.2
Str 5-6	66.8	70.7	68.7
Str 6-7	71.4	73.9	72.8
Str 7-8	71.6	75.4	73.8

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.2	40.7	37.4
Port Subarray	6.8	7.6	7.2
Outer-Centre	7.2	8.3	7.6
Centre-Inner	6.6	8.3	7.7
Stbd Subarray	6.1	7.7	7.0
Outer-Centre			
Centre-Inner			

Birds bad:
 Birds depths: S8C18-C13 fluctuating depths min. 5.5m max. 9.4m.

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4			257	258
Str 5	153			89
Str 6	13			
Str 7	285		130	89
Str 8	134			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3	341	
Str 4	127, 318	
Str 5		
Str 6	13,14, 311, 316	
Str 7		
Str 8	132, 134, 340, 128, 131	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1510,1555,2048	3
Autofires / Misfires :	1028, 1031, 1272, 1281, 1375, 1378, 1426, 1442	8
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.95

TOTAL SHOTS

ONLINE COMMENTS

SP 1443, Gun P-21 disabled, Gun P-22 enabled, Port array Volume 4450 cu in.

PROCESSING QC COMMENTS

Slight cable strum on streamer 8
 Slight to moderate swell bursts affecting ~5% - 10% of traces
 All autofires visually checked and no autofires found

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1488F1-013**
 Area: **Gippsland Basin, Bass Strait** Sequence: **013**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1481-1496** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: SH,DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	14-May-2006	134	02:08	12:08	121	1001	1053	01:35	
FPSP:	14-May-2006	134	02:08	12:08	121	1001	1053		
LPSP:	14-May-2006	134	04:43	14:43	1237	2117	1056		
EOL LSP:	14-May-2006	134	04:43	14:43	1237	2117	1056	01:55	
				UTC Offset:	10.0				

Full volume arrays at 01:55 UTC

	SOL	EOL
Feather angle (°)	-5.8	4
Water depth (m)	60	54
RMS noise @ 5 Hz LC (µB)	3	3.6
Weather	070° 10m/s 1.0m	100° 1.9m/s 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1967	1959
Stbd	1969	1961

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.5-7.2
Str 2	6.8-7.2	6.8-7.1
Str 3	6.8-7.2	6.7-7.3
Str 4	6.9-7.2	6.8-7.3
Str 5	6.8-7.3	6.8-7.2
Str 6	6.9-7.1	6.8-7.2
Str 7	6.8-7.1	6.9-7.4
Str 8	6.8-7.2	6.6-7.3

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled: S5C7, S7C10 polling disabled

Birds deep/shallow: S1C17-C12:Depths fluctuating. Max:11.2m Min:4.8m

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:				305			
S3:	290						
S4:			257	258	127, 318		
S5:	153			89			
S6:	13				13,14,311,316		
S7:	89,285		130				
S8:							

Vessel Manager: Howie Grizaard **Observers:** 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1488F1-013**Seq: **013**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1053		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1053		FSP @ 02:08 UTC
121	1001	1053		FPSP @ 02:08 UTC
411	1291	1053		Viking 2 passing abeam of Bream B platform @ 02:48 UTC
469	1349	1053		EOT
470	1350	1054		SOT
685	1565			TB's passing abeam of Bream B platform @ 03:27 UTC
840	1720	1054		EOT
841	1721	1055		SOT
1211	2091	1055		EOT
1212	2092	1056		SOT
1237	2117	1056		LPSP @ 04:43 UTC
1237	2117	1056		LSP @ 04:43 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1056		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1488F1-013**Seq: **013**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	66 metres
Far channel inline offset:	4552 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1488F1-013**
 Area: **Gippsland Basin, Bass Strait** Sequence: **013** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1481-14966** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: nh sg
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	14-May-2006	134	02:08	12:08	1001	-5.8	362	070° 10m/s 1.0m
FPSP:	14-May-2006	134	02:08	12:08	1001			
LPSP:	14-May-2006	134	04:43	14:43	2117			
EOL LSP:	14-May-2006	134	04:43	14:43	2117	4.2	-64	100° 1.9m/s 1.0m
			UTC offset:	10.0				

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	521	520			37.1	38.5
Per streamer:	Str 1-2	75	75	Sub arrays:	PI-PC	7.1	7.4
	Str 2-3	76	75		PC-PO	8.0	8.2
	Str 3-4	74	74		SI-SC	7.2	7.1
	Str 4-5	75	74		SC-SO	7.0	6.5
	Str 5-6	72	72				
	Str 6-7	74	74				
	Str 7-8	76	75				

P2/94 filename: **G06A-1488F1-013.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**
 BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_4**
 Backup tape: **Tape 3 Seq 4**

Observations disabled etc.

Acoustics: S4A3, S2A1 dead & KO, G1A2 intermittent
 RGPS:
 Compasses: S5C7 & S7C10 KO
 Other:

SP	UTC	Local Time	Comments
1001	02:08	12:08	SOL, FSP
1001	02:08	12:08	FPSP
1291	02:48	12:48	Vessel passing 705m abeam of Bream B
1565	03:27	13:27	TB1 passing 610m abeam of Bream B
2117	04:43	14:43	LPSP
2117	04:43	14:43	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**
 Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1488F1-013**
 Sequence: **013**
 Direction: **10.5°** Nav. Def: **4**
 CMP line range: **1481-1496** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	14-May-2006	134	02:08	12:08	121	1001	1053
FPSP:	14-May-2006	134	02:08	12:08	121	1001	1053
LPSP:	14-May-2006	134	04:43	14:43	1237	2117	1056
EOL LSP	14-May-2006	134	04:43	14:43	1237	2117	1056

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	66
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-5.8	4.2
Water depth (m)	60	54
RMS Noise (µB)	3	3.6
Weather	070° 10m/s 1.0m	100° 1.9m/s 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1967	1959
Stbd	1969	1961

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:35
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	5.1	2.7
HDOP	0.8	2.1	1.2
V1G2 PDOP	1.7	5.1	2.9
HDOP	0.8	2.1	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.3	4.39
Speed through water (m/s)	1.8	2.5	2.3	4.39
Feather angle (°)	-5.1	5.3	1.8	
Gyro (P) (°)	1.2	21.1	9.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.7	526.6	520.7
Str 1-2	73.8	76.9	75.4
Str 2-3	74.1	76.2	75.2
Str 3-4	71.8	75.8	74.0
Str 4-5	72.5	80.1	75.6
Str 5-6	68.2	74.0	71.7
Str 6-7	72.5	74.5	73.6
Str 7-8	73.8	77.1	75.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.2	42.2	38.1
Port Subarray	6.8	7.9	7.4
Outer-Centre	7.1	8.4	7.9
Centre-Inner	6.8	8.4	7.4
Stbd Subarray	6.0	7.1	6.5
Outer-Centre			

Birds bad: S5C7, S7C10 polling disabled
 Birds depths: S1C17-C12:Depths fluctuating. Max:11.2m Min:4.8m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	290			
Str 4			257	258
Str 5	153			89
Str 6	13			
Str 7	89,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3		
Str 4	127, 155, 258, 318	
Str 5	142,	
Str 6	13, 14, 311, 316	
Str 7		
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 1.44

ONLINE COMMENTS

PROCESSING QC COMMENTS

Some swell noise evident throughout line ~5-10uBars

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1504P1-015**
 Area: **Gippsland Basin, Bass Strait** Sequence: **015**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1497-1512** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: SH, DY, MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	14-May-2006	134	12:18	22:18	121	1001	1061	11:50	
FPSP:	14-May-2006	134	12:18	22:18	121	1001	1061		
LPSP:	14-May-2006	134	14:50	00:50	1237	2117	1064		
EOL LSP:	14-May-2006	134	14:50	00:50	1237	2117	1064	12:10	
				UTC Offset:	10.0				

Full volume arrays at 12:10 UTC

	SOL	EOL
Feather angle (°)	-5.4	-4
Water depth (m)	61	54
RMS noise @ 5 Hz LC (µB)	3	3.5
Weather	270° 8m/s, 1.5m	300° 9m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1981	1980
Stbd	1985	1979

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.8-7.4
Str 2	6.9-7.3	6.8-7.2
Str 3	6.9-7.1	6.8-7.2
Str 4	6.8-7.3	6.8-7.2
Str 5	6.8-7.2	6.8-7.3
Str 6	6.7-7.1	6.8-7.3
Str 7	6.9-7.3	6.8-7.3
Str 8	6.9-7.7	6.9-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled: S5C7 & S7C10 polling disabled

Birds deep/shallow: S8C17 -C14:Fluctuating depths 6.4m to 9.4m

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:				305			
S3:	290						
S4:			257	258	127, 318		
S5:	153			89			
S6:					311, 316		
S7:	89,285		130				
S8:							

Vessel Manager: Howie Grizaard **Observers:** 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1061		SOT - SOL NOISE FILES
111-120	991-120			APPROACH SHOTS
121	1001	1061		FSP @ 12:18 UTC
121	1001	1061		FPSP @ 12:18 UTC
442	1322			Viking 2 passing Bream B platform. Noise seen on shot records T/H move-out 2.5secs.
469	1349	1061		EOT
470	1350	1062		SOT
683	1563			TB's passing abeam of Bream B platform
790	1670			Noise from platform no longer seen on shot records
840	1720	1062		EOT
841	1721	1063		SOT
1211	2091	1063		SOT
1212	2092	1064		EOT
1237	2117	1064		LPSP @ 14:50 UTC
1237	2117	1064		LSP @ 14:50 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1064		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1504P1-015**Seq: **015**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	66 metres
Far channel inline offset:	4552 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1504P1-015**

Area: **Gippsland Basin, Bass Strait** Sequence: **015** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **4**

Job ID: **20323** CMP line range: **1497-1512** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: nh,sg,cb,ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	14-May-2006	134	12:18	22:18	1001	-5.4	377	270° 8m/s, 1.5m
FPSP:	14-May-2006	134	12:18	22:18	1001			
LPSP:	14-May-2006	134	14:50	00:50	2117			
EOL LSP:	14-May-2006	134	14:50	00:50	2117	-3.6	2.7	300° 9m/s, 1.0m
			UTC offset:		10.0			

Separations (m)

	SOL	EOL
Streamer overall:	519	525
Per streamer:		
Str 1-8	75	76
Str 1-2	75	76
Str 2-3	76	75
Str 3-4	75	78
Str 4-5	70	71
Str 5-6	74	74
Str 6-7	77	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
	PI-PC	6.8	7.3
	PC-PO	7.6	7.1
	SI-SC	7.0	7.6
	SC-SO	6.7	7.0

P2/94 filename: **G06A-1504P1-015.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_4**

Backup tape: **Tape 4 Seq 1**

Observations disabled etc.

Acoustics: S4A3, S2A1 dead & KO, G1A2 intermittent

RGPS:

Compasses: S5C7 & S7C10 KO

Other:

SP	UTC	Local Time	Comments
1001	12:18	22:18	SOL, FSP
1001	12:18	22:18	FPSP
1322	13:02	23:02	Vessel abeam of bream B, 550m
1563	13:35	23:35	Tailbuoys abeam of bream B, 200m,
2117	14:50	00:50	LPSP
2117	14:50	00:50	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1504P1-015**
 Sequence: **015**
 Direction: **10.5°** Nav. Def: **4**
 CMP line range: **1497-1512** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	14-May-2006	134	12:18	22:18	121	1001	1061
FPSP:	14-May-2006	134	12:18	22:18	121	1001	1061
LPSP:	14-May-2006	134	14:50	00:50	1237	2117	1064
EOL LSP	14-May-2006	134	14:50	00:50	1237	2117	1064

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	66
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-5.4	-3.6
Water depth (m)	61	54
RMS Noise (µB)	3	3.5
Weather	270° 8m/s, 1.5m	300° 9m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1981	1980
Stbd	1985	1979

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:32
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.3	2.2	1.7
HDOP	0.7	1.1	0.9
V1G2 PDOP	1.5	2.2	1.8
HDOP	0.8	1.1	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.49
Speed through water (m/s)	1.6	2.5	2.2	4.24
Feather angle (°)	-5.4	3.3	-1.6	
Gyro (P) (°)	0.0	359.9	20.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.3	527.9	522.2
Str 1-2	73.9	76.3	75.1
Str 2-3	74.4	76.4	75.4
Str 3-4	72.5	75.9	74.3
Str 4-5	72.0	81.5	76.8
Str 5-6	68.8	73.1	71.0
Str 6-7	72.6	74.6	73.7
Str 7-8	74.1	76.9	75.8

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.6	41.4	38.7
Port Subarray	6.4	7.5	7.0
Outer-Centre	6.4	7.5	7.0
Centre-Inner	7.0	8.2	7.5
Stbd Subarray	6.8	8.1	7.5
Centre-Inner	6.8	8.1	7.5
Outer-Centre	6.3	7.2	6.7

Birds bad: S5C7 & S7C10 polling disabled
 Birds depths: S8C17 -C14:Fluctuating depths 6.4m to 9.4m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	290			
Str 4			257	258
Str 5	153			89
Str 6				
Str 7	89,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4	127, 155, 258, 318	
Str 5		
Str 6	311, 316	
Str 7	203	
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.88

ONLINE COMMENTS

PROCESSING QC COMMENTS

Slight towing strum on streamer 8
 occasional slight swell noise ~<3% of traces
 Out of plane reflections between SP 1100 - 1230

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1504U1-036**
 Area: **Gippsland Basin, Bass Strait** Sequence: **036**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1503-1519** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Complete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	20-May-2006	140	08:47	18:47	121	1002	1138	08:05	
FPSP:	20-May-2006	140	08:55	18:55	154	1068	1138		
LPSP:	20-May-2006	140	10:39	20:39	575	1910	1139		
EOL LSP:	20-May-2006	140	10:39	20:39	575	1910	1139	08:25	
				UTC Offset:	10.0				

Full volume arrays at 08:25 UTC

	SOL	EOL
Feather angle (°)	6.7	12
Water depth (m)	61	53
RMS noise @ 5 Hz LC (µB)	4.5	3
Weather	285° 6m/s, 2m	275° 5m/s, 1.5m
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1985	1980

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.8-7.3
Str 2	6.8-7.3	6.8-7.1
Str 3	6.8-7.1	6.9-7.1
Str 4	6.9-7.3	6.8-7.1
Str 5	6.7-7.3	6.8-7.3
Str 6	6.8-7.2	6.9-7.3
Str 7	6.8-7.2	6.8-7.4
Str 8	6.7-7.2	6.8-7.3

SOL/EOL Comments

Undershoot with Pacific Sword - single source (Stbd source); Pacific Sword positioned on stbd side of Viking II
 Azimuth thruster deployed before SOL

Overall Line Observations

Birds bad/poll disabled: S7C1:polling disabled, S8C20:no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:							
S2:	295			305			
S3:	83, 290						
S4:	116,126,148,318		257,258		127,318,360		
S5:	75,103,108,153,157				86,88		
S6:	116				205		
S7:	89,100,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1138		SOT - SOL NOISE FILES
111-120	982-1000			APPROACH SHOTS
121	1002	1138		FSP @ 08:47 UTC
154	1068	1138		FPSP @ 08:55 UTC
265	1290		Bad	Delta Error: S1-1: -1.1
267	1294			V2 passing abeam of Bream B @ 400m
278	1316			Port Vane passing abeam of Bream B @ 170m
398	1556			TB's passing Bream B, TB1 @ 1000m
418	1596			Azimuth thruster dis-engaged
469	1698	1138		EOT
470	1700	1139		SOT
575	1910	1139		LPSP @ 10:39 UTC
575	1910	1139		LSP @ 10:39 UTC
576-582	1912-1920			NAV PROCESSING SHOTS
583-592	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1504U1-036**Seq: **036**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1504U1-036**
 Area: **Gippsland Basin, Bass Strait** Sequence: **036** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1503-1519** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Complete** Log Status: Final

Initials: nh sg

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	20-May-2006	140	08:47	18:47	1002	6.7	116	285° 6m/s, 2m
FPSP:	20-May-2006	140	08:55	18:55	1068			
LPSP:	20-May-2006	140	10:39	20:39	1910			
EOL LSP:	20-May-2006	140	10:39	20:39	1910	12.3	-200	275° 5m/s, 1.5m
UTC offset:				10.0				

Separations (m)		SOL	EOL	Sub arrays:		SOL	EOL
Streamer overall:	Str 1-8	519	520	P-C	9.4	8.6	
Per streamer:	Str 1-2	75	76	C-S	8.9	8.1	
	Str 2-3	75	75				
	Str 3-4	72	72				
	Str 4-5	82	81				
	Str 5-6	68	69				
	Str 6-7	73	73				
	Str 7-8	75	75				

P2/94 filename: G06A-1504U1-036.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 4 Seq 3

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent
 RGPS:
 Compasses: S7C1 S8C20 KO
 Other:

SP	UTC	Local Time	Comments
1002	08:47	18:47	Starboard Source SOL, FSP
1068	08:55	18:55	FPSP NB Z3 acquired from SP 1068
1294	09:23	19:23	V2 400m east of Bream B
1316	09:26	19:26	Vane 170m east of Bream B
1400	09:36	19:36	G3R1-G3R2 < 6.5m
1440	09:41	19:41	G3R1-G3R2 > 6.5m
1556	09:56	19:56	Tailbuoy1 1000m east of Bream B
1656	10:08	20:08	F/A > 10.0°
1910	10:39	20:39	LPSP
1910	10:39	20:39	EOL, LSP Zone 4 coverage complete

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1504U1-036**
 Sequence: **036**
 Direction: **10.5°** Nav. Def: **3**
 CMP line range: **1503-1519** Line type: **Undershoot**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	20-May-2006	140	08:47	18:47	121	1002	1138
FPSP:	20-May-2006	140	08:55	18:55	154	1068	1138
LPSP:	20-May-2006	140	10:39	20:39	575	1910	1139
EOL LSP	20-May-2006	140	10:39	20:39	575	1910	1139

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	6.7	12.3
Water depth (m)	61	53
RMS Noise (µB)	4.5	3
Weather	285° 6m/s, 2m	275° 5m/s, 1.5m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	909
Recorded km	34.088
Production time (hh:mm)	01:44
Production files	422
Production SPs	422
Production km	15.825
Production CMP km	126.600

ERROR STATISTICS

Source errors / %	1 / 0.24%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.1	1.8
HDOP	0.8	1.1	0.9
V1G2 PDOP	1.5	2.1	1.8
HDOP	0.8	1.1	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.6	2.5	4.92
Speed through water (m/s)	1.9	2.6	2.3	4.38
Feather angle (°)	7.1	13.2	10.1	
Gyro (P) (°)	0.0	359.9	255.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	505.2	519.5	514.4
Str 1-2	72.1	76.6	74.5
Str 2-3	72.2	75.1	73.7
Str 3-4	69.1	73.6	71.4
Str 4-5	78.8	83.8	80.7
Str 5-6	64.5	69.3	67.5
Str 6-7	71.2	73.5	72.6
Str 7-8	71.9	75.4	74.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	0.0	0.0	0.0
Port-Stbd			
Subarray			
Outer-Centre	6.2	9.5	8.1
Centre-Inner	7.1	8.8	7.9

Birds bad: S7C1:polling disabled, S8C20:no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305
Str 3	83, 290			
Str 4	116,126,148,318		257,258	
Str 5	75,103,108,153,157			
Str 6	116			
Str 7	89,100,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4	127, 257, 258, 318	
Str 5	139	
Str 6	205	
Str 7	203, 285	
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1290	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.07

ONLINE COMMENTS

PROCESSING QC COMMENTS

Slight strum on outer cables

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1504U2-042**
 Area: **Gippsland Basin, Bass Strait** Sequence: **042**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1503-1519** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Incomplete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	21-May-2006	141	21:01	07:01	121	1001	1149	20:30 UTC
FPSP:	21-May-2006	141	21:01	07:01	121	1001	1149	
LPSP:	21-May-2006	141	22:50	08:50	529	1817	1150	Full volume arrays at
EOL LSP:	21-May-2006	141	22:50	08:50	529	1817	1150	20:50 UTC
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	2.4	5.8
Water depth (m)	61	54
RMS noise @ 5 Hz LC (µB)	3.3	2.8
Weather	240° 4m/s, 1.5m	180° 3m/s, 1.5m
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1960	1967

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.2	6.9-7.2
Str 2	6.9-7.1	6.8-7.2
Str 3	6.8-7.2	6.8-7.2
Str 4	6.9-7.1	6.8-7.3
Str 5	6.9-7.2	6.9-7.2
Str 6	6.8-7.2	6.9-7.1
Str 7	6.8-7.2	6.8-7.2
Str 8	6.8-7.3	6.9-7.1

SOL/EOL Comments

Overall Line Observations

Undershoot with Pacific Sword - single source
 Pacific Sword position on PORT side of V2
 DNP SP 1395-1413 d/t positioning problems

Birds bad/poll disabled: S7C1:polling disabled, S8C20:no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295		282	305			
S3:	83,290						
S4:	106,124,318		257,258		116,127,318,336		
S5:	75,108,113,153,157				86,88		
S6:	49				205		
S7:	89,166,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1504U2-042**Seq: **042**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1149		SOT - SOL NOISE FILES
111-120	981-999			APPROACH SHOTS
121	1001	1149		FSP @ 21:01 UTC
121	1001	1149		FPSP @ 21:01 UTC
269	1297			V2 clear of Bream B
274	1307		Bad	NAVS - Short Nav Header
275	1309			Pacific Sword clear of Bream B
283	1325			S1 and vane clear of Bream B
317	1393			LGSP - Missed shots d/t spectra problems on Pacific Sword 21:54 UTC
				Spectra problems on Pacific Sword - guns not firing properly
328	1415			FGSP - Spectra operating properly on Pacific Sword. 21:57 UTC
326	1411			Reflection noise on cables head to tail from Platform Bream B
337	1143		Bad	Gun 1 DE -1.2ms
402	1563			Tb's clear of Bream B
431	1621			Deminished reflection noise on cables head to tail from Platform Bream B
469	1697	1149		EOT
470	1699	1150		SOT
529	1817	1150		LPSP @ 22:50 UTC
529	1817	1150		LSP @ 22:50 UTC
530-532	1819-1823			NAV PROCESSING SHOTS
533-543	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1504U2-042**Seq: **042**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1504U2-042**
 Area: **Gippsland Basin, Bass Strait** Sequence: **042** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1503-1519** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Incomplete** Log Status: Final

Initials: cb,ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	21-May-2006	141	21:01	07:01	1001	2.4	112	240° 4m/s, 1.5m
FPSP:	21-May-2006	141	21:01	07:01	1001			
LPSP:	21-May-2006	141	22:50	08:50	1817			
EOL LSP:	21-May-2006	141	22:50	08:50	1817	5.8	60	180° 3m/s, 1.5m
UTC offset:				10.0				

Separations (m)

	SOL	EOL		SOL	EOL		
Streamer overall:	Str 1-8	522	518				
Per streamer:	Str 1-2	76	76	Sub arrays:	P-C	7.9	8.3
	Str 2-3	75	75		C-S	9.3	8.5
	Str 3-4	73	73				
	Str 4-5	79	76				
	Str 5-6	68	67				
	Str 6-7	74	73				
	Str 7-8	76	75				

P2/94 filename: G06A-1504U2-042.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 1 Seq 4

Observations disabled etc.

Acoustics: G1A2, Intermittent
 RGPS:
 Compasses: S7C1, S8C20. Ko'd
 Other:

SP	UTC	Local Time	Comments
1001	21:01	07:01	SOL, FSP
1001	21:01	07:01	FPSP
1091			Z4 coverage being Aquired
1131			Z1 being aquired
1297	21:42		V2 clear of Bream B
1309	21:43		PS clear of Bream B
1325	21:45		S1 and vane clear of Bream B
1393	21:55		Missed shots d/t spectra problems on PS LGSP
1415	21:57		Spectra operating properly on PS. FGSP
1563	22:17		Tb's clear of Bream B
1817	22:50	08:50	LPSP
1817	22:50	08:50	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1504U2-042**
 Sequence: **042**
 Direction: **10.5°** Nav. Def: **3U**
 CMP line range: **1503-1519** Line type: **Undershoot**
 No. CMPs: **8** Status: **Incomplete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	21-May-2006	141	21:01	07:01	121	1001	1149
FPSP:	21-May-2006	141	21:01	07:01	121	1001	1149
LPSP:	21-May-2006	141	22:50	08:50	529	1817	1150
EOL LSP	21-May-2006	141	22:50	08:50	529	1817	1150

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	2.4	5.8
Water depth (m)	61	54
RMS Noise (µB)	3.3	2.8
Weather	240° 4m/s, 1.5m	180° 3m/s, 1.5m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	817
Recorded km	30.638
Production time (hh:mm)	01:49
Production files	409
Production SPs	409
Production km	15.338
Production CMP km	122.700

ERROR STATISTICS

Source errors / %	1 / 0.24%
Missed SPs / %	0 / 0%
Other bad SPs / %	10 / 2.44%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.2	1.9
HDOP	0.8	1.1	1.0
V1G2 PDOP	1.7	2.3	2.0
HDOP	1.0	1.1	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.5	2.4	4.59
Speed through water (m/s)	1.8	2.4	2.1	4.17
Feather angle (°)	2.5	5.8	4.2	
Gyro (P) (°)	0.0	359.9	13.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.5	522.7	519.7
Str 1-2	74.1	77.2	75.7
Str 2-3	74.1	75.9	75.1
Str 3-4	71.8	74.9	73.3
Str 4-5	75.7	79.8	78.1
Str 5-6	66.5	70.3	68.1
Str 6-7	72.9	74.5	73.6
Str 7-8	74.6	76.6	75.6

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	7.2	8.6	7.8
Centre-Inner	8.3	9.9	9.2

Birds bad: S7C1:polling disabled, S8C20:no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	83,290			
Str 4	106,124,318		257,258	
Str 5	75,108,113,153,157			
Str 6	49			
Str 7	89,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4	127, 233, 257, 258, 318, 336	
Str 5		
Str 6	39, 205	
Str 7	203, 285	
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1143	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1307,1395,1397,1399,1401,1403,1405,1407,1409,1411	10
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

Undershoot with Pacific Sword - single source
 Pacific Sword position on PORT side of V2
 DNP SP 1395-1413 d/t positioning problems

PROCESSING QC COMMENTS

Mild strum all streamers.
 Off end diffractions apparent. Occasional mild swell affecting <5% traces.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1504U3-044**
 Area: **Gippsland Basin, Bass Strait** Sequence: **044**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1503-1519** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **DNP**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	26-May-2006	146	03:40	13:40	121	1002	1155	02:39	UTC
FPSP:	26-May-2006	146	03:52	13:52	168	1096	1155		
LPSP:	26-May-2006	146	05:11	15:11	473	1706	1156		
EOL LSP:	26-May-2006	146	05:11	15:11	473	1706	1156	03:08	UTC
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	5.4	8
Water depth (m)	61	56
RMS noise @ 5 Hz LC (µB)	4.5	5.4
Weather	190° 6m/s, 2.5m	160° 3m/s, 3m
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1972	1970

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.4	6.6-7.3
Str 2	6.8-7.5	6.8-7.2
Str 3	6.9-7.3	6.6-7.2
Str 4	6.6-7.3	6.8-7.3
Str 5	6.8-7.2	6.9-7.4
Str 6	6.7-7.3	6.6-7.1
Str 7	6.8-7.3	6.8-7.2
Str 8	6.7-7.2	6.9-7.4

SOL/EOL Comments

Overall Line Observations

Undershoot with Pacific Sword - single source (Stbd.)
 Pacific Sword position on Port side of V2
 Swell noise observed on shot records
 DNP d/t excessive source errors

Birds bad/poll disabled: **S8C20 & S8C16: no comms**

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:	282,295			305			
S3:							
S4:	116,318				127,318		
S5:	75,153,155,157,255				142		
S6:					63		
S7:	89,100,285		130		63,166,203		
S8:							

Vessel Manager: **Howie Grizaard** Observers: **00:00-12:00 Emmanuel Ollada/Michael Wells**
 Operations Supervisor: **Paul Turpin** **12:00-00:00 Shane Hales/David de Young**
 Chief Observer: **Les Hayden**

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1504U3-044**Seq: **044**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1155		SOT - SOL NOISE FILES
111-120	982-1000			APPROACH SHOTS
120	1000			Delta Error: S1-1: -1.2
121	1002	1155		FSP @ 03:40 UTC
143	1046			Azimuth thruster engaged @ 03:46UTC
158	1076			Delta Error: S4-2: 2.8
168	1096	1155		FPSP @ 03:52 UTC
212	1184		Bad	Delta Error: S4-2: 1.4
213	1186		Bad	Delta Error: S4-2: 1.6
214	1188		Bad	Delta Error: S4-2: 1.5
215	1190		Bad	Delta Error: S4-2: 1.1
217	1194		Bad	Delta Error: S4-2: -1.6
218	1196		Bad	Delta Error: S4-2: -1.5
240	1240		Bad	Delta Error: S4-2: 1.3
241	1242		Bad	Delta Error: S4-2: 1.3
247	1254		Bad	Delta Error: S4-2: -1.1
248	1256		Bad	Delta Error: S4-2: -1.5
250	1260		Bad	Delta Error: S4-2: -1.1
251	1262		Bad	Delta Error: S4-2: -1.1
252	1264		Bad	Delta Error: S4-2: -1.3
278	1316			V2 passing abeam of Bream B @ 500m
285	1330			Port Vane passing abeam of Bream B @ 110m
317	1394		Bad	Delta Error: S3-2: -1.2
353	1466		Bad	Delta Error: S3-2: -1.4
364	1488		Bad	Delta Error: S1-1: -1.6
401	1562			TB's passing Bream B, TB1 @ 770m
412	1584			Azimuth thruster disengaged @ 04:56UTC
420	1600		Bad	Delta Error: S3-2: -1.1
469	1698	1155		EOT
470	1700	1156		SOT
473	1706	1156		LPSP @ 05:11 UTC
473	1706	1156		LSP @ 05:11 UTC
474-479	1708-1718			NAV PROCESSING SHOTS
480-489	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1504U3-044**

Seq: **044**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1504U3-044**
 Area: **Gippsland Basin, Bass Strait** Sequence: **044** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1503-1519** Line type: **Undershoot**
 Type: **3D** No. CMPs **8** Status: **DNP** Initials: nh sg
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	26-May-2006	146	03:40	13:40	1002	5.4	113	190° 6m/s, 2.5m
FPSP:	26-May-2006	146	03:52	13:52	1096			
LPSP:	26-May-2006	146	05:11	15:11	1706			
EOL LSP:	26-May-2006	146	05:11	15:11	1706	7.9	-51	160° 3m/s, 3m
UTC offset:				10.0				

Separations (m)		SOL		EOL	
Streamer overall:	Str 1-8	517	520		
Per streamer:	Str 1-2	75	77		
	Str 2-3	74	76		
	Str 3-4	72	73		
	Str 4-5	77	77		
	Str 5-6	69	67		
	Str 6-7	73	74		
	Str 7-8	77	75		

Sub arrays:		SOL	EOL
P-C	9.2	9.2	
C-S	9.0	7.2	

P2/94 filename: 1504U3-044.0.p294
LMN: 20323_Bream.LMN
SCN: 20323_Bream.SCN
RTCN: viking2.RTCN
BCN: 20323_Bream_Static.BCN
Acoustic file: 20323_5
Backup tape: Tape 2 Seq 1

Observations disabled etc.

Acoustics: G1A2, Intermittent
RGPS:
Compasses: S8C16, S8C20, KO S2C19 Bad Compass. S5C19 Bad Depth
Other:

SP	UTC	Local Time	Comments
			Starboard Source
1002	03:40	13:40	SOL, FSP
			NB G3R1-G3R2 gunsep > 9.5m at SOL
1094	03:52	13:52	G3R1-G3R2 gun sep < 9.5m
1096	03:52	13:52	FPSP
			Zone 4 Coverage being acquired
1316	04:21	14:21	V2 abeam 500 m east of Bream B
1330	04:23	14:23	Vane 110 m east of Bream B
1436	04:36	14:36	G3R2-G3R3 gun sep > 9.5m
1562	04:53	14:53	Tailbuoy 1 770 m east of Bream B
1588	04:56	14:56	Azimuth thruster raised
1650	05:04	15:04	G3R2-G3R3 gun sep < 9.5m
1706	05:11	15:11	LPSP
1706	05:11	15:11	EOL, LSP
			Zone 2 Coverage complete

Vessel Manager: Howie Grizaard **Navigators:** 00:00-12:00 Craig Bradshaw/Melissa Li
Chief Navigator : Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1504U3-044**
 Sequence: **044**
 Direction: **10.5°** Nav. Def: **3U**
 CMP line range: **1503-1519** Line type: **Undershoot**
 No. CMPs: **8** Status: **DNP**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	26-May-2006	146	03:40	13:40	121	1002	1155
FPSP:	26-May-2006	146	03:52	13:52	168	1096	1155
LPSP:	26-May-2006	146	05:11	15:11	473	1706	1156
EOL LSP	26-May-2006	146	05:11	15:11	473	1706	1156

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	5.4	7.9
Water depth (m)	61	56
RMS Noise (µB)	4.5	5.4
Weather	190° 6m/s, 2.5m	160° 3m/s, 3m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	705
Recorded km	26.438
Production time (hh:mm)	01:19
Production files	306
Production SPs	306
Production km	11.475
Production CMP km	91.800

ERROR STATISTICS

Source errors / %	17 / 5.56%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	-0.2	0.1	0.0
HDOP	-0.2	0.1	0.0
V1G2 PDOP	4.1	11.5	9.3
HDOP	0.0	359.8	6.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	-52.2	115.9	83.9	163.17
Speed through water (m/s)	-45.1	131.1	99.7	193.73
Feather angle (°)	-9.4	168.0	136.7	
Gyro (P) (°)	-0.3	0.1	0.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	510.3	518.8	515.2
Str 1-2	73.0	77.9	75.3
Str 2-3	73.2	76.0	74.6
Str 3-4	70.5	74.6	72.7
Str 4-5	73.9	80.6	76.5
Str 5-6	65.2	69.6	67.7
Str 6-7	71.5	74.5	73.1
Str 7-8	73.7	77.0	75.3

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	7.1	9.8	8.1
Centre-Inner	9.0	10.0	9.3

Birds bad: **S8C20 & S8C16: no comms**
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	282,295			305
Str 3				
Str 4	116,318			
Str 5	75,153,155,157,255			
Str 6				
Str 7	89,100,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4		
Str 5		
Str 6		
Str 7		
Str 8		

SHOT / TRACE EDITS: SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1184-1190,1194,1196,1240,1242,1254,1256,1260,1262,1264,1394,1466,1488,1600	17
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage:

ONLINE COMMENTS

Undershoot with Pacific Sword - single source (Stbd.)
 Pacific Sword position on Port side of V2
 Swell noise observed on shot records
 DNP d/t excessive source errors

PROCESSING QC COMMENTS

***** DNP d/t excessive source errors ***

SR/V Veritas Viking II

Observers Line Log

Client: **Esso Australia Pty. Ltd.**Line Name: **G06A-1504U4-046**Area: **Gippsland Basin, Bass Strait**Sequence: **046**Prospect: **2006 Greater Bream 3D**Direction: **10.5°**Nav Def: **3U**Job ID: **20323**CMP line range: **1503-1519**Line type: **Undershoot**Type: **3D**No. CMPs: **8**Status: **Complete**Initials: SH, DY / MO, MW
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	26-May-2006	146	13:29	23:29	121	1002	1160	at	12:31
FPSP:	26-May-2006	146	13:45	23:45	179	1118	1160		
LPSP:	26-May-2006	146	15:00	01:00	461	1682	1160	Full volume arrays at	12:58
EOL LSP:	26-May-2006	146	15:03	01:03	473	1706	1161		
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-1.8	5
Water depth (m)	60	54.9
RMS noise @ 5 Hz LC (µB)	3.7	4
Weather	125° 3m/s, 1.5m	150° 1m/s 2.5
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1979	1970

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.2	6.5-7.1
Str 2	6.7-7.1	6.7-7.1
Str 3	6.8-7.2	6.8-7.2
Str 4	6.9-7.3	6.9-7.3
Str 5	6.5-7.1	6.7-7.1
Str 6	6.7-7.1	6.8-7.2
Str 7	6.8-7.2	6.9-7.3
Str 8	6.9-7.3	6.5-7.1

SOL/EOL Comments

Line stopped early due to Source problem (Gun #10 autofire) on Sword, LGSP 1682, UTC 15:00
Line is complete d/t coverage

Overall Line Observations

Undershoot with Pacific Sword - single source (Stbd.)
Pacific Sword position on Port side of V2

Birds bad/poll disabled: **S8C20 & S8C16: no comms**

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:	295		282	305			
S3:	290				30,358		
S4:	106,116,318				127,318		
S5:	75,153,157						
S6:					205		
S7:	89,202		130		203		
S8:							

Vessel Manager: **Howie Grizaard**Observers: **00:00-12:00****Emmanuel Ollada/Michael Wells**Operations Supervisor: **Paul Turpin****12:00-00:00****Shane Hales/David de Young**Chief Observer: **Les Hayden**

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1160		SOT - SOL NOISE FILES
111-120	982-1000			APPROACH SHOTS
121	1002	1160		FSP @ 13:29 UTC
179	1118	1160		FPSP @ 13:45 UTC
133	1026			Azimuth thruster down @ 13:32 UTC
278	1316			Vessel clear of Bream B by 550m
283	1326			Vane and S1 clear of Bream B by 230m
330	1420			Observed reflection noise on cables head to tail from Platform Bream B
390	1540		Bad	Delta error Gun 1 -1.6ms
395	1550			Reflection noise on cables diminished
403	1566			TB's clear of Bream B by 529m
449	1658		Bad	Delta error Gun 1 -1.1ms
469	1698	1160		EOT
470	1700	1161		SOT
461	1682	1160		LPSP @ 15:00 UTC d/t Sword source problem
473	1706	1161		LSP @ 15:03 UTC
				NAV PROCESSING SHOTS
474-483	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1504U4-046**Seq: **046**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1504U4-046**
 Area: **Gippsland Basin, Bass Strait** Sequence: **046** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1503-1519** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Complete** Initials: nh sg cb ml
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	26-May-2006	146	13:29	23:29	1002	-1.8	152	125° 3m/s, 1.5m
FPSP:	26-May-2006	146	13:45	23:45	1118			
LPSP:	26-May-2006	146	15:00	01:00	1682			
EOL LSP:	26-May-2006	146	15:03	01:03	1706	5	5.9	150° 1m/s 2.5
	UTC offset:			10.0				

Separations (m)		SOL	EOL	Sub arrays:		SOL	EOL
Streamer overall:	Str 1-8	521	628	P-C	7.7	10.4	
Per streamer:	Str 1-2	75	75	C-S	7.8	5.7	
	Str 2-3	76	75				
	Str 3-4	74	73				
	Str 4-5	75	75				
	Str 5-6	69	69				
	Str 6-7	74	74				
	Str 7-8	79	76				

P2/94 filename: **G06A-1504U4-046.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**
 BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_5**
 Backup tape: **Tape 2 Seq 3**

Observations disabled etc.

Acoustics: G1A2, Intermittent, S7A4 dead
 RGPS:
 Compasses: S8C16, S8C20, KO
 Other:

SP	UTC	Local Time	Comments
1002	13:29	23:29	Starboard Source SOL, FSP
1118	13:45	23:45	FPSP Zone 1 coverage being required
1024	13:32	23:32	Azimuth thruster down
1316	14:11	00:11	Vessel clear of Bream B by 550 m
1326	14:13	00:13	Vane and S1 clear of Bream B by 230
1566	14:45	00:45	Tb's clear of Bream B by 529
1584	14:47	00:47	Raising Azimuth thruster
1682	15:00	01:00	LPSP
1706	15:03	01:03	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**
 Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1504U4-046**
 Sequence: **046**
 Direction: **10.5°** Nav. Def: **3U**
 CMP line range: **1503-1519** Line type: **Undershoot**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **MO**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	26-May-2006	146	13:29	23:29	121	1002	1160
FPSP:	26-May-2006	146	13:45	23:45	179	1118	1160
LPSP:	26-May-2006	146	15:00	01:00	461	1682	1160
EOL LSP	26-May-2006	146	15:03	01:03	473	1706	1161

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-1.8	5
Water depth (m)	60	54.9
RMS Noise (µB)	3.7	4
Weather	125° 3m/s, 1.5m	150° 1m/s 2.5
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	705
Recorded km	26.438
Production time (hh:mm)	01:15
Production files	283
Production SPs	283
Production km	10.613
Production CMP km	84.900

ERROR STATISTICS

Source errors / %	2 / 0.71%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	3.1	2.3
HDOP	1.0	1.7	1.3
V1G2 PDOP	2.1	3.1	2.4
HDOP	1.1	1.7	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.4	2.3	4.53
Speed through water (m/s)	1.9	2.4	2.2	4.19
Feather angle (°)	1.3	5.7	3.3	
Gyro (P) (°)	1.4	12.2	8.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.6	523.7	519.4
Str 1-2	73.4	77.5	75.5
Str 2-3	74.0	76.4	75.1
Str 3-4	70.7	75.2	72.7
Str 4-5	73.7	81.8	77.9
Str 5-6	66.0	69.7	68.0
Str 6-7	72.4	74.6	73.6
Str 7-8	74.5	78.3	76.5

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	8.7	10.4	9.5
Centre-Inner	5.6	7.0	6.6

Birds bad: **S8C20 & S8C16: no comms**
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290			
Str 4	106,116,318			
Str 5	75,153,157			
Str 6				
Str 7	89,202		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 233, 318	
Str 5	139	
Str 6	205, 280	
Str 7	63, 203, 285	
Str 8		318

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1540, 1658	2
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

Undershoot with Pacific Sword - single source (Stbd.)
 Pacific Sword position on Port side of V2

PROCESSING QC COMMENTS

Isolated slight swell bursts affecting < 5% of traces
 Possible screw noise from the Pacific Sword visible on some shots
 Slight cable strum on 3, 7 and 8
 Refractions and defraction from rig along line

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1520U1-032**
 Area: **Gippsland Basin, Bass Strait** Sequence: **032**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **1U**
 Job ID: **20323** CMP line range: **1503-1519** Line type: **Undershoot**
 Type: **3D** No. CMPs: **16** Status: **DNP** Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	19-May-2006	139	05:49	15:49	122	1103	1130	03:47 UTC
FPSP:	19-May-2006	139	05:56	15:56	150	1159	1130	
LPSP:	19-May-2006	139	07:39	17:39	527	1913	1131	Full volume arrays at
EOL LSP:	19-May-2006	139	07:39	17:39	527	1913	1131	04:15 UTC
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-3.2	1
Water depth (m)	57	53
RMS noise @ 5 Hz LC (µB)	N/A	3.1
Weather	025° 5m/s 1.0m	044° 3m/s 0.5m
Source vol. (cu. in.)		
Port	4550	4550
Stbd	4550	4550
Source pressure (psi)		
Port	1951	1952
Stbd	1950	1950

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.2	6.9-7.2
Str 2	6.9-7.4	6.9-7.1
Str 3	6.9-7.3	6.9-7.1
Str 4	6.9-7.5	6.9-7.5
Str 5	6.8-7.2	6.8-7.2
Str 6	6.9-7.2	6.9-7.2
Str 7	6.8-7.2	6.8-7.2
Str 8	6.7-7.1	6.7-7.1

SOL/EOL Comments

No SOL Noise Files d/t insufficient time between running tests and SOL
 Undershoot Bream B platform with Pacific Sword

Overall Line Observations

Line DNP'd d/t source separations

Birds bad/poll disabled: S7C1 polling disabled

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:							
S2:	295			305(phase)			
S3:	83, 290						
S4:	116,126,318		257	258 (Weak)			
S5:	75,153,157,255						
S6:	49,116						
S7:	89,100,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1520U1-032**

Seq: **032**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
121	0			SOT - Dummy shot
122	1103	1130		FSP @ 05:49 UTC
150	1159	1130		FPSP @ 05:56 UTC NAVS - Short Nav Header
156	1171			NAVS - Short Nav Header
177	1213			NAVS - Short Nav Header
182	1223			NAVS - Short Nav Header
189	1237			NAVS - Short Nav Header
197	1253			NAVS - Short Nav Header
217	1293			NAVS - Short Nav Header
218	1295			V2 passing abeam of Bream B @ 400m
221	1301			NAVS - Short Nav Header
227	1313			Stbd Vane passing abeam of Bream B @ 120m
232	1323			NAVS - Short Nav Header
240	1339			NAVS - Short Nav Header
243	1345			NAVS - Short Nav Header
248	1355			NAVS - Short Nav Header
251	1361			NAVS - Short Nav Header
254	1367			NAVS - Short Nav Header
260	1379			NAVS - Short Nav Header
274	1407			NAVS - Short Nav Header
276	1411			NAVS - Short Nav Header
291	1441			NAVS - Short Nav Header
303	1465			NAVS - Short Nav Header
307	1473			NAVS - Short Nav Header
309	1477			NAVS - Short Nav Header
325	1509			NAVS - Short Nav Header
345	1549			NAVS - Short Nav Header
348	1555			NAVS - Short Nav Header
352	1563			TB's passing Bream B. TB8 @ 225m
355	1569			NAVS - Short Nav Header
358	1575			NAVS - Short Nav Header
378	1615			NAVS - Short Nav Header
393	1645			NAVS - Short Nav Header
406	1671			NAVS - Short Nav Header
412	1683			NAVS - Short Nav Header
426	1711			NAVS - Short Nav Header
431	1721			NAVS - Short Nav Header
439	1737			NAVS - Short Nav Header
449	1757			NAVS - Short Nav Header
468	1795			NAVS - Short Nav Header
477	1813			NAVS - Short Nav Header
479	1817			NAVS - Short Nav Header
483	1825			NAVS - Short Nav Header
486	1831			NAVS - Short Nav Header
491	1841	1130		EOT
492	1843	1131		SOT
497	1853			NAVS - Short Nav Header
518	1895			NAVS - Short Nav Header
527	1913	1131		LPSP @ 07:39 UTC NAVS - Short Nav Header
527	1913	1131		LSP @ 07:39 UTC
528-531	1915-1921			NAV PROCESSING SHOTS
532-542	/	1131		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1520U1-032**Seq: **032**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1520U1-032**
 Area: **Gippsland Basin, Bass Strait** Sequence: **032** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **1**
 Job ID: **20323** CMP line range: **1503-1519** Line type: **Undershoot**
 Type: **3D** No. CMPs **16** Status: **DNP** Log Status: **Draft**

Initials: sg, nh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	19-May-2006	139	05:49	15:49	1103	-3.2	-398	025° 5m/s 1.0m
FPSP:	19-May-2006	139	05:56	15:56	1159			
LPSP:	19-May-2006	139	07:39	17:39	1913			
EOL LSP:	19-May-2006	139	07:39	17:39	1913	1	-270	044° 3m/s 0.5m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	520	515
Per streamer:		
Str 1-8	76	75
Str 2-3	76	73
Str 3-4	72	72
Str 4-5	78	71
Str 5-6	71	76
Str 6-7	74	74
Str 7-8	77	69

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	P - C	19.6	19.5
	C - S	10.1	10.0
		9.5	9.5

P2/94 filename: G06A-1520U1-032.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 3 Seq 4

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent
 RGPS:
 Compasses: S7C1 KO
 Other:

SP	UTC	Local Time	Comments
			PORT SOURCE
1103	05:49	15:49	SOL, FSP NB Syntrak Recording system locked up from SP 1001 - 1102 NB Azimuth thruster lowered prior to FSP
1159	05:56	15:56	FPSP NB Zone1 offsets being acquired from SP 1159
1295	06:15	16:15	V2 400m West of Bream B
1313	06:17	16:17	V2 vane 120m West of Bream B
1485	06:40	16:40	High PDOP's on V1G1/G2 , NCC unit variance > main U.V
1563	06:51	16:51	V2 Tailbuoys 225m West of Bream B
1621	06:58	16:58	PDOP's Settled down, NCC unit variance normal
1622	06:58	16:58	Azimuth thruster stowed
1913	07:39	17:39	LPSP
1913	07:39	17:39	EOL, LSP Zone 4 coverage complete

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1520U1-032**
 Sequence: **032**
 Direction: **10.5°** Nav. Def: **1**
 CMP line range: **1503-1519** Line type: **Undershoot**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **SH**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	19-May-2006	139	05:49	15:49	122	1103	1130
FPSP:	19-May-2006	139	05:56	15:56	150	1159	1130
LPSP:	19-May-2006	139	07:39	17:39	527	1913	1131
EOL LSP	19-May-2006	139	07:39	17:39	527	1913	1131

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-3.2	1
Water depth (m)	57	53
RMS Noise (µB)	N/A	3.1
Weather	025° 5m/s 1.0m	044° 3m/s 0.5m
Source volume (cu in): Port	4550	4550
Stbd	4550	4550
Source pressure (psi): Port	1951	1952
Stbd	1950	1950

TOTALS INFORMATION

Recorded SPs	811
Recorded km	15,206
Production time (hh:mm)	01:43
Production files	378
Production SPs	378
Production km	7,088
Production CMP km	113,400

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	41 / 10.85%

GPS

	Min	Max	Mean
V1G1 PDOP			
HDOP			
V1G2 PDOP			
HDOP			

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)				0.00
Speed through water (m/s)				0.00
Feather angle (°)				
Gyro (P) (°)				

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8			
Str 1-2			
Str 2-3			
Str 3-4			
Str 4-5			
Str 5-6			
Str 6-7			
Str 7-8			

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source			
Port Subarray			
Outer-Centre			
Centre-Inner			
Stbd Subarray			
Centre-Inner			
Outer-Centre			

Birds bad: S7C1 polling disabled
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305(phase)
Str 3	83, 290			
Str 4	116,126,318		257	258 (Weak)
Str 5	75,153,157,255			
Str 6	49,116			
Str 7	89,100,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4		
Str 5		
Str 6		
Str 7		
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		41
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.00

ONLINE COMMENTS

Line DNP'd d/t source separations

PROCESSING QC COMMENTS



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1520U2-034**

Area: **Gippsland Basin, Bass Strait** Sequence: **034**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **2U**

Job ID: **20323** CMP line range: **1503-1519** Line type: **Undershoot**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	19-May-2006	139	14:21	00:21	121	1001	1134	13:34	UTC
FPSP:	19-May-2006	139	14:39	00:39	194	1147	1134		
LPSP:	19-May-2006	139	16:09	02:09	566	1891	1135		
EOL LSP:	19-May-2006	139	16:10	02:10	568	1895	1135	14:54	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	0.8	-3
Water depth (m)	60.8	54
RMS noise @ 5 Hz LC (µB)	3.2	3.6
Weather	270° 5m/s, 1.0m	260° 5m/s, 1.0m

Source vol. (cu. in.) 4550 4550

Source pressure (psi) 1980 1987

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.9-7.3
Str 2	6.8-7.3	6.7-7.3
Str 3	6.9-7.2	6.8-7.2
Str 4	6.9-7.2	7.0-7.3
Str 5	6.9-7.3	6.8-7.2
Str 6	6.7-7.3	6.8-7.3
Str 7	6.8-7.2	6.9-7.2
Str 8	7.0-7.3	6.9-7.2

SOL/EOL Comments

Undershoot with Pacific Sword - Port source
FGSP 1147: Called by Navigation - new coverage being acquired.

Overall Line Observations

Birds bad/poll disabled: S7C1 polling disabled

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305			
S3:	83, 290						
S4:	116,126,148,318		257,258		127, 318, 360		
S5:	75,103,108,153,157				86,88		
S6:	116				29,37,206		
S7:	89,100,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1520U2-034

Seq:

034

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1134		SOT - SOL NOISE FILES
111-120	981-999			APPROACH SHOTS
121	1001	1134		FSP @ 14:21 UTC
194	1147	1134		FPSP @ 14:39 UTC
199	1157		Bad	Gun #10 (S3-2) DE -1.1ms
281	1321			Both Vessels abeam of Bream B
295	1349		Bad	Gun #10 (S3-2) DE 1.4ms
307	1373		Bad	Gun #10 (S3-2) DE 1.6ms
313	1385		Bad	Gun #10 (S3-2) DE 1.3ms
317	1393		Bad	Gun #10 (S3-2) DE -1.4ms
318	1395		Bad	Gun #10 (S3-2) DE -1.5ms
326	1411			Observed reflection noise on cables head to tail from Platform Bream B
404	1567			TB 8 clears Bream B 300m
469	1697	1134		EOT
470	1699	1135		SOT
566	1891	1135		LPSP @ 16:09 UTC
568	1895	1135		LSP @ 16:10 UTC
569-570	1897-1899			NAV PROCESSING SHOTS
571-580	/	1135		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error <input type="text"/>	SAP	Source Air Pressure
M/F	Misfire <input type="text"/>	S/I	Seismic Interference
M/O	Moveout <input type="text"/>	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1520U2-034**

Seq: **034**

Dir: **10.5°**

Streamers - TUS Guardian

Seismic Recording System - SYNTRAK 960 24-bit

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxiliary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Positioning

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1520U2-034**

Area: **Gippsland Basin, Bass Strait** Sequence: **034** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **2**

Job ID: **20323** CMP line range: **1503-1519** Line type: **Undershoot**

Type: **3D** No. CMPs **16** Status: **Complete** Initials: cb ml
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	19-May-2006	139	14:21	00:21	1001	0.8	-400.8	270° 5m/s, 1.0m
FPSP:	19-May-2006	139	14:39	00:39	1147			
LPSP:	19-May-2006	139	16:09	02:09	1891			
EOL LSP:	19-May-2006	139	16:10	02:10	1895	-3	-335.5	260° 5m/s, 1.0m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Port		SOL		EOL		
Streamer overall:	Str 1-8	523	520									
Per streamer:	Str 1-2	76	75			Sub arrays:	P-C	6.8	6.9			
	Str 2-3	75	74					C-S	6.7	7.3		
	Str 3-4	73	72									
	Str 4-5	81	80									
	Str 5-6	68	69									
	Str 6-7	73	74									
	Str 7-8	77	76									

P2/94 filename: G06A-1520U2-034.0-.p294

LMN: 20323_Bream.LMN

SCN: 20323_Bream.SCN

RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN

Acoustic file: 20323_5

Backup tape: Tape 4 Seq 1

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent

RGPS:

Compasses: S7C1 KO

Other:

SP	UTC	Local Time	Comments
1001	14:21	00:21	SOL, FSP Port source firing
1147	14:39	00:39	FPSP
1321	14:59	00:59	Both Vessels abeam of Bream B
1567	15:30	01:30	Tb 8 clears Bream B 300m
1891			Line ended due to no new coverage
1891	16:09	02:09	LPSP
1895	16:10	02:10	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li

Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1520U2-034**
 Sequence: **034**
 Direction: **10.5°** Nav. Def: **2**
 CMP line range: **1503-1519** Line type: **Undershoot**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	19-May-2006	139	14:21	00:21	121	1001	1134
FPSP:	19-May-2006	139	14:39	00:39	194	1147	1134
LPSP:	19-May-2006	139	16:09	02:09	566	1891	1135
EOL LSP	19-May-2006	139	16:10	02:10	568	1895	1135

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	0.8	-3
Water depth (m)	60.8	54
RMS Noise (µB)	3.2	3.6
Weather	270° 5m/s, 1.0m	260° 5m/s, 1.0m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	895
Recorded km	33.563
Production time (hh:mm)	01:30
Production files	373
Production SPs	373
Production km	13.988
Production CMP km	223.800

ERROR STATISTICS

Source errors / %	6 / 1.61%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	3.1	2.4
HDOP	1.0	1.7	1.4
V1G2 PDOP	2.2	3.2	2.5
HDOP	1.1	2.2	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.5	2.6	2.6	4.99
Speed through water (m/s)	1.8	2.5	2.2	4.23
Feather angle (°)	-2.8	1.1	-0.8	
Gyro (P) (°)	0.2	14.2	7.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	519.4	526.0	522.8
Str 1-2	74.3	76.5	75.6
Str 2-3	74.7	76.1	75.5
Str 3-4	71.9	74.6	76.4
Str 4-5	77.4	81.7	79.5
Str 5-6	67.6	70.4	69.0
Str 6-7	72.3	74.3	73.6
Str 7-8	75.2	77.0	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray			
Outer-Centre	7.3	6.6	7.0
Centre-Inner	8.2	6.5	7.4

Birds bad: **S7C1 polling disabled**
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295			305
Str 3	83, 290			
Str 4	116,126,148,318		257,258	257,258
Str 5	75,103,108,153,157			
Str 6	116			
Str 7	89,100,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4	127, 258, 318, 336	
Str 5	86, 88	
Str 6	205	
Str 7	203, 285	
Str 8		

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1157,1349,1373,1385,1393,1395,
Autofires / Misfires :	
Missed SPs (NDR):	
Extraction errors:	
NAVS / ITB errors:	
Other Bad shots:	
Other Bad Traces:	
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m

TOTAL SHOTS

	6
	0
	0
	0
	0
	0
	0
Percentage:	0.07

ONLINE COMMENTS

PROCESSING QC COMMENTS

Mild strum visible on str 2 & 8, barely discernable on other str.
 Incidence mid line of out of plane or off end diffracted energy.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1520U3-038**

Area: **Gippsland Basin, Bass Strait** Sequence: **038**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **3U**

Job ID: **20323** CMP line range: **1520-1535** Line type: **Undershoot**

Type: **3D** No. CMPs: **8** Status: **Complete**

Initials: MO, MW
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	20-May-2006	140	17:39	03:39	121	1002	1143	17:00	
FPSP:	20-May-2006	140	17:59	03:59	196	1152	1143		
LPSP:	20-May-2006	140	19:42	05:42	580	1920	1144		
EOL LSP:	20-May-2006	140	19:42	05:42	580	1920	1144	17:20	
				UTC Offset:	10.0				

Full volume arrays at 17:20 UTC

	SOL	EOL
Feather angle (°)	-3.5	2
Water depth (m)	60.4	54
RMS noise @ 5 Hz LC (µB)	3.9	3.8
Weather	305° 12 m/s, 1.5m	300° 13m/s, 1.0m
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1982	1985

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.8-7.3
Str 2	6.8-7.2	6.9-7.2
Str 3	6.9-7.3	6.8-7.3
Str 4	6.9-7.2	6.8-7.3
Str 5	6.8-7.3	6.9-7.3
Str 6	6.9-7.2	6.8-7.2
Str 7	6.8-7.3	6.9-7.3
Str 8	6.8-7.3	6.9-7.2

SOL/EOL Comments

Undershoot with Pacific Sword - single source
Pacific Sword position on STBD side of V2

Overall Line Observations

Birds bad/poll disabled: S7C1:polling disabled, S8C20:no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305			
S3:	290						
S4:	106,116,148,249,318		257,258		127,318,360		
S5:	75,108,157		153		86,88		
S6:	49,116				205		
S7:	89,100,166,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1143		SOT - SOL NOISE FILES
111-120	982-1000			APPROACH SHOTS
121	1002	1143		FSP @ 17:39 UTC
141	1042			Thruster lowered
196	1152	1143		FPSP @ 17:59 UTC
275	1300			Both Vessels clear of Bream B
270	1310			S8 clear of Bream B
320	1400			Observed reflection noise on cables head to tail from Platform Bream B
402	1564			Tb 8 clear of Bream B
415	1590			Azimuth thruster raised
445	1650			S8 clear of Bream B
469	1698	1143		EOT
470	1700	1144		SOT
499	1758		Bad	NAVS - Short Nav Header
502	1764		Bad	NAVS - Short Nav Header
506	1772		Bad	NAVS - Short Nav Header
547	1854		Bad	NAVS - Short Nav Header
578	1916		Bad	NAVS - Short Nav Header
580	1920	1144		LPSP @ 19:42 UTC
580	1920	1144		LSP @ 19:42 UTC
581-582	1922-1924			NAV PROCESSING SHOTS
583-593	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1520U3-038**Seq: **038**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1520U3-038**
 Area: **Gippsland Basin, Bass Strait** Sequence: **038** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1520-1535** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Complete** Log Status: Final

Initials: cb, ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	20-May-2006	140	17:39	03:39	1002	-3.5	-410	305° 12 m/s, 1.5m
FPSP:	20-May-2006	140	17:59	03:59	1152			
LPSP:	20-May-2006	140	19:42	05:42	1920			
EOL LSP:	20-May-2006	140	19:42	05:42	1920	1.5	-410	300° 13 m/s 1m
UTC offset:				10.0				

Separations (m)		SOL	EOL	Sub arrays:		SOL	EOL
Streamer overall:	Str 1-8	523	523	P-C	7.7	8.5	
Per streamer:	Str 1-2	75	76	C-S	6.8	6.3	
	Str 2-3	75	75				
	Str 3-4	72	72				
	Str 4-5	82	81				
	Str 5-6	68	67				
	Str 6-7	74	73				
	Str 7-8	77	76				

P2/94 filename: **G06A-1520U3-038.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**
 BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_5**
 Backup tape: **Tape 4 Seq 4**

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent
 RGPS:
 Compasses: S7C1 S8C20 KO
 Other:

SP	UTC	Local Time	Comments
1002	17:39	03:39	SOL, FSP
1152	17:59	03:59	FPSP
1042	17:44	03:44	Thruster lowered
1152			Z1 being aquired
1300	18:15		Both Vessels clear of Bream B
1310	18:19		S8 clear of Bream B
1564	18:55		Tb 8 clear of Bream B
1590	18:58		azimuth thruster raised
1920	19:42		No new coverage
1920	19:42	05:42	LPSP
1920	19:42	05:42	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**
 Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1520U3-038**
 Sequence: **038**
 Direction: **10.5°** Nav. Def: **3U**
 CMP line range: **1520-1535** Line type: **Undershoot**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **mo**
 Proc Initials: **RF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	20-May-2006	140	17:39	03:39	121	1002	1143
FPSP:	20-May-2006	140	17:59	03:59	196	1152	1143
LPSP:	20-May-2006	140	19:42	05:42	580	1920	1144
EOL LSP	20-May-2006	140	19:42	05:42	580	1920	1144

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-3.5	1.5
Water depth (m)	60.4	54
RMS Noise (µB)	3.9	3.8
Weather	305° 12 m/s, 1.5m	300° 13m/s, 1.0m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	919
Recorded km	34.463
Production time (hh:mm)	01:43
Production files	385
Production SPs	385
Production km	14.438
Production CMP km	115.500

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	4 / 1.04%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	2.8	2.1
HDOP	1.0	2.0	1.3
V1G2 PDOP	1.6	2.9	2.4
HDOP	1.0	2.2	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.52
	1.8	2.5	2.2	4.35
Feather angle (°)	-3.4	1.3	-1.0	
Gyro (P) (°)	0.0	359.9	76.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.7	525.7	522.8
Str 1-2	74.5	76.7	75.5
Str 2-3	74.6	76.3	75.4
Str 3-4	71.5	74.9	73.2
Str 4-5	79.4	84.3	81.5
Str 5-6	65.4	68.5	67.2
Str 6-7	72.5	74.2	73.4
Str 7-8	75.4	77.6	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	7.4	8.9	8.3
Centre-Inner	6.1	7.1	6.5

Birds bad: S7C1:polling disabled, S8C20:no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305
Str 3	290			
Str 4	106,116,148,249,318		257,258	
Str 5	75,108,157		153	
Str 6	49,116			
Str 7	89,100,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4	127, 233, 257, 258, 318	
Str 5	139	
Str 6	205	
Str 7	203, 285	
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1758, 1764, 1772, 1854, 1916	4
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

ONLINE COMMENTS

PROCESSING QC COMMENTS

Slight strum on outer streamers.
 Reflection and refractions from rig between ~SP 1000 - 1600



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1520U4-043**
 Area: **Gippsland Basin, Bass Strait** Sequence: **043**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1520-1533** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **DNP**

Initials: SH, DY
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	23-May-2006	143	10:04	20:04	121	1001	1153	09:03	UTC
FPSP:	23-May-2006	143	10:04	20:04	121	1001	1153		
LPSP:	23-May-2006	143	10:31	20:31	224	1207	1153		
EOL LSP:	23-May-2006	143	10:31	20:31	224	1207	1153	09:26	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-1.5	0
Water depth (m)	60	56
RMS noise @ 5 Hz LC (µB)	5	5
Weather	140° 8m/s, 2m	125° 7m/s, 1.5m
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1970	1970

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.2	6.9-7.8
Str 2	6.8-7.2	6.8-7.3
Str 3	6.8-7.4	6.8-7.4
Str 4	6.8-7.2	6.8-7.4
Str 5	6.8-7.4	6.8-7.3
Str 6	6.9-7.4	6.8-7.2
Str 7	6.9-7.3	6.6-7.3
Str 8	6.9-7.4	6.8-7.2

SOL/EOL Comments

Azimuth thruster engaged before SOL @ 10:01 UTC

Overall Line Observations

Undershoot with Pacific Sword - single source (Port)
 Pacific Sword position on Stbd. side of V2
 Swell noise bursts observed on shot records
 DNP D/T incompatible feather angle for Bream B platform pass

Birds bad/poll disabled: S7C1:polling disabled, S8C20 & S8C16: no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:							
S2:	295			305			
S3:	83,290						
S4:	148,318						
S5:	75,108,153,157						
S6:	49						
S7:	89,100,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1520U4-043

Seq:

043

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1153		SOT - SOL NOISE FILES
111-120	981-999			APPROACH SHOTS
121	1001	1153		FSP @ 10:04 UTC
121	1001	1153		FPSP @ 10:04 UTC
156	1071			Delta Error: S3-3: 1.2
172	1103			Delta Error: S3-1: -1.3
178	1115			Delta Error: S3-3: 1.1
189	1137			Delta Error: S3-1: -1.2
224	1207	1153		LPSP @ 10:31 UTC
224	1207	1153		LSP @ 10:31 UTC

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1520U4-043**

Seq: **043**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1520U4-043**
 Area: **Gippsland Basin, Bass Strait** Sequence: **043** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1520-1533** Line type: **Undershoot**
 Type: **3D** No. CMPs **8** Status: **DNP** Initials: nh sg
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	23-May-2006	143	10:04	20:04	1001	-1.5	-400	140° 8m/s, 2m
FPSP:	23-May-2006	143	10:04	20:04	1001			
LPSP:	23-May-2006	143	10:31	20:31	1207			
EOL LSP:	23-May-2006	143	10:31	20:31	1207	-0.1	-408	125° 7m/s, 1.5m
UTC offset:				10.0				

Separations (m)		SOL		EOL		SOL		EOL	
Streamer overall:	Str 1-8	520	518						
Per streamer:	Str 1-2	75	74						
	Str 2-3	76	75						
	Str 3-4	73	72						
	Str 4-5	78	77						
	Str 5-6	69	69						
	Str 6-7	73	74						
	Str 7-8	78	77						
		Sub arrays:		P-C	7.3	6.9			
				C-S	8.0	8.1			

P2/94 filename: G06A-1520U4-043.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 1 Seq 5

Observations disabled etc.

Acoustics: G1A2, Intermittent
 RGPS:
 Compasses: S8C16, S8C20 KO
 Other:

SP	UTC	Local Time	Comments
			Port Source
1001	10:04	20:04	SOL, FSP NB Azimuth thruster lowered prior to SOL
1001	10:04	20:04	FPSP
1009	10:05	20:05	G3R1 - G3R2 gun separation < 6.5m
1059	10:11	20:11	G3R1 - G3R2 minimum separation 6.3m
1081	10:14	20:14	G3R1 - G3R2 gun separation > 6.5m
1207	10:31	20:31	LPSP
1207	10:31	20:31	EOL, LSP Aborted d/t projected F/A prediction moving streamers towards Bream B

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1520U4-043**
 Sequence: **043**
 Direction: **10.5°** Nav. Def: **3U**
 CMP line range: **1520-1533** Line type: **Undershoot**
 No. CMPs: **8** Status: **DNP**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	23-May-2006	143	10:04	20:04	121	1001	1153
FPSP:	23-May-2006	143	10:04	20:04	121	1001	1153
LPSP:	23-May-2006	143	10:31	20:31	224	1207	1153
EOL LSP:	23-May-2006	143	10:31	20:31	224	1207	1153

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-1.5	-0.1
Water depth (m)	60	56
RMS Noise (µB)	5	5
Weather	140° 8m/s, 2m	125° 7m/s, 1.5m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	207
Recorded km	7.763
Production time (hh:mm)	00:27
Production files	104
Production SPs	104
Production km	3.900
Production CMP km	31.200

ERROR STATISTICS

Source errors / %	4 / 3.85%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	1.7	1.7
HDOP	1.0	1.0	1.0
V1G2 PDOP	1.6	1.7	1.7
HDOP	1.0	1.0	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.5	2.4	4.64
Speed through water (m/s)	1.9	2.5	2.3	4.46
Feather angle (°)	-0.8	0.7	0.1	
Gyro (P) (°)	9.0	18.9	16.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.2	523.7	521.0
Str 1-2	74.3	76.7	75.6
Str 2-3	74.4	76.0	75.2
Str 3-4	70.3	73.9	72.3
Str 4-5	76.4	81.6	78.7
Str 5-6	66.9	70.0	68.6
Str 6-7	73.2	74.7	73.8
Str 7-8	75.5	77.9	76.8

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	6.3	7.0	6.7
Centre-Inner	7.6	8.1	7.9

Birds bad: S7C1:polling disabled, S8C20 & S8C16: no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295			305
Str 3	83,290			
Str 4	148,318			
Str 5	75,108,153,157			
Str 6	49			
Str 7	89,100,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4		
Str 5		
Str 6		
Str 7		
Str 8		

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1071,1103,1115,1137	4
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage:

TOTAL SHOTS

ONLINE COMMENTS

Undershoot with Pacific Sword - single source (Port)
 Pacific Sword position on Stbd. side of V2
 Swell noise bursts observed on shot records
 DNP D/T incompatible feather angle for Bream B platform pass

PROCESSING QC COMMENTS

DNP - due to incompatible feather angle for Bream B platform pass*



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1520U5-048**

Area: **Gippsland Basin, Bass Strait** Sequence: **048**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **3U**

Job ID: **20323** CMP line range: **1517-1524** Line type: **Undershoot**

Type: **3D** No. CMPs: **8** Status: **DNP**

Initials: MO, MW
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	26-May-2006	146	22:12	08:12	121	1001	1163	21:13	UTC
FPSP:	26-May-2006	146	22:12	08:12	121	1001	1163		
LPSP:	26-May-2006	146	23:19	09:19	343	1445	1163		
EOL LSP:	26-May-2006	146	23:19	09:19	343	1445	1163	21:38	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-9.6	-9
Water depth (m)	59.6	55
RMS noise @ 5 Hz LC (µB)	4.8	4.6
Weather	220° 3m/s, 2.0m	200 2m/s, 1.5m
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1950	1950

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.8-7.3
Str 2	6.9-7.3	6.9-7.3
Str 3	6.9-7.3	6.9-7.3
Str 4	6.8-7.2	6.8-7.3
Str 5	6.8-7.3	6.8-7.3
Str 6	6.9-7.3	6.9-7.3
Str 7	6.9-7.3	6.9-7.3
Str 8	6.8-7.3	6.8-7.2

SOL/EOL Comments

DNP d/t Gun problem DE's on Sword

Overall Line Observations

Undershoot with Pacific Sword - single source (Port)
Pacific Sword position on Stbd side of V2

Birds bad/poll disabled: S8C20 & S8C16:no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:	295		282	305			
S3:	290				30,358		
S4:	106,116,318				127,318		
S5:	75,153,157						
S6:					205		
S7:	89,202		130		203		
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1520U5-048**

Seq: **048**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1163		SOT - SOL NOISE FILES
111-120	981-999			APPROACH SHOTS
121	1001	1163		FSP @ 22:12 UTC
121	1001	1163		FPSP @ 22:12 UTC
269	1297			V2 clears Bream B by 400m
273	1305		Bad	NAVS - Short Nav Header
	1317			S8 and vane clear Bream B by 90m
341	1441		Bad	NAVS - Short Nav Header
				DNP d/t Gun problem (DE's) on Sword
343	1445	1163		LPSP @ 23:19 UTC
343	1445	1163		LSP @ 23:19 UTC
				NAV PROCESSING SHOTS
344-353	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1520U5-048**

Seq: **048**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxiliary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1520U5-048**
 Area: **Gippsland Basin, Bass Strait** Sequence: **048** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1517-1524** Line type: **Undershoot**
 Type: **3D** No. CMPs **8** Status: **DNP** Initials: cb, ml
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	26-May-2006	146	22:12	08:12	1001	-9.6	-402	220° 3m/s, 2.0m
FPSP:	26-May-2006	146	22:12	08:12	1001			
LPSP:	26-May-2006	146	23:19	09:19	1445			
EOL LSP:	26-May-2006	146	23:19	09:19	1445	-9.3	-401.5	200 2m/s, 1.5m
UTC offset:				10.0				

Separations (m)		SOL		EOL		SOL		EOL	
Streamer overall:	Str 1-8	514	516						
Per streamer:	Str 1-2	74	74						
	Str 2-3	74	75						
	Str 3-4	71	71						
	Str 4-5	76	75						
	Str 5-6	69	70						
	Str 6-7	72	73						
	Str 7-8	76	77						
		Sub arrays:		P-C	8.7	8.9			
				C-S	8.3	6.8			

P2/94 filename: **G06A-1520U5-048.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**
 BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_1**
 Backup tape: **Tape Seq**

Observations disabled etc.

Acoustics: G1A2 intermittent, S7a4 KO
 RGPS:
 Compasses: S8C16, S8C20 KO S5C19 intermittent (Stuck Compass)
 Other:

SP	UTC	Local Time	Comments
1001	22:12	08:12	SOL, FSP
1001	22:12	08:12	FPSP
1297	22:57	08:57	V2 clears Bream B by 400m
1305	22:58	08:58	Possible missed sp.
1317	23:00	09:00	S8 and vane clear Bream B by 90m
1445	23:19	09:19	LPSP
1445	23:19	09:19	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**
 Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1520U5-048**
 Sequence: **048**
 Direction: **10.5°** Nav. Def: **3U**
 CMP line range: **1517-1524** Line type: **Undershoot**
 No. CMPs: **8** Status: **DNP**

Obs Initials: **SH**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	26-May-2006	146	22:12	08:12	121	1001	1163
FPSP:	26-May-2006	146	22:12	08:12	121	1001	1163
LPSP:	26-May-2006	146	23:19	09:19	343	1445	1163
EOL LSP	26-May-2006	146	23:19	09:19	343	1445	1163

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-9.6	-9.3
Water depth (m)	59.6	55
RMS Noise (µB)	4.8	4.6
Weather	220° 3m/s, 2.0m	200 2m/s, 1.5m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	445
Recorded km	16.688
Production time (hh:mm)	01:07
Production files	223
Production SPs	223
Production km	8.363
Production CMP km	66.900

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	2 / 0.9%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.0	1.6
HDOP	0.8	1.1	0.9
V1G2 PDOP	1.4	2.0	1.6
HDOP	0.8	1.1	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.2	2.1	4.06
Speed through water (m/s)	2.0	2.5	2.2	4.30
Feather angle (°)	-9.5	-8.6	-9.2	
Gyro (P) (°)	19.2	23.4	21.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.3	519.2	516.3
Str 1-2	72.8	76.4	74.5
Str 2-3	73.3	75.4	74.4
Str 3-4	70.1	74.0	72.1
Str 4-5	72.9	78.6	75.2
Str 5-6	68.6	73.2	70.7
Str 6-7	71.9	74.0	72.7
Str 7-8	75.0	78.1	76.7

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	7.8	9.2	8.7
Centre-Inner	7.9	9.0	8.4

Birds bad: **S8C20 & S8C16: no comms**
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290			
Str 4	106,116,318			
Str 5	75,153,157			
Str 6				
Str 7	89,202		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4		
Str 5		
Str 6		
Str 7		
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1305, 1441	2
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: N/A

ONLINE COMMENTS

Undershoot with Pacific Sword - single source (Port)
 Pacific Sword position on Stbd side of V2

PROCESSING QC COMMENTS

DNP - due to delta errors / gun errors

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1520U6-056**
 Area: **Gippsland Basin, Bass Strait** Sequence: **056**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1517-1524** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	
SOL FSP:	29-May-2006	149	00:28	10:28	121	1001	1189	Soft start commenced at 23:06 UTC
FPSP:	29-May-2006	149	00:45	10:45	176	1111	1189	
LPSP:	29-May-2006	149	02:13	12:13	470	1699	1190	Full volume arrays at 23:32 UTC
EOL LSP:	29-May-2006	149	02:13	12:13	470	1699	1190	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-10.0	-9
Water depth (m)	61	55
RMS noise @ 5 Hz LC (µB)	6.3	5.9
Weather	230° 11m/s, 2.5m	240° 8m/s 2.5m
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1975	1975

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.4	6.8-7.4
Str 2	6.8-7.1	6.5-7.2
Str 3	6.8-7.2	6.6-7.3
Str 4	6.8-7.3	6.8-7.3
Str 5	6.8-7.4	6.6-7.5
Str 6	6.8-7.2	6.6-7.2
Str 7	6.7-7.4	6.8-7.3
Str 8	6.9-7.5	6.7-7.1

SOL/EOL Comments

Overall Line Observations

Undershoot with Pacific Sword - single source (Port)
 Pacific Sword position on Port side of V2
 Swell noise seen from astern on all streamers, approx 15% breakout.

Birds bad/poll disabled: **S1C19 & S6C9: polling disabled**

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:			282	305			
S3:	83,290						
S4:	106,116,318		124		127,318		
S5:	157		153		86,88,139		
S6:	120,158				205		
S7:	89,202		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1520U6-056**

Seq: **056**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1189		SOT - SOL NOISE FILES
111-120	981-999			APPROACH SHOTS
121	1001	1189		FSP @ 00:28 UTC
157	1073			Lowering Azimuth Thruster
176	1111	1189		FPSP @ 00:45 UTC
216	1191		Bad	NAVS- Nav short header
217	1193		Bad	NAVS- Nav short header
222	1203		Bad	NAVS- Nav short header
225	1209		Bad	NAVS- Nav short header
248	1255		Bad	NAVS- Nav short header
252	1263		Bad	NAVS- Nav short header
271	1301		Bad	NAVS- Nav short header
272	1303		Bad	NAVS- Nav short header - Vessel passing Bream B 400m east
275	1309		Bad	NAVS- Nav short header
276	1311		Bad	NAVS- Nav short header
278	1315			Stbd vane passing Bream B at 130m
294	1374		Bad	NAVS- Nav short header
362	1483		Bad	NAVS- Nav short header
375	1509		Bad	NAVS- Nav short header
382	1523		Bad	NAVS- Nav short header
407	1573			Azimuth thruster disengaged @ 01:54 UTC
434	1627		Bad	NAVS- Nav short header
439	1637		Bad	NAVS- Nav short header
441	1641		Bad	NAVS- Nav short header
449	1657		Bad	NAVS- Nav short header
469	1697	1189		EOT
470	1698	1190		SOT
470	1699	1190		LPSP @ 02:13 UTC
470	1699	1190		LSP @ 02:13 UTC
471-476	1701-1711			NAV PROCESSING SHOTS
476	1711		Bad	NAVS- Nav short header
477-486	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1520U6-056**Seq: **056**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1520U6-056**
 Area: **Gippsland Basin, Bass Strait** Sequence: **056** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1517-1524** Line type: **Undershoot**
 Type: **3D** No. CMPs **8** Status: **Complete** Log Status: Final

Initials: cb ml nh sg

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	29-May-2006	149	00:28	10:28	1001	-10	-410	230° 11m/s, 2.5m
FPSP:	29-May-2006	149	00:45	10:45	1111			
LPSP:	29-May-2006	149	02:13	12:13	1699			
EOL LSP:	29-May-2006	149	02:13	12:13	1699	-9	-307	240° 8m/s 2.5m
			UTC offset:	10.0				

Separations (m)

		SOL	EOL		SOL	EOL
Streamer overall:	Str 1-8	515	512			
Per streamer:	Str 1-2	75	73	Sub arrays:	P-C	7.7
	Str 2-3	75	74		C-S	9.2
	Str 3-4	73	75			
	Str 4-5	77	78			
	Str 5-6	66	69			
	Str 6-7	72	71			
	Str 7-8	77	72			

P2/94 filename: **G06A-1520U6-056.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_5**
 Backup tape: **Tape 4 Seq 3**

Observations disabled etc.

Acoustics:
 RGPS:
 Compasses: **S1C19 & S6C9 KO**
 Other:

SP	UTC	Local Time	Comments
1001	00:28	10:28	SOL, FSP
1111	00:45	10:45	FPSP
			Str 5-6 Narrow at SOL
1073	00:39	10:39	Lowering Azimuth Thruster
1111	00:45	10:45	Coverage in Zone 2
1303	01:14	11:14	Vessel pass Bream B @ 400m
1315	01:16	11:16	Stbd vane passing Bream B @ 130m
1409	01:30	11:30	All gear outside the 500m zone due to excessive feather
1573	01:54	11:54	Azimuth thruster stowed
1699	02:13	12:13	LPSP
1699	02:13	12:13	EOL, LSP
			Zone 4 Coverage Complete

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**
 Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1520U6-056**
 Sequence: **056**
 Direction: **10.5°** Nav. Def: **3U**
 CMP line range: **1517-1524** Line type: **Undershoot**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **LH**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	29-May-2006	149	00:28	10:28	121	1001	1189
FPSP:	29-May-2006	149	00:45	10:45	176	1111	1189
LPSP:	29-May-2006	149	02:13	12:13	470	1699	1190
EOL LSP	29-May-2006	149	02:13	12:13	470	1699	1190

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-10	-9
Water depth (m)	61	55
RMS Noise (µB)	6.3	5.9
Weather	230° 11m/s, 2.5m	240° 8m/s 2.5m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	699
Recorded km	26.213
Production time (hh:mm)	01:28
Production files	295
Production SPs	295
Production km	11.063
Production CMP km	88.500

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	19 / 6.44%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.1	2.1
HDOP	0.8	1.2	1.0
V1G2 PDOP	1.6	3.1	2.2
HDOP	0.8	1.2	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.7	2.2	2.1	4.04
Speed through water (m/s)	2.0	2.7	2.3	4.51
Feather angle (°)	-9.9	-7.8	-8.8	
Gyro (P) (°)	12.7	26.7	19.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	503.8	519.6	514.7
Str 1-2	72.6	76.8	74.7
Str 2-3	73.1	76.4	74.7
Str 3-4	69.8	74.7	72.4
Str 4-5	70.0	80.7	77.2
Str 5-6	64.1	68.8	66.6
Str 6-7	70.9	74.1	72.6
Str 7-8	74.3	78.4	76.5

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	7.3	8.3	7.8
Centre-Inner	8.0	9.0	8.5

Birds bad: S1C19 & S6C9: polling disabled
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	83,290			
Str 4	106,116,318		124	
Str 5	157		153	
Str 6	120,158			
Str 7	89,202		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	150	
Str 4	127, 233, 318	
Str 5	136, 139	
Str 6	39, 205	
Str 7	203, 285	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1191,1193,1203,1209,1255,1263,1301,1303,1309,1311,1374,1483,1509,1523,1627,1637,1641,1657, 1711	19
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.38

ONLINE COMMENTS

Undershoot with Pacific Sword - single source (Port)
 Pacific Sword position on Port side of V2
 Swell noise seen from astern on all streamers, approx 15% breakout.

PROCESSING QC COMMENTS

Moderate swell noise affecting majority of shots, up to 20% traces affected. Penetrates beyond 3 sec twt.
 Strum noise evident on most cables.
 Offend diffraction evident toward end of line.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1520U7-057**
 Area: **Gippsland Basin, Bass Strait** Sequence: **057**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1520-1533** Line type: **Undershoot**
 Type: **3D** 123 No. CMPs: **8** Status: **Complete**

Initials: GC,AD,LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC Time	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	30-May-2006	150	07:58	17:58	123	1002	1193	06:38	
FPSP:	30-May-2006	150	08:12	18:12	176	1108	1193		
LPSP:	30-May-2006	150	09:23	19:23	450	1656	1193		
EOL LSP:	30-May-2006	150	09:23	19:23	450	1656	1193	07:16	
				UTC Offset:	10.0				

Full volume arrays at 07:16 UTC

	SOL	EOL
Feather angle (°)	7.3	8.9
Water depth (m)	61.2	56.8
RMS noise @ 5 Hz LC (µB)	4.2	4.9
Weather	90°, 12m/s, 2.0m	90°, 12m/s, 2.0m
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1950	1946

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.9-7.2
Str 2	6.9-7.4	6.8-7.1
Str 3	6.9-7.1	6.8-7.2
Str 4	6.8-7.2	6.8-7.2
Str 5	6.8-7.5	6.7-7.1
Str 6	6.9-7.3	6.9-7.4
Str 7	6.8-7.4	6.7-7.2
Str 8	7.0-7.3	6.8-7.2

SOL/EOL Comments

Overall Line Observations

Undershoot with Pacific Sword - single source (Stbd)
 Pacific Sword position on Port side of V2
 Zone 4 coverage being acquired

Birds bad/poll disabled: S1C19, S2C11, S2C13, & S6C9 Polling disabled

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:							
S2:				305			
S3:	83,290						
S4:	116,124,318						
S5:	75,153						
S6:	49,216						
S7:	89		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Micheal Wells, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Larry Tan
 Chief Observer: Les Hayden



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1520U7-057**
 Area: **Gippsland Basin, Bass Strait** Sequence: **057** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1520-1533** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Complete** Initials: nh df mm
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	30-May-2006	150	07:58	17:58	1002	7.3	396	90°, 12m/s, 2.0m
FPSP:	30-May-2006	150	08:12	18:12	1108			
LPSP:	30-May-2006	150	09:23	19:23	1656			
EOL LSP:	30-May-2006	150	09:23	19:23	1656	8.9	398	90°, 12m/s, 2.0m
UTC offset:				10.0				

Separations (m)		SOL	EOL	Sub arrays:		SOL	EOL
Streamer overall:	Str 1-8	520	518	P-C	6.5	8.5	
Per streamer:	Str 1-2	75	74	C-S	8.0	9.0	
	Str 2-3	75	75				
	Str 3-4	71	73				
	Str 4-5	73	72				
	Str 5-6	69	68				
	Str 6-7	73	74				
	Str 7-8	74	75				

P2/94 filename: **G06A-1520U7-057.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**
 BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_5**
 Backup tape: **Tape 4 Seq 4**

Observations disabled etc.

Acoustics:
 RGPS:
 Compasses: **S1C19 & S6C9 S2C11 S2C13 KO**
 Other:

SP	UTC	Local Time	Comments
1002	07:58	17:58	Starboard Source SOL, FSP
1108	08:12	18:12	FPSP Zone 4 coverage being acquired
1298	08:37	18:37	Vessel 290m stbd of Bream B
1302	08:38	18:38	Sword missed shot (Timebreak error) due to rig obstruction
1316	08:39	18:39	Vane 130m stbd of Bream B
1562	09:11	18:39	TB 1 860m stbd of Bream B
1656	09:23	19:23	LPSP
1656	09:23	19:23	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00 Vera Quinlan / Sam Griffiths / Howard Hewison**
 Chief Navigator: **Jeremy Collins** **12:00-00:00 Noel Harman / Darryl Fletcher / Misha Malofeev**

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1520U7-057**Seq: **057**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m

Source operated from MV Pacific Sword
Single source acquisition mode

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1520U7-057**
 Sequence: **057**
 Direction: **10.5°** Nav. Def: **3U**
 CMP line range: **1520-1533** Line type: **Undershoot**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **GC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	30-May-2006	150	07:58	17:58	123	1002	1193
FPSP:	30-May-2006	150	08:12	18:12	176	1108	1193
LPSP:	30-May-2006	150	09:23	19:23	450	1656	1193
EOL LSP	30-May-2006	150	09:23	19:23	450	1656	1193

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	7.3	8.9
Water depth (m)	61.2	56.8
RMS Noise (µB)	4.2	4.9
Weather	90°, 12m/s, 2.0m	90°, 12m/s, 2.0m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	655
Recorded km	24.563
Production time (hh:mm)	01:11
Production files	275
Production SPs	275
Production km	10.313
Production CMP km	82.500

ERROR STATISTICS

Source errors / %	2 / 0.73%
Missed SPs / %	0 / 0%
Other bad SPs / %	1 / 0.36%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.1	1.8
HDOP	0.8	1.1	0.9
V1G2 PDOP	1.5	2.1	1.9
HDOP	0.8	1.1	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.4	2.4	4.67
Speed through water (m/s)	1.7	2.3	2.0	3.98
Feather angle (°)	7.8	9.6	9.0	
Gyro (P) (°)	5.6	14.5	9.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	511.1	518.4	514.4
Str 1-2	73.9	76.9	75.5
Str 2-3	74.0	76.1	75.0
Str 3-4	70.6	74.6	72.3
Str 4-5	72.1	77.8	74.5
Str 5-6	66.9	70.4	68.6
Str 6-7	72.3	74.4	73.4
Str 7-8	73.8	76.5	75.1

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray			
Outer-Centre	7.3	8.7	7.9
Centre-Inner	7.9	8.2	8.0

Birds bad: S1C19, S2C11, S2C13, & S6C9 Polling disabled
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	83,290			
Str 4	116,124,318			
Str 5	75,153			
Str 6	49,216			
Str 7	89		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	139	
Str 6	91, 205, 303	
Str 7	203	
Str 8		318

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :	1130,1298	2
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1302	1
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.34

ONLINE COMMENTS

Undershoot with Pacific Sword - single source (Stbd)
 Pacific Sword position on Port side of V2
 Zone 4 coverage being acquired

PROCESSING QC COMMENTS

Moderate swell noise affecting about 10 to 15% of the traces on sample shots. Penetrates beyond 3 sec twt.
 Strum noise evident on most cables.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1520F1-019**
 Area: **Gippsland Basin, Bass Strait** Sequence: **019**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1513-1528** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	Tape	
SOL FSP:	16-May-2006	136	05:29	15:29	1001	1078	Soft start commenced at 15:00 UTC
FPSP:	16-May-2006	136	05:29	15:29	1001	1078	
LPSP:	16-May-2006	136	07:57	17:57	2117	1081	Full volume arrays at 15:23 UTC
EOL LSP:	16-May-2006	136	07:57	17:57	2117	1081	
UTC Offset:				10.0			

	SOL	EOL
Feather angle (°)	5.7	12
Water depth (m)	61	53
RMS noise @ 5 Hz LC (µB)	4.7	2.5
Weather	052° 5m/s, 1m	068° 6m/s, 1m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1981	1983
Stbd	1985	1981

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.3	6.8-7.2
Str 2	7.1-7.5	6.9-7.2
Str 3	6.9-7.2	6.9-7.2
Str 4	6.9-7.4	6.8-7.2
Str 5	6.9-7.2	6.9-7.1
Str 6	6.9-7.3	6.8-7.1
Str 7	6.7-7.2	6.8-7.2
Str 8	6.9-7.1	6.7-7.4

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test			Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Noisy	Spiking	Weak
S1:				360		
S2:	295					
S3:	290					
S4:	106,116,126,148,249		257, 258	127, 318		
S5:	75,103,112,113,153,157					
S6:	49,116			37, 205, 311, 316		
S7:	89,202		130			
S8:						

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1520F1-019

Seq:

019

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1078		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1078		FSP @ 05:29 UTC
121	1001	1078		FPSP @ 05:29 UTC
280	1160			Bridge steering. Moving Stbd from DC 160 to DC 390 to pass Bream B platform
341	1221			S8C16 to S8C13 shallow min: 5m
382	1262			S8C16 to S8C13 back @ target depth
403	1283			Bridge settling up on DC 390m. S1C17-S1C15 deep max: 8.8m
418	1298			V2 passing abeam of Bream B @ 380m
426	1306			S1C17-S1C15 back @ target depth
435	1315			Port vane passing Bream B @ 100m
469	1349	1078		EOT
470	1350	1079		SOT
514	1394			Back in spectra steering. Moving back toward port from DC 390 to gain coverage
680	1560			TB1 passing Bream @ 700m
840	1720	1079		EOT
841	1721	1080		SOT
1211	2091	1080		EOT
1212	2092	1081		SOT
	2097		Missed	
1236	2117	1081		LPSP @ 07:57 UTC
1236	2117	1081		LSP @ 07:57 UTC
1237-1241	2118-2123			NAV PROCESSING SHOTS
1242-1252	/	1081		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1520F1-019**

Seq:

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers: 8
 Number of channels per streamer: 360
 Group length: 12.5 metres
 Receivers / Group: 12
 Receiver Type: TS020 PZT ceramic

Number of compasses per streamer: 19 (20 on S1 & S8)
 Active streamer length: 4500 metres
 Nominal separation between streamers: 75 metres

Near channel inline offset: 75 metres
 Far channel inline offset: 4563 metres

Nominal streamer depth : 7 metres
 Streamer depth fluctuation allowed : 0.5 metres

Total horizontal separation: 525 metres
 Total vertical separation: 0 metres

Auxiliary channels: 12
 Time break recorded on aux channel 1 from 1000 ms
 Near field data recorded on aux channels 1-12 first 2000 ms

Streamer designation: Streamers 1 - 8 = Port - Starboard

Channel designation: Channel 1 at tail-end of each streamer
 Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

60
 2 ms
 6144 ms
 2892

Recorded as dataset 1 channels 1 - 360
 Recorded as dataset 2 channels 1 - 360
 Recorded as dataset 3 channels 1 - 360
 Recorded as dataset 4 channels 1 - 360
 Recorded as dataset 5 channels 1 - 360
 Recorded as dataset 6 channels 1 - 360
 Recorded as dataset 7 channels 1 - 360
 Recorded as dataset 8 channels 1 - 12
 Recorded as dataset 9 channels 1 - 360

3(12) Hz(dB/oct)
 206(276) Hz(dB/oct)
 None
 None
 5(18) Hz(dB/oct)
 3590
 SEGD
 8036
 0 ms

20 µvolts / µbar
 Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation: 37.5 m
 Source separation fluctuation allowed: 3.75 m

Nominal source depth: 6 m
 Source depth fluctuation allowed: 0.5 m

Overall source array width: 16 m
 Overall source array length: 16.5 m
 Number of source arrays: 2
 Number of active elements per array: 9
 Number of spare elements per array: 3

Number of sub arrays per source array: 3
 Sub array length: 16.5 m
 Sub array separation: 8 m
 Sub array separation fluctation allowed: 1.5 m

Nominal source array pressure: 2000 psi
 Specified minimum array pressure: 1900 psi
 Nominal operating volume per array: 4450 cu. in.
 Specified minimum operating volume: NA

Source shotpoint interval: 18.75 m
 Individual source shotpoint interval: 37.5 m

Flip-flop acquisition mode, even shotpoints from stbd source,
 odd shotpoints from port source

Positioning

Veripos Ultra
 Veripos Standard
 C-Nav

DigiCOURSE Acoustic Network
 Seamap STORM/ Buoylink RGPS

DigiCOURSE Acoustic Ranging (CMX)
 Seamap STORM/ Buoylink RGPS

DigiCOURSE 5011 Compass Birds
 DigiCOURSE Acoustic Ranging (CMX)
 Seamap STORM/ Buoylink RGPS

Kongsberg Simrad EA500

CSL Spectra v10.9.01

Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1520F1-019**

Area: **Gippsland Basin, Bass Strait** Sequence: **019** **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** **4**

Job ID: **20323** CMP line range: **1513-1528** **Prog.Infill**

Type: **3D** No. CMPs **16** **Complete** Initials: nh sg
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	Weather
SOL FSP:	16-May-2006	136	05:29	15:29	1001	5.7	052° 5m/s, 1m
FPSP:	16-May-2006	136	05:29	15:29	1001		
LPSP:	16-May-2006	136	07:57	17:57	2117		
EOL LSP:	16-May-2006	136	07:57	17:57	2117	11.7	068° 6m/s, 1m
UTC offset:				10.0			

Separations (m)		SOL	EOL	Sources overall:		SOL	EOL
Streamer overall:	Str 1-8	520	517	Sources overall:	36.7	37.2	
Per streamer:	Str 1-2	75	75	Sub arrays:	8.1	7.6	
	Str 2-3	75	74		7.3	7.6	
	Str 3-4	72	72		7.9	7.0	
	Str 4-5	78	78		7.4	6.9	
	Str 5-6	70	70				
	Str 6-7	73	73				
	Str 7-8	75	75				

P2/94 filename: **G06A-1520F1-019.0.p294**

LMN: **20323_Bream.LMN** BCN: **J323_Bream_Static.BC**

SCN: **20323_Bream.SCN** Acoustic file: **20323_4**

RTCN: **viking2.RTCN** Backup tape: **Tape 4 Seq 5**

Observations disabled etc.

Acoustics:
RGPS:
Compasses:
Other:

SP	UTC	Local Time	Comments
1001	05:29	15:29	SOL, FSP
1001	05:29	15:29	FPSP
1110	05:45	15:45	G2R1 No data
1160	05:51	15:51	Bridge steering to DC 390m (from DC 160m)
1285	06:08	16:08	Vessel settled on DC 390m
1298	06:10	16:10	Vessel 380m abeam of Bream B
1315	06:12	16:12	Port vane 100m abeam of Bream B
1394	06:22	16:22	Vessel back in Spectra steering. Moving Boat port to gain coverage
1450	06:30	16:30	Vessel acquiring new data
1530	06:40	16:40	High PDOP on Veripos 1 & 2
1560	06:44	16:44	TB 1 700m abeam of Bream B
1563	06:44	16:44	F/A > 10.0° (Induced due to turn away from rig)
1580	06:47	16:47	PDOP and Unit variance of NCC position returns to normal
1846	07:21	17:21	F/A < 10.0°
1945	07:34	17:34	F/A > 10.0°
1981	07:38	17:38	G2R1 back in
2036	07:46	17:46	G2R1 No data
2071	07:50	17:50	G2R1 back in
2117	07:57	17:57	LPSP
2117	07:57	17:57	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1520F1-019**
 Sequence: **019**
 Direction: **10.5°** Nav. Def: **4**
 CMP line range: **1513-1528** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	16-May-2006	136	05:29	15:29	121	1001	1078
FPSP:	16-May-2006	136	05:29	15:29	121	1001	1078
LPSP:	16-May-2006	136	07:57	17:57	1236	2117	1081
EOL LSP	16-May-2006	136	07:57	17:57	1236	2117	1081

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	5.7	11.7
Water depth (m)	61	53
RMS Noise (µB)	4.7	2.5
Weather	052° 5m/s, 1m	068° 6m/s, 1m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1981	1983
Stbd	1985	1981

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:28
Production files	1116
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	1 / 0.09%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.5	3.6	2.3
HDOP	0.9	1.9	1.2
V1G2 PDOP	1.8	6.1	2.5
HDOP	1.0	2.1	1.3

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.5	2.4	0.06
Speed through water (m/s)	1.9	2.6	2.3	0.11
Feather angle (°)	4.7	14.5	9.3	
Gyro (P) (°)	0.0	359.9	117.3	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	500.9	526.3	513.8
Str 1-2	71.5	77.6	74.4
Str 2-3	71.0	75.9	73.4
Str 3-4	68.2	74.1	71.3
Str 4-5	74.8	82.5	78.2
Str 5-6	66.3	72.4	69.5
Str 6-7	70.6	74.4	72.6
Str 7-8	71.9	76.5	74.4

	Min	Max	Mean
Source-Source Port-Stbd	33.5	40.8	36.2
Port Subarray Outer-Centre	7.0	8.3	7.7
Centre-Inner	6.8	7.9	7.3
Stbd Subarray Centre-Inner	6.9	8.2	7.5
Outer-Centre	6.5	7.6	6.9

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295			
Str 3	290			
Str 4	106,116,126,148,249		257, 258	
Str 5	75,103,112,113,153,157			
Str 6	49,116			
Str 7	89,202		130	
Str 8				

	Noisy	Weak
Str 1		
Str 2	351	
Str 3	30	
Str 4	127, 258, 318	
Str 5	88	
Str 6	205, 316	
Str 7	203	
Str 8	137	

SHOT / TRACE EDITS: SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):	2097	1
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.34

ONLINE COMMENTS

PROCESSING QC COMMENTS

Clean line - no noise issues of note.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1520P1-017**
 Area: **Gippsland Basin, Bass Strait** Sequence: **017**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1513-1528** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	
SOL FSP:	15-May-2006	135	18:00	04:00	121	1001	1069	Soft start commenced at 17:30 UTC
FPSP:	15-May-2006	135	18:00	04:00	121	1001	1069	
LPSP:	15-May-2006	135	20:36	06:36	1237	2117	1072	Full volume arrays at 17:50 UTC
EOL LSP:	15-May-2006	135	20:36	06:36	1237	2117	1072	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	5.9	6.4
Water depth (m)	59.6	53.2
RMS noise @ 5 Hz LC (µB)	2.8	2.6
Weather	335° 3m/s, 1.0	346° 3m/s, 0.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1985	1981
Stbd	1987	1980

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.2	6.8-7.2
Str 2	6.9-7.2	6.7-7.4
Str 3	6.8-7.3	6.9-7.3
Str 4	6.9-7.2	6.87.2
Str 5	6.8-7.2	6.9-7.2
Str 6	6.7-7.4	6.8-7.3
Str 7	6.9-7.3	6.9-7.2
Str 8	6.87.2	6.8-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled: S5C7 & S7C10 polling disabled

Birds deep/shallow: S8C15 - S8C13 fluctuating depths 6.1 - 8.5 mtrs; S7C1 fluctuating min 3.8, max 8.7 mtrs
 S1C15 - S1C13 fluctuating depths 5.4m - 8.1m.

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:				305			
S3:	290						
S4:			257	258	127, 318		
S5:	153			89	86, 88		
S6:					29, 37, 205, 311, 316		
S7:	89,285		130				
S8:							

Vessel Manager: Howie Grizaard **Observers:** 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1520P1-017**

Seq: **017**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1069		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1069		FSP @ 18:00 UTC
121	1001	1069		FPSP @ 18:00 UTC
	1138			Start to move Stbd to a DC of 400m (Current DC)
321	1201		Bad	Delta Error: P-10: 1.2
325	1205		Bad	Delta Error: P-10: 1.2
	1207			Vessel at DC 400m
327	1207		Bad	Delta Error: P-10: 2.0
329	1209		Bad	Delta Error: P-10: 2.0
330	1210			Gun P-10 disabled, Gun P-13 enabled Port array Volume 4450 cu in.
418	1298			Vessel abeam of Bream B 398m
446	1326			Port vane and S1 clear of bream B
469	1349	1069		EOT
470	1350	1070		SOT
540	1420			Start moving slowly back to port for coverage
684	1564			TB1 clear of Bream B
840	1720	1070		EOT
841	1721	1071		SOT
1036	1916		Bad	Nav Short
1211	2091	1071		EOT
1212	2092	1072		SOT
1237	2117	1072		LPSP @ 20:36 UTC
1237	2117	1072		LSP @ 20:36 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1072		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1520P1-017**Seq: **017**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	66 metres
Far channel inline offset:	4552 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1520P1-017**
 Area: **Gippsland Basin, Bass Strait** Sequence: **017** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1513-1528** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: cb, ml
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	15-May-2006	135	18:00	04:00	1001	5.9	325	335° 3m/s, 1.0
FPSP:	15-May-2006	135	18:00	04:00	1001			
LPSP:	15-May-2006	135	20:36	06:36	2117			
EOL LSP:	15-May-2006	135	20:36	06:36	2117	6.4	-20	346° 3m/s, 0.5m
UTC offset:				10.0				

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	516	523	36.0	38.0		
Per streamer:	Str 1-2	75	75	PI-PC	7.6	7.3	
	Str 2-3	74	75	PC-PO	7.1	7.9	
	Str 3-4	70	73	SI-SC	7.3	7.4	
	Str 4-5	80	80	SC-SO	7.6	7.6	
	Str 5-6	70	70				
	Str 6-7	73	74				
	Str 7-8	75	76				

P2/94 filename: G06A-1520P1-017.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_1
 Backup tape: Tape Seq

Observations disabled etc.

Acoustics: S1A4,S4A3, S2A1 dead & KO, G1A2 intermittent
 RGPS:
 Compasses: S5C7 & S7C10 KO
 Other: V1G3, C Nav DGPS system not operational

SP	UTC	Local Time	Comments
1001	18:00	04:00	SOL, FSP
1001	18:00	04:00	F/A to stbd, causing overlapping coverage on Z3,4 FPSP
1138	18:20	04:20	Start to move Stbd to a DC of 400m (Current DC)
1207	18:29	04:29	vessel at DC 400m
1298	18:42	04:42	Sp 1298 Vessel abeam of Bream B 398m
1326	18:46	04:46	Port vane and S1 clear of bream B
1420	18:55	04:55	start moving slowly back to port for coverage
1564	19:18	05:18	TB1 clear of Bream B
2117	20:36	06:36	LPSP
2117	20:36	06:36	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1520P1-017**
 Sequence: **017**
 Direction: **10.5°** Nav. Def: **4**
 CMP line range: **1513-1528** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **mo**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	15-May-2006	135	18:00	04:00	121	1001	1069
FPSP:	15-May-2006	135	18:00	04:00	121	1001	1069
LPSP:	15-May-2006	135	20:36	06:36	1237	2117	1072
EOL LSP	15-May-2006	135	20:36	06:36	1237	2117	1072

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	66
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	5.9	6.4
Water depth (m)	59.6	53.2
RMS Noise (µB)	2.8	2.6
Weather	335° 3m/s, 1.0	346° 3m/s, 0.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1985	1981
Stbd	1987	1980

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:36
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	4 / 0.36%
Missed SPs / %	0 / 0%
Other bad SPs / %	1 / 0.09%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.8	1.9
HDOP	0.9	1.6	1.1
V1G2 PDOP	1.6	2.8	2.1
HDOP	0.9	1.6	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.2	4.34
Speed through water (m/s)	1.6	2.3	2.0	3.82
Feather angle (°)	5.2	9.2	7.3	
Gyro (P) (°)	0.0	359.9	49.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.4	523.3	518.7
Str 1-2	73.9	77.5	75.4
Str 2-3	73.5	75.7	74.5
Str 3-4	70.4	74.4	72.4
Str 4-5	74.7	82.6	77.9
Str 5-6	67.9	72.0	69.9
Str 6-7	72.3	74.3	73.3
Str 7-8	73.8	76.5	75.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.4	40.3	36.2
Port Subarray	6.6	8.1	7.3
Outer-Centre	7.2	8.5	7.8
Centre-Inner	6.6	8.1	7.3
Stbd Subarray	7.0	7.8	7.4
Outer-Centre			

Birds bad: S5C7 & S7C10 polling disabled
 Birds depths: S8C15 - S8C13 fluctuating depths 6.1 - 8.5 mtrs; S7C1 fluctuating min 3.8, max 8.7 mtrs
 S1C15 - S1C13 fluctuating depths 5.4m - 8.1m.

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	290			
Str 4			257	258
Str 5	153			89
Str 6				
Str 7	89,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3	30, 358	
Str 4	127, 258, 318	
Str 5		
Str 6	311, 316	
Str 7	203	
Str 8		

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1201,1205,1207,1209	4
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1916	1
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.25

TOTAL SHOTS

ONLINE COMMENTS

PROCESSING QC COMMENTS

Slight streamer strum on streamers 2 and 8
 Strong reflections and defractions from rig between SP 1060 - 1580

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1536P1-021**
 Area: **Gippsland Basin, Bass Strait** Sequence: **021**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1529-1544** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	16-May-2006	136	15:27	01:27	121	1001	1086	14:50	
FPSP:	16-May-2006	136	15:27	01:27	121	1001	1086		
LPSP:	16-May-2006	136	17:56	03:56	1237	2117	1089		
EOL LSP:	16-May-2006	136	17:56	03:56	1237	2117	1089	15:10	
				UTC Offset:	10.0				

Full volume arrays at 15:10 UTC

	SOL	EOL
Feather angle (°)	-7.5	5
Water depth (m)	61.2	52.8
RMS noise @ 5 Hz LC (µB)	3.5	3
Weather	20° 6m/s, 1.0m	323° 4m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1983	1980
Stbd	1985	1983

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.9-7.3
Str 2	6.8-7.2	6.8-7.3
Str 3	6.8-7.3	6.8-7.4
Str 4	6.9-7.3	6.9-7.2
Str 5	6.8-7.3	6.8-7.3
Str 6	6.8-7.4	6.8-7.2
Str 7	6.9-7.2	6.8-7.3
Str 8	6.8-7.2	6.9-7.3

SOL/EOL Comments

Overall Line Observations

Sp 1235 - 1310 S8C17 - S8C12 fluctuating depths 5.5 - 9.1 mtrs
 Sp 1540 - 1740 S8C15 - S8C12 fluctuating depths 5.9 - 8.5 mtrs

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295						
S3:	290						
S4:	106,116,126,148,249		257,258		127, 318		
S5:	75,103,112,113,153,157				86, 88		
S6:	49,116				37, 311,316		
S7:	89,202		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1536P1-021**Seq: **021**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1086		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1086		FSP @ 15:27 UTC
121	1001	1086		FPSP @ 15:27 UTC
147	1027			Bridge/PM/OS in manual steering to avoid rig
188	1068			Vessel VC at 1 knot
315	1195		Bad	Delta Error: P-2: 1.4
339	1219		Bad	Delta Error: P-2: 1.1
340	1220			Vessel settled up on offset of -90, this will bring the stbd vane 80 m from Bream B
355-430	1235-1310			S8C17 - S8C12 fluctuating depths 5.5 - 9.1 mtrs
365	1245			Observed reflection noise on cables from Platform Bream B
417	1297			Vessel abeam of Bream B 407 m, Vane expected to clear by 97
439	1319			Vane and S8 clear Bream B, Vane by 100m
469	1349	1086		EOT
470	1350	1087		SOT
643	1523			Moving back for coverage, in spectra steering
690-860	1570-1740			S8C15- S8C12 fluctuating depths 5.9 - 8.5 mtrs
770	1650			Reflections no longer seen on plots and QC screen
840	1720	1087		EOT
841	1721	1088		SOT
843	1723		Bad	Delta Error: P-10: -1.1
1211	2091	1088		EOT
1212	2092	1089		SOT
1237	2117	1089		LPSP @ 17:56 UTC
1237	2117	1089		LSP @ 17:56 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1089		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1536P1-021**Seq: **021**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1536P1-021**
 Area: **Gippsland Basin, Bass Strait** Sequence: **021** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1529-1544** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: cb ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	16-May-2006	136	15:27	01:27	1001	-7.5	551	20° 6m/s, 1.0m
FPSP:	16-May-2006	136	15:27	01:27	1001			
LPSP:	16-May-2006	136	17:56	03:56	2117			
EOL LSP:	16-May-2006	136	17:56	03:56	2117	5	90	323° 4m/s, 1.0m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	524	520
Per streamer:		
Str 1-8	75	75
Str 1-2	75	75
Str 2-3	72	73
Str 3-4	80	77
Str 4-5	74	70
Str 5-6	74	73
Str 6-7	77	75
Str 7-8		

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	7.2	7.7
	PC-PO	6.6	6.9
	SI-SC	8.0	7.4
	SC-SO	7.4	7.6

P2/94 filename: G06A-1536P1-021.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 1 Seq 2

Observations disabled etc.

Acoustics: G1A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	15:27	01:27	SOL, FSP
1001	15:27	01:27	FPSP
			Burying all of Z1 coverage to steer Z4
1027	15:31	01:31	Bridge/PM/OS in manual steering to avoid rig
1068	15:36	01:36	Vessel VC at 1 kt
1141	15:46	01:46	No longer butting up coverage in Z1
1220	15:56	01:56	Vessel settled up on offset of -100, this will bring the stbd vane 90 m from Bream B
1270			Streamer tensions not coming into spectra
1297	16:07	02:07	Vessel abeam of Bream B 407 m, Vane expected to clear by 100
1319	16:10	02:10	Vane and S8 clear Bream B, Vane by 100m
1523	16:36	02:36	Moving back for coverage, in spectra steering
1562	16:41	02:41	Tb 8 clears Bream B by 150m
1650	16:53	02:53	Butting Z1 coverage
1736	17:04	03:04	Butting Z2 coverage
1861	17:21	03:21	Butting Z3 coverage, burying most of Z1 coverage to continue to come across and butt Z4 coverage
1920	17:29	03:29	Butting Z4 coverage, burying Z1
2117	17:56	03:56	LPSP
2117	17:56	03:56	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1536P1-021**
 Sequence: **021**
 Direction: **10.5°** Nav. Def: **5**
 CMP line range: **1529-1544** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **mo**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	16-May-2006	136	15:27	01:27	121	1001	1086
FPSP:	16-May-2006	136	15:27	01:27	121	1001	1086
LPSP:	16-May-2006	136	17:56	03:56	1237	2117	1089
EOL LSP	16-May-2006	136	17:56	03:56	1237	2117	1089

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-7.5	5
Water depth (m)	61.2	52.8
RMS Noise (µB)	3.5	3
Weather	20° 6m/s, 1.0m	323° 4m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1983	1980
Stbd	1985	1983

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:29
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	3 / 0.27%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	2.7	2.0
HDOP	0.9	1.8	1.2
V1G2 PDOP	1.6	2.7	2.1
HDOP	1.0	1.8	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.5	2.4	4.58
Speed through water (m/s)	1.8	2.5	2.2	4.25
Feather angle (°)	-7.7	4.6	0.3	
Gyro (P) (°)	0.0	359.9	18.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	510.4	523.8	519.3
Str 1-2	72.7	76.8	75.1
Str 2-3	71.9	75.7	74.6
Str 3-4	69.8	73.7	72.0
Str 4-5	75.5	82.0	78.6
Str 5-6	68.0	72.3	70.3
Str 6-7	71.5	74.7	73.2
Str 7-8	73.5	77.1	75.5

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.5	38.7	35.9
Port Subarray	6.4	8.2	7.5
Outer-Centre	6.7	7.4	6.9
Centre-Inner	7.2	8.7	8.0
Stbd Subarray	6.9	7.9	7.4
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			
Str 3	290			
Str 4	106,116,126,148,249		257,258	
Str 5	75,103,112,113,153,157			
Str 6	49,116			
Str 7	89,202		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3	30	
Str 4	127, 258, 318	
Str 5	88, 205	
Str 6	205, 316	
Str 7	203	
Str 8	137	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1195, 1219, 1723	3
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.35

ONLINE COMMENTS

Sp 1235 - 1310 S8C17 - S8C12 fluctuating depths 5.5 - 9.1 mtrs
 Sp 1540 - 1740 S8C15 - S8C12 fluctuating depths 5.9 - 8.5 mtrs

PROCESSING QC COMMENTS

Slight cable strum on streamers 2 and 8
 Strong reflections and refractions from rig between SP 1060 - 1580

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1552P1-023**
 Area: **Gippsland Basin, Bass Strait** Sequence: **023**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1545-1560** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	17-May-2006	137	03:08	13:08	121	1001	1096	2:30	
FPSP:	17-May-2006	137	03:08	13:08	121	1001	1096		
LPSP:	17-May-2006	137	05:38	15:38	1237	2117	1099		
EOL LSP:	17-May-2006	137	05:38	15:38	1237	2117	1099	2:54	
UTC Offset:				10.0					

	SOL	EOL
Feather angle (°)	-7.4	1
Water depth (m)	60	53
RMS noise @ 5 Hz LC (µB)	3.4	3.7
Weather	319° 5m/s, 1m	356° 2m/s, 1m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1979	1977
Stbd	1978	1977

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.4	6.8-7.2
Str 2	6.9-7.2	6.9-7.1
Str 3	6.9-7.2	6.9-7.1
Str 4	6.8-7.1	6.9-7.4
Str 5	6.9-7.1	6.8-7.3
Str 6	6.9-7.1	6.9-7.1
Str 7	6.9-7.2	6.8-7.2
Str 8	6.9-7.2	6.8-7.3

SOL/EOL Comments

Azimuth thruster engaged before SOL @ 0259 UTC

Overall Line Observations

Birds bad/poll disabled:
 Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305(phase)			
S3:	83, 290						
S4:	106,116,126,148,249,318		257,258		127,318		
S5:	75,108,153,157						
S6:	49				205		
S7:	89,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1552P1-023**Seq: **023**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1096		SOT - SOL NOISE FILES
				Azimuth thruster engaged before SOL @ 0259 UTC
111-120	991-1000			APPROACH SHOTS
121	1001	1096		FSP @ 03:08 UTC
121	1001	1096		FPSP @ 03:08 UTC
225	1105			Bridge in manual steering - moving Port from DC 450m to clear Bream B platform.
324	1204			S8C17- S8C13: Fluctuating depths.
340	1220			V2 settled up on DC of 210m
404	1284			S8C17- S8C13 depths settled. Max depth 8.3m, Min depth 5.5m
416	1296			V2 passing abeam of Bream B @ 400m
435	1315			Stbd. vane passing abeam of Bream B @ 120m
469	1349	1096		EOT
470	1370	1097		SOT
515	1395		Bad	Delta Error: P-2: 1.1
656	1536		Bad	Delta Error: S-15: -1.1
689	1569			TB's passing abeam of Bream B platform. TB8 @ 400m
755	1635			Azimuth thruster dis-engaged
788	1668		Bad	Delta Error: S-15: -1.1
840	1720	1097		EOT
841	1721	1098		SOT
1211	2091	1098		EOT
1212	2092	1099		SOT
1237	2117	1099		LPSP @ 05:38 UTC
1237	2117	1099		LSP @ 05:38 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1099		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1552P1-023**Seq: **023**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1552P1-023**

Area: **Gippsland Basin, Bass Strait** Sequence: **023** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **5**

Job ID: **20323** CMP line range: **1545-1560** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: nh sg
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	17-May-2006	137	03:08	13:08	1001	-7.4	579	319° 5m/s, 1m
FPSP:	17-May-2006	137	03:08	13:08	1001			
LPSP:	17-May-2006	137	05:38	15:38	2117			
EOL LSP:	17-May-2006	137	05:38	15:38	2117	0.8	300	356° 2m/s, 1m
UTC offset:				10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL	
Streamer overall:	Str 1-8	518	519		36.8	36.1	
Per streamer:	Str 1-2	74	75	Sub arrays:	PI-PC	7.1	7.5
	Str 2-3	75	75		PC-PO	6.6	7.3
	Str 3-4	71	73		SI-SC	7.9	8.1
	Str 4-5	78	79		SC-SO	7.2	7.2
	Str 5-6	70	70				
	Str 6-7	74	73				
	Str 7-8	76	76				

P2/94 filename: **G06A-1552P1-023.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_5**

Backup tape: **Tape 1 Seq 4**

Observations disabled etc.

Acoustics: G1A2 S5A2 intermittent

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1001	3:08	13:08	SOL, FSP
1001	3:08	13:08	FPSP
1105	3:22	13:22	Bridge in manual steering. Moving port VC 1kt to avoid rig (DC 450m)
1220	3:38	13:38	Vessel steadied up on DC 200m
1296	3:48	13:48	Vessel 400m west of Bream B
1315	3:51	13:51	Vane 120m west of Bream B
1569	4:25	14:51	TB 8 400m west of Bream B
2117	5:38	15:38	LPSP
2117	5:38	15:38	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**

SR/V Veritas Viking II

Quality Control Report



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1552P1-023**
 Sequence: **023**
 Direction: **10.5°** Nav. Def: **5**
 CMP line range: **1545-1560** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	17-May-2006	137	03:08	13:08	121	1001	1096
FPSP:	17-May-2006	137	03:08	13:08	121	1001	1096
LPSP:	17-May-2006	137	05:38	15:38	1237	2117	1099
EOL LSP	17-May-2006	137	05:38	15:38	1237	2117	1099

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-7.4	0.8
Water depth (m)	60	53
RMS Noise (µB)	3.4	3.7
Weather	319° 5m/s, 1m	356° 2m/s, 1m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1979	1977
Stbd	1978	1977

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:30
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	3 / 0.27%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	5.1	2.6
HDOP	0.9	2.1	1.3
V1G2 PDOP	1.5	5.1	2.9
HDOP	0.9	2.1	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.54
Speed through water (m/s)	2.0	2.8	2.4	4.75
Feather angle (°)	-6.8	1.6	-2.4	
Gyro (P) (°)	0.0	359.9	12.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	512.6	524.1	519.5
Str 1-2	73.4	76.3	75.1
Str 2-3	73.6	75.8	74.8
Str 3-4	70.1	73.8	72.0
Str 4-5	74.8	82.6	78.7
Str 5-6	67.8	72.0	69.9
Str 6-7	71.5	73.8	72.8
Str 7-8	74.7	77.2	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.8	39.7	36.4
Port Subarray	6.7	8.0	7.5
Outer-Centre	6.2	7.7	7.1
Centre-Inner	7.4	8.6	8.0
Stbd Subarray	6.8	7.9	7.2
Outer-Centre			

Birds bad:

Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305(phase)
Str 3	83, 290			
Str 4	106,116,126,148,249,318		257,258	
Str 5	75,108,153,157			
Str 6	49			
Str 7	89,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3	148	
Str 4	57, 127, 258, 318	
Str 5		
Str 6	205	
Str 7	89	
Str 8	137	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1395,1536,1668	3
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.25

ONLINE COMMENTS

PROCESSING QC COMMENTS

very slight strum on outer cables - otherwise clean line

Geophysical Supervisor: Marc Boon

Field Geophysicists: Kristian Ellis, David Barratt, Richard Flower, Paul Jones

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1568P1-025**

Area: **Gippsland Basin, Bass Strait** Sequence: **025**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **5**

Job ID: **20323** CMP line range: **1561-1576** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: SH, DY / MO, MW
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	17-May-2006	137	13:10	23:10	121	1001	1104	12:35	
FPSP:	17-May-2006	137	13:10	23:10	121	1001	1104		
LPSP:	17-May-2006	137	15:38	01:38	1237	2117	1107		
EOL LSP:	17-May-2006	137	15:38	01:38	1237	2117	1107	12:58	
UTC Offset:				10.0					

	SOL	EOL
Feather angle (°)	-6.1	-5
Water depth (m)	60	53.2
RMS noise @ 5 Hz LC (µB)	2.2	2.3
Weather	290° 5m/s, 1.0m	280° 4 m/s 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1980	1978
Stbd	1984	1982

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.3	6.8-7.2
Str 2	6.9-7.4	6.8-7.2
Str 3	6.8-7.2	6.8-7.2
Str 4	6.8-7.1	6.8-7.1
Str 5	6.8-7.2	6.8-7.2
Str 6	6.8-7.2	6.8-7.1
Str 7	6.8-7.2	6.8-7.2
Str 8	6.8-7.1	6.8-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305(phase)			
S3:	83, 290						
S4:	106,116,126,148,249,318		257,258		127, 318		
S5:	75,108,153,157				86, 88		
S6:	49				37, 205		
S7:	89,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1568P1-025**Seq: **025**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1104		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1104		FSP @ 13:10 UTC
121	1001	1104		FPSP @ 13:10 UTC
168	1048			Azimuth thruster deployed @ 1317 UTC
192-440	1072-1320			S8C16-S8C12 fluctuating depths 5.3mtrs - 8.8mtrs
412	1292			Vessel 670m west of Bream A
444	1324			Vane 530m west of Bream A
469	1349	1104		EOT
470	1350	1105		SOT
684	1564			TB 8 780m west of Bream B
840	1720	1105		EOT
841	1721	1106		SOT
1211	2091	1106		EOT
1212	2092	1107		SOT
1237	2117	1107		LPSP @ 15:38 UTC
1237	2117	1107		LSP @ 15:38 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1107		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1568P1-025**Seq: **025**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1568P1-025**
 Area: **Gippsland Basin, Bass Strait** Sequence: **025** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1561-1576** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final
 Initials: nh sg cb ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	17-May-2006	137	13:10	23:10	1001	-6.1	524	290° 5m/s, 1.0m
FPSP:	17-May-2006	137	13:10	23:10	1001			
LPSP:	17-May-2006	137	15:38	01:38	2117			
EOL LSP:	17-May-2006	137	15:38	01:38	2117	-4.7	547	280° 4 m/s 1.0m
			UTC offset: 10.0					

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	523	523			37.0	38.0
Per streamer:	Str 1-2	75	75	Sub arrays:	PI-PC	7.0	7.7
	Str 2-3	75	75		PC-PO	6.5	7.0
	Str 3-4	72	73		SI-SC	7.4	7.3
	Str 4-5	79	79		SC-SO	8.0	7.7
	Str 5-6	71	71				
	Str 6-7	74	73				
	Str 7-8	77	77				

P2/94 filename: G06A-1568P1-025.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 2 Seq 1

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	13:10	23:10	SOL, FSP
1001	13:10	23:10	FPSP
1048	13:17	23:17	Azimuth thruster lowered
1292	13:49	23:49	Vessel 670m west Bream B
1324	13:53	23:53	Vane 530m west of Bream B
1564	14:25	00:25	TB 8 780m west of Bream B
2117	15:38	01:38	LPSP
2117	15:38	01:38	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths

SR/V Veritas Viking II

Quality Control Report



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1568P1-025**
 Sequence: **025**
 Direction: **10.5°** Nav. Def: **5**
 CMP line range: **1561-1576** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **mo**
 Proc Initials: **RW**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	17-May-2006	137	13:10	23:10	121	1001	1104
FPSP:	17-May-2006	137	13:10	23:10	121	1001	1104
LPSP:	17-May-2006	137	15:38	01:38	1237	2117	1107
EOL LSP	17-May-2006	137	15:38	01:38	1237	2117	1107

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.1	-4.7
Water depth (m)	60	53.2
RMS Noise (µB)	2.2	2.3
Weather	290° 5m/s, 1.0m	280° 4 m/s 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1980	1978
Stbd	1984	1982

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20,944
Production time (hh:mm)	02:28
Production files	1117
Production SPs	1117
Production km	20,944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.3	2.8	1.8
HDOP	0.8	1.2	1.0
V1G2 PDOP	1.5	2.8	2.0
HDOP	0.8	1.2	1.8

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.4	2.4	4.61
Speed through water (m/s)	1.8	2.5	2.2	4.21
Feather angle (°)	-6.6	2.5	-2.9	
Gyro (P) (°)	0.9	21.0	12.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	514.4	524.5	520.2
Str 1-2	73.9	76.6	75.2
Str 2-3	74.0	76.1	75.0
Str 3-4	70.4	74.3	72.5
Str 4-5	76.1	82.5	78.8
Str 5-6	67.6	71.5	69.7
Str 6-7	71.5	74.1	73.0
Str 7-8	74.5	77.0	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source Port-Stbd	35.3	41.1	37.5
Port Subarray Outer-Centre	6.7	8.0	7.4
Centre-Inner	6.5	7.8	7.1
Stbd Subarray Centre-Inner	6.9	8.1	7.4
Outer-Centre	7.2	7.2	7.6

Birds bad:

Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305(phase)
Str 3	83, 290			
Str 4	106,116,126,148,249,318		257,258	
Str 5	75,108,153,157			
Str 6	49			
Str 7	89,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3	148, 358	
Str 4	127, 258, 318	
Str 5		
Str 6	205	
Str 7	89, 203, 285	
Str 8	137	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.21

ONLINE COMMENTS

PROCESSING QC COMMENTS

Slight cable strum on streamer 2 and 8
 Strong reflections / defractions from rig between SP 1060 - 1580

Geophysical Supervisor: Marc Boon

Field Geophysicists: Kristian Ellis, David Barratt, Richard Flower, Paul Jones

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1584P1-027**
 Area: **Gippsland Basin, Bass Strait** Sequence: **027**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1577-1592** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	17-May-2006	137	23:23	09:23	121	1001	1112	22:50	
FPSP:	17-May-2006	137	23:23	09:23	121	1001	1112		
LPSP:	18-May-2006	138	01:52	11:52	1237	2117	1115		
EOL LSP:	18-May-2006	138	01:52	11:52	1237	2117	1115	23:10	
				UTC Offset:	10.0				

Full volume arrays at 23:10 UTC

	SOL	EOL
Feather angle (°)	0.2	-9
Water depth (m)	59	53
RMS noise @ 5 Hz LC (µB)	2.4	3.6
Weather	110° 2m/s, 1.0m	100° 3m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1979	1981
Stbd	1982	1982

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.5-7.2
Str 2	6.8-7.3	6.8-7.1
Str 3	6.8-7.1	6.8-7.3
Str 4	6.9-7.2	6.8-7.2
Str 5	6.8-7.1	6.9-7.2
Str 6	6.9-7.2	6.6-7.1
Str 7	6.8-7.2	6.9-7.2
Str 8	6.5-7.2	6.7-7.1

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305(phase)			
S3:	83, 290						
S4:	106, 116, 126, 148, 249, 318		257, 258		127, 318		
S5:	75, 108, 153, 157				86, 88		
S6:	49				37, 205		
S7:	89, 202, 285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1584P1-027**Seq: **027**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1112		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1112		FSP @ 23:23 UTC
121	1001	1112		FPSP @ 23:23 UTC
214	1094		Bad	Misfire: S-14
392	1272			Last Shotpoint of the day UTC
420	1300			Vessel passed 810m abeam of Bream B
438	1318			Stbd vane passed 470m abeam of Bream B
469	1349	1112		EOT
470	1350	1113		SOT
480	1360			Observed noise moving down from head to tail from Platform Bream B
695	1575			Noise no longer seen on plots and QC screen
700	1580			TB 8 clear of Bream B
755	1635		Bad	Misfire: P-2
840	1720	1113		EOT
841	1721	1114		SOT
859	1739		Bad	Delta Error: P-2: 1.1
939	1819		Bad	Delta Error: P-2: 1.1
1211	2091	1114		EOT
1212	2092	1115		SOT
1237	2117	1115		LPSP @ 01:52 UTC
1237	2117	1115		LSP @ 01:52 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1115		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1584P1-027**Seq: **027**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1584P1-027**
 Area: **Gippsland Basin, Bass Strait** Sequence: **027** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1577-1592** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: cb, ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	17-May-2006	137	23:23	09:23	1001	0.2	539	110° 2m/s, 1.0m
FPSP:	17-May-2006	137	23:23	09:23	1001			
LPSP:	18-May-2006	138	01:52	11:52	2117			
EOL LSP:	18-May-2006	138	01:52	11:52	2117	-8.8	734	100° 3m/s, 1.0m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall: Str 1-8	520	516
Per streamer: Str 1-2	76	74
Str 2-3	75	75
Str 3-4	72	71
Str 4-5	75	77
Str 5-6	70	70
Str 6-7	74	72
Str 7-8	75	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	7.0	7.7
	PC-PO	7.3	7.0
	SI-SC	7.2	7.0
	SC-SO	8.0	7.1

P2/94 filename: G06A-1584P1-027.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 2 Seq 3

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	23:23	09:23	SOL, FSP
1001	23:23	09:23	FPSP
			Burying some of near zones to flatten out coverage.
1300	00:03	10:03	Vessel passed 810m abeam of Bream B
1318	00:06	10:06	Stbd vane passed 470m abeam of Bream B
1580	00:40	10:40	TB 8 clear of Bream B
2117	01:52	11:52	LPSP
2117	01:52	11:52	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths

SR/V Veritas Viking II

Quality Control Report



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1584P1-027**
 Sequence: **027**
 Direction: **10.5°** Nav. Def: **5**
 CMP line range: **1577-1592** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	17-May-2006	137	23:23	09:23	121	1001	1112
FPSP:	17-May-2006	137	23:23	09:23	121	1001	1112
LPSP:	18-May-2006	138	01:52	11:52	1237	2117	1115
EOL LSP	18-May-2006	138	01:52	11:52	1237	2117	1115

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	0.2	-8.8
Water depth (m)	59	53
RMS Noise (µB)	2.4	3.6
Weather	110° 2m/s, 1.0m	100° 3m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1979	1981
Stbd	1982	1982

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:29
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	4 / 0.36%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.6	1.9
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.6	2.0
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.4	2.3	4.55
Speed through water (m/s)	1.6	2.6	2.2	4.25
Feather angle (°)	-10.2	0.4	-4.1	
Gyro (P) (°)	5.2	26.5	16.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	508.3	525.5	518.9
Str 1-2	73.5	76.7	75.1
Str 2-3	73.3	76.0	74.9
Str 3-4	69.4	74.0	72.0
Str 4-5	74.6	82.2	78.2
Str 5-6	67.8	72.2	70.0
Str 6-7	70.7	74.3	72.9
Str 7-8	74.6	76.8	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.1	41.3	37.2
Port Subarray	6.7	8.0	7.5
Centre-Inner	6.6	7.6	7.1
Stbd Subarray	7.0	8.0	7.6
Outer-Centre	6.6	8.1	7.2

Birds bad:

Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305(phase)
Str 3	83, 290			
Str 4	106,116,126,148,249,318		257,258	
Str 5	75,108,153,157			
Str 6	49			
Str 7	89,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3		
Str 4	127, 258, 317, 318	
Str 5	86, 88	
Str 6	205, 315	
Str 7	203	
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1739, 1819	2
Autofires / Misfires :	1094, 1635	2
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.07

ONLINE COMMENTS

PROCESSING QC COMMENTS

Clean line - no noise issues of note

Geophysical Supervisor:

Marc Boon

Field Geophysicists:

Kristian Ellis, David Barratt, Richard Flower, Paul Jones



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1584F1-029**

Area: **Gippsland Basin, Bass Strait** Sequence: **029**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **5**

Job ID: **20323** CMP line range: **1577-1592** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **DNP**

Initials: SH, DY
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	18-May-2006	138	09:30	19:30	121	1001	1121	08:55	UTC
FPSP:	18-May-2006	138	09:30	19:30	121	1001	1121		
LPSP:	18-May-2006	138	09:47	19:47	252	1132	1121		
EOL LSP:	18-May-2006	138	09:47	19:47	252	1132	1121	09:18	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	13.0	14
Water depth (m)	59	57
RMS noise @ 5 Hz LC (µB)	2.4	2.3
Weather	085° 7m/s, 1m	085° 7m/s, 1m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1982	1984
Stbd	1982	1985

Streamer Depths (m)

	SOL	EOL
Str 1	6.5-7.1	6.9-7.2
Str 2	6.8-7.2	6.9-7.2
Str 3	6.8-7.2	7.0-7.3
Str 4	6.9-7.1	6.8-7.3
Str 5	6.7-7.2	6.8-7.2
Str 6	6.9-7.2	6.8-7.1
Str 7	6.9-7.1	6.8-7.1
Str 8	6.5-7.2	6.9-7.1

SOL/EOL Comments

DNP D/T high feather angle, unable to get acceptable coverage to west of Bream B platform

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:							
S2:	295			305(phase)			
S3:	83, 290						
S4:	106,116,126,148,249,318		257,258				
S5:	75,108,153,157						
S6:	49						
S7:	89,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1584F1-029

Seq:

029

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1121		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1121		FSP @ 09:30 UTC
121	1001	1121		FPSP @ 09:30 UTC
252	1132	1121		LPSP @ 09:47 UTC
252	1132	1121		LSP @ 09:47 UTC
253-254	/	1121		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1584F1-029**Seq: **029**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms

Comments:

Hydrophone sensitivity 20 μ volts / μ bar
Recording polarity: Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m

Flip-flop acquisition mode, even shotpoints from stbd source,
 odd shotpoints from port source

Positioning**Navigation System**

Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav

Positioning System

Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1584F1-029**
 Sequence: **029**
 Direction: **10.5°** Nav. Def: **5**
 CMP line range: **1577-1592** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	18-May-2006	138	09:30	19:30	121	1001	1121
FPSP:	18-May-2006	138	09:30	19:30	121	1001	1121
LPSP:	18-May-2006	138	09:47	19:47	252	1132	1121
EOL LSP	18-May-2006	138	09:47	19:47	252	1132	1121

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	13	14.4
Water depth (m)	59	57
RMS Noise (µB)	2.4	2.3
Weather	085° 7m/s, 1m	085° 7m/s, 1m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1982	1984
Stbd	1982	1985

Recorded SPs	132
Recorded km	2,475
Production time (hh:mm)	00:17
Production files	132
Production SPs	132
Production km	2,475
Production CMP km	39.600

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.5	1.5	1.5
HDOP	0.8	0.8	0.8
V1G2 PDOP	1.5	2.0	1.6
HDOP	0.8	1.0	0.8

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.4	4.70
Speed through water (m/s)	2.0	2.3	2.2	4.19
Feather angle (°)	13.6	14.8	14.5	
Gyro (P) (°)	0.0	359.9	121.4	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	496.9	512.3	509.8
Str 1-2	72.1	75.2	74.3
Str 2-3	70.7	73.4	72.5
Str 3-4	67.7	71.8	70.7
Str 4-5	77.8	81.6	80.1
Str 5-6	67.1	69.6	68.5
Str 6-7	70.1	72.5	71.7
Str 7-8	70.4	72.3	71.8

	Min	Max	Mean
Source-Source Port-Stbd	34.5	38.3	36.5
Port Subarray Outer-Centre	6.9	7.6	7.3
Centre-Inner	6.9	7.6	7.3
Stbd Subarray Centre-Inner	6.8	7.7	7.3
Outer-Centre	6.4	7.1	6.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295			305(phase)
Str 3	83, 290			
Str 4	106,116,126,148,249,318		257,258	
Str 5	75,108,153,157			
Str 6	49			
Str 7	89,202,285		130	
Str 8				

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4		
Str 5		
Str 6		
Str 7		
Str 8		

SHOT / TRACE EDITS: SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: <input type="text"/>

ONLINE COMMENTS

PROCESSING QC COMMENTS

DNP due to feather angle and proximity to Bream A platform

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1584F2-050**

Area: **Gippsland Basin, Bass Strait** Sequence: **050**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **6**

Job ID: **20323** CMP line range: **1577-1592** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: SH, DY
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	27-May-2006	147	07:11	17:11	140	1001	1165	06:30	
FPSP:	27-May-2006	147	07:11	17:11	140	1001	1165		
LPSP:	27-May-2006	147	09:42	19:42	1256	2117	1168		
EOL LSP:	27-May-2006	147	09:42	19:42	1256	2117	1168	06:52	
				UTC Offset:	10.0				

Full volume arrays at 06:52 UTC

	SOL	EOL
Feather angle (°)	8.0	-2
Water depth (m)	59	53
RMS noise @ 5 Hz LC (µB)	4	3.1
Weather	270° 7m/s, 2.5m	250° 4m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1992	1981
Stbd	1997	1984

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.9-7.3
Str 2	6.8-7.2	6.8-7.2
Str 3	6.8-7.3	6.8-7.4
Str 4	6.8-7.3	6.7-7.1
Str 5	6.8-7.2	6.9-7.5
Str 6	6.9-7.4	6.8-7.2
Str 7	6.9-7.4	6.9-7.2
Str 8	7.1-7.3	6.8-7.4

SOL/EOL Comments

S-19 & S-20 Gun signature tests before SOL

Overall Line Observations

Swell noise observed on shot records

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:	295		282	305			
S3:	290						
S4:	106,116,318				127,318		
S5:	75,153,157				86		
S6:					37,154,205,303		
S7:	89,202		130		248		
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1584F2-050**Seq: **050**Dir: **10.5°**

FILE	SP	TAPE	BAD	
79-98				SOT - Dummy Files
99-110	/	1165		SOL NOISE FILES
111-119	945-953	1165		Gun S-19 Signature tests
120-129	958-967	1165		Gun S-20 Signature tests
130-139	991 -1000			APPROACH SHOTS
140	1001	1165		FSP @ 07:11 UTC
140	1001	1165		FPSP @ 07:11 UTC
172	1033		Bad	Delta Error: P-10: -1.1
435	1296			V2 passing abeam of Bream B @ 1150m
449	1310	1165		EOT - Stbd. Vane passing abeam of Bream B @ 800m
450	1311	1166		SOT
514	1375		Bad	Delta Error: P-2: 1.1
696	1557			TB's passing Bream B, TB8 @ 520m
820	1681	1166		EOT
821	1682	1167		SOT
1191	2052	1167		EOT
1192	2053	1168		SOT
1256	2117	1168		LPSP @ 09:42 UTC
1256	2117	1168		LSP @ 09:42 UTC
1257-1261	2118-2122			NAV PROCESSING SHOTS
1262-1271	/	1168		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1584F2-050**Seq: **050**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1584F2-050**
 Area: **Gippsland Basin, Bass Strait** Sequence: **050** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **6**
 Job ID: **20323** CMP line range: **1577-1592** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: nh sg

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	27-May-2006	147	07:11	17:11	1001	8	149	270° 7m/s, 2.5m
FPSP:	27-May-2006	147	07:11	17:11	1001			
LPSP:	27-May-2006	147	09:42	19:42	2117			
EOL LSP:	27-May-2006	147	09:42	19:42	2117	-1.8	383	250° 4m/s, 1.5m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	519	517
Per streamer:		
Str 1-8	76	75
Str 2-3	75	75
Str 3-4	74	74
Str 4-5	74	73
Str 5-6	69	70
Str 6-7	74	73
Str 7-8	77	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
PI-PC		8.0	8.1
PC-PO		8.1	8.1
SI-SC		7.6	7.6
SC-SO		8.3	8.3

P2/94 filename: **G06A-1584F2-050.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_5**
 Backup tape: **Tape 3 Seq 2**

Observations disabled etc.

Acoustics:
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	07:11	17:11	SOL, FSP
1001	07:11	17:11	FPSP
1296	07:51	17:51	Vessel 1150m west of Bream B
1310	07:53	17:53	Vane 800m west of Bream B
1557	08:26	18:26	Tailbuoys 520m west of Bream B
2117	09:42	19:42	LPSP
2117	09:42	19:42	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**
 Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1584F2-050**
 Sequence: **050**
 Direction: **10.5°** Nav. Def: **6**
 CMP line range: **1577-1592** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	27-May-2006	147	07:11	17:11	140	1001	1165
FPSP:	27-May-2006	147	07:11	17:11	140	1001	1165
LPSP:	27-May-2006	147	09:42	19:42	1256	2117	1168
EOL LSP	27-May-2006	147	09:42	19:42	1256	2117	1168

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	8	-1.8
Water depth (m)	59	53
RMS Noise (µB)	4	3.1
Weather	270° 7m/s, 2.5m	250° 4m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1992	1981
Stbd	1997	1984

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:31
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	2 / 0.18%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.5	1.7
HDOP	0.8	1.4	0.9
V1G2 PDOP	1.4	2.6	1.8
HDOP	0.8	1.4	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.4	2.3	4.50
Speed through water (m/s)	1.9	2.3	2.1	4.02
Feather angle (°)	-1.9	9.1	4.2	
Gyro (P) (°)	0.0	359.9	38.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	506.0	520.6	515.5
Str 1-2	73.6	77.2	75.4
Str 2-3	73.1	76.5	75.1
Str 3-4	70.1	75.5	73.2
Str 4-5	69.3	76.3	72.9
Str 5-6	67.4	72.2	70.0
Str 6-7	71.4	74.8	73.3
Str 7-8	73.1	77.5	75.5

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.1	38.5	35.7
Port Subarray			
Outer-Centre	7.2	8.6	7.9
Centre-Inner	7.4	8.7	8.0
Stbd Subarray			
Centre-Inner	7.1	8.5	7.7
Outer-Centre	7.6	8.8	8.2

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290			
Str 4	106,116,318			
Str 5	75,153,157			
Str 6				
Str 7	89,202		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2	351	
Str 3		
Str 4	127, 179, 318	
Str 5	136, 139	
Str 6	205, 303	
Str 7	203	
Str 8		318

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1033,1375	2
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.26

ONLINE COMMENTS

Swell noise observed on shot records

PROCESSING QC COMMENTS

Swell noise evident throughout line - isolated bursts up to a max amp. Of 75uBars
 Slight strum noise on outer cables only



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1600P1-052**
 Area: **Gippsland Basin, Bass Strait** Sequence: **052**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **6**
 Job ID: **20323** CMP line range: **1593-1608** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	27-May-2006	147	17:08	03:08	121	1001	1174	16:30	UTC
FPSP:	27-May-2006	147	17:08	03:08	121	1001	1174		
LPSP:	27-May-2006	147	19:30	05:30	1237	2117	1177		
EOL LSP:	27-May-2006	147	19:30	05:30	1237	2117	1177	16:55	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	8.7	5
Water depth (m)	58.4	52
RMS noise @ 5 Hz LC (µB)	3.3	3.2
Weather	300° 7m/s, 1.5m	160° 9m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1989	1986
Stbd	1990	1988

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.9-7.3
Str 2	6.7-7.2	6.7-7.2
Str 3	6.8-7.3	6.7-7.3
Str 4	6.7-7.2	6.8-7.3
Str 5	6.9-7.3	6.8-7.2
Str 6	6.7-7.2	6.7-7.2
Str 7	6.7-7.3	6.8-7.3
Str 8	6.8-7.3	6.7-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled: S1C19: no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:			282	305			
S3:	290						
S4:	43,106,318			116	127,318		
S5:	75,108,155,157		153		86		
S6:	49,116,120,158				37,91,205		
S7:	89,100,166,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1600P1-052

Seq:

052

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1174		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1174		FSP @ 17:08 UTC
121	1001	1174		FPSP @ 17:08 UTC
236	1116		Bad	Misfire: S-14
244	1124		Bad	Misfire: S-14
258	1138			Lowering Azimuth thruster
438	1318			Vane & S8 pass 1000m west of Bream B
469	1349	1174		EOT
470	1350	1175		SOT
681	1561			TB 8 pass 490m west of Bream B
696	1576			Azimuth thruster raised
803	1683		Bad	Autofire: S-4 - Gun is in spare mode, Not seen on QC screens
840	1720	1175		EOT
841	1721	1176		SOT
1116	1996		Bad	Misfire: S-14
1211	2091	1176		EOT
1212	2092	1177		SOT
1237	2117	1177		LPSP @ 19:30 UTC
1237	2117	1177		LSP @ 19:30 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1177		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1600P1-052**

Seq: **052**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1600P1-052**
 Area: **Gippsland Basin, Bass Strait** Sequence: **052** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **6**
 Job ID: **20323** CMP line range: **1593-1608** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: cb, ml
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	27-May-2006	147	17:08	03:08	1001	8.7	200	300° 7m/s, 1.5m
FPSP:	27-May-2006	147	17:08	03:08	1001			
LPSP:	27-May-2006	147	19:30	05:30	2117			
EOL LSP:	27-May-2006	147	19:30	05:30	2117	4.6	270	160° 9m/s, 1.5m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	516	518					36.0	35.0
Per streamer:	Str 1-2	75	75			Sub arrays:	PI-PC	8.6	7.8
	Str 2-3	75	75				PC-PO	8.0	7.8
	Str 3-4	73	73				SI-SC	7.8	8.0
	Str 4-5	74	76				SC-SO	8.2	8.1
	Str 5-6	70	69						
	Str 6-7	73	74						
	Str 7-8	76	76						

P2/94 filename: G06A-1600P1-052.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_1
 Backup tape: Tape 2 Seq 4

Observations disabled etc.

Acoustics:
 RGPS:
 Compasses: S1C19 KO
 Other:

SP	UTC	Local Time	Comments
1001	17:08	03:08	SOL, FSP
1001	17:08	03:08	FPSP
1138	17:25	03:25	Lowering Azimuth thruster
1299	17:46	03:46	Vessel pass 1350m west of Bream B
1318	17:49	03:49	Vane & S8 pass 1000m west of Bream B
1561	18:19	04:19	TB 8 pass 490m west of Bream B
1576	18:21	04:21	Azimuth thruster raised
2117	19:30	05:30	LPSP
2117	19:30	05:30	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1600P1-052**
 Sequence: **052**
 Direction: **10.5°** Nav. Def: **6**
 CMP line range: **1593-1608** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	27-May-2006	147	17:08	03:08	121	1001	1174
FPSP:	27-May-2006	147	17:08	03:08	121	1001	1174
LPSP:	27-May-2006	147	19:30	05:30	1237	2117	1177
EOL LSP:	27-May-2006	147	19:30	05:30	1237	2117	1177

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	8.7	4.6
Water depth (m)	58.4	52
RMS Noise (µB)	3.3	3.2
Weather	300° 7m/s, 1.5m	160° 9m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1989	1986
Stbd	1990	1988

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:22
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	4 / 0.36%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	2.8	2.1
HDOP	1.0	2.1	1.3
V1G2 PDOP	1.7	2.9	2.3
HDOP	1.0	2.2	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.5	4.76
Speed through water (m/s)	1.7	2.3	2.1	4.06
Feather angle (°)	1.8	9.7	7.2	
Gyro (P) (°)	351.2	8.6	360.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	508.7	521.0	515.5
Str 1-2	73.5	76.6	75.2
Str 2-3	73.4	76.5	74.9
Str 3-4	71.7	76.0	73.6
Str 4-5	72.3	77.5	74.7
Str 5-6	67.2	71.8	69.4
Str 6-7	71.9	74.4	73.1
Str 7-8	73.1	76.1	74.7

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source Port-Stbd	33.7	38.8	36.3
Port Subarray Outer-Centre	7.3	8.6	7.9
Centre-Inner	7.1	8.9	8.0
Stbd Subarray Centre-Inner	7.1	8.4	7.7
Outer-Centre	7.3	8.5	7.8

Birds bad: S1C19: no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4	43,106,318			116
Str 5	75,108,155,157		153	
Str 6	49,116,120,158			
Str 7	89,100,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2	351	
Str 3	30	
Str 4	127, 179, 233, 318	
Str 5	136, 139	
Str 6	205	
Str 7	203	
Str 8	152, 318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :	1116,1124,1683,1996	4
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

PROCESSING QC COMMENTS

Very slight strum on outer cables
 Occasional slight swell bursts <5%

SR/V Veritas Viking II

Observers Line Log

Client: **Esso Australia Pty. Ltd.**Line Name: **G06A-1616P1-054**Area: **Gippsland Basin, Bass Strait**Sequence: **054**Prospect: **2006 Greater Bream 3D**Direction: **10.5°**Nav Def: **6**Job ID: **20323**CMP line range: **1609-1624**Line type: **Prime**Type: **3D**No. CMPs: **16**Status: **Complete**Initials: SH, DY
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	28-May-2006	148	03:20	13:20	121	1001	1182	02:50	
FPSP:	28-May-2006	148	03:20	13:20	122	1002	1182		
LPSP:	28-May-2006	148	05:45	15:45	1237	2117	1185		
EOL LSP:	28-May-2006	148	05:45	15:45	1237	2117	1185	02:12	
				UTC Offset:	10.0				

Full volume arrays at 02:12 UTC

	SOL	EOL
Feather angle (°)	2.0	9
Water depth (m)	59	53
RMS noise @ 5 Hz LC (µB)	4.6	4.1
Weather	280° 14m/s, 1.5m	260° 11m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4230
Stbd	4450	4450
Source pressure (psi)		
Port	1988	1981
Stbd	1984	1985

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.1	6.7-7.2
Str 2	6.8-7.4	6.5-7.2
Str 3	6.8-7.2	6.8-7.3
Str 4	6.9-7.4	6.9-7.4
Str 5	6.8-7.3	6.9-7.3
Str 6	6.8-7.3	6.8-7.2
Str 7	6.9-7.2	6.9-7.3
Str 8	6.8-7.2	6.9-7.5

SOL/EOL Comments

Overall Line Observations

Swell bursts observed on shot records

Birds bad/poll disabled: S1C19: disabled polling & S6C9: no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:			282	305			
S3:	290						
S4:	43,106,318			116	127,318		
S5:	75,108,155,157		153		86,88,139		
S6:	49,116,120,158				205		
S7:	89,100,166,202,285		130				
S8:							

Vessel Manager: Howie Grizaard

Observers: 00:00-12:00

Emmanuel Ollada/Michael Wells

Operations Supervisor: Paul Turpin

12:00-00:00

Shane Hales/David de Young

Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1616P1-054**Seq: **054**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1182		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1182	Bad	FSP @ 03:20 UTC Delta Error: P-2: 1.1
122	1002	1182		FPSP @ 03:20 UTC
203	1083		Bad	Delta Error: P-2: 1.2
222	1102		Bad	Autofire seen on QC display
243	1123		Bad	Delta Error: P-2: 1.2
249	1129			Gun P-2 disabled D/T Delta Error. Port source volume @ 4230cu.in
304	1184		Bad	Misfire: S-14
469	1349	1182		EOT
470	1350	1183		SOT
840	1720	1183		EOT
841	1721	1184		SOT
1211	2091	1184		EOT
1212	2092	1185		SOT
1237	2117	1185		LPSP @ 05:45 UTC
1237	2117	1185		LSP @ 05:45 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1185		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1616P1-054**Seq: **054**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1616P1-054**
 Sequence: **054**
 Direction: **10.5°** Nav. Def: **6**
 CMP line range: **1609-1624** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	28-May-2006	148	03:20	13:20	121	1001	1182
FPSP:	28-May-2006	148	03:20	13:20	122	1002	1182
LPSP:	28-May-2006	148	05:45	15:45	1237	2117	1185
EOL LSP	28-May-2006	148	05:45	15:45	1237	2117	1185

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	2	8.5
Water depth (m)	59	53
RMS Noise (µB)	4.6	4.1
Weather	280° 14m/s, 1.5m	260° 11m/s, 1.5m
Source volume (cu in): Port	4450	4230
Stbd	4450	4450
Source pressure (psi): Port	1988	1981
Stbd	1984	1985

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:25
Production files	1116
Production SPs	1116
Production km	20.925
Production CMP km	334.800

ERROR STATISTICS

Source errors / %	4 / 0.36%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	5.1	2.4
HDOP	0.9	2.0	1.3
V1G2 PDOP	1.5	5.1	2.6
HDOP	0.9	2.0	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.6	2.4	4.70
Speed through water (m/s)	0.0	2.7	2.3	4.48
Feather angle (°)	2.4	9.0	6.9	
Gyro (P) (°)	0.0	359.9	346.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	502.5	521.5	514.0
Str 1-2	72.4	76.3	74.6
Str 2-3	72.6	76.1	74.9
Str 3-4	70.8	75.8	73.6
Str 4-5	73.6	78.9	76.3
Str 5-6	65.3	70.3	67.6
Str 6-7	71.2	74.1	72.6
Str 7-8	72.2	76.4	74.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.8	39.3	36.7
Port Subarray	7.2	8.1	7.6
Outer-Centre	6.9	8.3	7.6
Centre-Inner	7.1	8.7	7.9
Stbd Subarray	8.0	9.3	8.5
Outer-Centre			

Birds bad: S1C19: disabled polling & S6C9: no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4	43,106,318			116
Str 5	75,108,155,157		153	
Str 6	49,116,120,158			
Str 7	89,100,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	205	
Str 7	203	
Str 8		318

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1083,1123	2
Autofires / Misfires :	1102,1184	2
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.04

TOTAL SHOTS

ONLINE COMMENTS

Swell bursts observed on shot records

PROCESSING QC COMMENTS

Slight strum noise evident on outer cables only
 Isolated swell bursts throughout line (<5% of traces) - up to max. of 164 uBar, more commonly around 40uBars

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1616F1-059**
 Area: **Gippsland Basin, Bass Strait** Sequence: **059**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **6**
 Job ID: **20323** CMP line range: **1609-1624** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/RA
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	30-May-2006	150	18:29	4:29	121	1001	1198	18:00 UTC
FPSP:	30-May-2006	150	18:29	4:29	121	1001	1198	
LPSP:	30-May-2006	150	20:52	6:52	1237	2117	1201	Full volume arrays at 18:20 UTC
EOL LSP:	30-May-2006	150	20:52	6:52	1237	2117	1201	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	4.2	2
Water depth (m)	58	52
RMS noise @ 5 Hz LC (µB)	4.1	4
Weather	40°, 7m/s, .1.5m	Var°, 2m/s, 1.5m
Source vol. (cu. in.)	5	
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1985	1975
Stbd	1986	1980

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.8-7.5
Str 2	6.8-7.4	6.9-7.4
Str 3	6.9-7.2	6.9-7.4
Str 4	6.9-7.4	6.9-7.3
Str 5	6.8-7.5	6.9-7.3
Str 6	6.9-7.4	6.8-7.4
Str 7	6.9-7.4	6.9-7.2
Str 8	6.9-7.3	6.9-7.4

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled: S1C19, S2C11, S2C13, S6C9 Polling disabled.

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:				305			
S3:	83,290						
S4:	116,124,318				127,318		
S5:	75,153				139		
S6:	49,216				96,206,303		
S7:	89		130		203		
S8:							

Vessel Manager: Howie Grizaard **Observers:** 00:00-12:00 Neil Shelley, Michael Wells, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Larry Tan
Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1198		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1198		FSP @ 18:29 UTC
121	1001	1198		FPSP @ 18:29 UTC
469	1349	1198		EOT
470	1350	1199		SOT
840	1720	1199		EOT
841	1721	1200		SOT
1021	1901			moving stbd for coverage - no noise seen on QC screens or plots
1211	2091	1200		EOT
1212	2092	1201		SOT
1237	2117	1201		LPSP @ 20:52 UTC
1237	2117	1201		LSP @ 20:52 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1251	/	1201		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1616F1-059**Seq: **059**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1616F1-059**
 Area: **Gippsland Basin, Bass Strait** Sequence: **059** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **6**
 Job ID: **20323** CMP line range: **1609-1624** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: SG, HH

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	30-May-2006	150	18:29	4:29	1001	4.2	202	40°, 7m/s, .1.5m
FPSP:	30-May-2006	150	18:29	4:29	1001			
LPSP:	30-May-2006	150	20:52	6:52	2117			
EOL LSP:	30-May-2006	150	20:52	6:52	2117	2	200	Var°, 2m/s, 1.5m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	520	521
Per streamer:		
Str 1-8	75	75
Str 2-3	75	75
Str 3-4	74	75
Str 4-5	77	78
Str 5-6	69	69
Str 6-7	73	73
Str 7-8	76	75

	SOL	EOL
Sources overall: Port-Stbd	35.4	36.0
Sub arrays:		
PI-PC	7.9	8.0
PC-PO	7.9	7.6
SI-SC	7.6	7.6
SC-SO	8.1	8.3

P2/94 filename: G06A1616F1-059.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 1 Seq 1

Observations disabled etc.

Acoustics:
 RGPS:
 Compasses: S1C19 & S6C9 S2C11 S2C13 KO
 Other: S5D19 KO'd

SP	UTC	Local Time	Comments
1001	18:29	4:29	SOL, FSP
1001	18:29	4:29	FPSP
1901	20:25	6:25	moving stbd for coverage
2117	20:52	6:52	LPSP
2117	20:52	6:52	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1616F1-059**
 Sequence: **059**
 Direction: **10.5°** Nav. Def: **6**
 CMP line range: **1609-1624** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	30-May-2006	150	18:29	04:29	121	1001	1198
FPSP:	30-May-2006	150	18:29	04:29	121	1001	1198
LPSP:	30-May-2006	150	20:52	06:52	1237	2117	1201
EOL LSP	30-May-2006	150	20:52	06:52	1237	2117	1201

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	4.2	2
Water depth (m)	58	52
RMS Noise (µB)	4.1	4
Weather	40°, 7m/s, .1.5m	Var°, 2m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1985	1975
Stbd	1986	1980

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:23
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.8	2.0
HDOP	0.8	1.5	1.1
V1G2 PDOP	1.7	3.0	2.1
HDOP	1.0	2.1	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.6	2.5	4.77
Speed through water (m/s)	2.0	2.3	2.2	4.28
Feather angle (°)	2.0	7.4	5.4	
Gyro (P) (°)	0.0	359.9	8.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.8	523.7	519.6
Str 1-2	73.9	76.8	75.2
Str 2-3	73.8	76.2	75.1
Str 3-4	72.0	76.6	74.4
Str 4-5	75.3	80.1	77.7
Str 5-6	66.4	70.3	68.6
Str 6-7	72.0	74.2	73.2
Str 7-8	74.1	76.9	75.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.2	38.7	35.7
Port Subarray			
Outer-Centre	7.6	8.7	8.2
Centre-Inner	7.1	8.6	8.0
Stbd Subarray			
Centre-Inner	7.2	8.3	7.7
Outer-Centre	7.5	8.5	8.1

Birds bad: S1C19, S2C11, S2C13, S6C9 Polling disabled.
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	83,290			
Str 4	116,124,318			
Str 5	75,153			
Str 6	49,216			
Str 7	89		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	91, 205	
Str 7	203	
Str 8		318

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.20

ONLINE COMMENTS

PROCESSING QC COMMENTS

Occasional swell bursts affecting < 10% traces. Off end and broadside diffractons observed.
 Mild strum noise apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1632P1-061**
 Area: **Gippsland Basin, Bass Strait** Sequence: **061**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **7**
 Job ID: **20323** CMP line range: **1625-1640** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC,RA,AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	31-May-2006	151	04:14	14:14	121	1001	1206	03:25	
FPSP:	31-May-2006	151	04:14	14:14	121	1001	1206		
LPSP:	31-May-2006	151	06:59	16:59	1237	2117	1209		
EOL LSP:	31-May-2006	151	06:59	16:59	1237	2117	1209	03:50	
				UTC Offset:	10.0				

Full volume arrays at 03:50 UTC

	SOL	EOL
Feather angle (°)	-7.3	2.7
Water depth (m)	60	52
RMS noise @ 5 Hz LC (µB)	3.4	3.6
Weather	030°, 4m/s, 1.5m	70°, 4m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1974	1974
Stbd	1977	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.7-7.1
Str 2	6.8-7.2	6.8-7.3
Str 3	6.9-7.1	6.9-7.8
Str 4	7.0-7.4	6.7-7.2
Str 5	6.9-7.4	6.8-7.2
Str 6	6.9-7.2	6.8-7.3
Str 7	6.7-7.2	6.9-7.1
Str 8	7.0-7.3	6.9-7.3

SOL/EOL Comments

Noise files taken with feather angle >10°

Overall Line Observations

Birds bad/poll disabled:
 Birds deep/shallow: S5C19 frequently running deep @ 7.8m

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:				305			
S3:	83,290						
S4:	116,124,318				127,318		
S5:	75,153				136,139		
S6:	49,216				96,206,303		
S7:	89		130		203		
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1632P1-061**Seq: **061**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1206		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1206		FSP @ 04:14 UTC
121	1001	1206		FPSP @ 04:14 UTC
313	1193			S5C19 running deep at approx 7.7m
364	1244			S5C19 back at Target Depth
469	1349	1206		EOT
470	1350	1207		SOT
556	1436			S5C19 running deep at approx 7.7m
621	1501			S5C19 back at Target depth
840	1720	1207		EOT
841	1721	1208		SOT
902	1782			S5C19 running deep at approx 7.9m
976	1856		Bad	Misfire: S-10
1211	2091	1208		EOT
1212	2092	1209		SOT
1237	2117	1209		LPSP @ 06:59 UTC
1237	2117	1209		LSP @ 06:59 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1209		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1632P1-061**Seq: **061**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1632P1-061**
 Sequence: **061**
 Direction: **10.5°** Nav. Def: **7**
 CMP line range: **1625-1640** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **GC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	31-May-2006	151	04:14	14:14	121	1001	1206
FPSP:	31-May-2006	151	04:14	14:14	121	1001	1206
LPSP:	31-May-2006	151	06:59	16:59	1237	2117	1209
EOL LSP	31-May-2006	151	06:59	16:59	1237	2117	1209

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-7.3	2.7
Water depth (m)	60	52
RMS Noise (µB)	3.4	3.6
Weather	030°, 4m/s, 1.5m	70°, 4m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1974	1974
Stbd	1977	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:45
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.6	2.2
HDOP	0.9	1.9	1.2
V1G2 PDOP	1.5	6.1	2.4
HDOP	0.9	2.1	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.3	2.1	4.12
Speed through water (m/s)	2.2	2.5	2.4	4.63
Feather angle (°)	-6.9	3.5	0.8	
Gyro (P) (°)	5.8	18.0	11.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	517.8	525.1	521.2
Str 1-2	73.0	76.5	74.8
Str 2-3	74.4	76.5	75.4
Str 3-4	72.2	76.3	74.5
Str 4-5	72.9	78.6	75.6
Str 5-6	69.5	73.7	71.5
Str 6-7	72.2	74.5	73.3
Str 7-8	74.8	78.2	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.8	39.7	35.9
Port Subarray	7.5	8.7	8.2
Outer-Centre	7.4	8.6	8.0
Centre-Inner	7.7	8.6	8.1
Stbd Subarray	7.4	8.5	8.0
Outer-Centre	7.4	8.5	8.0

Birds bad:
 Birds depths: S5C19 frequently running deep @ 7.8m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	83,290			
Str 4	116,124,318			
Str 5	75,153			
Str 6	49,216			
Str 7	89		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	91, 205, 303	
Str 7	203	
Str 8		318

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :	1856	1
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.10

ONLINE COMMENTS

PROCESSING QC COMMENTS

Broadside diffractions observed at time 2.5 to 3 sec at approximately at SP 1400 .
 Strum noise, propeller noise & head wave noise observed along the line.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1632F1-063**
 Area: **Gippsland Basin, Bass Strait** Sequence: **063**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **7**
 Job ID: **20323** CMP line range: **1625-1640** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	31-May-2006	151	14:25	0:25	121	1001	1215	13:50 UTC
FPSP:	31-May-2006	151	14:25	0:25	121	1001	1215	
LPSP:	31-May-2006	151	16:56	2:56	1237	2117	1218	Full volume arrays at 14:15 UTC
EOL LSP:	31-May-2006	151	16:56	2:56	1237	2117	1218	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-8.8	-3
Water depth (m)	60	52
RMS noise @ 5 Hz LC (µB)	4.5	4.7
Weather	075°, 10m/s, 2.0m	080°, 11m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1972	1972
Stbd	1979	1970

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.5	6.8-7.2
Str 2	6.9-7.3	6.8-7.3
Str 3	6.9-7.2	6.9-7.1
Str 4	6.8-7.2	6.8-7.2
Str 5	6.8-7.4	6.8-7.3
Str 6	6.9-7.4	6.9-7.2
Str 7	6.7-7.3	6.9-7.2
Str 8	6.8-7.2	6.8-7.3

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:							
S2:			282	305			
S3:	290		339				
S4:	106,124,126,318		116				
S5:	75,155,157		153				
S6:	49,120,158						
S7:	89,100,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1632F1-063**

Seq: **063**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1215		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1215		FSP @ 14:25 UTC
121	1001	1215		FPSP @ 14:25 UTC
469	1349	1215		EOT
470	1350	1216		SOT
840	1720	1216		EOT
841	1721	1217		SOT
1211	2091	1217		EOT
1212	2092	1218		SOT
1237	2117	1218		LPSP @ 16:56 UTC
1237	2117	1218		LSP @ 16:56 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1253	/	1218		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1632F1-063**Seq: **063**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1632F1-063**
 Sequence: **063**
 Direction: **10.5°** Nav. Def: **7**
 CMP line range: **1625-1640** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **L.T.**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	31-May-2006	151	14:25	00:25	121	1001	1215
FPSP:	31-May-2006	151	14:25	00:25	121	1001	1215
LPSP:	31-May-2006	151	16:56	02:56	1237	2117	1218
EOL LSP	31-May-2006	151	16:56	02:56	1237	2117	1218

GENERAL INFORMATION

	SOL	EOL
FA (°)	-8.8	-3.1
Water depth (m)	60	52
RMS Noise (µB)	4.5	4.7
Weather	075°, 10m/s, 2.0m	080°, 11m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1972	1972
Stbd	1979	1970

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:31
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	0.9	2.1	1.4
HDOP	1.7	3.4	2.4
V1G2 PDOP	1.0	2.2	1.4
HDOP	1.9	3.4	2.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.48
Speed through water (m/s)	2.0	2.4	2.3	4.49
Feather angle (°)	-8.9	-3.6	-5.5	
Gyro (P) (°)	17.9	33.2	24.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.7	524.7	520.5
Str 1-2	72.5	75.6	74.2
Str 2-3	73.7	76.3	75.1
Str 3-4	69.4	74.4	71.7
Str 4-5	73.5	80.0	76.6
Str 5-6	70.4	75.5	73.0
Str 6-7	71.9	74.6	73.3
Str 7-8	74.8	78.1	76.6

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.1	37.0	34.7
Port Subarray	7.7	8.8	8.3
Centre-Inner	7.5	8.7	8.0
Stbd Subarray	7.5	8.5	7.9
Outer-Centre	7.5	8.3	7.9

Birds bad:
 Birds depths: S5C19 occasionally running deep @ approx. 7.5-8.0m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290		339	
Str 4	106,124,126,318		116	
Str 5	75,155,157		153	
Str 6	49,120,158			
Str 7	89,100,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109, 340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.09

ONLINE COMMENTS

PROCESSING QC COMMENTS

Negligible swell noise evident.
 Mild strumming apparent all strms.
 Mild screw noise visible.
 Off end diffraction energy evident for a short period.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1648P1-065**
 Area: **Gippsland Basin, Bass Strait** Sequence: **065**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **7**
 Job ID: **20323** CMP line range: **1641-1656** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	31-May-2006	151	00:13	10:13	121	1001	1223	23:45 UTC
FPSP:	31-May-2006	151	00:13	10:13	121	1001	1223	
LPSP:	1-Jun-2006	152	02:44	12:44	1236	2116	1226	Full volume arrays at 0:10 UTC
EOL LSP:	1-Jun-2006	152	02:44	12:44	1236	2116	1226	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-2.8	-10.3
Water depth (m)	59	52
RMS noise @ 5 Hz LC (µB)	4.9	4.1
Weather	080°, 10m/s, 2.0m	060°, 6m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1972
Stbd	1980	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.8-7.2
Str 2	6.9-7.9	6.9-7.2
Str 3	6.7-7.5	6.8-7.4
Str 4	6.8-7.6	6.8-7.2
Str 5	6.8-7.3	6.9-7.4
Str 6	6.9-7.3	6.7-7.0
Str 7	6.9-7.4	6.8-7.2
Str 8	6.9-7.5	6.8-7.2

SOL/EOL Comments

Overall Line Observations

LGSP called 2116 d/t Delta error flagged on SP 2117

Birds bad/poll disabled:

Birds deep/shallow: S5C19 occassionally running deep @ approx. 7.5-8.0m. Average 7.6m. Max. 8.3m

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:			282	305			
S3:	290		339				
S4:	106,124,126,318		116		127		
S5:	75,155,157		153		136,139		
S6:	49,120,158				96,206,303		
S7:	89,100,202,285		130		203		
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1648P1-065**Seq: **065**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1648P1-065**
 Sequence: **065**
 Direction: **10.5°** Nav. Def: **7**
 CMP line range: **1641-1656** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **GC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	31-May-2006	151	00:13	10:13	121	1001	1223
FPSP:	31-May-2006	151	00:13	10:13	121	1001	1223
LPSP:	1-Jun-2006	152	02:44	12:44	1236	2116	1226
EOL LSP	1-Jun-2006	152	02:44	12:44	1236	2116	1226

GENERAL INFORMATION

	SOL	EOL
FA (°)	-2.8	-10.3
Water depth (m)	59	52
RMS Noise (µB)	4.9	4.1
Weather	080°, 10m/s, 2.0m	060°, 6m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1972
Stbd	1980	1975

TOTALS INFORMATION

Recorded SPs	1116
Recorded km	20.925
Production time (hh:mm)	26:31
Production files	1116
Production SPs	1116
Production km	20.925
Production CMP km	334.800

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	8 / 0.72%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.1	2.1
HDOP	0.8	1.2	1.0
V1G2 PDOP	1.6	3.1	2.2
HDOP	0.8	1.2	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.5	2.3	4.50
Speed through water (m/s)	1.7	2.7	2.3	4.47
Feather angle (°)	-9.9	-2.3	-5.9	
Gyro (P) (°)	12.5	31.2	23.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	507.6	523.8	517.3
Str 1-2	71.7	76.4	73.9
Str 2-3	73.2	76.4	74.6
Str 3-4	70.4	75.9	72.7
Str 4-5	71.3	79.4	75.5
Str 5-6	69.1	74.3	71.6
Str 6-7	70.5	74.8	72.7
Str 7-8	74.0	78.0	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	31.4	38.5	34.8
Port Subarray	7.5	8.7	8.1
Centre-Inner	7.5	9.0	8.2
Stbd Subarray	7.1	8.3	7.8
Outer-Centre	7.6	8.5	8.1

Birds bad:

Birds depths: S5C19 occasionally running deep @ approx. 7.5-8.0m. Average 7.6m. Max. 8.3m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290		339	
Str 4	106,124,126,318		116	
Str 5	75,155,157		153	
Str 6	49,120,158			
Str 7	89,100,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109, 340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:**SPs:****TOTAL SHOTS**

Timing (delta) errors >1.0ms:	1421, 1517, 1613, 1675, 1681, 1941, 2025	7
Autofires / Misfires:	1127	1
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.23

ONLINE COMMENTS

LGSP called 2116 d/t Delta error flagged on SP 2117

PROCESSING QC COMMENTS

Less than 10% of mild energy swell noise evident.
 Mild strumming apparent all strms.
 Mild screw noise visible.
 Off end diffraction energy evident for a short period.
 Head wave noise observed along the line.

Geophysical Supervisor: Michael Bell Field Geophysicists: Paul Jones, Chong Wee Chen, Alan Lofts

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1664P1- 067**
 Area: **Gippsland Basin, Bass Strait** Sequence: **067**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **7**
 Job ID: **20323** CMP line range: **1657-1672** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC,RA,AD/NS,MW,LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	1-Jun-2006	152	11:52	21:52	121	1001	1232	11:20 UTC
FPSP:	1-Jun-2006	152	11:52	21:52	121	1001	1232	
LPSP:	1-Jun-2006	152	14:14	0:14	1237	2117	1235	
EOL LSP:	1-Jun-2006	152	14:14	0:14	1237	2117	1235	Full volume arrays at 11:40 UTC
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	8.2	-3
Water depth (m)	60	53
RMS noise @ 5 Hz LC (µB)	2.7	3.7
Weather	120°, 5m/s, 2.0m	145°, 3m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1974	1976
Stbd	1977	1979

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.2	6.8-7.5
Str 2	6.8-7.3	6.8-7.2
Str 3	6.8-7.3	6.9-7.2
Str 4	6.6-7.2	6.8-7.3
Str 5	6.8-7.5	6.8-7.2
Str 6	6.8-7.2	6.8-7.3
Str 7	6.9-7.2	6.8-7.3
Str 8	6.8-7.3	6.6-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:			282	305			
S3:	83,290		339				
S4:	116,126,318		124		128		
S5:	75,108,113,155,157		153		136, 139		
S6:	49,120,158				205		
S7:	89,100,166,202,285		130		203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1232		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1232		FSP @ 11:52 UTC
121	1001	1232		FPSP @ 11:52 UTC
469	1349	1232		EOT
470	1350	1233		SOT
605	1485		Bad	Delta Error: P-10: -1.1
840	1720	1233		EOT
841	1721	1234		SOT
1211	2091	1234		EOT
1212	2092	1235		SOT
1237	2117	1235		LPSP @ 14:14 UTC
1237	2117	1235		LSP @ 14:14 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1253	/	1235		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1664P1- 067**Seq: **067**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1664P1- 067**
 Sequence: **067**
 Direction: **10.5°** Nav. Def: **7**
 CMP line range: **1657-1672** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	1-Jun-2006	152	11:52	21:52	121	1001	1232
FPSP:	1-Jun-2006	152	11:52	21:52	121	1001	1232
LPSP:	1-Jun-2006	152	14:14	00:14	1237	2117	1235
EOL LSP	1-Jun-2006	152	14:14	00:14	1237	2117	1235

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	8.2	-2.7
Water depth (m)	60	53
RMS Noise (µB)	2.7	3.7
Weather	120°, 5m/s, 2.0m	145°, 3m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1974	1976
Stbd	1977	1979

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:22
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	0.8	1.7	1.0
HDOP	1.3	3.1	1.9
V1G2 PDOP	0.8	1.7	1.1
HDOP	1.5	3.1	2.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.5	4.77
Speed through water (m/s)	1.9	2.3	2.2	4.24
Feather angle (°)	-2.4	8.3	2.0	
Gyro (P) (°)	1.7	22.5	13.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	512.2	522.4	518.7
Str 1-2	73.3	76.8	74.9
Str 2-3	73.7	76.6	75.4
Str 3-4	70.4	77.6	73.4
Str 4-5	69.7	78.3	74.3
Str 5-6	68.9	74.6	71.4
Str 6-7	71.8	74.8	73.4
Str 7-8	74.0	77.8	76.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.5	39.0	35.4
Port Subarray			
Outer-Centre	7.3	8.5	7.9
Centre-Inner	7.8	9.2	8.4
Stbd Subarray			
Centre-Inner	6.9	8.8	7.8
Outer-Centre	7.5	8.8	8.1

Birds bad:
 Birds depths: S5C19 running deep @ approx 8.5-8.0m. Max. 8.6m Average. 7.6m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	83,290		339	
Str 4	116,126,318		124	
Str 5	75,108,113,155,157		153	
Str 6	49,120,158			
Str 7	89,100,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109, 340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	205	
Str 7	203	
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1485	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.27

TOTAL SHOTS

ONLINE COMMENTS

PROCESSING QC COMMENTS

Negligible swell noise on shots.
 Mild screw noise, and strum visible.
 Out of plane energy apparent midway along line - probably rig induced noise.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1680P1-069**
 Area: **Gippsland Basin, Bass Strait** Sequence: **069**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **7**
 Job ID: **20323** CMP line range: **1673-1688** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS,MW,LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	1-Jun-2006	152	21:46	7:46	121	1001	1240	21:10	
FPSP:	1-Jun-2006	152	21:46	7:46	121	1001	1240		
LPSP:	2-Jun-2006	153	00:07	10:07	1237	2117	1243		
EOL LSP:	2-Jun-2006	153	00:07	10:07	1237	2117	1243	21:40	
				UTC Offset:	10.0				

Full volume arrays at 21:40 UTC

	SOL	EOL
Feather angle (°)	9.4	1.3
Water depth (m)	60	52
RMS noise @ 5 Hz LC (µB)	4.7	4.7
Weather	150°, 7m/s, 2.0m	155°, 9m/s, 3.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1981	1974
Stbd	1980	1979

Streamer Depths (m)

	SOL	EOL
Str 1	6.5-8.2	6.9-7.7
Str 2	6.7-7.5	6.9-7.6
Str 3	6.6-7.4	6.9-7.9
Str 4	6.8-7.4	6.6-7.3
Str 5	6.9-7.7	6.5-8.2
Str 6	6.9-7.6	6.7-7.5
Str 7	6.9-7.9	6.6-7.4
Str 8	6.6-7.3	6.8-7.4

SOL/EOL Comments

Overall Line Observations

Occasionally gun depth errors d/t sea state and swell conditions
 Occasional bird depth fluctuation d/t sea state and swell conditions

Birds bad/poll disabled:

Birds deep/shallow: S5C19 running deep @ aprox. 7.5-8.0m. Max. 8.5m Avg. 7.6m

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:			282	305			
S3:	83,290		339				
S4:	116,126,318		124		128		
S5:	75,108,113,155,157		153		136, 139		
S6:	49,120,158				205		
S7:	89,100,166,202,285		130		203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1680P1-069**Seq: **069**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1240		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1240		FSP @ 21:46 UTC
121	1001	1240		FPSP @ 21:46 UTC
237	1117		Bad	Delta Error: P-10: -1.1
469	1349	1240		EOT
470	1350	1241		SOT
840	1720	1241		EOT
841	1721	1242		SOT
1179	2059			Last shot point of the day
1211	2091	1242		EOT
1212	2092	1243		SOT
1237	2117	1243		LPSP @ 00:07 UTC
1237	2117	1243		LSP @ 00:07 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1243		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1680P1-069**Seq: **069**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1680P1-069**
 Sequence: **069**
 Direction: **10.5°** Nav. Def: **7**
 CMP line range: **1673-1688** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **N.S.**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	1-Jun-2006	152	21:46	07:46	121	1001	1240
FPSP:	1-Jun-2006	152	21:46	07:46	121	1001	1240
LPSP:	2-Jun-2006	153	00:07	10:07	1237	2117	1243
EOL LSP	2-Jun-2006	153	00:07	10:07	1237	2117	1243

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	9.4	1.3
Water depth (m)	60	52
RMS Noise (µB)	4.7	4.7
Weather	150°, 7m/s, 2.0m	155°, 9m/s, 3.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1981	1974
Stbd	1980	1979

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:21
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.6	1.9
HDOP	0.8	1.4	1.0
V1G2 PDOP	1.4	2.6	2.0
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.5	4.86
Speed through water (m/s)	1.6	2.2	2.0	3.89
Feather angle (°)	2.0	10.3	6.2	
Gyro (P) (°)	1.0	22.4	13.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	503.3	519.6	513.5
Str 1-2	71.7	77.4	74.9
Str 2-3	71.8	77.4	75.0
Str 3-4	68.3	75.7	72.0
Str 4-5	69.4	79.1	74.3
Str 5-6	65.1	71.3	68.3
Str 6-7	70.3	75.4	73.2
Str 7-8	73.0	78.7	75.7

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.3	40.4	36.5
Port Subarray			
Outer-Centre	7.4	8.8	8.1
Centre-Inner	7.8	9.4	8.6
Stbd Subarray			
Centre-Inner	7.0	8.5	7.6
Outer-Centre	7.7	8.8	8.2

Birds bad:
 Birds depths: S5C19 running deep @ aprox. 7.5-8.0m. Max. 8.5m Avg. 7.6m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	83,290		339	
Str 4	116,126,318		124	
Str 5	75,108,113,155,157		153	
Str 6	49,120,158			
Str 7	89,100,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1117	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.55

ONLINE COMMENTS

Occasionally gun depth errors d/t sea state and swell conditions
 Occasional bird depth fluctuation d/t sea state and swell conditions

PROCESSING QC COMMENTS

Moderate swell noise affecting 15-25% traces, occasionally penetrating beyond 3000msec.
 Mild screw noise, and strum visible. Head wave noise observed along the line.
 Out of plane energy apparent midway along line.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1680F1-070**

Area: **Gippsland Basin, Bass Strait** Sequence: **070**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**

Job ID: **20323** CMP line range: **1673-1688** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **DNP**

Initials: NS/MW/LT,GC/RA/AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	4-Jun-2006	155	00:07	10:07	109	1001	1245	23:40	UTC
FPSP:	4-Jun-2006	155	00:07	10:07	109	1001	1245		
LPSP:	4-Jun-2006	155	02:26	12:26	1225	2117	1248		
EOL LSP:	4-Jun-2006	155	02:26	12:26	1225	2117	1248	0:04	UTC
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	3.2	-3
Water depth (m)	57	53
RMS noise @ 5 Hz LC (µB)	6.5	5
Weather	170°, 9m/s, 2.0m	150°, 3m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1982	1985
Stbd	1985	1985

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.3	6.7-7.2
Str 2	6.8-7.3	6.8-7.2
Str 3	6.9-7.5	6.8-7.2
Str 4	6.8-7.4	6.9-7.1
Str 5	6.7-7.1	6.8-7.4
Str 6	6.8-7.4	6.8-7.2
Str 7	6.7-7.3	6.9-7.2
Str 8	6.7-7.4	6.9-7.2

SOL/EOL Comments

No noise files recorded to tape @ SOL.
Line DNP due to noise levels

Overall Line Observations

Occasional bird depth fluctuation d/t sea state and swell conditions

Birds bad/poll disabled: S5C14 Disabled polling. S6C4 Bad compass

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:			282	305	208		
S3:	83,290		339				
S4:	106				127		
S5:				151	151		
S6:	158				205		
S7:	89,100,166,285		130		203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1680F1-070

Seq:

070

Dir:

10.5°

FILE	SP	TAPE	BAD	
N/A	/	1245		No noise files recorded to tape @ SOL
99-108	991-1000			APPROACH SHOTS
109	1001	1245		FSP @ 00:07 UTC
109	1001	1245		FPSP @ 00:07 UTC
137	1029		Bad	Delta Error: P-10: -1.1
469	1361	1245		EOT
470	1362	1246		SOT
629	1521		Bad	Delta Error: P-10: -1.2
840	1732	1246		EOT
841	1733	1247		SOT
1211	2103	1247		EOT
1212	2104	1248		SOT
1225	2117	1248		LPSP @ 02:26 UTC
1225	2117	1248		LSP @ 02:26 UTC
1226-1230	2118-2122			NAV PROCESSING SHOTS
1231-1241	/	1248		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1680F1-070**

Seq: **070**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1680F1-070**
 Area: **Gippsland Basin, Bass Strait** Sequence: **070** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1673-1688** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **DNP** Initials: sg, hh, vq
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	4-Jun-2006	155	00:07	10:07	1001	3.2	314	170°, 9m/s, 2.0m
FPSP:	4-Jun-2006	155	00:07	10:07	1001			
LPSP:	4-Jun-2006	155	02:26	12:26	2117			
EOL LSP:	4-Jun-2006	155	02:26	12:26	2117	-3.4	466	150°, 3m/s, 1.5m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL		EOL	
Streamer overall:	Str 1-8	516	520					35.6	36.2		
Per streamer:	Str 1-2	76	74			Sub arrays:	PI-PC	7.7	8.3		
	Str 2-3	73	75				PC-PO	8.4	7.9		
	Str 3-4	72	72				SI-SC	6.9	7.5		
	Str 4-5	69	72				SC-SO	8.6	8.1		
	Str 5-6	75	76								
	Str 6-7	73	73								
	Str 7-8	76	77								

P2/94 filename: G06A-1680F1-070.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 3 Seq 2

Observations disabled etc.

Acoustics: G1A2 intermittent
 RGPS:
 Compasses: S5C14 KO, S6C4 KO
 Other:

SP	UTC	Local Time	Comments
1001	0:07	10:07	SOL, FSP
1001	0:07	10:07	FPSP
1042	0:12	10:12	Went out on both Vanes by 2 m to increase sep's between S4/S5
2117	2:26	12:26	LPSP
2117	2:26	12:26	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewisor
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1680F1-070**
 Sequence: **070**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1673-1688** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **GC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	4-Jun-2006	155	00:07	10:07	109	1001	1245
FPSP:	4-Jun-2006	155	00:07	10:07	109	1001	1245
LPSP:	4-Jun-2006	155	02:26	12:26	1225	2117	1248
EOL LSP	4-Jun-2006	155	02:26	12:26	1225	2117	1248

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	3.2	-3.4
Water depth (m)	57	53
RMS Noise (µB)	6.5	5
Weather	170°, 9m/s, 2.0m	150°, 3m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1982	1985
Stbd	1985	1985

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:19
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	2 / 0.18%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.1	2.1
HDOP	0.8	1.2	1.0
V1G2 PDOP	1.6	3.1	2.2
HDOP	0.8	1.2	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.6	2.5	4.88
Speed through water (m/s)	1.9	2.5	2.3	4.44
Feather angle (°)	-3.0	5.8	1.1	
Gyro (P) (°)	3.0	23.1	14.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	511.6	523.2	518.7
Str 1-2	73.0	77.5	75.3
Str 2-3	73.5	76.7	75.1
Str 3-4	69.5	74.2	72.3
Str 4-5	66.5	75.6	71.2
Str 5-6	71.9	78.0	75.4
Str 6-7	71.7	75.0	73.3
Str 7-8	74.4	77.8	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source Port-Stbd	32.2	39.2	36.0
Port Subarray Outer-Centre	7.6	9.2	8.3
Centre-Inner	7.3	8.6	7.9
Stbd Subarray Centre-Inner	6.9	8.2	7.5
Outer-Centre	7.5	8.7	8.1

Birds bad: S5C14 Disabled polling, S6C4 Bad compass
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2			282	305
Str 3	83,290		339	
Str 4	106			
Str 5				151
Str 6	158			
Str 7	89,100,166,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	136, 151	
Str 6	104, 205	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1029, 1521	2
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.07

ONLINE COMMENTS

Occasional bird depth fluctuation d/t sea state and swell conditions

PROCESSING QC COMMENTS

Moderate swell noise affecting 15-20% traces, occasionally penetrating beyond 3000msec, appear as mild to medium level of swell noise energy. Mild screw noise, and strum visible. Head wave noise observed along the line. Out of plane energy apparent midway along line. Diffraction energy appear at 3.5 sec near the rig.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1680F2- 071**

Area: **Gippsland Basin, Bass Strait** Sequence: **071**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**

Job ID: **20323** CMP line range: **1673-1688** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **DNP**

Initials: GC,RA,AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	4-Jun-2006	155	10:03	20:03	121	1001	1250	09:30	UTC
FPSP:	4-Jun-2006	155	10:03	20:03	121	1001	1250		
LPSP:	4-Jun-2006	155	12:31	22:31	1237	2117	1253		
EOL LSP:	4-Jun-2006	155	12:31	22:31	1237	2117	1253	09:50	UTC
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	5.6	5
Water depth (m)	58	52
RMS noise @ 5 Hz LC (µB)	5.8	4.5
Weather	110°, 6m/s, 2.0m	120°, 7m/s, 2.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1977
Stbd	1981	1980

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.4	6.7-7.3
Str 2	6.7-7.4	6.8-7.3
Str 3	6.7-7.4	6.8-7.2
Str 4	6.6-7.2	6.8-7.1
Str 5	6.8-7.3	6.8-7.2
Str 6	6.8-7.4	6.7-7.4
Str 7	6.8-7.4	6.9-7.3
Str 8	6.7-7.4	6.9-7.2

SOL/EOL Comments

Line DNP due to noise levels

Overall Line Observations

Original line G06A-1680F1-070 was deemed DNP by clients d/t excessive swell noise

Birds bad/poll disabled: S5C14 Disabled polling. S6C4 Bad compass

Birds deep/shallow: Occasional bird depth fluctuation d/t sea state and swell condition

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305			
S3:	290		339				
S4:	43,61,110				128		
S5:				151	136, 139		
S6:	49,116,120,158				205		
S7:	89,166,202,285		130		203		
S8:					318		

Vessel Manager: Howie Grizaard **Observers:** 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
Chief Observer: Les Hayden



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1680F2- 071**

Seq: **071**

Dir: **10.5°**

Streamers - TUS Guardian

Seismic Recording System - SYNTRAK 960 24-bit

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Positioning

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1680F2- 071**
 Sequence: **071**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1673-1688** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **AD**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	4-Jun-2006	155	10:03	20:03	121	1001	1250
FPSP:	4-Jun-2006	155	10:03	20:03	121	1001	1250
LPSP:	4-Jun-2006	155	12:31	22:31	1237	2117	1253
EOL LSP	4-Jun-2006	155	12:31	22:31	1237	2117	1253

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	5.6	5.2
Water depth (m)	58	52
RMS Noise (µB)	5.8	4.5
Weather	110°, 6m/s, 2.0m	120°, 7m/s, 2.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1977
Stbd	1981	1980

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:28
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.2	2.1	1.7
HDOP	0.7	1.0	0.9
V1G2 PDOP	1.3	2.1	1.7
HDOP	0.8	1.0	0.9

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.4	2.4	4.58
Speed through water (m/s)	1.9	2.4	2.1	4.17
Feather angle (°)	5.3	9.1	6.7	
Gyro (P) (°)	0.0	359.9	9.5	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	506.1	521.3	516.0
Str 1-2	72.7	77.1	74.8
Str 2-3	73.1	76.4	74.9
Str 3-4	69.9	74.5	72.2
Str 4-5	67.1	73.9	70.3
Str 5-6	72.0	77.0	75.0
Str 6-7	71.4	75.1	73.2
Str 7-8	73.7	77.2	75.5

	Min	Max	Mean
Source-Source Port-Stbd	32.9	39.3	36.3
Port Subarray Outer-Centre	7.3	8.8	8.0
Centre-Inner	7.5	8.9	8.3
Stbd Subarray Centre-Inner	6.8	8.3	7.4
Outer-Centre	7.7	8.9	8.2

Birds bad: S5C14 Disabled polling. S6C4 Bad compass
 Birds depths: Occasional bird depth fluctuation d/t sea state and swell condition

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290		339	
Str 4	43,61,110			
Str 5				151
Str 6	49,116,120,158			
Str 7	89,166,202,285		130	
Str 8				

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	136, 151	
Str 6	104, 205	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS: SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 1.59

ONLINE COMMENTS

Original line G06A-1680F1-070 was deemed DNP by clients d/t excessive swell noise

PROCESSING QC COMMENTS

Shots showing considerable swell noise, often > 20% traces affected. Occasionally penetrating water bottom.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1680F3-073**
 Area: **Gippsland Basin, Bass Strait** Sequence: **073**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1673-1688** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	4-Jun-2006	155	20:08	06:08	121	1001	1258	19:40	
FPSP:	4-Jun-2006	155	20:08	06:08	121	1001	1258		
LPSP:	4-Jun-2006	155	22:39	08:39	1237	2117	1261		
EOL LSP:	4-Jun-2006	155	22:39	08:39	1237	2117	1261	20:05	
				UTC Offset:	10.0				

Full volume arrays at 20:05 UTC

	SOL	EOL
Feather angle (°)	-6.2	2.4
Water depth (m)	59	52
RMS noise @ 5 Hz LC (µB)	3.8	4.1
Weather	140°, 5m/s, 1.0m	110°, 3m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1971	1973
Stbd	1978	1977

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.8-7.5
Str 2	6.5-7.4	6.8-7.3
Str 3	6.7-7.6	6.7-7.5
Str 4	6.7-7.2	6.8-7.3
Str 5	6.8-7.5	6.8-7.4
Str 6	6.8-7.3	6.5-7.4
Str 7	6.7-7.5	6.7-7.6
Str 8	6.8-7.3	6.7-7.2

SOL/EOL Comments

Overall Line Observations

Original line G06A-1680F1-070 and line G06A-1680F2-071 DNP'd at clients request d/t swell noise

Birds bad/poll disabled: S5C14 Disabled polling. S6C4 Bad compass

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305			
S3:	290		339				
S4:	43,61,110				128		
S5:				151	135, 136, 137		
S6:	49,116,120,158				205		
S7:	89,166,202,285		130		203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1680F3-073**

Seq: **073**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1258		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1258		FSP @ 20:08 UTC
121	1001	1258		FPSP @ 20:08 UTC
469	1349	1258		EOT
470	1350	1259		SOT
840	1720	1259		EOT
841	1721	1260		SOT
1211	2091	1260		EOT
1212	2092	1261		SOT
1237	2117	1261		LPSP @ 22:39 UTC
1237	2117	1261		LSP @ 22:39 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1261		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1680F3-073**Seq: **073**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1680F3-073**
 Sequence: **073**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1673-1688** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	4-Jun-2006	155	20:08	06:08	121	1001	1258
FPSP:	4-Jun-2006	155	20:08	06:08	121	1001	1258
LPSP:	4-Jun-2006	155	22:39	08:39	1237	2117	1261
EOL LSP	4-Jun-2006	155	22:39	08:39	1237	2117	1261

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.2	2.4
Water depth (m)	59	52
RMS Noise (µB)	3.8	4.1
Weather	140°, 5m/s, 1.0m	110°, 3m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1971	1973
Stbd	1978	1977

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:31
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.1	1.8
HDOP	0.8	1.1	1.0
V1G2 PDOP	1.4	2.5	1.8
HDOP	0.8	1.3	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.3	4.50
Speed through water (m/s)	2.1	2.4	2.2	4.37
Feather angle (°)	-6.1	3.2	0.6	
Gyro (P) (°)	4.8	20.5	10.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.8	526.2	521.9
Str 1-2	72.9	76.6	74.9
Str 2-3	74.1	76.8	75.4
Str 3-4	71.2	74.9	73.0
Str 4-5	69.3	75.5	72.2
Str 5-6	74.0	78.6	76.4
Str 6-7	72.4	74.5	73.5
Str 7-8	74.9	78.2	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.8	39.7	36.9
Port Subarray			
Outer-Centre	7.6	8.7	8.1
Centre-Inner	7.9	9.3	8.7
Stbd Subarray			
Centre-Inner	7.1	8.3	7.7
Outer-Centre	7.7	8.6	8.2

Birds bad: S5C14 Disabled polling. S6C4 Bad compass
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290		339	
Str 4	43,61,110			
Str 5				151
Str 6	49,116,120,158			
Str 7	89,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	135, 136, 137, 151	
Str 6	205	
Str 7	164, 204	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.07

ONLINE COMMENTS

Original line G06A-1680F1-070 and line G06A-1680F2-071 DNP'd at clients request d/t swell noise

PROCESSING QC COMMENTS

Occasional moderate swell bursts, affecting <10% traces.
 Strum evident all cables.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1680F4-074**
 Area: **Gippsland Basin, Bass Strait** Sequence: **074**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1673-1688** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	5-Jun-2006	156	14:10	0:10	121	1001	1263	13:30 UTC
FPSP:	5-Jun-2006	156	14:10	0:10	121	1001	1263	
LPSP:	5-Jun-2006	156	16:37	2:37	1237	2117	1266	Full volume arrays at 13:55 UTC
EOL LSP:	5-Jun-2006	156	16:37	2:37	1237	2117	1266	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	2.9	-3.1
Water depth (m)	57	52
RMS noise @ 5 Hz LC (µB)	3.9	3
Weather	060°, 1m/s, 1.0m	335°, 2m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1978	1975
Stbd	1984	1981

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.2	6.8-7.3
Str 2	6.9-7.5	6.8-7.3
Str 3	6.8-7.2	6.8-7.4
Str 4	6.8-7.3	6.9-7.2
Str 5	6.8-7.3	6.8-7.2
Str 6	6.8-7.3	6.9-7.5
Str 7	6.8-7.4	6.8-7.2
Str 8	6.9-7.2	6.8-7.3

SOL/EOL Comments

Overall Line Observations

Original line G06A-1680F1-070 and line G06A-1680F2-071 was deemed DNP by clients d/t excessive swell noise
 Line G06A-1680F3-073 never acquired adequate coverage
 16 CDP Progressive Infill. CDP's 1673-1688
 SP 2030 Gun S-13 deactivated. Stbd array volume = 4120cuin
 SP 2037 Gun S-12 activated. Stbd array volume = 4450cuin

Birds bad/poll disabled: **S6C4 Bad Compass**

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305			
S3:	290		339				
S4:					128		
S5:				151	86		
S6:	49,120,158				205		
S7:	89,166,202,229		130		203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1680F4-074**Seq: **074**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1263		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1263		FSP @ 14:10 UTC
121	1001	1263		FPSP @ 14:10 UTC
469	1349	1263		EOT
470	1350	1264		SOT
840	1720	1264		EOT
841	1721	1265		SOT
1144	2024		Bad	Misfire: S-13
1146	2026		Bad	Misfire: S-13
1148	2028		Bad	Misfire: S-13
1150	2030		Bad	Misfire: S-13. Gun S-13 deactivated
1152	2032		Bad	Volume Error - Expected Volume = 4450cuin. Actual Volume = 4120cuin
1154	2034		Bad	Volume Error - Expected Volume = 4450cuin. Actual Volume = 4120cuin
1156	2036		Bad	Volume Error - Expected Volume = 4450cuin. Actual Volume = 4120cuin
1157	2037		Bad	Streamer Error: NAVS. Gun S-12 activated. Stbd array volume = 4450cuin
1158	2038		Bad	Misfire: S-12
1160	2040		Bad	Delta Error: S-12: 1.6
1211	2091	1265		EOT
1212	2092	1266		SOT
1237	2117	1266		LPSP @ 16:37 UTC
1237	2117	1266		LSP @ 16:37 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1266		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1680F4-074**Seq: **074**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1680F4-074**
 Sequence: **074**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1673-1688** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **N.S.**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	5-Jun-2006	156	14:10	00:10	121	1001	1263
FPSP:	5-Jun-2006	156	14:10	00:10	121	1001	1263
LPSP:	5-Jun-2006	156	16:37	02:37	1237	2117	1266
EOL LSP	5-Jun-2006	156	16:37	02:37	1237	2117	1266

GENERAL INFORMATION

	SOL	EOL
FA (°)	2.9	-3.1
Water depth (m)	57	52
RMS Noise (µB)	3.9	3
Weather	060°, 1m/s, 1.0m	335°, 2m/s, 1.0m
Source volume (cu in):	Port 4450	4450
Stbd	4450	4450
Source pressure (psi):	Port 1978	1975
Stbd	1984	1981

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:27
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	6 / 0.54%
Missed SPs / %	0 / 0%
Other bad SPs / %	4 / 0.36%

GPS

	Min	Max	Mean
V1G1 PDOP	0.9	2.2	1.4
HDOP	1.7	3.4	2.4
V1G2 PDOP	1.0	2.2	1.4
HDOP	1.9	3.4	2.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.4	4.63
Speed through water (m/s)	2.0	2.3	2.1	4.17
Feather angle (°)	-2.7	4.9	0.8	
Gyro (P) (°)	1.8	19.4	12.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.3	525.0	522.0
Str 1-2	73.7	76.8	75.2
Str 2-3	74.1	76.7	75.4
Str 3-4	71.0	75.3	72.9
Str 4-5	67.0	73.6	71.2
Str 5-6	75.5	80.2	77.8
Str 6-7	72.1	74.5	73.3
Str 7-8	74.6	77.6	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.4	38.4	35.0
Port Subarray	7.2	8.3	7.9
Outer-Centre	7.9	9.2	8.5
Stbd Subarray	7.1	8.3	7.8
Centre-Inner	8.0	9.1	8.6
Outer-Centre			

Birds bad: **S6C4 Bad Compass**
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290		339	
Str 4				
Str 5				151
Str 6	49,120,158			
Str 7	89,166,202,229		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 326	
Str 6	205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	2040	1
Autofires / Misfires :	2024, 2026, 2028, 2030, 2038	5
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	2037	1
Other Bad shots:	2032, 2034, 2036 - Volume Errors	3
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

Original line G06A-1680F1-070 and line G06A-1680F2-071 was deemed DNP by clients d/t excessive swell noise
 Line G06A-1680F3-073 never acquired adequate coverage
 16 CDP Progressive Infill. CDP's 1673-1688
 SP 2030 Gun S-13 deactivated. Stbd array volume = 4120cuin
 SP 2037 Gun S-12 activated. Stbd array volume = 4450cuin

PROCESSING QC COMMENTS

Shots generally free from unwanted noise, but showing occasional moderate swell noise, affecting ~5% traces on those shots affected at all.
 Out of plane diffraction apparent midway along line.
 Strumming evident, all cables.
 Head wave energy visible.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1696P1-076**

Area: **Gippsland Basin, Bass Strait** Sequence: **076**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**

Job ID: **20323** CMP line range: **1689-1704** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Incomplete**

Initials: NS/MW/LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	6-Jun-2006	157	00:10	10:10	121	1001	1271	23:45 UTC
FPSP:	6-Jun-2006	157	00:10	10:10	121	1001	1271	
LPSP:	6-Jun-2006	157	02:32	12:32	1237	2117	1274	
EOL LSP:	6-Jun-2006	157	02:32	12:32	1237	2117	1274	Full volume arrays at 0:05 UTC
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	4.5	1.7
Water depth (m)	58	52
RMS noise @ 5 Hz LC (µB)	2.5	3.5
Weather	045°, 2m/s, 0.5m	120°, 1m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1978	1975
Stbd	1980	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.2	6.9-7.4
Str 2	6.9-7.2	6.8-7.2
Str 3	6.9-7.1	6.9-7.2
Str 4	6.4-7.2	6.9-7.2
Str 5	6.8-7.2	6.8-7.4
Str 6	6.8-7.2	6.8-7.1
Str 7	6.9-7.2	6.9-7.1
Str 8	6.9-7.1	6.9-7.2

SOL/EOL Comments

Overall Line Observations

Files 79-98 Gun signature tests conducted on gun S-13
 SP's 1002-1020 Flagged as volume errors on GCS90 d/t incorrect volume for gun S-13 set in GCS90 software. Read 280cuin. Actual 330cuin
LGSP 1643 @ 01:32 UTC d/t ailreak on Stbd middle gunstring
FGSP 1677 @ 01:36 UTC. SP's 1644-1676 bad gun signature. (33 shotpoints)
 Line incomplete d/t airleak on the Stbd middle gunstring.

Birds bad/poll disabled: S6C4, S4C6 Bad compass.

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305			
S3:	290		339				
S4:					128		
S5:				151	86		
S6:	49,120,158				205		
S7:	89,166,202,229		130		203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
79-98	N/A	1271		GUN SIGNATURE TESTS CONDUCTED ON GUN S-13
99-110	/	1271		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1271		FSP @ 00:10 UTC
121	1001	1271		FPSP @ 00:10 UTC
449	1329	1271		EOT
450	1330	1272		SOT
763	1643			LGSP @ 01:32 UTC d/t ailreak
790	1670			Gun S-13 deactivated. Gun S-12 activated. Stbd array volume = 4450cuin
795	1675			Gun S-13 airlock enabled
797	1677			FGSP @ 01:36 UTC. SP's 1644-1676 bad gun signature. (33 shotpoints)
820	1700	1272		EOT
821	1701	1273		SOT
967	1847		Bad	Delta Error: P-20: 1.4
1191	2071	1273		EOT
1192	2072	1274		SOT
1237	2117	1274		LPSP @ 02:32 UTC
1237	2117	1274		LSP @ 02:32 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1253	/	1274		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1696P1-076**Seq: **076**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1696P1-076**
 Area: **Gippsland Basin, Bass Strait** Sequence: **076** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1689-1704** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Incomplete** Log Status: Final

Initials: sg, vq, hh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	6-Jun-2006	157	00:10	10:10	1001	4.5	220	045°, 2m/s, 0.5m
FPSP:	6-Jun-2006	157	00:10	10:10	1001			
LPSP:	6-Jun-2006	157	02:32	12:32	2117			
EOL LSP:	6-Jun-2006	157	02:32	12:32	2117	1.7	175	120°, 1m/s, 1.0m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall: Str 1-8	521	520
Per streamer: Str 1-2	75	74
Str 2-3	75	75
Str 3-4	73	73
Str 4-5	70	71
Str 5-6	77	78
Str 6-7	74	73
Str 7-8	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	8.0	8.1
	PC-PO	8.3	8.1
	SI-SC	8.0	7.9
	SC-SO	8.6	7.9

P2/94 filename: G06A-1696P1-076.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_8
 Backup tape: Tape 4 Seq 3

Observations disabled etc.

Acoustics: G1A2 intermittent
 RGPS:
 Compasses: S6C4 Bad Bias, S4C6 bad compass - KO'd
 Other:

SP	UTC	Local Time	Comments
1001	0:10	10:10	SOL, FSP
1001	0:10	10:10	FPSP
1645	1:32	11:32	Drop wsp to 4.0kts d/t loss of air pressure
1678	1:35	11:35	Pressures good
1712	1:41	11:41	Wsp coming back to 4.2kts
2117	2:32	12:32	LPSP
2117	2:32	12:32	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1696P1-076**
 Sequence: **076**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1689-1704** Line type: **Prime**
 No. CMPs: **16** Status: **Incomplete**

Obs Initials: **RA**
 Proc Initials: **MB**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	6-Jun-2006	157	00:10	10:10	121	1001	1271
FPSP:	6-Jun-2006	157	00:10	10:10	121	1001	1271
LPSP:	6-Jun-2006	157	02:32	12:32	1237	2117	1274
EOL LSP	6-Jun-2006	157	02:32	12:32	1237	2117	1274

GENERAL INFORMATION

	SOL	EOL
FA (°)	4.5	1.7
Water depth (m)	58	52
RMS Noise (µB)	2.5	3.5
Weather	045°, 2m/s, 0.5m	120°, 1m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1978	1975
Stbd	1980	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:22
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	33 / 2.95%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.7	2.1
HDOP	0.8	1.3	1.0
V1G2 PDOP	1.6	4.2	2.3
HDOP	0.8	1.5	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.5	4.78
Speed through water (m/s)	2.0	2.5	2.2	4.32
Feather angle (°)	2.3	5.8	3.9	
Gyro (P) (°)	0.0	359.9	9.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.5	526.1	521.4
Str 1-2	73.5	76.6	75.0
Str 2-3	74.2	76.5	75.4
Str 3-4	71.9	75.1	73.4
Str 4-5	68.7	73.5	71.0
Str 5-6	75.1	79.4	77.4
Str 6-7	72.1	74.3	73.3
Str 7-8	74.5	77.1	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.1	38.8	36.2
Port Subarray			
Outer-Centre	7.3	8.7	8.1
Centre-Inner	7.9	9.0	8.5
Stbd Subarray			
Centre-Inner	7.6	8.8	8.1
Outer-Centre	7.5	9.0	8.2

Birds bad: S6C4, S4C6 Bad compass.

Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290		339	
Str 4				
Str 5				151
Str 6	49,120,158			
Str 7	89,166,202,229		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127, 175, 177	
Str 5	151, 326	
Str 6	91, 205, 303	
Str 7	203	
Str 8	318, 340	

SHOT / TRACE EDITS:**SPs:****TOTAL SHOTS**

Timing (delta) errors >1.0ms:	1847	1
Autofires / Misfires:		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:	SP's 1644-1676 - Bad gun signature d/t airleak on Stbd middle gunstring	33
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.00

ONLINE COMMENTS

Files 79-98 Gun signature tests conducted on gun S-13
 SP's 1002-1020 Flagged as volume errors on GCS90 d/t incorrect volume for gun S-13 set in GCS90 software. Read 280cuin. Actual 330cuin
LGSP 1643 @ 01:32 UTC d/t airleak on Stbd middle gunstring
FGSP 1677 @ 01:36 UTC. SP's 1644-1676 bad gun signature. (33 shotpoints)
 Line incomplete d/t airleak on the Stbd middle gunstring.

PROCESSING QC COMMENTS

No swell noise observed.
 Out of plane diffraction observed midway along line at 4.5 to 5 sec timegate.
 Mild screw noise, and strum visible. Head wave noise observed along the line due to data is clean due to the calm sea condition

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1696P2-187**
 Area: **Gippsland Basin, Bass Strait** Sequence: **187**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **1689-1704** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**
 Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	3-Jul-2006	184	15:52	1:52	121	1634	1713	15:15 UTC
FPSP:	3-Jul-2006	184	15:54	1:54	131	1644	1713	
LPSP:	3-Jul-2006	184	15:58	1:58	163	1676	1713	Full volume arrays at 15:35 UTC
EOL LSP:	3-Jul-2006	184	16:29	2:29	388	1901	1713	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-5.0	-4.7
Water depth (m)	54	51
RMS noise @ 5 Hz LC (µB)	3.3	2.9
Weather	060°, 3m/s, 1.0m	060°, 3m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1980	1975
Stbd	1980	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.5	6.6-7.2
Str 2	6.9-7.5	6.9-7.3
Str 3	6.9-7.4	6.9-7.1
Str 4	6.9-7.3	6.9-7.2
Str 5	6.9-7.4	6.8-7.3
Str 6	6.8-7.3	6.8-7.2
Str 7	6.9-7.3	6.9-7.2
Str 8	6.8-7.4	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.
P2 Line d/t airleak on Seq 076
 SPs 1687 - 1901 acquired for minimum line distance

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305, 345		
S3:	290			339 (Phase)	304		
S4:	106, 110, 148, 177				127		
S5:	75				88		
S6:	49, 116, 158, 161, 307				91, 205, 303		
S7:	89, 100, 166, 202, 229, 269, 285		360		185, 257, 302, 348		
S8:	198				233		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1713		SOT - SOL NOISE FILES
111-120	1624-1633			APPROACH SHOTS
121	1634	1713		FSP @ 15:52 UTC FIRST OVERLAP SP
131	1644	1713		FPSP @ 15:54 UTC
163	1676	1713		LPSP @ 15:58 UTC
173	1686	1713		Last Overlap 'A' SP @ 15:59 UTC
364	1877		Bad	Streamer Error: NAVS
388	1901	1713		LSP @ 16:29 UTC
389-393	1902-1906			NAV PROCESSING SHOTS
394-403	/	1713		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1696P2-187**Seq: **187**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1696P2-187**
 Area: **Gippsland Basin, Bass Strait** Sequence: **187** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **1689-1704** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: vq, hh, at, vt.

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	3-Jul-2006	184	15:52	1:52	1634	-5	146	060°, 3m/s, 1.0m
FPSP:	3-Jul-2006	184	15:54	1:54	1644			
LPSP:	3-Jul-2006	184	15:58	1:58	1676			
EOL LSP:	3-Jul-2006	184	16:29	2:29	1901	-4.7	147	060°, 3m/s, 1.0m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	523	522
Per streamer:		
Str 1-8	75	75
Str 2-3	76	76
Str 3-4	73	73
Str 4-5	73	70
Str 5-6	76	77
Str 6-7	74	73
Str 7-8	77	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PO-PC	7.7	7.5
	PC-PI	8.8	9.1
	SI-SC	7.6	7.9
	SC-SO	8.0	8.0

P2/94 filename: G06A-1696P2-187.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_12
 Backup tape: Tape 2 Seq 4

Observations disabled etc.

Acoustics: S2A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1634	15:52	1:52	SOL, F'A'SP
1644	15:54	1:54	FPSP
1676	15:58	1:58	LPSP
1686	15:59	1:59	L'A'SP
1901	16:29	2:29	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1696P2-187**
 Sequence: **187**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **1689-1704** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	3-Jul-2006	184	15:52	01:52	121	1634	1713
FPSP:	3-Jul-2006	184	15:54	01:54	131	1644	1713
LPSP:	3-Jul-2006	184	15:58	01:58	163	1676	1713
EOL LSP	3-Jul-2006	184	16:29	02:29	388	1901	1713

GENERAL INFORMATION

	SOL	EOL
FA (°)	-5	-4.7
Water depth (m)	54	51
RMS Noise (µB)	3.3	2.9
Weather	060°, 3m/s, 1.0m	060°, 3m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1980	1975
Stbd	1980	1975

TOTALS INFORMATION

Recorded SPs	268
Recorded km	5.025
Production time (hh:mm)	00:04
Production files	33
Production SPs	33
Production km	0.619
Production CMP km	9.900

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	2.9	2.6
HDOP	1.2	1.5	1.4
V1G2 PDOP	1.8	2.9	2.8
HDOP	1.2	1.5	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.3	2.3	4.44
Speed through water (m/s)	2.1	2.3	2.2	4.25
Feather angle (°)	-4.9	-3.4	-3.8	
Gyro (P) (°)	15.6	20.1	17.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	519.5	524.0	521.9
Str 1-2	74.3	75.9	75.2
Str 2-3	74.9	76.5	75.7
Str 3-4	72.5	75.0	73.9
Str 4-5	69.1	73.2	70.8
Str 5-6	75.7	78.2	77.0
Str 6-7	72.4	73.8	73.0
Str 7-8	75.5	77.0	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.8	37.7	36.3
Port Subarray			
Outer-Centre	7.3	8.1	7.7
Centre-Inner	8.4	9.2	8.8
Stbd Subarray			
Centre-Inner	7.3	7.9	7.7
Outer-Centre	7.9	8.4	8.2

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49,116,158,161,307			
Str 7	89,100,166, 202, 229,		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109,340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	88,326,352,	
Str 6	91,205,	
Str 7	164,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1877 - Outside production shotpoint range	0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.14

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 P2 Line d/t airleak on Seq 076
 SPs 1687 - 1901 acquired for minimum line distance

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1712P1-078**
 Area: **Gippsland Basin, Bass Strait** Sequence: **078**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1705-1720** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Incomplete**

Initials: GC,RA,AD/NS,MW,LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	6-Jun-2006	157	11:53	21:53	99	1021	1280	at	10:40
FPSP:	6-Jun-2006	157	11:53	21:53	99	1021	1280		
LPSP:	6-Jun-2006	157	14:14	00:14	1195	2117	1282	Full volume arrays at	11:00
EOL LSP:	6-Jun-2006	157	14:14	00:14	1195	2117	1282		
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	5.0	5
Water depth (m)	57	52
RMS noise @ 5 Hz LC (µB)	3.2	2.1
Weather	060°, 4m/s, 1.0m	085°, 5m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1969
Stbd	1975	1973

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.8-7.2
Str 2	6.9-7.2	6.9-7.1
Str 3	6.8-7.2	6.9-7.1
Str 4	6.8-7.2	6.8-7.2
Str 5	6.8-7.2	6.9-7.3
Str 6	6.9-7.1	6.9-7.2
Str 7	6.9-7.1	6.8-7.2
Str 8	6.8-7.2	6.8-7.2

SOL/EOL Comments

No noise files recorded @ SOL

Overall Line Observations

FGSP 1021 @ 11:53 UTC d/t Syntrak lockup prior to SOL. Missed SP's 1001-1020 inclusive (20 shotpoints)
 Line Incomplete d/t syntrak lockup

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305			
S3:	290		339				
S4:					128		
S5:				151	86		
S6:	49,120,158				205		
S7:	89,166,202,229		130		203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1712P1-078

Seq:

078

Dir:

10.5°

FILE	SP	TAPE	BAD	
N/A	/	1280		No noise files recorded @ SOL
N/A	N/A			No approach shots recorded d/t Syntrak lockup prior to SOL
99	1021	1280		FSP @ 11:53 UTC
99	1021	1280		FPSP @ 11:53 UTC
469	1391	1280		EOT
470	1392	1281		SOT
840	1762	1281		EOT
841	1763	1282		SOT
1195	2117	1282		LPSP @ 14:14 UTC
1195	2117	1282		LSP @ 14:14 UTC
1196-1200	2118-2122			NAV PROCESSING SHOTS
1201-1210	/	1282		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1712P1-078**

Seq: **078**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxiliary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1712P1-078**
 Sequence: **078**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1705-1720** Line type: **Prime**
 No. CMPs: **16** Status: **Incomplete**

Obs Initials: **M.W.**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	6-Jun-2006	157	11:53	21:53	99	1021	1280
FPSP:	6-Jun-2006	157	11:53	21:53	99	1021	1280
LPSP:	6-Jun-2006	157	14:14	00:14	1195	2117	1282
EOL LSP	6-Jun-2006	157	14:14	00:14	1195	2117	1282

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	5	4.8
Water depth (m)	57	52
RMS Noise (µB)	3.2	2.1
Weather	060°, 4m/s, 1.0m	085°, 5m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1969
Stbd	1975	1973

TOTALS INFORMATION

Recorded SPs	1097
Recorded km	20.569
Production time (hh:mm)	02:21
Production files	1097
Production SPs	1097
Production km	20.569
Production CMP km	329.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	0.8	1.7	1.1
HDOP	1.3	3.1	2.0
V1G2 PDOP	0.8	1.7	1.2
HDOP	1.5	3.1	2.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.5	2.4	4.72
Speed through water (m/s)	1.8	2.3	2.1	4.16
Feather angle (°)	4.6	8.3	6.4	
Gyro (P) (°)	0.0	359.9	13.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	511.9	522.9	518.9
Str 1-2	73.7	76.5	75.2
Str 2-3	72.7	75.6	74.5
Str 3-4	69.7	74.8	72.4
Str 4-5	68.2	74.1	71.3
Str 5-6	74.6	78.5	76.8
Str 6-7	71.7	74.3	73.2
Str 7-8	74.2	76.9	75.6

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source Port-Stbd	33.3	39.8	35.8
Port Subarray Outer-Centre	7.6	8.7	8.1
Centre-Inner	8.2	9.6	8.8
Stbd Subarray Centre-Inner	6.8	8.2	7.6
Outer-Centre	7.7	8.9	8.2

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290		339	
Str 4				
Str 5				151
Str 6	49,120,158			
Str 7	89,166,202,229		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 326	
Str 6	91, 205, 303	
Str 7	203	
Str 8	318, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

FGSP 1021 @ 11:53 UTC d/t Syntrak lockup prior to SOL. Missed SP's 1001-1020 inclusive (20 shotpoints)
 Line Incomplete d/t syntrak lockup

PROCESSING QC COMMENTS

Negligible swell observed on shots.
 Out of plane diffraction midway along line.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1728P1-001**
 Area: **Gippsland Basin, Bass Strait** Sequence: **001**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **1**
 Job ID: **20323** CMP line range: **1721-1736** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **DNP** Log Status: Final

Initials: SH / DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	10-May-2006	130	08:33	18:33	121	1997	1002	07:58	
FPSP:	10-May-2006	130	08:33	18:33	121	1997	1002		
LPSP:	10-May-2006	130	11:14	21:14	1237	881	1005	08:18	
EOL LSP:	10-May-2006	130	11:14	21:14	1237	881	1005		
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-0.7	-2
Water depth (m)	52	60
RMS noise @ 5 Hz LC (µB)	4.9	5.8
Weather	W F4, 2m	SW F5, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1971	1965
Stbd	1968	1961

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.5-7.3	6.5-7.4
Str 2	6.9-7.4	6.8-7.3
Str 3	6.8-7.4	6.8-7.2
Str 4	6.6-7.4	6.8-7.2
Str 5	6.8-7.3	6.8-7.3
Str 6	6.8-7.4	6.8-7.2
Str 7	6.8-7.1	6.9-7.2
Str 8	6.9-7.3	6.8-7.1

SOL/EOL Comments

Overall Line Observations

Occasional slight swell noise seen on all streamers moving head to tail.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:			282	305	127		
S3:	290						
S4:	249		257	258			
S5:	103,108,153				88		
S6:					29, 37, 91, 311, 316		
S7:	285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1728P1-001

Seq:

001

Dir:

190.5°

FILE	SP	TAPE	BAD	
99-110	/	1002		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1002		FSP @ 08:33 UTC
121	1997	1002		FPSP @ 08:33 UTC
469	1649	1002		EOT
470	1648	1003		SOT
566	1552		Bad	Autofire: P-21 (non-active)
643	1475		Bad	Delta Error: P-11: -1.1
645	1473		Bad	Delta Error: P-11: -1.1
661	1457		Bad	Delta Error: P-11: 1.1
808	1310		Bad	Misfire: S-2
821	1297		Bad	Misfire: P-14, Pressure Error: String 2: 1899psi
840	1278	1003		EOT
841	1277	1004		SOT
849	1269		Bad	Delta Error: P-11: -1.1
851	1267		Bad	Delta Error: P-11: -1.1
889	1229		Bad	Delta Error: P-11: -1.1
897	1221		Bad	Delta Error: P-11: 1.3
953	1165		Bad	Misfire: P-14
979	1139		Bad	Delta Error: P-11: -1.1
989	1129		Bad	Delta Error: P-11: -1.1
993	1125			Gun P-11: Off d/t DE's. Gun P13:On. Port Array Volume:4450cu in
995	1123		Bad	Delta Error: P-13: 1.1
1021	1097		Bad	Misfire: P-14, Pressure Error: String 2: 1898psi
1096	1022		Bad	Autofire: P-21 (non-active)
1211	907	1004		EOT
1212	906	1005		SOT
1237	881	1005		LPSP @ 11:14 UTC
1237	881	1005		LSP @ 11:14 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1005		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1728P1-001**Seq: **001**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 2000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctuation allowed:	2.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m

Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1728P1-001**

Area: **Gippsland Basin, Bass Strait** Sequence: **001** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **1**

Job ID: **20323** CMP line range: **1721-1736** Line type: **Prime**

Type: **3D** No. CMPs **16** Status: **DNP** Initials: nh sg
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	10-May-2006	130	08:33	18:33	1997	-0.7	0	W F4 2m
FPSP:	10-May-2006	130	08:33	18:33	1997			
LPSP:	10-May-2006	130	11:14	21:14	881			
EOL LSP:	10-May-2006	130	11:14	21:14	881	-1.9	0	SW F5, 1.5m
	UTC offset:			10.0				

Separations (m)

	Str	SOL	EOL
Streamer overall:	Str 1-8	532	532
Per streamer:	Str 1-2	75	76
	Str 2-3	77	75
	Str 3-4	74	72
	Str 4-5	85	73
	Str 5-6	70	74
	Str 6-7	75	74
	Str 7-8	76	75

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	7.6	7.5
	PC-PO	8.8	9.0
	SI-SC	7.8	8.3
	SC-SO	7.0	7.1

P2/94 filename: **G06A-1728P1-001.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_1**

Backup tape: **Tape1 Seq 1**

Observations disabled etc.

Acoustics: S4A3 bad

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1997	08:33	18:33	SOL, FSP
1997	08:33	18:33	FPSP
			Steering DC 0
881	11:14	21:14	LPSP
881	11:14	21:14	EOL, LSP

SR/V Veritas Viking II

Quality Control Report



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1728P1-001**
 Sequence: **001**
 Direction: **190.5°** Nav. Def: **1**
 CMP line range: **1721-1736** Line type: **Prime**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **SH**
 Proc Initials: **MB**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	10-May-2006	130	08:33	18:33	121	1997	1002
FPSP:	10-May-2006	130	08:33	18:33	121	1997	1002
LPSP:	10-May-2006	130	11:14	21:14	1237	881	1005
EOL LSP	10-May-2006	130	11:14	21:14	1237	881	1005

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-0.7	-1.9
Water depth (m)	52	60
RMS Noise (µB)	4.9	5.8
Weather	W F4, 2m	SW F5, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1971	1965
Stbd	1968	1961

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:41
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	16 / 1.43%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.1	1.7
HDOP	0.8	1.2	0.9
V1G2 PDOP	1.4	2.1	1.8
HDOP	0.8	1.2	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.4	2.2	4.23
Speed through water (m/s)	0.0	2.6	2.2	4.28
Feather angle (°)	-1.1	0.7	0.0	
Gyro (P) (°)	190.6	199.6	1.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	527.3	537.6	532.9
Str 1-2	73.4	77.2	75.1
Str 2-3	75.1	77.4	76.3
Str 3-4	71.7	76.9	74.2
Str 4-5	81.2	90.0	85.5
Str 5-6	69.0	74.0	71.8
Str 6-7	72.8	75.2	74.1
Str 7-8	72.8	78.0	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.4	38.9	36.9
Port Subarray	7.3	8.1	7.7
Centre-Inner	8.4	9.3	8.9
Stbd Subarray	7.6	8.4	8.0
Centre-Inner	6.8	7.4	7.1

Birds bad:

Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	290		282	
Str 4	249		257	258
Str 5	103,108,153			
Str 6				
Str 7	285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4		
Str 5		
Str 6		
Str 7		
Str 8		

SHOT / TRACE EDITS: SPs:

	SPs:	TOTAL SHOTS
Timing (delta) errors >1.0ms:	1475, 1473, 1457, 1269, 1267, 1229, 1221, 1139, 1129, 1123	10
Autofires / Misfires :	1552, 1310, 1297, 1165, 1097, 1022	6
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.0 to 8.0 m	Percentage:

ONLINE COMMENTS

Occasional slight swell noise seen on all streamers moving head to tail.

PROCESSING QC COMMENTS

DNP d/t line out of contract specifications

Geophysical Supervisor:

Marc Boon

Field Geophysicists:

Kristian Ellis, David Barratt, Richard Flower, Paul Jones



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1728P2-003**

Area: **Gippsland Basin, Bass Strait** Sequence: **003**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3**

Job ID: **20323** CMP line range: **1721-1736** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **DNP**

Initials: MO, MW
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced
SOL FSP:	10-May-2006	130	23:23	09:23	121	1997	1012	at 23:00 UTC
FPSP:	10-May-2006	130	23:23	09:23	121	1997	1012	
LPSP:	11-May-2006	131	01:46	11:46	1236	881	1015	Full volume arrays
EOL LSP:	11-May-2006	131	01:46	11:46	1236	881	1015	at 23:20 UTC
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	2.8	-3.5
Water depth (m)	50	59
RMS noise @ 5 Hz LC (µB)	4.5	4.8
Weather	NW F4, 2.0m	SW F4, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1944	1966
Stbd	1942	1965

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.1	6.6-7.4
Str 2	6.3-7.1	6.9-7.2
Str 3	6.9-7.2	6.9-7.2
Str 4	6.8-7.2	6.8-7.3
Str 5	6.4-7.2	6.8-7.2
Str 6	6.9-7.4	6.9-7.4
Str 7	6.9-7.2	6.9-7.2
Str 8	6.8-7.5	6.8-7.3

SOL/EOL Comments

Reshoot of Seq 001 which was DNP'd d/t streamer seps.

Overall Line Observations

STBD gun strings DI's erratic, reading deep.

DNP due to source imbalance (>1.5 dB) on 24th May after extensive quality control.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:							
S2:			282	305			
S3:	290						
S4:	249		257	258			
S5:	103,108,153						
S6:							
S7:	285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1728P2-003

Seq:

003

Dir:

190.5°

FILE	SP	TAPE	BAD	
91-100	2229 -2220	1012		SOT - P-14 Gun Signature test
101-110	/			SOL - Noise Files
111-120	2007-1998			Approach Shots
121	1997	1012		FSP @ 23:23 UTC
121	1997	1012		FPSP @ 23:23 UTC
164	1954		Bad	Misfire: S-20
186	1932		Bad	Misfire: S-20
196	1922		Bad	Misfire: S-20
	1809		Missed	Missed Shotpoint
405	1712			Last Shotpoint of the day - UTC
461	1656	1012		EOT
462	1655	1013		SOT
563	1554		Bad	Misfire: S-20
832	1285	1013		EOT
833	1284	1014		SOT
989	1128		Bad	Misfire: S-20
1203	914	1014		EOT
1204	913	1015		SOT
1236	881	1015		LPSP @ 01:46 UTC
1236	881	1015		LSP @ 01:46 UTC
1237-1241	880-876			NAV PROCESSING SHOTS
1242-1251	/	1015		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1728P2-003**Seq: **003**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 2000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms

Comments:

Hydrophone sensitivity 20 µvolts / µbar
Recording polarity: Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	2.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m

Flip-flop acquisition mode, even shotpoints from stbd source,
odd shotpoints from port source

Positioning**Navigation System**

Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav

Positioning System

Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1728P2-003**

Area: **Gippsland Basin, Bass Strait** Sequence: **003** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3**

Job ID: **20323** CMP line range: **1721-1736** Line type: **Prime**

Type: **3D** No. CMPs **16** Status: **DNP** Initials: cb, ml
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	10-May-2006	130	23:23	09:23	1997	2.8	1.7	NW F4, 2.0m
FPSP:	10-May-2006	130	23:23	09:23	1997			
LPSP:	11-May-2006	131	01:46	11:46	881			
EOL LSP:	11-May-2006	131	01:46	11:46	881	-3.5	-2.5	SW F4, 2.0m
			UTC offset:	10.0				

Separations (m)

		SOL	EOL
Streamer overall:	Str 1-8	526	523
Per streamer:	Str 1-2	76	75
	Str 2-3	75	75
	Str 3-4	76	76
	Str 4-5	77	76
	Str 5-6	71	71
	Str 6-7	74	73
	Str 7-8	76	75

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	7.6	7.6
	PC-PO	8.4	8.2
	SI-SC	8.3	8.3
	SC-SO	6.7	6.7

P2/94 filename: G06A-1728P2-003.0.p294

LMN: 20323_Bream.LMN

SCN: 20323_Bream.SCN

RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN

Acoustic file: 20323_1

Backup tape: Tape Seq

Observations disabled etc.

Acoustics: S4A3 dead
RGPS:
Compasses:
Other:

SP	UTC	Local Time	Comments
1997	23:23	09:23	SOL, FSP
1997	23:23	09:23	FPSP
1280	00:55	10:55	Tb1 and Tb 2 seps down to 20m
1240	01:00	11:00	Tb 1 and Tb 2 down to 14m
881	01:46	11:46	LPSP
881	01:46	11:46	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1728P2-003**
 Sequence: **003**
 Direction: **190.5°** Nav. Def: **3**
 CMP line range: **1721-1736** Line type: **Prime**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **MW**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	10-May-2006	130	23:23	09:23	121	1997	1012
FPSP:	10-May-2006	130	23:23	09:23	121	1997	1012
LPSP:	11-May-2006	131	01:46	11:46	1236	881	1015
EOL LSP	11-May-2006	131	01:46	11:46	1236	881	1015

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	2.8	-3.5
Water depth (m)	50	59
RMS Noise (µB)	4.5	4.8
Weather	NW F4, 2.0m	SW F4, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1944	1966
Stbd	1942	1965

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:23
Production files	1116
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	5 / 0.45%
Missed SPs / %	1 / 0.09%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.6	1.9
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.6	2.0
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.4	4.74
Speed through water (m/s)	2.2	2.6	2.4	4.66
Feather angle (°)	-2.6	3.1	0.5	
Gyro (P) (°)	188.5	199.2	193.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.2	531.6	524.8
Str 1-2	74.6	76.7	75.7
Str 2-3	74.4	76.1	75.3
Str 3-4	74.9	78.0	76.6
Str 4-5	73.3	80.0	76.2
Str 5-6	69.5	73.0	71.5
Str 6-7	72.7	74.5	73.6
Str 7-8	75.0	76.8	76.0

SOURCE SEPARATIONS

	Port-Stbd	Min	Max	Mean
Source-Source		35.5	39.5	37.4
Port Subarray	Outer-Centre	7.2	8.0	7.5
	Centre-Inner	7.6	8.6	8.1
Stbd Subarray	Outer-Centre	7.8	8.8	8.4
	Centre-Inner	6.5	7.0	6.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4	249		257	258
Str 5	103,108,153			
Str 6				
Str 7	285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3	341	
Str 4	127, 258, 318	
Str 5	88, 98	
Str 6	311, 316	
Str 7		
Str 8	340	

SHOT / TRACE EDITS: SPs:

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :	1954,1932,1922,1554,1128	5
Missed SPs (NDR):	1809	1
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.07

TOTAL SHOTS

ONLINE COMMENTS

STBD gun strings DI's erratic, reading deep.
DNP due to source imbalance (>1.5 dB) on 24th May after extensive quality control.

PROCESSING QC COMMENTS

Some slight swell noise throughout line: <5uBars - otherwise clean line with no noise issues of note

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1728P3-080**
 Area: **Gippsland Basin, Bass Strait** Sequence: **080**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1721-1736** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS,MW,LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	6-Jun-2006	157	21:43	07:43	121	1001	1288	at 07:10	UTC
FPSP:	6-Jun-2006	157	21:43	07:43	121	1001	1288		
LPSP:	7-Jun-2006	158	00:20	10:20	1237	2117	1291	Full volume arrays at 07:35	UTC
EOL LSP:	7-Jun-2006	158	00:20	10:20	1237	2117	1291		
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-5.5	3.2
Water depth (m)	58	51
RMS noise @ 5 Hz LC (µB)	4	2.2
Weather	070°, 5m/s, 1.0m	300°, 5m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1978	1977
Stbd	1983	1982

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.9-7.2
Str 2	6.9-7.3	6.6-7.3
Str 3	6.7-7.3	6.8-7.5
Str 4	6.9-7.2	6.9-7.2
Str 5	6.9-7.2	6.8-7.2
Str 6	6.6-7.3	6.9-7.3
Str 7	6.8-7.5	6.7-7.3
Str 8	6.9-7.2	6.9-7.2

SOL/EOL Comments

Overall Line Observations

Original line G06A-1728P1-001 DNP'd d/t streamer separations and line G06A-1728P2-003 DNP'd d/t source imbalance

Birds bad/poll disabled: **S5C14 Disabled polling**

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83			290, 339	3, 16		
S4:	106, 110				127		
S5:	75				35, 86, 88, 326, 358		
S6:	116, 120, 158				91, 205, 303		
S7:	89, 100, 166, 202, 285		130		189, 203		
S8:					137, 172, 340		

Vessel Manager: **Howie Grizaard** Observers: **00:00-12:00** Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: **Glenn Cassim** 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: **Les Hayden**

SR/V Veritas Viking II

Observers Line Log

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1288		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1288		FSP @ 21:43 UTC
121	1001	1288		FPSP @ 21:43 UTC
469	1349	1288		EOT
470	1350	1289		SOT
734	1614		Bad	Streamer Error: NAVS
840	1720	1289		EOT
841	1721	1290		SOT
1094	1974			LSP of the day
1211	2091	1290		EOT
1212	2092	1291		SOT
1237	2117	1291		LPSP @ 00:20 UTC
1237	2117	1291		LSP @ 00:20 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1291		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1728P3-080**Seq: **080**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1728P3-080**
 Sequence: **080**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1721-1736** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	6-Jun-2006	157	21:43	07:43	121	1001	1288
FPSP:	6-Jun-2006	157	21:43	07:43	121	1001	1288
LPSP:	7-Jun-2006	158	00:20	10:20	1237	2117	1291
EOL LSP	7-Jun-2006	158	00:20	10:20	1237	2117	1291

GENERAL INFORMATION

	SOL	EOL
FA (°)	-5.5	3.2
Water depth (m)	58	51
RMS Noise (µB)	4	2.2
Weather	070°, 5m/s, 1.0m	300°, 5m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1978	1977
Stbd	1983	1982

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:37
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	1 / 0.09%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.6	1.9
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.6	2.0
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.2	4.34
Speed through water (m/s)	2.0	2.3	2.1	4.15
Feather angle (°)	-5.1	3.7	1.1	
Gyro (P) (°)	0.0	359.9	9.1	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	508.2	526.9	522.5
Str 1-2	72.9	76.2	74.9
Str 2-3	74.0	76.3	75.2
Str 3-4	69.9	75.9	73.2
Str 4-5	63.0	75.0	71.8
Str 5-6	74.7	79.6	77.6
Str 6-7	72.0	74.4	73.4
Str 7-8	74.9	78.0	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	30.2	39.4	36.2
Port Subarray			
Outer-Centre	7.4	8.6	7.9
Centre-Inner	7.3	9.4	8.5
Stbd Subarray			
Centre-Inner	7.4	8.3	7.9
Outer-Centre	7.7	8.7	8.2

Birds bad: S5C14 Disabled polling

Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83			290, 339
Str 4	106, 110			
Str 5	75			
Str 6	116, 120, 158			
Str 7	89, 100, 166, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 88, 326	
Str 6	91, 205	
Str 7	164, 203	
Str 8	318, 340	

SHOT / TRACE EDITS:**SPs:****TOTAL SHOTS**

Timing (delta) errors >1.0ms:		0
Autofires / Misfires:		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1614	1
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

Original line G06A-1728P1-001 DNP'd d/t streamer separations and line G06A-1728P2-003 DNP'd d/t source imbalance

PROCESSING QC COMMENTS

Negligible swell observed on shots.
 Strum noise and head wave energy evident all strms.
 Out of plane diffraction midway along line.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1728F1-082**

Area: **Gippsland Basin, Bass Strait** Sequence: **082**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**

Job ID: **20323** CMP line range: **1721 - 1736** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC,RA,AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	7-Jun-2006	158	07:46	17:46	121	1001	1297	07:05	
FPSP:	7-Jun-2006	158	07:46	17:46	121	1001	1297		
LPSP:	7-Jun-2006	158	10:23	20:23	1237	2117	1300		
EOL LSP:	7-Jun-2006	158	10:23	20:23	1237	2117	1300	07:25	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-10.1	0
Water depth (m)	58	52
RMS noise @ 5 Hz LC (µB)	3.7	2.8
Weather	Light airs, 1.0m	Light airs 0.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1982	1980
Stbd	1979	1984

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.9-7.3
Str 2	6.9-7.4	6.8-7.2
Str 3	6.8-7.3	6.9-7.2
Str 4	6.6-7.2	6.8-7.2
Str 5	6.8-7.2	6.7-7.2
Str 6	6.8-7.1	7.0-7.4
Str 7	6.8-7.3	6.9-7.3
Str 8	6.5-7.4	6.9-7.4

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83		339	290	3, 16, 69		
S4:	106, 110				127, 318		
S5:	75				35, 86, 88, 326, 358		
S6:	49, 120, 158						
S7:	89, 100, 202, 229, 285		130		189		
S8:					137, 172		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1728F1-082**Seq: **082**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1728F1-082**
 Sequence: **082**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1721 - 1736** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	7-Jun-2006	158	07:46	17:46	121	1001	1297
FPSP:	7-Jun-2006	158	07:46	17:46	121	1001	1297
LPSP:	7-Jun-2006	158	10:23	20:23	1237	2117	1300
EOL LSP	7-Jun-2006	158	10:23	20:23	1237	2117	1300

GENERAL INFORMATION

	SOL	EOL
FA (°)	-10.1	0
Water depth (m)	58	52
RMS Noise (µB)	3.7	2.8
Weather	Light airs, 1.0m	Light airs 0.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1982	1980
Stbd	1979	1984

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:37
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.2	2.6	1.7
HDOP	0.7	1.3	1.0
V1G2 PDOP	1.3	2.6	1.8
HDOP	0.8	1.3	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.2	4.32
Speed through water (m/s)	2.1	2.3	2.2	4.26
Feather angle (°)	-10.0	2.1	-1.4	
Gyro (P) (°)	5.1	20.0	10.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.6	527.0	523.1
Str 1-2	73.6	76.4	74.9
Str 2-3	74.5	76.4	75.4
Str 3-4	70.6	75.4	73.4
Str 4-5	67.6	75.4	71.7
Str 5-6	75.4	80.7	77.8
Str 6-7	72.0	74.3	73.3
Str 7-8	75.4	78.2	76.6

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.6	39.5	36.4
Port Subarray			
Outer-Centre	7.2	8.5	7.9
Centre-Inner	7.7	9.6	8.6
Stbd Subarray			
Centre-Inner	7.2	8.3	7.6
Outer-Centre	7.5	8.8	8.0

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290
Str 4	106, 110			
Str 5	75			
Str 6	49, 120, 158			
Str 7	89, 100, 202, 229, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 88, 326	
Str 6	91, 205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.08

ONLINE COMMENTS

PROCESSING QC COMMENTS

No swell noise observed from every 200th shot interval QC samples
 Out of plane diffraction observed midway along line starting at 5 sec.
 Mild screw noise, and strum visible. Head wave noise observed along the line due to data is clean due to the calm sea condition

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1728F2-084**
 Area: **Gippsland Basin, Bass Strait** Sequence: **084**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **8**
 Job ID: **20323** CMP line range: **1721-1736** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	7-Jun-2006	158	18:24	4:24	121	1001	1305	17:45 UTC
FPSP:	7-Jun-2006	158	18:24	4:24	121	1001	1305	
LPSP:	7-Jun-2006	158	21:08	7:08	1237	2117	1308	Full volume arrays at 18:10 UTC
EOL LSP:	7-Jun-2006	158	21:08	7:08	1237	2117	1308	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-7.4	-4.7
Water depth (m)	58	52
RMS noise @ 5 Hz LC (µB)	3.5	3
Weather	320°, 5m/s, 1.0m	280°, 4m/s, 0.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1981	1976
Stbd	1993	1982

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.5	6.9-7.1
Str 2	6.7-7.4	6.9-7.2
Str 3	6.9-7.1	6.7-7
Str 4	6.6-7.2	6.9-7.1
Str 5	6.7-7.1	6.9-7.1
Str 6	6.7-7.4	6.9-7.3
Str 7	6.8-7.2	6.9-7.2
Str 8	6.9-7.3	6.9-7.1

SOL/EOL Comments

Overall Line Observations

Original progressive infill pass G06A-1728F1-082 never acquired all necessary coverage
 SP 1443 Gun S-10 deactivated d/t erratic behavior. Gun S-12 activated. Stbd array volume 4450cuin

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295		282	305 (Phase)			
S3:	83		339	290	3		
S4:	106, 110				127		
S5:	75				86, 88, 326		
S6:	49, 120, 158				91, 205, 303		
S7:	89, 100, 202, 229, 285		130		203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1728F2-084**Seq: **084**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1305		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1305		FSP @ 18:24 UTC
121	1001	1305		FPSP @ 18:24 UTC
292	1172		Bad	Delta Error: S-10: -1.2
368	1248		Bad	Delta Error: S-10: 1.2
378	1258		Bad	Delta Error: S-10: 1.2
430	1310		Bad	Delta Error: S-10: 1.2
465	1345			Autofire Observed after processing
466	1346			Autofire Observed after processing
467	1347			Autofire Observed after processing
468	1348			Autofire Observed after processing
469	1349			Autofire Observed after processing
469	1349	1305		EOT
470	1350			Autofire Observed after processing
470	1350	1306		SOT
471	1351			Autofire Observed after processing
546	1426		Bad	Delta Error: S-10: -1.2
562	1442		Bad	Delta Error: S-10: 1.1
563	1443			Gun S-10 deactivated. Gun S-12 activated. Stbd array volume 4450cuin
771	1651		Bad	Autofire: S-12. No autofire observed on seisnet display or QC screens
840	1720	1306		EOT
841	1721	1307		SOT
1041	1921		Bad	Autofire: S-12. No autofire observed on seisnet display or QC screens
1211	2091	1307		EOT
1212	2092	1308		SOT
1237	2117	1308		LPSP @ 21:08 UTC
1237	2117	1308		LSP @ 21:08 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1308		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1728F2-084**Seq: **084**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1728F2-084**
 Sequence: **084**
 Direction: **10.5°** Nav. Def: **8**
 CMP line range: **1721-1736** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	7-Jun-2006	158	18:24	04:24	121	1001	1305
FPSP:	7-Jun-2006	158	18:24	04:24	121	1001	1305
LPSP:	7-Jun-2006	158	21:08	07:08	1237	2117	1308
EOL LSP:	7-Jun-2006	158	21:08	07:08	1237	2117	1308

GENERAL INFORMATION

	SOL	EOL
FA (°)	-7.4	-4.7
Water depth (m)	58	52
RMS Noise (µB)	3.5	3
Weather	320°, 5m/s, 1.0m	280°, 4m/s, 0.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1981	1976
Stbd	1993	1982

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:44
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	15 / 1.34%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.2	1.9
HDOP	0.8	1.3	1.0
V1G2 PDOP	1.6	3.0	1.9
HDOP	1.0	2.1	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.1	4.14
Speed through water (m/s)	2.0	2.3	2.2	4.20
Feather angle (°)	-8.3	-3.4	-5.6	
Gyro (P) (°)	4.9	23.4	14.1	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.4	528.6	523.9
Str 1-2	72.8	75.5	74.4
Str 2-3	74.6	76.5	75.7
Str 3-4	73.9	78.1	76.2
Str 4-5	66.5	73.3	70.5
Str 5-6	74.8	79.6	77.5
Str 6-7	71.4	74.2	73.0
Str 7-8	74.9	78.1	76.6

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.7	39.9	37.0
Port Subarray	7.2	8.9	8.1
Centre-Inner	7.6	9.2	8.4
Stbd Subarray	7.5	8.6	8.0
Centre-Inner	7.5	8.6	8.0
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305 (Phase)
Str 3	83		339	290
Str 4	106, 110			
Str 5	75			
Str 6	49, 120, 158			
Str 7	89, 100, 202, 229, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127	
Str 5	86, 88, 326	
Str 6	91, 205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1172, 1248, 1258, 1310, 1426, 1442	6
Autofires / Misfires :	1345, 1346, 1347, 1348, 1349, 1350, 1351, 1651, 1921	9
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

Original progressive infill pass G06A-1728F1-082 never acquired all necessary coverage
 SP 1443 Gun S-10 deactivated d/t erratic behavior. Gun S-12 activated. Stbd array volume 4450cuin

PROCESSING QC COMMENTS

Negligible swell on shots.
 Strum and head wave energy apparent on shots.
 Diffraction observed on shots - likely stationary object reflector is pipeline.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1728F3-189**

Area: **Gippsland Basin, Bass Strait** Sequence: **189**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **1721-1736** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: NC/ RA/ LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	3-Jul-2006	184	23:34	9:34	121	1001	1715	23:05 UTC
FPSP:	3-Jul-2006	184	23:34	9:34	121	1001	1715	
LPSP:	4-Jul-2006	185	01:05	11:05	845	1725	1717	Full volume arrays at
EOL LSP:	4-Jul-2006	185	01:05	11:05	845	1725	1717	23:25 UTC
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	6.4	4.1
Water depth (m)	57	53
RMS noise @ 5 Hz LC (µB)	4.1	4.9
Weather	075°, 7m/s, 2.5m	090°, 5m/s, 2.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1985	1985
Stbd	1988	1990

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.8-7.2
Str 2	6.8-7.3	6.9-7.4
Str 3	6.6-7.2	6.9-8.0
Str 4	6.8-7.2	6.8-7.2
Str 5	6.8-7.1	6.8-7.2
Str 6	6.8-7.3	6.7-7.3
Str 7	6.9-7.1	6.8-7.4
Str 8	6.9-7.2	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.
Seg 1: SPs 1001 - 1215
Seg 2: SPs 1635 - 1725
 Gun depths fluctuating d/t swell
 Moderate swell noise (max 20µB) affecting 5-10% of traces

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					134, 340, 360		
S2:				305 (Phase)	304, 305		
S3:	290			339 (Phase)	3, 6		
S4:	106, 110, 148, 177				127, 178, 234		
S5:	75				88, 326		
S6:	49, 116, 158, 161, 307				91, 205		
S7:	89, 100, 166, 202, 229, 269, 285		360		164, 251		
S8:	198				172, 234		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1728F3-189**Seq: **189**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1715		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1715		FSP @ 23:34 UTC
121	1001	1715		FPSP @ 23:34 UTC
156	1036		Bad	Delta Error: S-4: -1.5
164	1044		Bad	Delta Error: S-4: -1.1
166	1046		Bad	Delta Error S-13. ? Error evident on GCS90 & Delta History Display
168	1048		Bad	Delta Error S-13. ? Error evident on GCS90 & Delta History Display
170	1050		Bad	Delta Error S-13. ? Error evident on GCS90 & Delta History Display
171	1051			S-13 (330cu.in) disabled. Spare gun S-12 (330cu.in) enabled. Port array vol still 4450cu.in
172	1052		Bad	Delta Error: S-12: 2.1
325	1205			LSP of the day
335	1215			LPSP Seg 1 @ 00:01 UTC
469	1349	1715		EOT
470	1350	1716		SOT
755	1635			FPSP Seg 2 @ 00:53 UTC
		1716		EOT
		1717		SOT
845	1725	1717		LPSP @ 01:05 UTC
845	1725	1717		LSP @ 01:05 UTC
846-850	1726-1730			NAV PROCESSING SHOTS
851-860	/	1717		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1728F3-189**Seq: **189**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1728F3-189**

Area: **Gippsland Basin, Bass Strait** Sequence: **189** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **1721-1736** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: vq, hh, at, vt

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	3-Jul-2006	184	23:34	9:34	1001	6.4	-51.8	075°, 7m/s, 2.5m
FPSP:	3-Jul-2006	184	23:34	9:34	1001			
LPSP:	4-Jul-2006	185	01:05	11:05	1725			
EOL LSP:	4-Jul-2006	185	01:05	11:05	1725	4.1	-105.9	090°, 5m/s, 2.5m
	UTC offset:			10.0				

Separations (m)		SOL	EOL	Sources overall:		Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	522	523	Sub arrays:	PO-PC	36.0	38.0	
Per streamer:	Str 1-2	76	75		PC-PI	7.6	8.0	
	Str 2-3	75	75		SI-SC	8.8	9.1	
	Str 3-4	73	74		SC-SO	7.6	7.9	
	Str 4-5	71	72			8.2	7.7	
	Str 5-6	76	77					
	Str 6-7	73	74					
	Str 7-8	76	76					

P2/94 filename: **G06A-1728F3-189.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_12**

Backup tape: **Tape 3 Seq 1**

Observations disabled etc.

Acoustics:
RGPS:
Compasses:
Other:

SP	UTC	Local Time	Comments
1001	23:34	9:34	SOL, FSP
1001	23:34	9:34	FPSP
1215	0:01	10:01	End of Segment 1
1635	0:53	10:53	Start of Segment 2
1725	1:05	11:05	LPSP
1725	1:05	11:05	EOL, LSP

Vessel Manager: **Morgan McNelly** Navigators: **00:00-12:00** **Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan**

Chief Navigator: **Rick Fleming** **12:00-00:00** **Darryl Fletcher/Mikhael Malofeev/Thomas Tibor**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1728F3-189**
 Sequence: **189**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **1721-1736** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	3-Jul-2006	184	23:34	09:34	121	1001	1715
FPSP:	3-Jul-2006	184	23:34	09:34	121	1001	1715
LPSP:	4-Jul-2006	185	01:05	11:05	845	1725	1717
EOL LSP	4-Jul-2006	185	01:05	11:05	845	1725	1717

GENERAL INFORMATION

	SOL	EOL
FA (°)	6.4	4.1
Water depth (m)	57	53
RMS Noise (µB)	4.1	4.9
Weather	075°, 7m/s, 2.5m	090°, 5m/s, 2.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1985	1985
Stbd	1988	1990

TOTALS INFORMATION

Recorded SPs	725
Recorded km	13.594
Production time (hh:mm)	01:31
Production files	725
Production SPs	725
Production km	13.594
Production CMP km	217.500

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	6 / 0.83%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	4.9	2.8
HDOP	0.9	1.9	1.2
V1G2 PDOP	2.0	4.9	3.1
HDOP	1.0	1.9	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.5	2.6	2.5	4.88
Speed through water (m/s)	1.7	2.3	2.1	4.18
Feather angle (°)	3.9	6.2	4.9	
Gyro (P) (°)	2.9	14.3	10.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.6	525.2	521.4
Str 1-2	73.8	76.2	75.1
Str 2-3	73.2	75.6	74.4
Str 3-4	70.8	74.8	73.2
Str 4-5	69.9	75.3	72.3
Str 5-6	74.7	78.7	76.9
Str 6-7	72.5	74.4	73.5
Str 7-8	74.8	77.1	76.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.6	39.6	37.1
Port-Subarray	7.1	8.2	7.6
Outer-Centre	7.1	8.2	7.6
Centre-Inner	8.4	9.7	9.0
Stbd Subarray	7.3	8.3	7.8
Centre-Inner	7.3	8.3	7.8
Outer-Centre	7.5	8.3	7.9

Birds bad:
 Birds depths: S3C4 deep, max 8.1m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49,116,158,161,307			
Str 7	89,100,166, 202, 229,		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	127, 178, 233	
Str 5	88, 326, 352	
Str 6	91, 205	
Str 7	164, 251	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1036, 1044, 1046, 1048, 1050, 1052	6
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.36

TOTAL SHOTS

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 Seg 1: SPs 1001 - 1215
 Seg 2: SPs 1635 - 1725
 Gun depths fluctuating d/t swell
 Moderate swell noise (max 20µB) affecting 5-10% of traces

PROCESSING QC COMMENTS

Mild swell noise affecting < 5% of traces.
 Diffraction energy appeared on midway of line, at 5 sec to Tmax time gate.
 Strum and head wave energy is observed along the line

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1744P1-005**
 Area: **Gippsland Basin, Bass Strait** Sequence: **005**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3**
 Job ID: **20323** CMP line range: **1737-1752** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Incomplete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	11-May-2006	131	09:33	19:33	121	1997	1020	09:02	UTC
FSP:	11-May-2006	131	09:33	19:33	121	1997	1020		
LPSP:	11-May-2006	131	12:11	22:11	1237	881	1023	Full volume arrays at	09:22 UTC
EOL LSP:	11-May-2006	131	12:11	22:11	1237	881	1023		
UTC Offset:				10.0					

	SOL	EOL
Feather angle (°)	2.2	0
Water depth (m)	51	58
RMS noise @ 5 Hz LC (µB)	4.1	3.6
Weather	SW F4, 1m	W F5, 1m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1964	1964
Stbd	1961	1962

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.4	6.6-7.3
Str 2	6.8-7.4	6.8-7.0
Str 3	6.9-7.2	6.9-7.1
Str 4	6.8-7.2	6.7-7.1
Str 5	6.9-7.4	6.8-7.1
Str 6	6.9-7.2	6.9-7.1
Str 7	6.8-7.1	6.9-7.2
Str 8	6.9-7.3	6.5-7.3

SOL/EOL Comments

Overall Line Observations

SP 1307-1227 noise seen on shot records from Bream platform.

DNP SP 1389-1239 d/t low pressure

Birds bad/poll disabled:

Birds deep/shallow: S8C16 - S8C13, depth fluctuated SP 1510 - 1473 min. 4.6m

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:			282	305			
S3:	290						
S4:	249		257	258	127,318		
S5:	103,108,153				88		
S6:					29,37,311,316		
S7:	285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1744P1-005

Seq:

005

Dir:

190.5°

FILE	SP	TAPE	BAD	
99-110	/	1020		SOT - SOL NOISE FILES
111-120	2007-1996			APPROACH SHOTS
121	1997	1020		FSP @ 09:33 UTC
121	1997	1020		FPSP @ 09:33 UTC
276	1842		Bad	Misfire: S-2
469	1649	1020		EOT
470	1648	1021		SOT
728	1390			LGSP @ 10:57 UTC before source pressure dropped to <1900psi
				DNP SP 1389-1239 d/t low pressure
880	1238			FGSP @ 11:17 UTC source pressure > 1900psi
1211	907	1022		EOT
1212	906	1023		SOT
1237	881	1023		LPSP @ 12:11 UTC
1237	881	1023		LSP @ 12:11 UTC
1238-1242	880 - 876			NAV PROCESSING SHOTS
1243-1252	/	1023		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1744P1-005**Seq: **005**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 2000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctuation allowed:	2.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m

Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1744P1-005**

Area: **Gippsland Basin, Bass Strait** Sequence: **005** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3**

Job ID: **20323** CMP line range: **1737-1752** Line type: **Prime**

Type: **3D** No. CMPs **16** Status: **Incomplete** Initials: SG, NH
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	11-May-2006	131	09:33	19:33	1997	2.2	-25	38848
FPSP:	11-May-2006	131	09:33	19:33	1997			
LPSP:	11-May-2006	131	12:11	22:11	881			
EOL LSP:	11-May-2006	131	12:11	22:11	881	0.1	-191	W F5, 1m
			UTC offset:	10.0				

Separations (m)

		SOL	EOL		SOL	EOL
Streamer overall:	Str 1-8	525	525	Sources overall: Port-Stbd	38.1	37.9
Per streamer:	Str 1-2	75	75	Sub arrays: PI-PC	7.5	7.6
	Str 2-3	76	76	PC-PO	8.0	7.7
	Str 3-4	76	76	SI-SC	8.1	8.8
	Str 4-5	76	76	SC-SO	6.4	6.7
	Str 5-6	72	72			
	Str 6-7	73	75			
	Str 7-8	76	76			

P2/94 filename: **G06A-1744P1-005.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_3**

Backup tape: **Tape 1Seq 5**

Observations disabled etc.

Acoustics: S4A3 knocked out

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1997	09:33	19:33	SOL, FSP
1997	09:33	19:33	FPSP
1390	11:10	21:10	LGSP Source pressure out of specification
			DNP SP 1389-1239
1238	11:15	21:15	FGSP Source pressure OK
881	12:11	22:11	LPSP
881	12:11	22:11	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**

SR/V Veritas Viking II

Quality Control Report



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1744P1-005**
 Sequence: **005**
 Direction: **190.5°** Nav. Def: **3**
 CMP line range: **1737-1752** Line type: **Prime**
 No. CMPs: **16** Status: **Incomplete**

Obs Initials: **DY**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	11-May-2006	131	09:33	19:33	121	1997	1020
FPSP:	11-May-2006	131	09:33	19:33	121	1997	1020
LPSP:	11-May-2006	131	12:11	22:11	1237	881	1023
EOL LSP	11-May-2006	131	12:11	22:11	1237	881	1023

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	2.2	0.1
Water depth (m)	51	58
RMS Noise (µB)	4.1	3.6
Weather	SW F4, 1m	W F5, 1m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1964	1964
Stbd	1961	1962

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:38
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.2	2.1	1.6
HDOP	0.8	1.1	0.9
V1G2 PDOP	1.2	2.1	1.6
HDOP	0.8	1.1	0.9
V1G3 HDOP	0.9	1.4	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.4	2.2	4.31
Speed through water (m/s)	1.8	2.6	2.3	4.38
Feather angle (°)	-0.5	4.7	2.6	
Gyro (P) (°)	177.2	201.8	192.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.5	527.1	523.6
Str 1-2	73.6	77.1	75.5
Str 2-3	74.0	76.4	75.3
Str 3-4	73.5	77.1	75.6
Str 4-5	72.5	79.3	76.2
Str 5-6	69.9	73.5	71.5
Str 6-7	72.3	74.6	73.6
Str 7-8	74.6	77.3	75.8

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.4	41.1	37.8
Port Subarray	6.8	8.0	7.5
Centre-Inner	7.0	8.4	7.8
Stbd Subarray	7.4	9.1	8.1
Centre-Inner	6.0	6.9	6.5

Birds bad:
 Birds depths: S8C16 - S8C13, depth fluctuated SP 1510 - 1473 min. 4.6m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4	249		257	258
Str 5	103,108,153			
Str 6				
Str 7	285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3	341	
Str 4	127, 318	
Str 5	88	
Str 6	311, 316	
Str 7		
Str 8	340	

SHOT / TRACE EDITS: SPS:

	TOTAL SHOTS
Timing (delta) errors >1.0ms:	0
Autofires / Misfires :	1842
Missed SPs (NDR):	0
Extraction errors:	0
NAVS / ITB errors:	0
Other Bad shots:	0
Other Bad Traces:	0
Streamer depth edits: See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.57

ONLINE COMMENTS

SP 1307-1227 noise seen on shot records from Bream platform.
 DNP SP 1389-1239 d/t low pressure

PROCESSING QC COMMENTS

Occasional slight towing strum on streamer 2 and 8
 Out of plane reflections / rig noise between ~ SP 1100 and SP 1230

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1744P2-012**
 Area: **Gippsland Basin, Bass Strait** Sequence: **012**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1737-1752** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	13-May-2006	133	22:09	08:09	120	1399	1051	21:40	
FPSP:	13-May-2006	133	22:11	08:11	130	1389	1051		
LPSP:	13-May-2006	133	22:31	08:31	280	1239	1051		
EOL LSP:	13-May-2006	133	22:33	08:33	290	1229	1051	22:00	
UTC Offset:				10.0					

Full volume arrays at 22:00 UTC

	SOL	EOL
Feather angle (°)	4.5	4.4
Water depth (m)	55	56
RMS noise @ 5 Hz LC (µB)	5.7	3.1
Weather	266° 10m/s, 2.0m	266° 10m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1957	1970
Stbd	1959	1968

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.7-7.3
Str 2	6.8-7.3	6.6-7.3
Str 3	6.9-7.3	6.9-7.4
Str 4	6.7-7.2	6.9-7.2
Str 5	6.9-7.4	6.8-7.3
Str 6	6.9-7.4	6.8-7.2
Str 7	6.7-7.4	6.8-7.3
Str 8	6.9-7.4	6.7-7.3

SOL/EOL Comments

Partial Prime of original Seq 5 due to Gun low Pressure

1399 - 1390 First overlap shotpoint
 FPSP 1389 - LPSP 1239
 1238 - 1229 - Last overlap Shotpoint

Overall Line Observations

Occasional slight noise breakouts seen on plots and QC screen due to sea conditions.

Birds bad/poll disabled: S5C7, S7C10 disabled polling

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:				305			
S3:	290						
S4:	318		257	258	127,318		
S5:	75			89	88		
S6:	13				13,14,37,311,316		
S7:	285		130	89	66		
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-109	/	1051		SOT - SOL NOISE FILES
110-119	1409-1400			APPROACH SHOTS
120	1399	1051		FSP @ 22:09 UTC FIRST OVERLAP SP
130	1389	1051		FPSP @ 22:11 UTC
280	1239	1051		LPSP @ 22:31 UTC
290	1229	1051		LSP @ 22:33 UTC LAST OVERLAP SP
291-296	1228-1223			NAV PROCESSING SHOTS
297-310	/	1051		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1744P2-012**Seq: **012**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	66 metres
Far channel inline offset:	4552 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	2.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1744P2-012**

Area: **Gippsland Basin, Bass Strait** Sequence: **012** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**

Job ID: **20323** CMP line range: **1737-1752** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: cb, ml
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	13-May-2006	133	22:09	08:09	1399	4.5	-218.2	266° 10m/s, 2.0m
FPSP:	13-May-2006	133	22:11	08:11	1389			
LPSP:	13-May-2006	133	22:31	08:31	1239			
EOL LSP:	13-May-2006	133	22:33	08:33	1229	4.4	-249.5	266° 10m/s, 2.0m
UTC offset:				10.0				

Separations (m)		SOL	EOL	Sources overall:		Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	522	520	Sub arrays:	PI-PC	37.0	37.0	
Per streamer:	Str 1-2	75	75		PC-PO	6.7	7.0	
	Str 2-3	75	74		SI-SC	7.7	7.8	
	Str 3-4	73	71		SC-SO	7.9	7.8	
	Str 4-5	76	78			7.0	6.8	
	Str 5-6	74	73					
	Str 6-7	73	73					
	Str 7-8	75	75					

P2/94 filename: **G06A-1744P2-012.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_4**

Backup tape: **Tape 3 Seq 2**

Observations disabled etc.

Acoustics: S4A3, S2A1 dead & KO, G1A2 intermittent

RGPS:

Compasses: S5C7 & S7C10 KO

Other:

SP	UTC	Local Time	Comments
1399	22:09	08:09	SOL, FSP
1389	22:11	08:11	FPSP
	21:13	07:13	Vessel pass 1900m clear of Bream A
1239	22:31	08:31	LPSP
1229	22:33	08:33	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**

SR/V Veritas Viking II

Quality Control Report



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1744P2-012**
 Sequence: **012**
 Direction: **190.5°** Nav. Def: **4**
 CMP line range: **1737-1752** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **mo**
 Proc Initials: **RW**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	13-May-2006	133	22:09	08:09	120	1399	1051
FPSP:	13-May-2006	133	22:11	08:11	130	1389	1051
LPSP:	13-May-2006	133	22:31	08:31	280	1239	1051
EOL LSP	13-May-2006	133	22:33	08:33	290	1229	1051

GENERAL INFORMATION

	SOL	EOL
FA (°)	4.5	4.4
Water depth (m)	55	56
RMS Noise (µB)	5.7	3.1
Weather	266° 10m/s, 2.0m	266° 10m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1957	1970
Stbd	1959	1968

TOTALS INFORMATION

Recorded SPs	171
Recorded km	3.206
Production time (hh:mm)	00:20
Production files	151
Production SPs	151
Production km	2.831
Production CMP km	45.300

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	66
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.9	2.0	2.0
HDOP	1.0	1.0	1.0
V1G2 PDOP	1.9	2.0	2.0
HDOP	1.0	1.0	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.3	2.2	4.36
Speed through water (m/s)	2.1	2.5	2.3	4.49
Feather angle (°)	4.4	5.1	4.8	
Gyro (P) (°)	185.7	201.2	193.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.9	525.6	519.9
Str 1-2	73.3	76.1	74.9
Str 2-3	73.6	76.1	74.9
Str 3-4	69.7	73.4	71.5
Str 4-5	75.2	79.9	77.0
Str 5-6	71.9	74.9	73.1
Str 6-7	72.9	74.4	73.6
Str 7-8	74.3	76.1	75.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.1	40.5	37.1
Port Subarray	6.6	7.3	7.0
Outer-Centre	7.5	8.3	7.9
Stbd Subarray	7.5	8.2	7.9
Outer-Centre	6.5	7.1	6.8
Centre-Inner			

Birds bad: S5C7, S7C10 disabled polling
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	290			
Str 4	318		257	258
Str 5	75			89
Str 6	13			
Str 7	285		130	89
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4	127, 318	
Str 5		
Str 6	13, 14, 311, 316	
Str 7		
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires:		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 1.71

ONLINE COMMENTS

Occasional slight noise breakouts seen on plots and QC screen due to sea conditions.

PROCESSING QC COMMENTS

Slight to moderate swell bursts affecting ~5% to 10% of traces
 Side swipe visible between SP 1230 - 1380

Geophysical Supervisor: Marc Boon

Field Geophysicists: Kristian Ellis, David Barratt, Richard Flower, Paul Jones

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1760P1-007**
 Area: **Gippsland Basin, Bass Strait** Sequence: **007**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1753-1768** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	
SOL FSP:	11-May-2006	131	22:53	08:53	119	1997	1029	Soft start commenced at 22:30 UTC
FPSP:	11-May-2006	131	22:53	08:53	119	1997	1029	
LPSP:	12-May-2006	132	01:24	11:24	1235	881	1032	Full volume arrays at 22:50 UTC
EOL LSP:	12-May-2006	132	01:24	11:24	1235	881	1032	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	5.6	-2
Water depth (m)	50.8	59.2
RMS noise @ 5 Hz LC (µB)	4.3	3.4
Weather	WNN 11m/s, 2m	NW 11m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1942	1968
Stbd	1940	1969

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.3	6.9-7.2
Str 2	6.9-7.2	6.9-7.1
Str 3	6.9-7.1	6.8-7.2
Str 4	6.8-7.3	6.9-7.2
Str 5	6.9-7.1	6.9-7.1
Str 6	6.9-7.2	6.8-7.3
Str 7	6.9-7.1	6.9-7.1
Str 8	6.8-7.2	6.8-7.2

SOL/EOL Comments

Overall Line Observations

Sp 1890 - 1850, S8C16 streaming deep, max 8.3 mtrs
 SP 1429, S-10 disabled, S-13 enabled Stbd array Volume 4450 cu in.
 SP 1139 - 1102, S8C16 streaming deep, max 9.5m

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:			282	305			
S3:	290						
S4:	249		257	258	127,318		
S5:	103,108,153				88		
S6:					37,311,316		
S7:	285		130		284		
S8:					340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada / Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales / David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1760P1-007**Seq: **007**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-108	/	1029		SOT - SOL NOISE FILES
109-118	2007-1998			APPROACH SHOTS
119	1997	1029		FSP @ 22:53 UTC
119	1997	1029		FPSP @ 22:53 UTC
231	1885		Bad	Misfire: P-21
323	1793		Bad	Misfire: P-21
469	1647	1029		EOT
614	1502			LSP of the day UTC
470	1646	1030		SOT
672	1444		Bad	Delta Error: S-10: -1.2
674	1442		Bad	Delta Error: S-10: 1.1
676	1440		Bad	Delta Error: S-10: -1.2
684	1432		Bad	Delta Error: S-10: 1.2
687	1429			S-10 disabled, S-13 enabled, Stbd array Volume 4450 cu in.
688	1428		Bad	Delta Error: S-13: 2.3
736	1380			Energy reflections from Bream Platforms seen on all cables moving head to tail
840	1276	1030		EOT
841	1275	1031		SOT
1026	1090			Energy reflections from Bream Platforms no longer seen
1211	905	1031		EOT
1212	904	1032		SOT
1235	881	1032		LPSP @ 01:24 UTC
1235	881	1032		LSP @ 01:24 UTC
1236-1240	880-876			NAV PROCESSING SHOTS
1241-1250	/	1032		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1760P1-007**Seq: **007**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 2000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	2.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1760P1-007**
 Area: **Gippsland Basin, Bass Strait** Sequence: **007** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1753-1768** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: cb, ml
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	11-May-2006	131	22:53	08:53	1997	5.6	211	WNW 11m/s, 2m
FPSP:	11-May-2006	131	22:53	08:53	1997			
LPSP:	12-May-2006	132	01:24	11:24	881			
EOL LSP:	12-May-2006	132	01:24	11:24	881	-2.2	-163.5	NW 11m/s, 1.5m
	UTC offset:			10.0				

Separations (m)

	Str	SOL	EOL
Streamer overall:	Str 1-8	524	526
Per streamer:	Str 1-2	75	76
	Str 2-3	75	75
	Str 3-4	74	74
	Str 4-5	75	77
	Str 5-6	73	72
	Str 6-7	73	74
	Str 7-8	77	76

	Port-Stbd	SOL	EOL
Sources overall:		35.0	38.0
Sub arrays:	PI-PC	7.0	7.2
	PC-PO	7.6	7.9
	SI-SC	7.8	7.8
	SC-SO	6.6	6.6

P2/94 filename: G06-1760P1-007.0.p294
LMN: 20323_Bream.LMN
SCN: 20323_Bream.SCN
RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
Acoustic file: 20323_4
Backup tape: Tape 2 Seq2

Observations disabled etc.

Acoustics: S4A3, S2A1 dead & KO, G1A2 intermittent
RGPS:
Compasses:
Other:

SP	UTC	Local Time	Comments
1997	22:53	08:53	SOL, FSP
1997	22:53	08:53	FPSP
1502	23:59	09:59	LSP of the day
1380	00:17	10:17	Vessel passing abeam of Bream A
881	01:24	11:24	LPSP
881	01:24	11:24	EOL, LSP

Vessel Manager: Howie Grizaard **Navigators:** 00:00-12:00 Craig Bradshaw/Melissa Li
Chief Navigator : Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1760P1-007**
 Sequence: **007**
 Direction: **190.5°** Nav. Def: **4**
 CMP line range: **1753-1768** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **mo**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	11-May-2006	131	22:53	08:53	119	1997	1029
FPSP:	11-May-2006	131	22:53	08:53	119	1997	1029
LPSP:	12-May-2006	132	01:24	11:24	1235	881	1032
EOL LSP	12-May-2006	132	01:24	11:24	1235	881	1032

GENERAL INFORMATION

	SOL	EOL
FA (°)	5.6	-2.2
Water depth (m)	50.8	59.2
RMS Noise (µB)	4.3	3.4
Weather	WNW 11m/s, 2m	NW 11m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1942	1968
Stbd	1940	1969

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:31
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	7 / 0.63%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.6	1.9
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.6	2.0
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.50
Speed through water (m/s)	1.9	2.4	2.2	4.19
Feather angle (°)	-1.5	7.5	4.3	
Gyro (P) (°)	184.9	206.3	196.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.2	528.0	523.2
Str 1-2	73.7	76.9	75.4
Str 2-3	74.0	76.4	75.2
Str 3-4	71.3	75.7	73.9
Str 4-5	72.3	80.7	76.2
Str 5-6	71.2	74.5	72.9
Str 6-7	72.6	74.8	73.7
Str 7-8	74.8	76.8	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.2	40.7	36.8
Port-Subarray	6.8	8.0	7.4
Outer-Centre	7.0	8.7	7.8
Stbd Subarray	7.4	8.8	8.1
Outer-Centre	6.3	7.1	6.7
Centre-Inner			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4	249		257	258
Str 5	103,108,153			
Str 6				
Str 7	285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3	341	
Str 4	127, 318	
Str 5	88	
Str 6	311, 316	
Str 7	285	
Str 8	340	

SHOT / TRACE EDITS:**SPs:****TOTAL SHOTS**

Timing (delta) errors >1.0ms:	1444,1442,1440,1432,1428	5
Autofires / Misfires :	1885,1793	2
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.40

ONLINE COMMENTS

Sp 1890 - 1850, S8C16 streaming deep, max 8.3 mtrs
 SP 1429, S-10 disabled, S-13 enabled Stbd array Volume 4450 cu in.
 SP 1139 - 1102, S8C16 streaming deep, max 9.5m

PROCESSING QC COMMENTS

Reflections from Bream platform visible on shot records, NT and stack - affecting SPs: 1174-1305 inclusive
 Otherwise - clean line with no noise issues of note

Geophysical Supervisor: Marc Boon

Field Geophysicists: Kristian Ellis, David Barratt, Richard Flower, Paul Jones

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1776P1-009**
 Area: **Gippsland Basin, Bass Strait** Sequence: **009**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1769-1784** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	12-May-2006	132	08:52	18:52	121	1997	1037
FPSP:	12-May-2006	132	08:52	18:52	121	1997	1037
LPSP:	12-May-2006	132	11:31	21:31	1237	881	1040
EOL LSP:	12-May-2006	132	11:31	21:31	1237	881	1040
			UTC Offset:	10.0			

Soft start commenced at **18:25** UTC
 Full volume arrays at **18:45** UTC

	SOL	EOL
Feather angle (°)	-2.3	1
Water depth (m)	51	58
RMS noise @ 5 Hz LC (µB)	5.3	5.3
Weather	W 13.4m/s, 1.5m	W 12m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4170
Stbd	4450	4450
Source pressure (psi)		
Port	1961	1959
Stbd	1963	1958

Streamer Depths (m)

	SOL	EOL
Str 1	6.6-7.1	6.1-7.2
Str 2	6.9-7.2	6.9-7.3
Str 3	6.8-7.1	6.9-7.2
Str 4	6.8-7.3	6.8-7.4
Str 5	6.9-7.2	6.8-7.2
Str 6	6.7-7.2	6.9-7.2
Str 7	6.8-7.2	6.8-7.1
Str 8	6.8-7.2	6.8-7.2

SOL/EOL Comments

Overall Line Observations

Noise seen on shot records from Bream platform.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:				305			
S3:	290						
S4:	116		257	258	127,318		
S5:	108		153		88		
S6:			13		13,14,37,311,316		
S7:	89, 285		130				
S8:	134						

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1776P1-009**

Seq: **009**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1037		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1037		FSP @ 08:52 UTC
121	1997	1037		FPSP @ 08:52 UTC
205	1913			Autofire: P-21 flagged, not found after QC
331	1787		Bad	Delta Error: P-19: -1.3
333	1785		Bad	Delta Error: P-19: -1.3
335	1783		Bad	Delta Error: P-19: -1.2
341	1777		Bad	Delta Error: P-19: -1.3
343	1775			Gun P-19 disabled D/T DE's, P-22 enabled. Port array volume @ 4450cu.in.
469	1649	1037		EOT
470	1648	1038		SOT
540	1578			Autofire: P-21 flagged, not found after QC
544	1574			Autofire: P-21 flagged, not found after QC
546	1572			Autofire: P-21 flagged, not found after QC
547	1571			Autofire: P-21 flagged, not found after QC
552	1566			Autofire: P-21 flagged, not found after QC
585	1533			Autofire: P-21 flagged, not found after QC
611	1507			Autofire: P-21 flagged, not found after QC
629	1489			Autofire: P-21 flagged, not found after QC
633	1485			P-21: disabled d/t AF's. Port array volume:4170cu in.
840	1278	1038		EOT
841	1277	1039		SOT
1211	907	1039		EOT
1212	606	1040		SOT
1237	881	1040		LPSP @ 11:31 UTC
1237	881	1040		LSP @ 11:31 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1040		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1776P1-009**Seq: **009**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 2000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	2.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1776P1-009**
 Area: **Gippsland Basin, Bass Strait** Sequence: **009** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1769-1784** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: nh sg

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	12-May-2006	132	08:52	18:52	1997	-2.3	-173	W 13.4m/s, 1.5m
FPSP:	12-May-2006	132	08:52	18:52	1997			
LPSP:	12-May-2006	132	11:31	21:31	881			
EOL LSP:	12-May-2006	132	11:31	21:31	881	0.5	-347	W 12m/s, 1.5m
			UTC offset:		10.0			

Separations (m)

	SOL	EOL
Streamer overall:	524	525
Per streamer:		
Str 1-8	75	75
Str 1-2	75	75
Str 2-3	74	73
Str 3-4	76	78
Str 4-5	73	74
Str 5-6	74	74
Str 6-7	76	76
Str 7-8		

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
	PI-PC	7.0	7.2
	PC-PO	8.2	8.0
	SI-SC	8.3	8.2
	SC-SO	6.9	6.8

P2/94 filename: G06A-1776-009.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_4
 Backup tape: Tape 2 Seq 4

Observations disabled etc.

Acoustics: S4A3, S2A1 dead & KO, G1A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	8:52	18:52	SOL, FSP
1997	8:52	18:52	FPSP
1370	10:22	20:22	Passing 1600m East of Bream A
881	11:31	21:31	LPSP
881	11:31	21:31	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1776P1-009**
 Sequence: **009**
 Direction: **190.5°** Nav. Def: **4**
 CMP line range: **1769-1784** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	12-May-2006	132	08:52	18:52	121	1997	1037
FPSP:	12-May-2006	132	08:52	18:52	121	1997	1037
LPSP:	12-May-2006	132	11:31	21:31	1237	881	1040
EOL LSP	12-May-2006	132	11:31	21:31	1237	881	1040

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-2.3	0.5
Water depth (m)	51	58
RMS Noise (µB)	5.3	5.3
Weather	W 13.4m/s, 1.5m	W 12m/s, 1.5m
Source volume (cu in): Port	4450	4170
Stbd	4450	4450
Source pressure (psi): Port	1961	1959
Stbd	1963	1958

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:39
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	13 / 1.16%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.1	1.7
HDOP	0.8	1.1	0.9
V1G2 PDOP	1.4	2.1	1.8
HDOP	0.8	1.1	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.2	4.26
Speed through water (m/s)	2.0	3.1	2.4	4.61
Feather angle (°)	-2.0	4.0	1.3	
Gyro (P) (°)	190.6	204.1	197.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	517.2	529.6	523.5
Str 1-2	73.3	76.5	75.1
Str 2-3	74.3	76.6	75.3
Str 3-4	71.7	76.1	74.0
Str 4-5	71.4	80.9	76.7
Str 5-6	70.5	75.5	73.0
Str 6-7	72.9	74.5	73.8
Str 7-8	74.6	76.9	75.7

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.8	40.3	36.7
Port Subarray	6.9	8.0	7.4
Outer-Centre	7.1	8.4	7.9
Centre-Inner	7.1	8.4	7.9
Stbd Subarray	6.3	7.1	6.8
Outer-Centre	6.3	7.1	6.8
Centre-Inner	7.7	9.0	8.3

Birds bad:
 Birds depths: S8C18-C13 fluctuating depths min. 5.2m max. 9.0m.
 S1C19-C14 fluctuating depths min. 4.5m max. 8.8m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	290			
Str 4	116		257	258
Str 5	108		153	
Str 6			13	
Str 7	89, 285		130	
Str 8	134			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3	341	
Str 4	127, 318	
Str 5		
Str 6	13, 14, 311, 316	
Str 7		
Str 8	132, 134, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1787,1785,1783,1777	4
Autofires / Misfires :	1913, 1489, 1507, 1533, 1566, 1571, 1572, 1574, 1578	9
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.57

ONLINE COMMENTS

Noise seen on shot records from Bream platform.

PROCESSING QC COMMENTS

Very slight cable strum on streamers 7 and 8
 Occasional slight swell burst affecting ~ 2% of traces
 All autofires visually checked and no autofires found

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1776F1-011**
 Area: **Gippsland Basin, Bass Strait** Sequence: **011**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1769-1784** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **DNP**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	
SOL FSP:	12-May-2006	132	19:17	05:17	121	1997	1046	Soft start commenced at 18:50 UTC
FPSP:	12-May-2006	132	19:17	05:17	121	1997	1046	
LPSP:	12-May-2006	132	21:56	07:56	1237	881	1049	Full volume arrays at 19:10 UTC
EOL LSP:	12-May-2006	132	21:56	07:56	1237	881	1049	
UTC Offset:				10.0				

	SOL	EOL
Feather angle (°)	-3.6	-4
Water depth (m)	50	59
RMS noise @ 5 Hz LC (µB)	5.7	7.1
Weather	265° 10m/s, 1.0m	260° 16m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1970	1970
Stbd	1970	1969

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.4-7.4	6.3-7.1
Str 2	6.8-7.2	6.8-7.2
Str 3	6.8-7.2	6.7-7.2
Str 4	6.7-7.2	6.9-7.5
Str 5	6.9-7.3	6.8-7.3
Str 6	6.8-7.3	6.8-7.3
Str 7	6.8-7.2	6.6-7.2
Str 8	6.9-7.4	6.7-7.2

SOL/EOL Comments

Overall Line Observations

Swell noise breakout seen on plots and QC screens
 DNP due to loss of streamer control in heavy seas

Birds bad/poll disabled:

Birds deep/shallow: S1C16-C12 fluctuating depths min. 6.0m max. 8.6m.

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:			282	305			
S3:	290						
S4:			257	258	127,318		
S5:	153			89	88		
S6:	13				13,14,37,311,316		
S7:	285		130	89	66		
S8:	134				131,132,134		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1046		SOT - SOL NOISE FILES
111-120	#REF!			APPROACH SHOTS
121	1997	1046		FSP @ 19:17 UTC
121	1997	1046		FPSP @ 19:17 UTC
128	1990			Autofire: P-21 flagged, not found after QC
194	1924			Autofire: P-21 flagged, not found after QC
202	1916			Autofire: P-21 flagged, not found after QC
469	1649	1046		EOT
470	1648	1047		SOT
718	1400			Autofire: P-21 flagged, not found after QC
813	1305			Autofire: P-21 flagged, not found after QC
840	1278	1047		EOT
841	1277	1048		SOT
1175	943			Autofire: P-21 flagged, not found after QC
1211	907	1048		EOT
1212	906	1049		SOT
1237	881	1049		LPSP @ 21:56 UTC
1237	881	1049		LSP @ 21:56 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1049		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1776F1-011**Seq: **011**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	66 metres
Far channel inline offset:	4552 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1776F1-011**
 Area: **Gippsland Basin, Bass Strait** Sequence: **011** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1769-1784** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **DNP** Log Status: Final

Initials: cb, ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	12-May-2006	132	19:17	05:17	1997	-3.6	29.7	265° 10m/s, 1.0m
FPSP:	12-May-2006	132	19:17	05:17	1997			
LPSP:	12-May-2006	132	21:56	07:56	881			
EOL LSP:	12-May-2006	132	21:56	07:56	881	-4.2	-196	260° 16m/s, 2.0m
	UTC offset:			10.0				

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	525	521			38.0	38.0
Per streamer:	Str 1-2	75	75	Sub arrays:	PI-PC	7.0	7.1
	Str 2-3	75	75		PC-PO	7.8	7.8
	Str 3-4	75	73		SI-SC	8.4	7.9
	Str 4-5	77	77		SC-SO	6.8	6.3
	Str 5-6	74	72				
	Str 6-7	74	74				
	Str 7-8	76	75				

P2/94 filename: G06A-1776F1-011.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_4
 Backup tape: Tape3 Seq1

Observations disabled etc.

Acoustics: S4A3, S2A1 dead & KO, G1A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	19:17	05:17	SOL, FSP
1997	19:17	05:17	FPSP
	20:27	06:27	Compasses data noisy (Wind force >30knts)
	20:46	06:46	Vessel passing 1300m clear of Bream A
	21:24	07:24	TB8 passing 975m clear of Bream A
881	21:56	07:56	LPSP
881	21:56	07:56	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1776F1-011**
 Sequence: **011**
 Direction: **190.5°** Nav. Def: **4**
 CMP line range: **1769-1784** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **MW**
 Proc Initials: **RF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	12-May-2006	132	19:17	05:17	121	1997	1046
FPSP:	12-May-2006	132	19:17	05:17	121	1997	1046
LPSP:	12-May-2006	132	21:56	07:56	1237	881	1049
EOL LSP	12-May-2006	132	21:56	07:56	1237	881	1049

GENERAL INFORMATION

	SOL	EOL
FA (°)	-3.6	-4.2
Water depth (m)	50	59
RMS Noise (µB)	5.7	7.1
Weather	265° 10m/s, 1.0m	260° 16m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1970	1970
Stbd	1970	1969

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:39
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	66
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	6 / 0.54%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.8	1.9
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.6	3.0	2.0
HDOP	1.0	2.1	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.2	4.26
Speed through water (m/s)	2.2	2.7	2.4	4.70
Feather angle (°)	-3.2	5.0	1.2	
Gyro (P) (°)	192.9	209.4	200.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.6	529.9	523.3
Str 1-2	73.7	76.3	74.9
Str 2-3	73.7	76.6	75.3
Str 3-4	70.0	75.2	73.0
Str 4-5	72.8	81.2	77.5
Str 5-6	70.4	74.9	72.8
Str 6-7	72.8	74.8	73.9
Str 7-8	74.3	77.1	75.8

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.2	40.6	36.8
Port Subarray	6.7	7.7	7.3
Outer-Centre	7.3	8.6	7.9
Stbd Subarray	7.5	9.0	8.3
Centre-Inner	6.3	7.4	6.7
Outer-Centre			

Birds bad:
 Birds depths: S1C16-C12 fluctuating depths min. 6.0m max. 8.6m.

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4			257	258
Str 5	153			89
Str 6	13			
Str 7	285		130	89
Str 8	134			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3	341	
Str 4	127, 318	
Str 5		
Str 6	13, 14, 311, 316	
Str 7		
Str 8	131, 132, 340	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :	1990,1924,1916,1400,1305,943	6
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.66

ONLINE COMMENTS

Swell noise breakout seen on plots and QC screens
 DNP due to loss of streamer control in heavy seas

PROCESSING QC COMMENTS

Moderate swell burst affecting ~ 5% - 10% of traces increasing to 10% - 20% towards the EOL
 Autofires have been visually checked on screen and are good shots

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1776F2-014**
 Area: **Gippsland Basin, Bass Strait** Sequence: **014**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1769-1784** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	14-May-2006	134	07:16	17:16	121	1997	1057	16:45 UTC
FPSP:	14-May-2006	134	07:16	17:16	121	1997	1057	
LPSP:	14-May-2006	134	09:52	19:52	1237	881	1060	Full volume arrays at 17:05 UTC
EOL LSP:	14-May-2006	134	09:52	19:52	1237	881	1060	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-6.2	-3
Water depth (m)	51	58
RMS noise @ 5 Hz LC (µB)	5.7	6
Weather	197° 5m/s, 1.5m	244° 9m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1960	1960
Stbd	1957	1959

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.6-7.3	6.8-7.4
Str 2	6.9-7.3	6.9-7.3
Str 3	6.9-7.2	6.8-7.1
Str 4	6.9-7.1	6.8-7.2
Str 5	6.9-7.3	6.8-7.2
Str 6	6.8-7.1	6.9-7.1
Str 7	6.9-7.6	6.9-7.2
Str 8	6.6-7.2	6.9-7.3

SOL/EOL Comments

Overall Line Observations

Slight swell noise seen on shot records.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:							
S2:				305			
S3:	290						
S4:			257	258	155,318		
S5:	153			89	88		
S6:					37,311,316		
S7:	89,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1057		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1057		FSP @ 07:16 UTC
121	1997	1057		FPSP @ 07:16 UTC
469	1649	1057		EOT
470	1648	1058		SOT
840	1278	1058		EOT
841	1277	1059		SOT
1211	907	1059		EOT
1212	906	1060		SOT
1237	881	1060		LPSP @ 09:52 UTC
1237	881	1060		LSP @ 09:52 UTC
1238-1242	882-886			NAV PROCESSING SHOTS
1243-1252	/	1060		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1776F2-014**Seq: **014**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	66 metres
Far channel inline offset:	4552 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1776F2-014**
 Sequence: **014**
 Direction: **190.5°** Nav. Def: **4**
 CMP line range: **1769-1784** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	14-May-2006	134	07:16	17:16	121	1997	1057
FPSP:	14-May-2006	134	07:16	17:16	121	1997	1057
LPSP:	14-May-2006	134	09:52	19:52	1237	881	1060
EOL LSP	14-May-2006	134	09:52	19:52	1237	881	1060

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.2	-2.8
Water depth (m)	51	58
RMS Noise (µB)	5.7	6
Weather	197° 5m/s, 1.5m	244° 9m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1960	1960
Stbd	1957	1959

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:36
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	66
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.5	1.9
HDOP	0.8	1.4	1.0
V1G2 PDOP	1.4	2.6	2.0
HDOP	0.8	1.4	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.3	2.2	4.37
Speed through water (m/s)	2.2	2.7	2.4	4.75
Feather angle (°)	-7.3	-1.6	-4.5	
Gyro (P) (°)	185.1	202.0	194.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.4	528.6	522.9
Str 1-2	73.8	76.7	75.1
Str 2-3	74.0	76.5	75.1
Str 3-4	72.7	76.6	74.5
Str 4-5	73.5	79.9	76.6
Str 5-6	70.0	74.5	72.2
Str 6-7	71.5	75.0	73.4
Str 7-8	74.8	77.3	76.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.0	41.2	37.4
Port Subarray	6.7	8.0	7.4
Outer-Centre	7.3	8.6	7.9
Stbd Subarray	7.3	8.4	7.8
Centre-Inner	6.2	7.1	6.6
Outer-Centre			

Birds bad: S5C7 & S7C10 polling disabled
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	290			
Str 4			257	258
Str 5	153			89
Str 6				
Str 7	89,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4	127, 155, 258, 318	
Str 5		
Str 6	311, 316	
Str 7		
Str 8	203	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.92

ONLINE COMMENTS

Slight swell noise seen on shot records.

PROCESSING QC COMMENTS

Isolated slight to moderate swell bursts affecting ~ 5% - 10% of traces

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1792P1-016**
 Area: **Gippsland Basin, Bass Strait** Sequence: **016**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1785-1800** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	14-May-2006	134	17:16	03:16	121	1997	1065	16:50	
FPSP:	14-May-2006	134	17:16	03:16	121	1997	1065		
LPSP:	14-May-2006	134	19:55	05:55	1237	881	1068		
EOL LSP:	14-May-2006	134	19:55	05:55	1237	881	1068	17:10	
				UTC Offset:	10.0				

Full volume arrays at 17:10 UTC

	SOL	EOL
Feather angle (°)	-6.6	-6
Water depth (m)	50.8	56.8
RMS noise @ 5 Hz LC (µB)	3.9	4.9
Weather	259° 12m/s 1.0m	220° 5m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1985	1981
Stbd	1987	1984

Streamer Depths (m)

	SOL	EOL
Str 1	6.6-7.4	6.5-7.3
Str 2	6.8-7.3	6.9-7.2
Str 3	6.8-7.3	6.8-7.1
Str 4	6.9-7.2	6.8-7.2
Str 5	6.9-7.2	6.8-7.2
Str 6	6.8-7.2	6.9-7.2
Str 7	6.8-7.1	6.9-7.4
Str 8	6.8-7.2	6.8-7.3

SOL/EOL Comments

Overall Line Observations

Occasional slight noise breakouts observed on plots and QC screens.

Birds bad/poll disabled: S5C7 & S7C10 polling disabled

Birds deep/shallow: S8C16 -S8C12 fluctuating depths 5.8m to 8.7m; S1C16 - S1C12 fluctuating depths 4.8m - 7.7m

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:				305			
S3:	290						
S4:			257	258	127, 318		
S5:	153			89	86, 88		
S6:					29, 37, 311, 316		
S7:	89,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1792P1-016**Seq: **016**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1065		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1065		FSP @ 17:16 UTC
121	1997	1065		FPSP @ 17:16 UTC
469	1649	1065		EOT
470	1648	1066		SOT
840	1278	1066		EOT
841	1277	1067		SOT
1211	907	1067		EOT
1212	906	1068		SOT
1237	881	1068		LPSP @ 19:55 UTC
1237	881	1068		LSP @ 19:55 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1068		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1792P1-016**Seq: **016**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	66 metres
Far channel inline offset:	4552 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1792P1-016**
 Area: **Gippsland Basin, Bass Strait** Sequence: **016** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1785-1800** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: cb, ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	14-May-2006	134	17:16	03:16	1997	-6.6	45.1	259° 12m/s 1.0m
FPSP:	14-May-2006	134	17:16	03:16	1997			
LPSP:	14-May-2006	134	19:55	05:55	881			
EOL LSP:	14-May-2006	134	19:55	05:55	881	-5.8	-23.8	220° 5m/s, 1.0m
UTC offset:				10.0				

Separations (m)

	SOL	EOL
Streamer overall:	525	525
Per streamer:		
Str 1-8	75	75
Str 2-3	75	75
Str 3-4	73	73
Str 4-5	77	78
Str 5-6	74	74
Str 6-7	74	74
Str 7-8	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	7.0	7.3
	PC-PO	7.6	7.8
	SI-SC	8.1	8.2
	SC-SO	6.6	6.9

P2/94 filename: G06A-1792P1-016.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_1
 Backup tape: Tape Seq

Observations disabled etc.

Acoustics: S4A3, S2A1 dead & KO, G1A2 intermittent
 RGPS:
 Compasses: S5C7 & S7C10 KO
 Other:

SP	UTC	Local Time	Comments
1997	17:16	03:16	SOL, FSP
1997	17:16	03:16	FPSP
	18:45	04:45	Vessel passed 1030m abeam of Bream A
	18:47	04:47	Stbd vane passed 750m abeam of Bream A
	19:22	05:22	TB8 passed 1250m abeam of Bream A
881	19:55	05:55	LPSP
881	19:55	05:55	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1792P1-016**
 Sequence: **016**
 Direction: **190.5°** Nav. Def: **4**
 CMP line range: **1785-1800** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **mo**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	14-May-2006	134	17:16	03:16	121	1997	1065
FPSP:	14-May-2006	134	17:16	03:16	121	1997	1065
LPSP:	14-May-2006	134	19:55	05:55	1237	881	1068
EOL LSP	14-May-2006	134	19:55	05:55	1237	881	1068

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.6	-5.8
Water depth (m)	50.8	56.8
RMS Noise (µB)	3.9	4.9
Weather	259° 12m/s 1.0m	220° 5m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1985	1981
Stbd	1987	1984

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:39
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	66
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.8	2.0
HDOP	0.9	1.6	1.1
V1G2 PDOP	1.6	2.8	2.2
HDOP	0.9	1.6	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.2	4.27
Speed through water (m/s)	1.6	2.7	2.4	4.58
Feather angle (°)	-6.3	-3.4	-4.7	
Gyro (P) (°)	192.3	208.5	199.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	517.5	526.3	523.0
Str 1-2	73.7	76.4	75.0
Str 2-3	73.9	76.2	75.2
Str 3-4	71.1	74.7	73.0
Str 4-5	74.1	80.4	77.3
Str 5-6	71.0	75.2	73.0
Str 6-7	72.5	74.7	73.6
Str 7-8	74.4	76.9	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.0	38.8	36.7
Port Subarray	6.9	7.5	7.2
Outer-Centre	7.2	8.2	7.7
Stbd Subarray	7.5	8.7	8.1
Centre-Inner	6.5	7.1	6.8
Outer-Centre			

Birds bad: S5C7 & S7C10 polling disabled
 Birds depths: S8C16 - S8C12 fluctuating depths 5.8m to 8.7m; S1C16 - S1C12 fluctuating depths 4.8m - 7.7m

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	290			
Str 4			257	258
Str 5	153			89
Str 6				
Str 7	89,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4	127, 155, 258, 318	
Str 5		
Str 6	311, 316	
Str 7	203	
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.40

ONLINE COMMENTS

Occasional slight noise breakouts observed on plots and QC screens.

PROCESSING QC COMMENTS

Very occasional slight swell bursts <<1%

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1792F1-194**
 Area: **Gippsland Basin, Bass Strait** Sequence: **194**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **14**
 Job ID: **20323** CMP line range: **1785-1800** Line type: **Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/ RF/ TD/ JC
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	5-Jul-2006	186	01:44	11:44	121	1997	1732	1:10	
FPSP:	5-Jul-2006	186	01:44	11:44	121	1997	1732		
LPSP:	5-Jul-2006	186	04:38	14:38	1237	881	1735		
EOL LSP:	5-Jul-2006	186	04:38	14:38	1237	881	1735	1:30	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-5.1	0.5
Water depth (m)	50	58
RMS noise @ 5 Hz LC (µB)	3	3.1
Weather	280°, 3m/s, 2.0m	300°, 5m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1977	1975
Stbd	1986	1973

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.2	6.7-7.2
Str 2	6.4-7.2	6.9-7.2
Str 3	6.6-7.4	6.9-7.2
Str 4	6.6-7.4	6.8-7.4
Str 5	6.9-7.1	6.9-7.3
Str 6	6.5-7.1	6.9-7.1
Str 7	6.8-7.1	6.8-7.3
Str 8	6.5-7.3	6.7-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	262		
S3:	290			339 (Phase)	3		
S4:	106, 110, 148, 177				88, 127		
S5:	75				86, 88		
S6:	49, 116, 158, 161, 307				29, 37, 91, 205		
S7:	89, 100, 166, 202, 229, 269, 285		360		164		
S8:	198				137, 139		

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
89-97	/	1732		GUN SIGNATURE TEST FOR S-3
98-110	/			SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1732		FSP @ 01:44 UTC
121	1997	1732		FPSP @ 01:44 UTC
459	1659	1732		EOT
460	1658	1733		SOT
830	1288	1733		EOT
831	1287	1734		SOT
1201	917	1734		EOT
1202	916	1735		SOT
1237	881	1735		LPSP @ 04:38 UTC
1237	881	1735		LSP @ 04:38 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1735		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1792F1-194**Seq: **194**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1792F1-194**
 Area: **Gippsland Basin, Bass Strait** Sequence: **194** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **14**
 Job ID: **20323** CMP line range: **1785-1800** Line type: **Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	5-Jul-2006	186	01:44	11:44	1997	-5.1	120	280°, 3m/s, 2.0m
FPSP:	5-Jul-2006	186	01:44	11:44	1997			
LPSP:	5-Jul-2006	186	04:38	14:38	881			
EOL LSP:	5-Jul-2006	186	04:38	14:38	881	0.5	-74	300°, 5m/s, 1.0m
	UTC offset:			10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL	
Streamer overall:	Str 1-8	523	524		36.6	36.7	
Per streamer:	Str 1-2	75	75	Sub arrays:	PO-PC	8.3	8.1
	Str 2-3	76	75		PC-PI	8.5	9.1
	Str 3-4	74	75		SI-SC	8.3	8.4
	Str 4-5	69	70		SC-SO	7.6	7.6
	Str 5-6	80	80				
	Str 6-7	73	74				
	Str 7-8	76	77				

P2/94 filename: G06A-1792F1-194.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_14
 Backup tape: Tape 4 Seq 1

Observations disabled etc.

Acoustics: S2A2 Intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	1:44	11:44	SOL, FSP
1997	1:44	11:44	FPSP
1330	3:29	13:29	Lost RGPS & V1G2 position d/t poor constellation
1327	3:29	13:29	Now tracking more than 5 SV's
881	4:38	14:38	LPSP
881	4:38	14:38	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison 8.5
 Chief Navigator: Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1792F1-194**
 Sequence: **194**
 Direction: **190.5°** Nav. Def: **14**
 CMP line range: **1785-1800** Line type: **Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	5-Jul-2006	186	01:44	11:44	121	1997	1732
FPSP:	5-Jul-2006	186	01:44	11:44	121	1997	1732
LPSP:	5-Jul-2006	186	04:38	14:38	1237	881	1735
EOL LSP	5-Jul-2006	186	04:38	14:38	1237	881	1735

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-5.1	0.5
Water depth (m)	50	58
RMS Noise (µB)	3	3.1
Weather	280°, 3m/s, 2.0m	300°, 5m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1977	1975
Stbd	1986	1973

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:54
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	4.4	2.8
HDOP	1.0	2.4	1.6
V1G2 PDOP	2.5	4.4	
HDOP	1.1	2.3	

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.1	2.0	3.91
Speed through water (m/s)	2.1	2.5	2.2	4.29
Feather angle (°)	-5.5	0.1	-1.8	
Gyro (P) (°)	184.1	201.1	192.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.4	526.2	523.2
Str 1-2	73.8	76.7	75.5
Str 2-3	74.3	76.4	75.3
Str 3-4	71.9	76.6	74.2
Str 4-5	65.2	71.4	68.8
Str 5-6	77.9	81.0	79.6
Str 6-7	72.4	74.5	73.5
Str 7-8	75.1	77.2	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.0	39.9	36.4
Port Subarray			
Outer-Centre	7.7	8.8	8.1
Centre-Inner	8.2	9.6	8.7
Stbd Subarray			
Centre-Inner	7.5	8.7	8.3
Outer-Centre	7.3	8.1	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49,116,158,161,307			
Str 7	89,100,166, 202, 229,		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	88, 326, 352	
Str 6	91, 205	
Str 7	164	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.06

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1808P1-018**
 Area: **Gippsland Basin, Bass Strait** Sequence: **018**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**
 Job ID: **20323** CMP line range: **1801-1816** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	15-May-2006	135	23:21	09:21	121	1997	1073	22:50	
FPSP:	15-May-2006	135	23:21	09:21	121	1997	1073		
LPSP:	16-May-2006	136	01:51	11:51	1237	881	1076		
EOL LSP:	16-May-2006	136	01:51	11:51	1237	881	1076	23:10	
				UTC Offset:	10.0				

Full volume arrays at 23:10 UTC

	SOL	EOL
Feather angle (°)	6.3	8.4
Water depth (m)	50.4	58
RMS noise @ 5 Hz LC (µB)	3.5	3.1
Weather	290° 2m/s, 1.0m	158° 3m/s 1.0
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1989	1980
Stbd	1987	1985

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.2	6.9-7.3
Str 2	6.9-7.3	6.9-7.2
Str 3	6.9-7.4	6.9-7.3
Str 4	6.9-7.2	6.9-7.2
Str 5	6.9-7.3	6.9-7.3
Str 6	6.9-7.2	6.9-7.4
Str 7	6.9-7.3	6.9-7.2
Str 8	6.9-7.2	6.9-7.3

SOL/EOL Comments

Overall Line Observations

SP 1390 Vessel clear of Bream A
 SP 1128 TB's clear of Bream A

Birds bad/poll disabled: S5C7 & S7C10 polling disabled

Birds deep/shallow: SP 1997-1990 S1C7 running shallow min 5.0 mtrs, SP 1225-1208 S1C7 running shallow min 4.0 mtrs.

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:				305			
S3:	290						
S4:			257	258	127, 318		
S5:	153			89	86, 88		
S6:					29, 37, 205, 311, 316		
S7:	89,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1808P1-018**

Seq: **018**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1073		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1073		FSP @ 23:21 UTC
121	1997	1073		FPSP @ 23:21 UTC
121-128	1997-1990			S7C1 running shallow min depth 5.0 mtrs
410	1708			LSP of the day
417	1701		Bad	Delta Error: P-2: 1.1
469	1649	1073		EOT
470	1648	1074		SOT
728	1390			Vessel clear of Bream A
840	1278	1074		EOT
841	1277	1075		SOT
893-910	1225-1208			S7C1 running shallow min depth 4.0 mtrs
1211	907	1075		EOT
1212	906	1076		SOT
1237	881	1076		LPSP @ 01:51 UTC
1237	881	1076		LSP @ 01:51 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1076		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1808P1-018**Seq: **018**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1808P1-018**

Area: **Gippsland Basin, Bass Strait** Sequence: **018** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **4**

Job ID: **20323** CMP line range: **1801-1816** Line type: **Prime**

Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: cb/ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	15-May-2006	135	23:21	09:21	1997	6.3	-320	290° 2m/s, 1.0m
FPSP:	15-May-2006	135	23:21	09:21	1997			
LPSP:	16-May-2006	136	01:51	11:51	881			
EOL LSP:	16-May-2006	136	01:51	11:51	881	8.4	-590	158° 3m/s 1.0
			UTC offset:	10.0				

Separations (m)

		SOL	EOL			SOL	EOL
Streamer overall:	Str 1-8	75	512	Sources overall:	Port-Stbd	36.0	34.0
Per streamer:	Str 1-2	74	75	Sub arrays:	PI-PC	7.7	8.4
	Str 2-3	72	74		PC-PO	7.0	7.1
	Str 3-4	77	72		SI-SC	7.8	7.5
	Str 4-5	71	74		SC-SO	7.3	7.3
	Str 5-6	70	69				
	Str 6-7	73	73				
	Str 7-8	76	74				

P2/94 filename: **G06A-1808P1-0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_4**

Backup tape: **Tape 4 Seq 4**

Observations disabled etc.

Acoustics: S1A4,S2A1,S4A3 dead, G1A2 intermittent

RGPS:

Compasses: S5C7,S7C10 dead

Other: V1G3 C-Nav differential system not operational

SP	UTC	Local Time	Comments
1997	23:21	09:21	SOL, FSP
1997	23:21	09:21	FPSP opposite F/A at SOL, moving across at 0.5 VC to bring in Z4
1834			F/A at 10°, burying all of AOne 1,2, Zone 4 coverage hole being left
1439	00:36	10:36	G2R1 drop out
1432	00:37	10:37	G2R1 in
1390	00:42	10:42	Vessel clears Bream A
1348	00:48	10:48	To Sp 1341 G2R1 out
1274	00:58	10:58	F/A 12.4°
1237	01:03	11:03	To SP 1164 G2R1 out
1128	01:17	11:17	Tb 8 clears Bream A 243 m
1132	01:17	11:17	To 1106 G2R1 out
1100	01:21	11:21	G2R1 drop out
1032	01:30	11:30	G2R1 came back in
881	01:51	11:51	LPSP
881	01:51	11:51	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1808P1-018**
 Sequence: **018**
 Direction: **190.5°** Nav. Def: **4**
 CMP line range: **1801-1816** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **mo**
 Proc Initials: **KE / MB**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	15-May-2006	135	23:21	09:21	121	1997	1073
FPSP:	15-May-2006	135	23:21	09:21	121	1997	1073
LPSP:	16-May-2006	136	01:51	11:51	1237	881	1076
EOL LSP	16-May-2006	136	01:51	11:51	1237	881	1076

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	6.3	8.4
Water depth (m)	50.4	58
RMS Noise (µB)	3.5	3.1
Weather	290° 2m/s, 1.0m	158° 3m/s 1.0
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1989	1980
Stbd	1987	1985

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:30
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.6	1.9
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.6	2.0
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.52
Speed through water (m/s)	1.6	2.4	2.0	3.83
Feather angle (°)	4.7	12.9	10.6	
Gyro (P) (°)	171.1	188.7	178.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	502.5	519.4	511.4
Str 1-2	72.8	76.9	74.6
Str 2-3	71.6	75.5	73.4
Str 3-4	69.0	74.8	71.5
Str 4-5	70.0	80.1	75.8
Str 5-6	67.1	71.4	69.1
Str 6-7	71.3	74.2	72.7
Str 7-8	72.5	76.7	74.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	31.3	38.8	34.8
Port Subarray			
Outer-Centre	7.0	8.6	7.6
Centre-Inner	6.7	8.0	7.4
Stbd Subarray			
Centre-Inner	6.8	8.2	7.4
Outer-Centre	7.0	8.1	7.4

Birds bad: S5C7 & S7C10 polling disabled
 Birds depths: SP 1997-1990 S1C7 running shallow min 5.0 mtrs, SP 1225-1208 S1C7 running shallow min 4.0 mtrs.

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305
Str 3	290			
Str 4			257	258
Str 5	153			89
Str 6				
Str 7	89,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3	30, 358	
Str 4	127, 258, 318	
Str 5	88	
Str 6	37, 91, 205, 311, 316	
Str 7	203	
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1701	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.14

ONLINE COMMENTS

SP 1390 Vessel clear of Bream A
 SP 1128 TB's clear of Bream A

PROCESSING QC COMMENTS

Clean line, swell noise absent

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1824P1-020**
 Area: **Gippsland Basin, Bass Strait** Sequence: **020**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1817-1832** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	16-May-2006	136	10:28	20:28	121	1997	1082	at	10:00
FPSP:	16-May-2006	136	10:28	20:28	121	1997	1082		
LPSP:	16-May-2006	136	12:57	22:57	1237	881	1085	Full volume arrays at	10:23
EOL LSP:	16-May-2006	136	12:57	22:57	1237	881	1085		
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-6.5	2
Water depth (m)	50	58
RMS noise @ 5 Hz LC (µB)	4.3	4
Weather	080° 4m/s, 1m	060° 4m/s, 1m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1986	1981
Stbd	1986	1979

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.9-7.2
Str 2	6.8-7.2	6.8-7.2
Str 3	6.8-7.1	6.9-7.2
Str 4	6.9-7.2	6.9-7.3
Str 5	6.8-7.1	6.8-7.2
Str 6	6.9-7.2	6.9-7.2
Str 7	6.9-7.3	6.9-7.3
Str 8	6.5-7.1	6.7-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295						
S3:	290						
S4:	106,116,126,148,249		257,258		127, 318		
S5:	75,103,112,113,153,157						
S6:	49,116				37, 205		
S7:	89,202		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1824P1-020**Seq: **020**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-111	/	1082		SOT - SOL NOISE FILES
112-120	2006-1998			APPROACH SHOTS
121	1997	1082		FSP @ 10:28 UTC
121	1997	1082		FPSP @ 10:28 UTC
469	1649	1082		EOT
470	1648	1083		SOT
483	1635			Lowering Azimuth thruster
730	1388			V2 passing abeam of Bream platform @ 850m.
744	1374			Stbd. vane passing abeam of Bream A platform @ 540m
777	1341			Screw noise from Pacific Sword seen on monitor plots
840	1278	1083		EOT
841	1277	1084		SOT
859	1259			Screw noise from Pacific Sword no longer seen on monitor plots
1032	1086			Raising Azimuth thruster
1211	907	1084		EOT
1212	906	1085		SOT
1237	881	1085		LPSP @ 12:57 UTC
1237	881	1085		LSP @ 12:57 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1085		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1824P1-020**Seq: **020**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1824P1-020**

Area: **Gippsland Basin, Bass Strait** Sequence: **020** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**

Job ID: **20323** CMP line range: **1817-1832** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: nh sg
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	16-May-2006	136	10:28	20:28	1997	-6.5	-262	080° 4m/s, 1m
FPSP:	16-May-2006	136	10:28	20:28	1997			
LPSP:	16-May-2006	136	12:57	22:57	881			
EOL LSP:	16-May-2006	136	12:57	22:57	881	2.4	-520	060° 4m/s, 1m
UTC offset:				10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	518	516	35.1	36.5	
Per streamer:	Str 1-2	75	76	PI-PC	7.3	7.5
	Str 2-3	75	74	PC-PO	7.3	6.8
	Str 3-4	72	73	SI-SC	7.6	8.0
	Str 4-5	77	77	SC-SO	7.2	7.2
	Str 5-6	70	70			
	Str 6-7	73	73			
	Str 7-8	76	76			

P2/94 filename: G06A-1824P1-020.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 1 Seq 1

Observations disabled etc.

Acoustics: G1A2 Intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	10:28	20:28	SOL, FSP
1997	10:28	20:28	FPSP
1635	11:18	21:18	Azimuth thruster down
1388	11:50	21:50	Vessel 850m Abeam of Bream A
1374	11:52	21:52	Stbd Vane 540m abeam of Bream A
1086	12:30	23:52	Azimuth thruster up
881	12:57	22:57	LPSP
881	12:57	22:57	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1824P1-020**
 Sequence: **020**
 Direction: **190.5°** Nav. Def: **5**
 CMP line range: **1817-1832** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	16-May-2006	136	10:28	20:28	121	1997	1082
FPSP:	16-May-2006	136	10:28	20:28	121	1997	1082
LPSP:	16-May-2006	136	12:57	22:57	1237	881	1085
EOL LSP	16-May-2006	136	12:57	22:57	1237	881	1085

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.5	2.4
Water depth (m)	50	58
RMS Noise (µB)	4.3	4
Weather	080° 4m/s, 1m	060° 4m/s, 1m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1986	1981
Stbd	1986	1979

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:29
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.2	2.1	1.6
HDOP	0.8	1.0	0.9
V1G2 PDOP	1.3	2.1	1.7
HDOP	0.8	1.0	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.54
Speed through water (m/s)	2.9	2.7	2.3	4.56
Feather angle (°)	-6.4	3.3	-0.2	
Gyro (P) (°)	177.6	195.7	187.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.3	523.9	520.2
Str 1-2	74.0	76.6	75.1
Str 2-3	73.7	76.0	74.9
Str 3-4	70.6	74.0	72.5
Str 4-5	75.4	82.5	79.0
Str 5-6	68.0	71.9	69.9
Str 6-7	72.2	74.3	73.1
Str 7-8	74.3	77.1	75.7

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.0	39.2	36.5
Port Subarray			
Outer-Centre	7.1	8.1	7.7
Centre-Inner	6.7	8.1	7.3
Stbd Subarray			
Centre-Inner	7.4	8.3	7.9
Outer-Centre	6.7	7.7	7.2

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			
Str 3	290			
Str 4	106,116,126,148,249		257,258	
Str 5	75,103,112,113,153,157			
Str 6	49,116			
Str 7	89,202		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3	30	
Str 4	127, 258, 318	
Str 5	88	
Str 6	205, 316	
Str 7	203	
Str 8	137	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.13

ONLINE COMMENTS

PROCESSING QC COMMENTS

Slight cable strum on streamer 8

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1824U1-033**
 Area: **Gippsland Basin, Bass Strait** Sequence: **033**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **2U**
 Job ID: **20323** CMP line range: **1820-1835** Line type: **Undershoot**
 Type: **3D** No. CMPs: **16** Status: **DNP**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	19-May-2006	139	09:53	19:53	121	1563	1132	09:15	
FPSP:	19-May-2006	139	09:53	19:53	121	1563	1132		
LPSP:	19-May-2006	139	10:09	20:09	175	1455	1132		
EOL LSP:	19-May-2006	139	10:09	20:09	175	1455	1132	09:36	
				UTC Offset:	10.0				

Full volume arrays at 09:36 UTC

	SOL	EOL
Feather angle (°)	-9.2	-11
Water depth (m)	53	55
RMS noise @ 5 Hz LC (µB)	3.9	4
Weather	250° 15m/s, 1.5m	250° 15m/s, 1.5m
Source vol. (cu. in.)	4450	4450
Source pressure (psi)	1951	1952

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.9-7.3
Str 2	6.8-7.2	6.8-7.2
Str 3	6.9-7.2	6.9-7.2
Str 4	6.9-7.2	6.9-7.2
Str 5	6.9-7.1	6.9-7.1
Str 6	6.9-7.1	6.9-7.1
Str 7	6.8-7.2	6.8-7.2
Str 8	6.8-7.1	6.8-7.1

SOL/EOL Comments

Undershoot with Pacific Sword - single source
 Wx: before SOL 240° 8m/s, 1m increased @ SOL 250° 15m/s, 1.5m
 DNP D/T Pacific Sword source array separations out of contract specifications

Overall Line Observations

Birds bad/poll disabled: S7C1 polling disabled

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305(phase)			
S3:	83, 290						
S4:	116,126,318		257	258 (Weak)	127,318		
S5:	75,153,157,255				86,88		
S6:	49,116				205		
S7:	89,100,202,285		130		285		
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1132		SOT - SOL NOISE FILES
111-120	1573-1564			APPROACH SHOTS
121	1563	1132		FSP @ 09:53 UTC
121	1563	1132		FPSP @ 09:53 UTC
175	1455	1132		LPSP @ 10:09 UTC
175	1455	1132		LSP @ 10:09 UTC
				NAV PROCESSING SHOTS
	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1824U1-033**Seq: **033**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1824U1-033**
 Sequence: **033**
 Direction: **190.5°** Nav. Def: **2**
 CMP line range: **1820-1835** Line type: **Undershoot**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	19-May-2006	139	09:53	19:53	121	1563	1132
FPSP:	19-May-2006	139	09:53	19:53	121	1563	1132
LPSP:	19-May-2006	139	10:09	20:09	175	1455	1132
EOL LSP	19-May-2006	139	10:09	20:09	175	1455	1132

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-9.2	-11.3
Water depth (m)	53	55
RMS Noise (µB)	3.9	4
Weather	250° 15m/s, 1.5m	250° 15m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd		
Source pressure (psi): Port		
Stbd		

TOTALS INFORMATION

Recorded SPs	109
Recorded km	4,088
Production time (hh:mm)	00:16
Production files	55
Production SPs	109
Production km	4,088
Production CMP km	65.400

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP			
HDOP			
V1G2 PDOP			
HDOP			

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)				0.00
Speed through water (m/s)				0.00
Feather angle (°)				
Gyro (P) (°)				

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8			
Str 1-2			
Str 2-3			
Str 3-4			
Str 4-5			
Str 5-6			
Str 6-7			
Str 7-8			

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source			
Subarray			
Port-Stbd			
Outer-Centre			
Centre-Inner			

Birds bad: S7C1 polling disabled
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305(phase)
Str 3	83, 290			
Str 4	116,126,318		257	258 (Weak)
Str 5	75,153,157,255			
Str 6	49,116			
Str 7	89,100,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4		
Str 5		
Str 6		
Str 7		
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0

ONLINE COMMENTS

PROCESSING QC COMMENTS

SR/V Veritas Viking II

Observers Line Log

Client: **Esso Australia Pty. Ltd.**Line Name: **G06A-1824U2-047**Area: **Gippsland Basin, Bass Strait**Sequence: **047**Prospect: **2006 Greater Bream 3D**Direction: **190.5°**Nav Def: **3U**Job ID: **20323**CMP line range: **1821-1828**Line type: **Undershoot**Type: **3D**No. CMPs: **8**Status: **Complete**Initials: MO, MW
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	26-May-2006	146	17:54	03:54	121	1512	1162	17:19	
FPSP:	26-May-2006	146	17:54	03:54	121	1512	1162		
LPSP:	26-May-2006	146	19:14	05:14	416	922	1162		
EOL LSP:	26-May-2006	146	19:14	05:14	416	922	1162	17:40	
				UTC Offset:	10.0				

Full volume arrays at 17:40 UTC

	SOL	EOL
Feather angle (°)	-4.5	-1
Water depth (m)	52.8	56.8
RMS noise @ 5 Hz LC (µB)	3.9	4.9
Weather	170° 7m/s 2.5m	200° 5m/s, 2.5m
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1971	1974

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.9-7.3
Str 2	6.8-7.4	6.8-7.2
Str 3	6.9-7.4	6.9-7.2
Str 4	6.8-7.2	6.8-7.3
Str 5	6.9-7.3	6.8-7.2
Str 6	6.8-7.2	6.8-7.4
Str 7	6.9-7.2	6.9-7.4
Str 8	6.8-7.3	6.8-7.2

SOL/EOL Comments

Overall Line Observations

Undershoot with Pacific Sword - single source (Stbd)
Pacific Sword position on Stbd side of V2

Birds bad/poll disabled: S8C20 & S8C16:no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:	295		282	305			
S3:	290				30,358		
S4:	106,116,318				127,318		
S5:	75,153,157						
S6:					205		
S7:	89,202		130		203		
S8:							

Vessel Manager:	Howie Grizaard	Observers:	00:00-12:00	Emmanuel Ollada/Michael Wells
Operations Supervisor:	Paul Turpin		12:00-00:00	Shane Hales/David de Young
Chief Observer:	Les Hayden			

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1824U2-047**

Seq: **047**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1162		SOT - SOL NOISE FILES
111-120	1532-1514			APPROACH SHOTS
121	1512	1162		FSP @ 17:54 UTC
121	1512	1162		FPSP @ 17:54 UTC
182	1390			Vessel clear of Bream A by 520m
201	1352			S8 and vane clear of Bream A by 280m
318	1118			TB's clear of Bream A by 400m
416	922	1162		LPSP @ 19:14 UTC
416	922	1162		LSP @ 19:14 UTC
417-420	920-914			NAV PROCESSING SHOTS
421-431	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1824U2-047**Seq: **047**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1824U2-047**
 Sequence: **047**
 Direction: **190.5°** Nav. Def: **3U**
 CMP line range: **1821-1828** Line type: **Undershoot**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **MO**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	26-May-2006	146	17:54	03:54	121	1512	1162
FPSP:	26-May-2006	146	17:54	03:54	121	1512	1162
LPSP:	26-May-2006	146	19:14	05:14	416	922	1162
EOL LSP	26-May-2006	146	19:14	05:14	416	922	1162

GENERAL INFORMATION

	SOL	EOL
FA (°)	-4.5	-1.1
Water depth (m)	52.8	56.8
RMS Noise (µB)	3.9	4.9
Weather	170° 7m/s 2.5m	200° 5m/s, 2.5m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	591
Recorded km	22.163
Production time (hh:mm)	01:20
Production files	296
Production SPs	296
Production km	11.100
Production CMP km	88.800

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	2.8	2.3
HDOP	1.0	2.1	1.4
V1G2 PDOP	1.7	2.8	2.5
HDOP	1.1	2.2	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.50
Speed through water (m/s)	1.9	2.5	2.2	4.28
Feather angle (°)	-3.3	0.9	-1.4	
Gyro (P) (°)	182.9	191.0	187.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.6	526.3	523.3
Str 1-2	74.3	77.5	75.8
Str 2-3	74.1	76.8	75.5
Str 3-4	72.5	77.2	74.8
Str 4-5	73.3	79.6	76.2
Str 5-6	68.8	74.2	70.7
Str 6-7	72.7	74.9	73.9
Str 7-8	74.7	78.1	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	8.3	9.5	9.0
Centre-Inner	8.2	9.4	8.7

Birds bad: **S8C20 & S8C16: no comms**
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290			
Str 4	106,116,318			
Str 5	75,153,157			
Str 6				
Str 7	89,202		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 233, 318	
Str 5	139	
Str 6	205	
Str 7	203, 285	
Str 8		318

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.00

ONLINE COMMENTS

Undershoot with Pacific Sword - single source (Stbd)
 Pacific Sword position on Stbd side of V2

PROCESSING QC COMMENTS

Screw noise visible on shots - probably due to source vessel.
 Occasional moderate swell bursts, affecting <10% traces, and penetrating to 3secs twt.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1824U3-049**

Area: **Gippsland Basin, Bass Strait** Sequence: **049**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**

Job ID: **20323** CMP line range: **1820-1835** Line type: **Undershoot**

Type: **3D** No. CMPs: **8** Status: **Complete**

Initials: SH, DY
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	27-May-2006	147	03:08	13:08	121	1513	1164	02:24	
FPSP:	27-May-2006	147	03:08	13:08	121	1513	1164		
LPSP:	27-May-2006	147	03:49	13:49	278	1199	1164		
EOL LSP:	27-May-2006	147	04:03	14:03	335	1085	1164	02:48	
UTC Offset:				10.0					

Full volume arrays at 02:48 UTC

	SOL	EOL
Feather angle (°)	-0.9	-7
Water depth (m)	53	57
RMS noise @ 5 Hz LC (µB)	3.7	4
Weather	235° 7m/s, 1.5m	230° 6m/s, 2m
Source vol. (cu. in.)	4550	3850
Source pressure (psi)	1951	1951

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.8-7.3
Str 2	6.8-7.2	6.9-7.1
Str 3	6.9-7.1	6.8-7.2
Str 4	6.9-7.3	6.8-7.2
Str 5	6.9-7.4	6.8-7.5
Str 6	6.9-7.3	6.9-7.1
Str 7	6.9-7.1	6.8-7.2
Str 8	6.9-7.2	6.8-7.2

SOL/EOL Comments

Azimuth thruster engaged before SOL @ 02:46UTC
Azimuth thruster disengaged @ 04:05UTC

Overall Line Observations

Undershoot with Pacific Sword - single source (Port)
Pacific Sword position on Stbd. side of V2
Slight swell noise observed on shot records
LGSP 1199 d/t source air leak

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:	295		282	305			
S3:	290						
S4:	106,116,318				127,318		
S5:	75,153,157				86,88		
S6:					91,205,303		
S7:	89,202		130		203		
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1824U3-049**

Seq: **049**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1164		SOT - SOL NOISE FILES
111-120	1533-1515			APPROACH SHOTS
121	1513	1164		FSP @ 03:08 UTC
121	1513	1164		FPSP @ 03:08 UTC
159	1437		Bad	Delta Error: S3-3: -1.1
162	1431		Bad	Delta Error: S3-1: -1.9
166	1423		Bad	Delta Error: S1-1: -1.1
184	1387			V2 passing abeam of Bream A @ 500m
188	1379		Bad	Short Nav Header Error - NAVS
189	1377		Bad	Short Nav Header Error - NAVS
193	1369			Stbd. Vane passing abeam of Bream A @ 260m
205	1345		Bad	Short Nav Header Error - NAVS
259	1237		Bad	Delta Error: S1-1: -1.4
271	1213		Bad	Delta Error: S4-2: 2.1
272	1211		Bad	Delta Error: S4-2: 1.9
273	1209		Bad	Delta Error: S4-2: 2.4
275	1205		Bad	Delta Error: S4-2: -1.9
276	1203		Bad	Delta Error: S4-2: -1.6
278	1199	1164		LPSP @ 03:49 UTC
287	1181			Pacific Sword notified via V2 Nav. Center Gun string air pressure decreasing
312	1131		Bad	Delta Error: S1-1: -1.5
318	1119			V2 Nav. notified of all Gun string's pressure outside parameters
319	1117		Bad	Misfire: S3-1
320	1115		Bad	Misfire: S3-1, Delta Error: S3-2: -3.5 S3-3: 1.7, Pressure Error
321	1113		Bad	Delta Error: S3-3: 2.1 Gun 9 & 10 disabled total array volume 3850cu.in
335	1085	1164		LSP @ 04:03 UTC
336-347	/	1164		EOT - NOISE FILES
				Azimuth thruster disengaged @ 04:05UTC

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1824U3-049**Seq: **049**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1824U3-049**

Area: **Gippsland Basin, Bass Strait** Sequence: **049** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**

Job ID: **20323** CMP line range: **1820-1835** Line type: **Undershoot**

Type: **3D** No. CMPs: **8** Status: **Complete** Initials: nh sg
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	27-May-2006	147	03:08	13:08	1513	-0.9	-134	235° 7m/s, 1.5m
FPSP:	27-May-2006	147	03:08	13:08	1513			
LPSP:	27-May-2006	147	03:49	13:49	1199			
EOL LSP:	27-May-2006	147	04:03	14:03	1085	-6.6	-13	230° 6m/s, 2m
			UTC offset:	10.0				

Separations (m)		SOL	EOL			SOL	EOL
Streamer overall:	Str 1-8	531	525				
Per streamer:	Str 1-2	76	74	Sub arrays:	P-C	7.7	7.8
	Str 2-3	76	75		C-S	8.9	8.6
	Str 3-4	75	76				
	Str 4-5	74	72				
	Str 5-6	72	71				
	Str 6-7	74	72				
	Str 7-8	76	75				

P2/94 filename: G06A-1824U3.0.p294

LMN: 20323_Bream.LMN

SCN: 20323_Bream.SCN

RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN

Acoustic file: 20323_5

Backup tape: Tape 3 Seq 1

Observations disabled etc.

Acoustics:

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
			Port Source
1513	03:08	13:08	SOL, FSP
			NB Azimuth thruster lowered prior to SOL
			NB Line inadvertently named G06A-1824U3-49 Should have been G06A-1824U3-049
1513	03:08	13:08	FPSP
1387	03:24	13:24	Vessel 500m west of Bream A
1377	03:26	13:26	No Nav data due to rig obstruction
1369	03:27	13:27	Vane 260m west of Bream A
1345	03:30	13:30	Short Nav Header
1199	03:49	13:49	LPSP
1085	04:03	14:03	EOL, LSP

Vessel Manager: Howie Grizaard **Navigators:** 00:00-12:00 Craig Bradshaw/Melissa Li

Chief Navigator : Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1824U3-049**
 Sequence: **049**
 Direction: **190.5°** Nav. Def: **3U**
 CMP line range: **1820-1835** Line type: **Undershoot**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	27-May-2006	147	03:08	13:08	121	1513	1164
FPSP:	27-May-2006	147	03:08	13:08	121	1513	1164
LPSP:	27-May-2006	147	03:49	13:49	278	1199	1164
EOL LSP	27-May-2006	147	04:03	14:03	335	1085	1164

GENERAL INFORMATION

	SOL	EOL
FA (°)	-0.9	-6.6
Water depth (m)	53	57
RMS Noise (µB)	3.7	4
Weather	235° 7m/s, 1.5m	230° 6m/s, 2m
Source volume (cu in):	4550	3850

TOTALS INFORMATION

Recorded SPs	429
Recorded km	16.088
Production time (hh:mm)	00:41
Production files	158
Production SPs	158
Production km	5.925
Production CMP km	47.400

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	9 / 5.7%
Missed SPs / %	0 / 0%
Other bad SPs / %	3 / 1.9%

GPS

	Min	Max	Mean
V1G1 PDOP	2.2	5.1	3.5
HDOP	1.2	2.0	1.7
V1G2 PDOP	2.6	5.1	3.9
HDOP	1.3	2.0	1.7

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.4	4.70
Speed through water (m/s)	1.9	2.5	2.2	4.28
Feather angle (°)	-6.2	-0.5	-3.0	
Gyro (P) (°)	192.9	202.7	197.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.4	525.0	520.4
Str 1-2	73.3	77.7	75.2
Str 2-3	73.5	76.8	75.3
Str 3-4	71.7	76.5	74.1
Str 4-5	72.1	76.7	74.6
Str 5-6	69.6	73.6	71.5
Str 6-7	71.8	74.6	73.4
Str 7-8	74.4	78.2	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray			
Outer-Centre	7.2	7.9	7.5
Centre-Inner	8.4	9.2	8.9

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	290			
Str 4	106,116,318			
Str 5	75,153,157			
Str 6				
Str 7	89,202		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	205	
Str 7		
Str 8		318

SHOT / TRACE EDITS:**SPs:****TOTAL SHOTS**

Timing (delta) errors >1.0ms:	1437,1431,1423,1237,1213,1211,1209,1205,1203	9
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1379,1377,1345	3
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.00

ONLINE COMMENTS

Undershoot with Pacific Sword - single source (Port)
 Pacific Sword position on Stbd. side of V2
 Slight swell noise observed on shot records
 LGSP 1199 d/t source air leak

PROCESSING QC COMMENTS

Slight strum noise on outer cables only - otherwise clean line

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1824F1-022**
 Area: **Gippsland Basin, Bass Strait** Sequence: **022**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1817-1832** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	16-May-2006	136	20:28	06:28	119	1997	1090	19:50	
FPSP:	16-May-2006	136	20:28	06:28	119	1997	1090		
LPSP:	16-May-2006	136	22:59	08:59	1235	881	1093		
EOL LSP:	16-May-2006	136	22:59	08:59	1235	881	1093	20:10	
				UTC Offset:	10.0				

Full volume arrays at 20:10 UTC

	SOL	EOL
Feather angle (°)	-6.9	0
Water depth (m)	50	57
RMS noise @ 5 Hz LC (µB)	4.9	2.4
Weather	270° 3/ms, 0.5m	318° 5/ms, 0.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1983	1981
Stbd	1984	1982

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.9-7.3
Str 2	6.8-7.2	6.9-7.2
Str 3	6.9-7.1	6.9-7.2
Str 4	6.8-7.2	6.8-7.3
Str 5	6.9-7.3	6.8-7.4
Str 6	6.9-7.2	6.8-7.2
Str 7	6.9-7.2	6.9-7.1
Str 8	6.8-7.3	6.8-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295						
S3:	290						
S4:	106,116,126,148,249		257,258		127, 318		
S5:	75,103,112,113,153,157				86, 88		
S6:	49,116				37, 311,316		
S7:	89,202		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1824F1-022**Seq: **022**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1090		SOT - SOL NOISE FILES
111-118	2005-1998			APPROACH SHOTS
119	1997	1090		FSP @ 20:28 UTC
119	1997	1090		FPSP @ 20:28 UTC
469	1647	1090		EOT
470	1646	1091		SOT
640	1479		Bad	Autofire: P-27, Visually confirmed
639	1477		Bad	Delta Error: P-27: 1.7
735	1381			Vessel passed 620m from Bream A
757	1359			Stbd vane clears Bream A by 310m
840	1276	1091		EOT
841	1275	1092		SOT
1211	905	1092		EOT
1212	904	1093		SOT
1235	881	1093		LPSP @ 22:59 UTC
1235	881	1093		LSP @ 22:59 UTC
1236-1240	880-876			NAV PROCESSING SHOTS
1241-1250	/	1093		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1824F1-022**Seq: **022**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1824F1-022**
 Area: **Gippsland Basin, Bass Strait** Sequence: **22** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1817-1832** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: cb, ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	16-May-2006	136	20:28	06:28	1997	-6.9	-32	270° 3/ms, 0.5m
FPSP:	16-May-2006	136	20:28	06:28	1997			
LPSP:	16-May-2006	136	22:59	08:59	881			
EOL LSP:	16-May-2006	136	22:59	08:59	881	0	-261	318° 5/ms, 0.5m
UTC offset:				10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL	
Streamer overall:	Str 1-8	519	520		38.0	36.0	
Per streamer:	Str 1-2	75	75	Sub arrays:	PI-PC	7.9	7.8
	Str 2-3	75	75	PC-PO	7.4	6.9	
	Str 3-4	72	72	SI-SC	7.7	7.8	
	Str 4-5	77	78	SC-SO	7.0	7.2	
	Str 5-6	70	70				
	Str 6-7	73	73				
	Str 7-8	76	75				

P2/94 filename: G06A-1824F1-022.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 1 Seq 3

Observations disabled etc.

Acoustics: G1A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	20:28	06:28	SOL, FSP
1997	20:28	06:28	FPSP
			No Tension Data
1381	21:53	07:53	Vessel passed 620m abeam of Bream A
1359	21:56	07:56	S8 and vane clears Bream A 310m
1114	22:28	08:28	TB 8 passed 535m abeam from Bream A
881	22:59	08:59	LPSP
881	22:59	08:59	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1824F1-022**
 Sequence: **022**
 Direction: **190.5°** Nav. Def: **5**
 CMP line range: **1817-1832** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	16-May-2006	136	20:28	06:28	119	1997	1090
FPSP:	16-May-2006	136	20:28	06:28	119	1997	1090
LPSP:	16-May-2006	136	22:59	08:59	1235	881	1093
EOL LSP	16-May-2006	136	22:59	08:59	1235	881	1093

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.9	0
Water depth (m)	50	57
RMS Noise (µB)	4.9	2.4
Weather	270° 3/ms, 0.5m	318° 5/ms, 0.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1983	1981
Stbd	1984	1982

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:31
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	2 / 0.18%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.4	2.1
HDOP	0.9	1.4	1.1
V1G2 PDOP	1.7	3.4	2.1
HDOP	1.0	2.6	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.4	2.3	4.50
Speed through water (m/s)	1.8	2.7	2.4	4.58
Feather angle (°)	-6.5	0.8	-1.9	
Gyro (P) (°)	184.6	196.0	191.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.3	522.2	519.2
Str 1-2	74.0	76.2	75.2
Str 2-3	74.0	75.7	74.9
Str 3-4	69.4	73.7	71.8
Str 4-5	74.5	81.2	78.1
Str 5-6	68.3	73.0	70.1
Str 6-7	72.0	74.1	73.0
Str 7-8	75.2	77.2	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.0	39.2	35.9
Port Subarray	7.2	8.1	7.7
Outer-Centre	6.7	7.7	7.2
Centre-Inner	7.4	8.6	8.0
Stbd Subarray	6.8	7.7	7.2
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			
Str 3	290			
Str 4	106,116,126,148,249		257,258	
Str 5	75,103,112,113,153,157			
Str 6	49,116			
Str 7	89,202		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3	30, 148	
Str 4	127, 258, 318	
Str 5	88	
Str 6	205, 316	
Str 7	203	
Str 8	137	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1477	1
Autofires / Misfires :	1479	1
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

PROCESSING QC COMMENTS

Slight cable strum on 2 and 8
 Autofire at 1479 visually confirmed

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1840P1-024**
 Area: **Gippsland Basin, Bass Strait** Sequence: **024**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1833-1848** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	17-May-2006	137	08:09	18:09	121	1997	1100	7:30	
FPSP:	17-May-2006	137	08:09	18:09	121	1997	1100		
LPSP:	17-May-2006	137	10:45	20:45	1237	881	1103		
EOL LSP:	17-May-2006	137	10:45	20:45	1237	881	1103	7:53	
				UTC Offset:	10.0				

Full volume arrays at 7:53 UTC

	SOL	EOL
Feather angle (°)	-10.2	-8
Water depth (m)	50	58
RMS noise @ 5 Hz LC (µB)	3.9	5
Weather	197° 5m/s, 1m	240° 2m/s, 1m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1978	1979
Stbd	1977	1977

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.9-7.2
Str 2	6.9-7.3	6.9-7.3
Str 3	7.0-7.2	6.9-7.1
Str 4	6.8-7.5	6.9-7.3
Str 5	6.9-7.3	6.7-7.2
Str 6	6.5-7.2	6.9-7.3
Str 7	6.9-7.3	6.9-7.4
Str 8	6.9-7.3	6.8-7.3

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305(phase)			
S3:	83, 290						
S4:	106, 116, 126, 148, 249, 318		257, 258		127, 318		
S5:	75, 108, 153, 157						
S6:	49				37, 205		
S7:	89, 202, 285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1840P1-024**Seq: **024**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1100		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1100		FSP @ 08:09 UTC
121	1997	1100		FPSP @ 08:09 UTC
463	1655			Azimuth thruster deployed @ 0855 UTC
469	1649	1100		EOT
470	1648	1101		SOT
544	1574			Bridge manually steering, moving port from DC(-145m) to clear Bream A platform
623	1495			V2 steadied up on DC(-320m)
653	1465			SC18-S1C13: Depths fluctuating
676	1442			SC18-S1C13: Depths settled. Max 8.7m, Min 6.4m
731	1387			V2 passing abeam of Bream A @ 420m
748	1370			Stbd. vane passing abeam of Bream A @ 170m
818	1300			Back in Spectra steering
840	1278	1101		EOT
841	1277	1102		SOT
871	1247		Bad	Delta Error: P-10: -1.2
1058	1160			Azimuth thruster dis-engaged @ 1005 UTC
997	1121			TB's passing abeam of Bream A. TB8 @ 900m
1211	907	1102		EOT
1212	906	1103		SOT
1237	881	1103		LPSP @ 10:45 UTC
1237	881	1103		LSP @ 10:45 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1103		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1840P1-024**Seq: **024**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1840P1-024**
 Area: **Gippsland Basin, Bass Strait** Sequence: **024** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1833-1848** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Initials: nh sg
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	17-May-2006	137	08:09	18:09	1997	-10.2	-29	197° 5m/s, 1m
FPSP:	17-May-2006	137	08:09	18:09	1997			
LPSP:	17-May-2006	137	10:45	20:45	881			
EOL LSP:	17-May-2006	137	10:45	20:45	881	-7.6	-177	240° 2m/s, 1m
	UTC offset:			10.0				

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	515	521			35.9	37.0
Per streamer:	Str 1-2	75	75	Sub arrays:	PI-PC	7.8	7.5
	Str 2-3	75	75		PC-PO	6.8	7.2
	Str 3-4	72	72		SI-SC	6.9	7.4
	Str 4-5	77	80		SC-SO	7.2	7.2
	Str 5-6	70	70				
	Str 6-7	72	73				
	Str 7-8	76	76				

P2/94 filename: **G06A-1840P1-024.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**
 BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_5**
 Backup tape: **Tape 1 Seq 5**

Observations disabled etc.

Acoustics: **G2A1 S5A2 intermittent**
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	8:09	18:09	SOL, FSP
1997	8:09	18:09	FPSP NB Feather > -10.0° at SOL
1972	8:12	18:12	Feather < -10.0°
1657	8:55	18:55	Azimuth thruster lowered
1574	9:06	19:06	Bridge in manual steering moving port VC 1kt to avoid rig (DC -145m)
1495	9:17	19:17	Vessel steadied up on DC -320m
1387	9:33	19:33	Vessel 420m east Bream A
1370	9:35	19:35	Vane 170m east of Bream A
1300	9:45	19:45	Back in Spectra Steering
1160	10:05	20:05	Azimuth thruster raised
1121	10:11	20:11	TB8 900m east of Bream A
881	10:45	20:45	LPSP
881	10:45	20:45	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**
 Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1840P1-024**
 Sequence: **024**
 Direction: **190.5°** Nav. Def: **5**
 CMP line range: **1833-1848** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	17-May-2006	137	08:09	18:09	121	1997	1100
FPSP:	17-May-2006	137	08:09	18:09	121	1997	1100
LPSP:	17-May-2006	137	10:45	20:45	1237	881	1103
EOL LSP	17-May-2006	137	10:45	20:45	1237	881	1103

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-10.2	-7.6
Water depth (m)	50	58
RMS Noise (µB)	3.9	5
Weather	197° 5m/s, 1m	240° 2m/s, 1m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1978	1979
Stbd	1977	1977

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20,944
Production time (hh:mm)	02:36
Production files	1117
Production SPs	1117
Production km	20,944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.3	1.7
HDOP	0.8	1.1	0.9
V1G2 PDOP	1.4	2.6	1.8
HDOP	0.8	1.4	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.2	4.36
Speed through water (m/s)	2.0	2.8	2.5	4.91
Feather angle (°)	-10.0	-5.5	-7.7	
Gyro (P) (°)	189.3	205.8	197.1	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	509.3	524.1	517.7
Str 1-2	73.2	75.6	74.5
Str 2-3	73.6	75.7	74.7
Str 3-4	68.1	73.4	71.4
Str 4-5	74.2	83.6	79.0
Str 5-6	67.6	72.0	69.8
Str 6-7	70.8	73.8	72.3
Str 7-8	74.8	77.8	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.4	39.6	36.3
Port Subarray	6.8	7.9	7.4
Outer-Centre	6.3	7.5	6.8
Stbd Subarray	6.9	8.2	7.4
Centre-Inner	6.9	7.7	7.3
Outer-Centre	6.9	7.7	7.3

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305(phase)
Str 3	83, 290			
Str 4	106,116,126,148,249,318		257,258	
Str 5	75,108,153,157			
Str 6	49			
Str 7	89,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3	148	
Str 4	127, 258, 318	
Str 5		
Str 6	205	
Str 7	89, 203, 285	
Str 8	137	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1247	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.24

ONLINE COMMENTS

PROCESSING QC COMMENTS

Strum visible on outer cables - otherwise clean line

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1840U1-037**
 Area: **Gippsland Basin, Bass Strait** Sequence: **037**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1851-1836** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Complete**

Initials: SH, DY / MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	20-May-2006	140	13:09	23:09	121	1572	1141	12:05 UTC
FPSP:	20-May-2006	140	13:09	23:09	121	1572	1141	
LPSP:	20-May-2006	140	14:46	00:46	466	882	1142	Full volume arrays at 12:31 UTC
EOL LSP:	20-May-2006	140	14:46	00:46	466	882	1142	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-6.0	-1
Water depth (m)	53	58
RMS noise @ 5 Hz LC (µB)	5	4.8
Weather	270° 7m/s, 1.5m	280° 7m/s, 1.5m
Source vol. (cu. in.)	4450	4450
Source pressure (psi)	1980	1980

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.5-7.2	6.9-7.4
Str 2	6.6-7.1	6.9-7.2
Str 3	6.9-7.2	6.9-7.3
Str 4	6.9-7.1	6.8-7.2
Str 5	7.0-7.3	6.8-7.2
Str 6	6.8-7.2	6.8-7.2
Str 7	6.9-7.3	6.8-7.2
Str 8	6.9-7.3	6.9-7.2

SOL/EOL Comments

Undershoot with Pacific Sword - single source (Stbd source)
 Azimuth thruster engaged before SOL @1305 UTC
 Pacific Sword position on STBD side of V2

Overall Line Observations

Birds bad/poll disabled: S7C1:polling disabled, S8C20:no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305			
S3:	290						
S4:	106,116,148,249,318		257,258		127,318,360		
S5:	75,108,157		153		86,88		
S6:	49,116				205		
S7:	89,100,166,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1840U1-037**Seq: **037**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1141		SOT - SOL NOISE FILES
111-120	1592-1574			APPROACH SHOTS
121	1572	1141		FSP @ 13:09 UTC
121	1572	1141		FPSP @ 13:09 UTC
129	1556		Bad	Gun 1 DE -1.2ms
213	1388			V2 passing abeam of Bream A @ 438m
216	1382		Bad	NAVS - Short Nav Header
217	1380		Bad	NAVS - Short Nav Header
218	1378		Bad	NAVS - Short Nav Header
222	1370			Stbd. Vane passing abeam of Bream A @ 190m
258	1298		Bad	Gun 1 DE -1.5ms
298	1218		Bad	Gun 1 DE -1.6ms
302	1210		Bad	Gun 1 DE -1.1ms
345	1124			TB 8 clear of Bream A
363	1088		Bad	Gun 1 DE -1.2ms
437	940		Bad	Gun 1 DE -1.2ms
438	938		Bad	Gun 1 DE -1.2ms
445	924		Bad	NAVS - Short Nav Header
466	882	1141		LPSP @ 14:46 UTC
466	882	1141		LSP @ 14:46 UTC
467-468	880-878			NAV PROCESSING SHOTS
469	/	1141		EOT - NOISE FILES
470	/	1142		SOT - NOISE FILES
471-480	/			NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1840U1-037**Seq: **037**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1840U1-037**
 Area: **Gippsland Basin, Bass Strait** Sequence: **037** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1851-1836** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Complete** Initials: nh sg cb ml
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	20-May-2006	140	13:09	23:09	1572	-6	-370	270° 7m/s, 1.5m
FPSP:	20-May-2006	140	13:09	23:09	1572			
LPSP:	20-May-2006	140	14:46	00:46	882			
EOL LSP:	20-May-2006	140	14:46	00:46	882	-1.3	-380	280° 7m/s, 1.5m
UTC offset:				10.0				

Separations (m)

	SOL	EOL		SOL	EOL		
Streamer overall:	Str 1-8	523	527				
Per streamer:	Str 1-2	75	76	Sub arrays:	P-C	7.9	7.5
	Str 2-3	75	76		C-S	8.9	9.0
	Str 3-4	70	71				
	Str 4-5	83	74				
	Str 5-6	69	71				
	Str 6-7	73	74				
	Str 7-8	78	77				

P2/94 filename: G06A-1840U-037.0.p294

LMN: 20323_Bream.LMN

SCN: 20323_Bream.SCN

RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN

Acoustic file: 20323_5

Backup tape: Tape 4 Seq 4

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent
 RGPS:
 Compasses: S7C1 S8C20 KO
 Other:

SP	UTC	Local Time	Comments
1572	13:09	23:09	SOL, FSP
1572	13:09	23:09	FPSP
1388	13:37	23:37	Vessel 486m west of Bream A
	13:38	23:38	Pacific Sword Guns Bad Nav Header SP 1382, 1380, 1378
1370	13:39	23:39	Vane 190m west of Bream A
1124	14:13		Tb 8 clear of Bream A
882	14:46	00:46	LPSP
882	14:46	00:46	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1840U1-037**
 Sequence: **037**
 Direction: **190.5°** Nav. Def: **3U**
 CMP line range: **1851-1836** Line type: **Undershoot**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	20-May-2006	140	13:09	23:09	121	1572	1141
FPSP:	20-May-2006	140	13:09	23:09	121	1572	1141
LPSP:	20-May-2006	140	14:46	00:46	466	882	1142
EOL LSP	20-May-2006	140	14:46	00:46	466	882	1142

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6	-1.3
Water depth (m)	53	58
RMS Noise (µB)	5	4.8
Weather	270° 7m/s, 1.5m	280° 7m/s, 1.5m
Source volume (cu in):	4450	4450

TOTALS INFORMATION

Recorded SPs	691
Recorded km	25.913
Production time (hh:mm)	01:37
Production files	346
Production SPs	346
Production km	12.975
Production CMP km	103.800

ERROR STATISTICS

Source errors / %	7 / 2.02%
Missed SPs / %	0 / 0%
Other bad SPs / %	4 / 1.16%

GPS

	Min	Max	Mean
V1G1 PDOP	1.3	2.7	1.8
HDOP	0.8	1.5	1.0
V1G2 PDOP	1.5	3.0	2.0
HDOP	0.8	1.7	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.4	2.2	4.33
Speed through water (m/s)	2.0	2.7	2.4	4.59
Feather angle (°)	-5.7	-0.2	-2.7	
Gyro (P) (°)	189.3	205.2	195.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.4	531.3	525.5
Str 1-2	73.2	76.8	75.2
Str 2-3	74.7	76.4	75.5
Str 3-4	67.8	72.7	70.5
Str 4-5	77.9	87.6	83.7
Str 5-6	67.0	72.0	70.0
Str 6-7	72.9	74.6	73.8
Str 7-8	74.1	79.0	76.7

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	7.4	8.3	7.7
Centre-Inner	7.4	8.3	7.7

Birds bad: S7C1:polling disabled, S8C20:no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305
Str 3	290			
Str 4	106,116,148,249,318		257,258	
Str 5	75,108,157		153	
Str 6	49,116			
Str 7	89,100,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4	127, 233, 257, 258, 318	
Str 5	139	
Str 6	205	
Str 7	203, 285	
Str 8		

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1556,1298,1218,1210,1088,940,938	7
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1382,1380,1378,924	4
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.10

TOTAL SHOTS

ONLINE COMMENTS

PROCESSING QC COMMENTS

Occasional mild strum on observed str 1

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1840U2-039**
 Area: **Gippsland Basin, Bass Strait** Sequence: **039**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1851-1836** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Incomplete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	20-May-2006	140	22:50	08:50	121	1513	1145	22:10	
FPSP:	20-May-2006	140	22:50	08:50	121	1513	1145		
LPSP:	20-May-2006	140	23:38	09:38	278	1199	1145		
EOL LSP:	20-May-2006	140	00:13	10:13	389	977	1145	22:35	
UTC Offset:				10.0					

Full volume arrays at 22:35 UTC

	SOL	EOL
Feather angle (°)	-6.7	-7.0
Water depth (m)	51.6	56
RMS noise @ 5 Hz LC (µB)	6.3	6.1
Weather	290° 12m/s, 2.0m	265° 9m/s, 1.5m
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1980	1946

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.8-7.2
Str 2	6.9-7.3	6.9-7.3
Str 3	6.9-7.2	6.9-7.3
Str 4	6.9-7.2	6.9-7.3
Str 5	6.9-7.2	6.9-7.3
Str 6	6.9-7.2	6.9-7.3
Str 7	6.9-7.3	6.9-7.2
Str 8	6.9-7.3	6.9-7.2

SOL/EOL Comments

Undershoot with Pacific Sword - single source
 Pacific Sword position on STBD side of V2
 Sol noise file taken with WSP of 4.9 knots

Stopped shooting early d/t air pressure on string 3 out of spec. LGSP: 1199

Overall Line Observations

Birds bad/poll disabled: S7C1:polling disabled, S8C20:no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305			
S3:	290						
S4:	106,116,148,249,318		257,258		127,318,360		
S5:	75,108,157		153		86,88		
S6:	49,116				205		
S7:	89,100,166,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1840U2-039**

Seq: **039**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1145		SOT - SOL NOISE FILES
111-120	1533-1515			APPROACH SHOTS
121	1513	1145		FSP @ 22:50 UTC
121	1513	1145		FPSP @ 22:50 UTC
186	1383		Bad	NAVS - Short Nav Header
187	1381		Bad	NAVS - Short Nav Header Vessels abeam of Bream A
188	1379		Bad	NAVS - Short Nav Header
201	1353			Vane and S8 clear of Bream A
231	1293		Bad	Gun #11 DE 1.1ms
278	1199	1145		LPSP @ 23:38 UTC
389	977	1145		LSP @ 00:13 UTC
390	975			NAV PROCESSING SHOTS
391-400	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1840U2-039**Seq: **039**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m

Source operated from MV Pacific Sword
Single source acquisition mode**Positioning**

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1840U2-039**
 Sequence: **039**
 Direction: **190.5°** Nav. Def: **3**
 CMP line range: **1851-1836** Line type: **Undershoot**
 No. CMPs: **8** Status: **Incomplete**

Obs Initials: **MO**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	20-May-2006	140	22:50	08:50	121	1513	1145
FPSP:	20-May-2006	140	22:50	08:50	121	1513	1145
LPSP:	20-May-2006	140	23:38	09:38	278	1199	1145
EOL LSP	20-May-2006	140	00:13	10:13	389	977	1145

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.7	-7
Water depth (m)	51.6	56
RMS Noise (µB)	6.3	6.1
Weather	290° 12m/s, 2.0m	265° 9m/s, 1.5m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	537
Recorded km	20.138
Production time (hh:mm)	00:48
Production files	158
Production SPs	158
Production km	5.925
Production CMP km	47.400

ERROR STATISTICS

Source errors / %	1 / 0.63%
Missed SPs / %	0 / 0%
Other bad SPs / %	3 / 1.9%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.5	1.6
HDOP	0.8	1.4	0.9
V1G2 PDOP	1.4	2.5	1.7
HDOP	0.8	1.4	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.1	2.0	3.96
Speed through water (m/s)	2.0	2.5	2.3	4.42
Feather angle (°)	-7.3	-6.7	-7.1	
Gyro (P) (°)	201.9	207.5	204.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	512.4	523.1	518.5
Str 1-2	73.3	76.1	74.6
Str 2-3	73.4	75.5	74.4
Str 3-4	66.5	71.9	69.4
Str 4-5	76.8	83.5	80.2
Str 5-6	68.5	72.0	70.2
Str 6-7	72.6	74.4	73.4
Str 7-8	74.5	78.6	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	6.6	8.2	7.5
Centre-Inner	8.6	9.2	8.9

Birds bad: S7C1:polling disabled, S8C20:no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305
Str 3	290			
Str 4	106,116,148,249,318		257,258	
Str 5	75,108,157		153	
Str 6	49,116			
Str 7	89,100,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4	127, 233, 318	
Str 5	70, 86, 88	
Str 6	205	
Str 7	203	
Str 8		

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1293	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1383,1381,1379,	3
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.07

TOTAL SHOTS

ONLINE COMMENTS

PROCESSING QC COMMENTS

Very slight strum noise evident on outer cables



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1840U3-055**
 Area: **Gippsland Basin, Bass Strait** Sequence: **055**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1851-1836** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Complete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	28-May-2006	148	08:44	18:44	121	1572	1186	07:20	UTC
FPSP:	28-May-2006	148	08:44	18:44	121	1572	1186		
LPSP:	28-May-2006	148	10:25	20:25	466	882	1187		
EOL LSP:	28-May-2006	148	10:25	20:25	466	882	1187	07:48	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-6.3	-1.5
Water depth (m)	53	58
RMS noise @ 5 Hz LC (µB)	7.4	7.2
Weather	270° 14m/s, 1.5m	260° 13m/s, 1.5m

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.2	6.8-7.2
Str 2	6.7-7.2	6.9-7.4
Str 3	6.9-7.2	6.8-7.2
Str 4	6.9-7.3	6.7-7.4
Str 5	6.8-7.2	6.8-7.1
Str 6	6.8-7.2	6.9-7.1
Str 7	6.8-7.5	6.9-7.3
Str 8	6.6-7.2	6.9-7.3

Source vol. (cu. in.) 4550 4550

Source pressure (psi) 1979 1970

SOL/EOL Comments

Azimuth thruster engaged before SOL @ 08:32UTC

Overall Line Observations

Undershoot with Pacific Sword - single source (Stbd.)
 Pacific Sword positioned on Stbd. side of V2
 Swell noise observed on shot records

Birds bad/poll disabled: S1C19: polling disabled & S6C9: no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:			282	305			
S3:	290						
S4:	43,106,318			116	127,318		
S5:	75,108,155,157		153		86,88,139		
S6:	49,116,120,158				205		
S7:	89,100,166,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1840U3-055

Seq:

055

Dir:

190.5°

FILE	SP	TAPE	BAD	
99-110	/	1186		SOT - SOL NOISE FILES
111-120	1592-1574			APPROACH SHOTS
121	1572	1186		FSP @ 08:44 UTC
121	1572	1186		FPSP @ 08:44 UTC
196	1422		Bad	Delta Error: S3-2: -1.1
214	1386			V2 passing Bream A @ 400m
215	1384			Good shotpoint
216			Bad	NAVS - Short Nav Header - No Data Recorded
217	1382		Bad	NAVS - Short Nav Header
/	1380		Missed	Missed SP d/t passing platform
218	1378			Good shotpoint
223	1368			Stbd. vane passing Bream A @ 145m
308	1198		Bad	NAVS - Short Nav Header, Delta Error: S3-2: -1.3
329	1156		Bad	NAVS - Short Nav Header
332	1150		Bad	NAVS - Short Nav Header
348	1118			TB's passing Bream A, TB8 @ 450m
352	1110			Misfire: S1-1
361	1092			Azimuth thruster disengaged @ 09:54 UTC
381	1052		Bad	NAVS - Short Nav Header
382	1050		Bad	NAVS - Short Nav Header
390	1034		Bad	NAVS - Short Nav Header
404	1006		Bad	NAVS - Short Nav Header
410	994			Misfire: S1-1
415	984		Bad	Delta Error: S3-2: -1.1
469	876	1186		EOT
470	874	1187		SOT
466	882	1187		LPSP @ 10:25 UTC
466	882	1187		LSP @ 10:25 UTC
467-471	880-872			NAV PROCESSING SHOTS
472-483	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1840U3-055**

Seq: **055**

Dir: **190.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxiliary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1840U3-055**

Area: **Gippsland Basin, Bass Strait** Sequence: **055** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**

Job ID: **20323** CMP line range: **1851-1836** Line type: **Undershoot**

Type: **3D** No. CMPs **8** Status: **Complete** Initials: nh sg
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	28-May-2006	148	08:44	18:44	1572	-6.3	-301	270° 14m/s, 1.5m
FPSP:	28-May-2006	148	08:44	18:44	1572			
LPSP:	28-May-2006	148	10:25	20:25	882			
EOL LSP:	28-May-2006	148	10:25	20:25	882	-1.5	-308	260° 13m/s, 1.5m
UTC offset:				10.0				

Separations (m)		SOL		EOL		SOL		EOL	
Streamer overall:	Str 1-8	520	524						
Per streamer:	Str 1-2	75	76						
	Str 2-3	76	76						
	Str 3-4	73	71						
	Str 4-5	75	77						
	Str 5-6	72	72						
	Str 6-7	74	74						
	Str 7-8	76	75						
		Sub arrays:		P-C	7.7	7.4			
				C-S	6.8	7.6			

P2/94 filename: G06A-1840U3-055.p294

LMN: 20323_Bream.LMN

SCN: 20323_Bream.SCN

RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN

Acoustic file: 20323_5

Backup tape: Tape 1 Seq 2

Observations disabled etc.

Acoustics:

RGPS:

Compasses: S1C19 & S6C9 KO'd

Other:

SP	UTC	Local Time	Comments
			Starboard Source
1572	08:44	18:44	SOL, FSP NB: Azimuth thruster down before SOL
1572	08:44	18:44	FPSP
1424	09:06	19:06	G3R2-G3R3 sep > 9.5m
1386	09:11	19:11	Vessel 400m east of Bream A
1380	09:12	19:12	Missed SP due to rig obstruction
1368	09:14	19:14	Vane 145m east of Bream A
1360	09:15	19:15	G3R2-G3R3 sep < 9.5m
1118	09:50	19:50	TB 8 450m east of Bream A
1092	09:54	19:54	Azimuth thruster stowed
882	10:25	20:25	LPSP
882	10:25	20:25	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li

Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1840U3-055**
 Sequence: **055**
 Direction: **190.5°** Nav. Def: **3U**
 CMP line range: **1851-1836** Line type: **Undershoot**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	28-May-2006	148	08:44	18:44	121	1572	1186
FPSP:	28-May-2006	148	08:44	18:44	121	1572	1186
LPSP:	28-May-2006	148	10:25	20:25	466	882	1187
EOL LSP	28-May-2006	148	10:25	20:25	466	882	1187

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.3	-1.5
Water depth (m)	53	58
RMS Noise (µB)	7.4	7.2
Weather	270° 14m/s, 1.5m	260° 13m/s, 1.5m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	691
Recorded km	25,913
Production time (hh:mm)	01:41
Production files	346
Production SPs	346
Production km	12,975
Production CMP km	103,800

ERROR STATISTICS

Source errors / %	5 / 1.45%
Missed SPs / %	1 / 0.29%
Other bad SPs / %	8 / 2.31%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.1	1.7
HDOP	0.8	1.1	0.9
V1G2 PDOP	1.5	2.1	1.8
HDOP	0.8	1.1	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.3	2.1	4.12
Speed through water (m/s)	0.0	2.5	2.3	4.40
Feather angle (°)	-5.8	-0.6	-3.4	
Gyro (P) (°)	194.3	206.0	200.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.4	531.3	521.9
Str 1-2	72.8	77.0	75.0
Str 2-3	74.4	76.7	75.7
Str 3-4	68.6	74.5	71.7
Str 4-5	72.5	82.6	77.0
Str 5-6	69.2	73.6	71.6
Str 6-7	72.7	75.1	74.1
Str 7-8	74.6	79.7	76.7

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	5.9	8.1	7.0
Centre-Inner	7.2	9.8	8.5

Birds bad: S1C19: polling disabled & S6C9: no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4	43,106,318			116
Str 5	75,108,155,157		153	
Str 6	49,116,120,158			
Str 7	89,100,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3	150	
Str 4	127, 137, 233, 318	
Str 5	136, 139	
Str 6	205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

		TOTAL SHOTS
Timing (delta) errors >1.0ms:	1422,1198,984	3
Autofires / Misfires :	1110,994	2
Missed SPs (NDR):	1380	1
Extraction errors:		0
NAVS / ITB errors:	1382,1156,1150,1052,1050,1034,1006	8
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.07

ONLINE COMMENTS

Undershoot with Pacific Sword - single source (Stbd.)
 Pacific Sword positioned on Stbd. side of V2
 Swell noise observed on shot records

PROCESSING QC COMMENTS

Moderate swell bursts affecting ~ 15% - 20% of traces, mostly below 3s, Occasionally upto 180 uBars, but usually below 50 uBars
 Both misfires visually checked and look OK.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1856P1-026**
 Area: **Gippsland Basin, Bass Strait** Sequence: **026**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1849-1864** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	17-May-2006	137	18:11	04:11	121	1997	1108	17:30	
FPSP:	17-May-2006	137	18:11	04:11	121	1997	1108		
LPSP:	17-May-2006	137	20:53	06:53	1237	881	1111		
EOL LSP:	17-May-2006	137	20:53	06:53	1237	881	1111	17:50	
				UTC Offset:	10.0				

Full volume arrays at 17:50 UTC

	SOL	EOL
Feather angle (°)	0.1	-9
Water depth (m)	50	56.8
RMS noise @ 5 Hz LC (µB)	3	4.3
Weather	239° 6m/s, 1.0m	177° 7m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1986	1977
Stbd	1988	1977

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.2	6.6-7.4
Str 2	6.9-7.5	6.9-7.2
Str 3	6.7-7.2	6.9-7.2
Str 4	6.9-7.2	6.9-7.2
Str 5	7.0-7.2	6.8-7.2
Str 6	6.9-7.2	6.9-7.5
Str 7	6.9-7.2	6.7-7.2
Str 8	6.8-7.2	7.0-7.2

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305(phase)			
S3:	83, 290						
S4:	106, 116, 126, 148, 249, 318		257, 258		127, 318		
S5:	75, 108, 153, 157				86, 88		
S6:	49				37, 205		
S7:	89, 202, 285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1856P1-026**Seq: **026**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1108		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1108		FSP @ 18:11 UTC
121	1997	1108		FPSP @ 18:11 UTC
187	1931		Bad	Delta Error: P-2: 1.1
469	1649	1108		EOT
470	1648	1109		SOT
	1544			Current DC 354.5m. Bridge in manual steering to port with a VC of 1.0kt, to DC 600m.
633-663	1485-1455			S1C14 - S1C14 fluctuating depths 5.5m - 7.7m
690-778	1428-1340			S8C16 - S8C13 fluctuating depths - 9.0m
725	1393			Observed noise on S8 moving down from head to tail from Platform Bream A
730	1388			Vessel abeam of Bream A 408m
750	1368			Noise on S8 no longer seen on plots and QC screen
755	1363			S8 and vane clear Bream A by 100m
840	1278	1109		EOT
841	1277	1110		SOT
910	1208			Observed noise moving down from head to tail from Platform Bream A
930	1188			Noise no longer seen on plots and QC screen
1211	907	1110		EOT
1212	906	1111		SOT
1237	881	1111		LPSP @ 20:53 UTC
1237	881	1111		LSP @ 20:53 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1111		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1856P1-026**Seq: **026**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1856P1-026**
 Area: **Gippsland Basin, Bass Strait** Sequence: **026** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1849-1864** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: cb,ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	17-May-2006	137	18:11	04:11	1997	0.1	-399	239° 6m/s, 1.0m
FPSP:	17-May-2006	137	18:11	04:11	1997			
LPSP:	17-May-2006	137	20:53	06:53	881			
EOL LSP:	17-May-2006	137	20:53	06:53	881	-9.1	-218.7	177° 7m/s, 1.0m
			UTC offset: 10.0					

Separations (m)

	SOL	EOL
Streamer overall: Str 1-8	520	521
Per streamer: Str 1-2	75	75
Str 2-3	75	75
Str 3-4	71	73
Str 4-5	78	78
Str 5-6	70	71
Str 6-7	74	73
Str 7-8	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	7.0	7.3
	PC-PO	7.3	7.1
	SI-SC	7.1	7.6
	SC-SO	7.5	7.0

P2/94 filename: G06A-1856P1-026.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_1
 Backup tape: Tape Seq

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	18:11	04:11	SOL, FSP
1997	18:11	04:11	FPSP Z1 is almost buried in order to get Z4
1544	19:16	05:16	Current DC 354.5m. Bridge in manual steering to port to a DC of 600m.
1388	19:38	05:38	Vessel abeam of Bream A 408m
1363	19:42	05:42	S8 and vane clear Bream A by 100m
1354	19:43	05:43	Burying majority of Zone 1
1118	20:18	06:18	TB 8 clear 800m abeam of Bream A SP 1118
881	20:53	06:53	LPSP
881	20:53	06:53	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths

SR/V Veritas Viking II

Quality Control Report



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1856P1-026**
 Sequence: **026**
 Direction: **190.5°** Nav. Def: **5**
 CMP line range: **1849-1864** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	17-May-2006	137	18:11	04:11	121	1997	1108
FPSP:	17-May-2006	137	18:11	04:11	121	1997	1108
LPSP:	17-May-2006	137	20:53	06:53	1237	881	1111
EOL LSP	17-May-2006	137	20:53	06:53	1237	881	1111

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	0.1	-9.1
Water depth (m)	50	56.8
RMS Noise (µB)	3	4.3
Weather	239° 6m/s, 1.0m	177° 7m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1986	1977
Stbd	1988	1977

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:42
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.8	1.9
HDOP	0.9	1.6	1.1
V1G2 PDOP	1.6	2.8	2.1
HDOP	0.9	1.6	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.2	4.19
Speed through water (m/s)	1.9	2.6	2.3	4.43
Feather angle (°)	-10.8	1.2	-4.7	
Gyro (P) (°)	179.7	205.1	195.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	507.6	526.0	518.9
Str 1-2	73.1	76.7	75.0
Str 2-3	73.1	75.8	74.8
Str 3-4	69.6	74.5	71.7
Str 4-5	74.7	82.1	78.5
Str 5-6	66.5	72.6	70.0
Str 6-7	70.9	71.2	72.9
Str 7-8	74.4	78.7	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.6	40.8	36.9
Port Subarray	6.7	8.0	7.4
Outer-Centre	6.3	7.8	7.1
Centre-Inner	6.7	8.0	7.3
Stbd Subarray	6.9	8.2	7.4
Outer-Centre	6.9	8.2	7.4

Birds bad:

Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305(phase)
Str 3	83, 290			
Str 4	106,116,126,148,249,318		257,258	
Str 5	75,108,153,157			
Str 6	49			
Str 7	89,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3	30, 148, 358	
Str 4	127, 258, 318	
Str 5		
Str 6	205	
Str 7	89, 203, 285	
Str 8	137	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1931	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.25

ONLINE COMMENTS

PROCESSING QC COMMENTS

Slight cable strum on streamers 2 and 8

Geophysical Supervisor: Marc Boon

Field Geophysicists: Kristian Ellis, David Barratt, Richard Flower, Paul Jones



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1856F1-028**
 Area: **Gippsland Basin, Bass Strait** Sequence: **028**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1849-1864** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	18-May-2006	138	04:40	14:40	121	1997	1116	04:05	UTC
FPSP:	18-May-2006	138	04:40	14:40	121	1997	1116		
LPSP:	18-May-2006	138	07:11	17:11	1237	881	1119		
EOL LSP:	18-May-2006	138	07:11	17:11	1237	881	1119	04:28	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	14.8	4
Water depth (m)	50	58
RMS noise @ 5 Hz LC (µB)	3.1	4.9
Weather	134° 6m/s, 1m	120° 6m/s, 1m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1984	1981
Stbd	1989	1984

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.1	7.0-7.2
Str 2	6.7-7.0	6.8-7.0
Str 3	6.9-7.4	6.8-7.4
Str 4	6.6-7.1	6.8-7.1
Str 5	6.9-7.2	6.8-7.5
Str 6	6.9-7.1	6.8-7.1
Str 7	6.9-7.2	6.6-7.2
Str 8	6.8-7.3	6.8-7.0

SOL/EOL Comments

Azimuth thruster engaged before SOL

Overall Line Observations

Birds bad/poll disabled:
 Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305(phase)			
S3:	83, 290						
S4:	106,116,126,148,249,318		257,258		127, 318, 360		
S5:	75,108,153,157				86,88		
S6:	49				29,37,206		
S7:	89,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1856F1-028

Seq:

028

Dir:

190.5°

FILE	SP	TAPE	BAD	
99-111	/	1116		SOT - SOL NOISE FILES
112-120	2006-1998			APPROACH SHOTS
121	1997	1116		FSP @ 04:40 UTC
121	1997	1116		FPSP @ 04:40 UTC
180	1938			S8C17-S8C16: Depths fluctuating d/t moving Port to gain zone 4 coverage.
462	1656			Bridge steering manually - moving Stbd. from DC(-135m) to pass Bream A platform
469	1649	1116		EOT
470	1648	1117		SOT
631	1487			V2 steadied up @ DC(220m)
685	1433			Moving Stbd @ 1kt to pass Bream A
728	1390			V2 Passing abeam of Bream A @ 595m
743	1375			Port vane passing abeam of Bream A @ 260m
805	1313			V2 steadied up @ DC(660m)
840	1278	1117		EOT
841	1277	1118		SOT
858	1260			S8C17-S8C16: Depths settled. Max:9.3m, Min:4.3m
927	1191		Bad	Misfire: P-2
959	1159			Back in Spectra steering. Moving port back to sail line @ VC 1kt
991	1127			TB's passing abeam of Bream A. TB1 passing @ 230m
1053	1065		Bad	Autofire: S-11 - not found in post line QC
1055	1063		Bad	Autofire: S-11 - not found in post line QC
1066	1052		Bad	S-11:Disabled d/t AF's (Electrical), S-13:On, Misfire. Stbd Array volume:4450cu.in.
1068	1050		Bad	Delta Error: S-13: 1.3
1118	1000		Bad	Volume Error - Expected Volume: 4450 Actual Volume: 4780 (electrical)
1122	996		Bad	Autofire: S-11. Volume Error - Expected Volume: 4450 Actual Volume: 4780
1166	952		Bad	Autofire: S-10 - not found in post line QC
1167	951		Bad	Autofire: S-10 - not found in post line QC
1173	945		Bad	Delta Error: P-2: 1.1 Autofire: S-10
1181	937		Bad	Autofire: S-10 - not found in post line QC
1211	907	1118		EOT
1212	906	1119		SOT
1237	881	1119		LPSP @ 07:11 UTC
1237	881	1119		LSP @ 07:11 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1119		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1856F1-028**

Seq: **028**

Dir: **190.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1856F1-028**
 Area: **Gippsland Basin, Bass Strait** Sequence: **028** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1849-1864** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Initials: nh sg
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	18-May-2006	138	04:40	14:40	1997	14.8	-625	134° 6m/s, 1m
FPSP:	18-May-2006	138	04:40	14:40	1997			
LPSP:	18-May-2006	138	07:11	17:11	881			
EOL LSP:	18-May-2006	138	07:11	17:11	881	3.8	-181	120° 6m/s, 1m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	511	521			36.0	36.5		
Per streamer:	Str 1-2	73	75			7.2	7.5		
	Str 2-3	71	75			6.9	6.9		
	Str 3-4	76	72			7.0	7.3		
	Str 4-5	70	79			7.6	7.6		
	Str 5-6	73	70						
	Str 6-7	74	73						
	Str 7-8	69	77						
				Sub arrays:		PI-PC			
						PC-PO			
						SI-SC			
						SC-SO			

P2/94 filename: G06A-1856F1-028.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 2 Seq 4

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	04:40	14:40	SOL, FSP NB Feather > 10.0° at SOL
1997	04:40	14:40	FPSP NB Vessel moving at 0.5kt to maximise Zone 4 coverage (Feather mismatch) Z1 Z2 no coverage
	04:55	14:55	Azimuth thruster lowered
1808	05:05	15:05	Feather < 10.0°
1656	05:26	15:26	Bridge in manual steering moving stbd VC 1kt to avoid rig (DC -365m)
1487	05:49	15:49	Vessel steadied up at DC 220m
1433	05:56	15:56	Moving stbd at 1kt to avoid rig
1390	06:03	16:03	Vessel 590m west of Bream A
1375	06:05	16:05	Vane 260m West of Bream A
1335	06:10	16:10	Vessel starting to decrease VC from 1knot
1313	06:13	16:13	Vessel steadied up at DC 665m
1159	06:34	16:34	Back in Spectra steering. Moving port back to sail line VC 1kt
1127	06:38	16:38	Tailbuoys 230m West of Bream A
1081	06:45	16:45	Azimuth thruster raised
881	07:11	17:11	LPSP
881	07:11	17:11	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1856F1-028**
 Sequence: **028**
 Direction: **190.5°** Nav. Def: **5**
 CMP line range: **1849-1864** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	18-May-2006	138	04:40	14:40	121	1997	1116
FPSP:	18-May-2006	138	04:40	14:40	121	1997	1116
LSP:	18-May-2006	138	07:11	17:11	1237	881	1119
EOL LSP	18-May-2006	138	07:11	17:11	1237	881	1119

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	14.8	3.8
Water depth (m)	50	58
RMS Noise (µB)	3.1	4.9
Weather	134° 6m/s, 1m	120° 6m/s, 1m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1984	1981
Stbd	1989	1984

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:31
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	10 / 0.9%
Missed SPs / %	0 / 0%
Other bad SPs / %	1 / 0.09%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.6	2.2
HDOP	0.9	1.9	1.2
V1G2 PDOP	1.5	6.1	2.4
HDOP	0.9	2.1	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.5	2.3	4.54
Speed through water (m/s)	1.6	2.5	1.9	3.78
Feather angle (°)	-7.8	15.9	1.7	
Gyro (P) (°)	172.3	208.0	188.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	491.9	524.5	515.0
Str 1-2	71.9	77.3	75.3
Str 2-3	70.2	75.9	74.6
Str 3-4	68.6	74.8	72.0
Str 4-5	71.3	81.5	76.1
Str 5-6	65.8	71.2	68.9
Str 6-7	70.4	74.3	72.9
Str 7-8	70.2	77.3	75.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.6	39.1	35.3
Port Subarray			
Outer-Centre	6.7	8.2	7.4
Centre-Inner	5.9	7.9	6.7
Stbd Subarray			
Centre-Inner	6.3	7.9	7.2
Outer-Centre	6.8	8.5	7.6

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295			305(phase)
Str 3	83, 290			
Str 4	106,116,126,148,249,318		257,258	
Str 5	75,108,153,157			
Str 6	49			
Str 7	89,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3		
Str 4	127, 258, 318	
Str 5		
Str 6	205	
Str 7	203	
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1050,945	2
Autofires / Misfires :	1191,1065,1063,1052,996,952,951,937	8
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:	1000	1
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.92

ONLINE COMMENTS

PROCESSING QC COMMENTS

Slight strum noise evident on outer cables only.
 Noise on strmr 8 due to fluctuating depth while steering for coverage (~10uBars noise uplift in isolated bursts)
 All autofires visually checked and are good shots.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1856F2-030**
 Area: **Gippsland Basin, Bass Strait** Sequence: **030**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1997-881** Line type: **Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	18-May-2006	138	14:28	00:28	121	1997	1122	13:55 UTC
FPSP:	18-May-2006	138	14:28	00:28	121	1997	1122	
LPSP:	18-May-2006	138	16:54	02:54	1237	881	1125	Full volume arrays at 14:20 UTC
EOL LSP:	18-May-2006	138	16:54	02:54	1237	881	1125	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	2.0	-2.1
Water depth (m)	50	58
RMS noise @ 5 Hz LC (µB)	4.4	3
Weather	86° 4m/s, 1.0m	70° 3m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1987	1984
Stbd	1989	1984

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.9-7.4
Str 2	6.9-7.3	6.9-7.3
Str 3	6.9-7.4	6.8-7.3
Str 4	6.9-7.3	6.9-7.2
Str 5	6.8-7.3	6.8-7.4
Str 6	7.0-7.2	6.9-7.3
Str 7	6.9-7.2	6.9-7.4
Str 8	6.8-7.3	6.9-7.3

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305(phase)			
S3:	83, 290						
S4:	116,126,318		257	258 (Weak)	127, 318, 360		
S5:	75,153,157,255				86,88		
S6:	49,116				29,37,206		
S7:	89,100,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1856F2-030**Seq: **030**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1122		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1122		FSP @ 14:28 UTC
121	1997	1122		FPSP @ 14:28 UTC
378-418	1740-1700			S8C16 - S8C13 fluctuating depths 5.7 - 7.7mtrs
459	1659		Bad	Delta Error: P-2: 1.1
469	1649	1122		EOT
470	1648	1123		SOT
518	1600			Moving for Rig avoidance in spectra steering, coming to Dc of 200m
588-613	1530-1505			S8C16 - S8C14 fluctuating depths 5.7 - 8.4mtrs
637	1481			Vessel on DC of 200m, Port vane should pass 80 m from Bream A
753	1365			Port Vane clears Bream A, Acquiring Z1 coverage again
757	1361			S1 clears Bream A
830	1288			Moving port for coverage
840	1278	1123		EOT
841	1277	1124		SOT
1000	1118			TB1 clear of Bream A 514m
1107	1011		Bad	Delta Error: P-2: 1.2
1113	1005		Bad	Delta Error: P-2: 1.1
1211	907	1124		EOT
1212	906	1125		SOT
1237	881	1125		LPSP @ 16:54 UTC
1237	881	1125		LSP @ 16:54 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1251	/	1125		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1856F2-030**Seq: **030**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1856F2-030**
 Area: **Gippsland Basin, Bass Strait** Sequence: **030** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1997-881** Line type: **Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: cb ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	18-May-2006	138	14:28	00:28	1997	2	-185.9	86° 4m/s, 1.0m
FPSP:	18-May-2006	138	14:28	00:28	1997			
LPSP:	18-May-2006	138	16:54	02:54	881			
EOL LSP:	18-May-2006	138	16:54	02:54	881	-2.1	5.3	70° 3m/s, 1.0m
UTC offset:				10.0				

0

Separations (m)

	SOL	EOL
Streamer overall:	521	520
Per streamer:		
Str 1-8	75	75
Str 2-3	75	75
Str 3-4	74	73
Str 4-5	79	78
Str 5-6	70	70
Str 6-7	73	74
Str 7-8	76	75

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
PI-PC		7.0	7.7
PC-PO		7.0	7.2
SI-SC		7.4	7.3
SC-SO		7.0	7.1

P2/94 filename: G06A-1856F2-030.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 3 Seq 1

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent
 RGPS:
 Compasses: S7C1 KO
 Other:

SP	UTC	Local Time	Comments
1997	14:28	00:28	SOL, FSP
1997	14:28	00:28	FPSP
1600	15:20	01:20	Moving for Rig avoidance in spectra steering, coming to Dc of 200m
1481	15:36	01:36	Vessel on DC of 200m, Port vane should pass 80 m from Bream A
1455			Burying all of Z1 coverage
1387	15:49	01:49	Vessel abeam of Bream A 392m
1365	15:51	01:51	Port Vane clears Bream A, Acquiring Z1 coverage again
1361	15:52	01:52	S1 clears Bream A
1288	16:01	02:01	Moving port for coverage
1118	16:23	02:23	TB1 clear of Bream A 514m
881	16:54	02:54	LPSP
881	16:54	02:54	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1856F2-030**
 Sequence: **030**
 Direction: **190.5°** Nav. Def: **5**
 CMP line range: **1997-881** Line type: **Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	18-May-2006	138	14:28	00:28	121	1997	1122
FPSP:	18-May-2006	138	14:28	00:28	121	1997	1122
LPSP:	18-May-2006	138	16:54	02:54	1237	881	1125
EOL LSP	18-May-2006	138	16:54	02:54	1237	881	1125

GENERAL INFORMATION

	SOL	EOL
FA (°)	2	-2.1
Water depth (m)	50	58
RMS Noise (µB)	4.4	3
Weather	86° 4m/s, 1.0m	70° 3m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1987	1984
Stbd	1989	1984

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:26
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	3 / 0.27%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	3.4	2.5
HDOP	1.0	2.1	1.4
V1G2 PDOP	1.9	3.4	2.6
HDOP	1.0	2.2	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.4	4.65
Speed through water (m/s)	1.8	2.5	2.2	4.24
Feather angle (°)	0.1	7.0	3.7	
Gyro (P) (°)	174.2	194.0	183.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	510.4	524.0	519.1
Str 1-2	73.3	76.8	75.2
Str 2-3	72.9	75.7	74.5
Str 3-4	70.3	74.6	72.8
Str 4-5	76.5	83.1	79.2
Str 5-6	66.8	70.9	69.2
Str 6-7	72.0	74.2	73.2
Str 7-8	73.4	76.3	75.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.1	40.4	37.0
Port Subarray	6.8	7.9	7.4
Outer-Centre	6.6	7.7	7.1
Stbd Subarray	6.9	8.2	7.4
Centre-Inner	6.7	8.0	7.1
Outer-Centre			

Birds bad: S7C1 polling disabled
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305(phase)
Str 3	83, 290			
Str 4	116, 126, 318		257	258 (Weak)
Str 5	75, 153, 157, 255			
Str 6	49, 116			
Str 7	89, 100, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3		
Str 4	127, 258, 318	
Str 5		
Str 6	205	
Str 7	203	
Str 8		

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1659, 1011, 1005		3
Autofires / Misfires:			0
Missed SPs (NDR):			0
Extraction errors:			0
NAVS / ITB errors:			0
Other Bad shots:			0
Other Bad Traces:			0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage:	0.21

TOTAL SHOTS

ONLINE COMMENTS

PROCESSING QC COMMENTS

Slight streamer strum on channels 2 and 8
 Some possible rig noise between SP 1100 - 1300

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1872P1-031**
 Area: **Gippsland Basin, Bass Strait** Sequence: **031**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1865-1880** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW / SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	19-May-2006	139	00:03	10:03	121	1997	1126	23:25	
FPSP:	19-May-2006	139	00:03	10:03	121	1997	1126		
LPSP:	19-May-2006	139	02:30	12:30	1237	881	1129		
EOL LSP:	19-May-2006	139	02:30	12:30	1237	881	1129	23:50	
UTC Offset:				10.0					

Full volume arrays at 23:50 UTC

	SOL	EOL
Feather angle (°)	-1.8	9
Water depth (m)	51	58
RMS noise @ 5 Hz LC (µB)	3.9	3.3
Weather	300° 4m/s 0.5m	308° 3m/s, 1m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1986	1982
Stbd	1987	1985

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.8-7.3
Str 2	6.8-7.3	6.8-7.1
Str 3	6.9-7.3	6.9-7.2
Str 4	6.8-7.2	6.9-7.2
Str 5	6.9-7.2	6.9-7.2
Str 6	6.9-7.2	6.8-7.2
Str 7	6.8-7.2	6.9-7.3
Str 8	6.9-7.2	6.9-7.3

SOL/EOL Comments

Overall Line Observations

SP 1455, String 2: Aft DI disabled d/t no signal

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305(phase)			
S3:	83, 290						
S4:	116, 126, 318		257	258 (Weak)	127, 318, 360		
S5:	75, 153, 157, 255				86, 88		
S6:	49, 116				29, 37, 206		
S7:	89, 100, 202, 285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1872P1-031**Seq: **031**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1126		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1126		FSP @ 00:03 UTC
121	1997	1126		FPSP @ 00:03 UTC
469	1649	1126		EOT
470	1648	1127		SOT
478	1620			Azimuth thruster lowered
654-662	1464-1456			PI - 2, Inadvertently disabled, air pressure still good
663	1455			String 2: Aft DI disabled d/t no signal, DI was effecting head DI on String 1
734	1384			V2 abeam of Bream A @ 624 m
759	1359			Port vane clear of Bream A
840	1278	1127		EOT
841	1277	1128		SOT
993	1125			TB's clear of Bream A. TB1 @ 855m
1008	1110			Azimuth thruster raised
1211	907	1128		EOT
1212	906	1129		SOT
1237	881	1129		LPSP @ 02:30 UTC
1237	881	1129		LSP @ 02:30 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1129		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1872P1-031**Seq: **031**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1872P1-031**
 Area: **Gippsland Basin, Bass Strait** Sequence: **031** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **5**
 Job ID: **20323** CMP line range: **1865-1880** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: cb ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	19-May-2006	139	00:03	10:03	1997	-1.8	-178.2	300° 4m/s 0.5m
FPSP:	19-May-2006	139	00:03	10:03	1997			
LPSP:	19-May-2006	139	02:30	12:30	881			
EOL LSP:	19-May-2006	139	02:30	12:30	881	9	-141	308° 3m/s, 1m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	522	515
Per streamer:		
Str 1-8	75	75
Str 2-3	75	74
Str 3-4	74	71
Str 4-5	73	78
Str 5-6	76	70
Str 6-7	73	73
Str 7-8	76	74

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
PI-PC		7.5	7.3
PC-PO		7.7	6.7
SI-SC		7.6	7.7
SC-SO		7.1	7.0

P2/94 filename: G06A-1872P1-031.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 3 Seq 3

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent
 RGPS:
 Compasses:
 Other: S7C1 KO

SP	UTC	Local Time	Comments
1997	00:03	10:03	SOL, FSP
1997	00:03	10:03	FPSP
1620	00:53	10:53	Azimuth thruster lowered
1384	01:24	11:24	Vessel abeam of Bream A 624 m
1359	01:27	11:27	Vane clear of Bream A
1125	01:58	11:58	Tailbuoy 855 m East of Bream A
1110	02:00	12:00	Azimuth thruster raised
881	02:30	12:30	LPSP
881	02:30	12:30	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1872P1-031**
 Sequence: **031**
 Direction: **190.5°** Nav. Def: **5**
 CMP line range: **1865-1880** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	19-May-2006	139	00:03	10:03	121	1997	1126
FPSP:	19-May-2006	139	00:03	10:03	121	1997	1126
LPSP:	19-May-2006	139	02:30	12:30	1237	881	1129
EOL LSP	19-May-2006	139	02:30	12:30	1237	881	1129

GENERAL INFORMATION

	SOL	EOL
FA (°)	-1.8	9
Water depth (m)	51	58
RMS Noise (µB)	3.9	3.3
Weather	300° 4m/s 0.5m	308° 3m/s, 1m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1986	1982
Stbd	1987	1985

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:27
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.1	2.1
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.6	3.1	2.2
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.4	4.63
Speed through water (m/s)	1.9	2.6	2.3	4.44
Feather angle (°)	-1.5	9.5	2.9	
Gyro (P) (°)	173.0	195.7	185.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	504.9	523.3	517.6
Str 1-2	73.0	76.3	75.0
Str 2-3	72.3	75.7	74.4
Str 3-4	69.0	73.9	71.9
Str 4-5	75.4	81.9	78.8
Str 5-6	67.1	71.2	69.6
Str 6-7	71.5	74.0	73.0
Str 7-8	72.3	76.6	75.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.7	39.8	36.5
Port Subarray	7.0	8.1	7.5
Outer-Centre	6.7	7.9	7.4
Centre-Inner	6.9	8.0	7.5
Stbd Subarray	6.5	7.4	6.9
Outer-Centre			

Birds bad: S7C1 polling disabled
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305(phase)
Str 3	83, 290			
Str 4	116, 126, 318		257	258 (Weak)
Str 5	75, 153, 157, 255			
Str 6	49, 116			
Str 7	89, 100, 202, 285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2	351	
Str 3		
Str 4	127, 258, 318	
Str 5	86, 88	
Str 6	205	
Str 7	203, 285	
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.07

ONLINE COMMENTS

SP 1455, String 2: Aft DI disabled d/t no signal

PROCESSING QC COMMENTS

Clean line - no noise issues of note

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1872U1-035**
 Area: **Gippsland Basin, Bass Strait** Sequence: **035**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1852-1867** Line type: **Undershoot**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	20-May-2006	140	04:33	14:33	121	1562	1136	03:45 UTC
FPSP:	20-May-2006	140	04:38	14:38	143	1518	1136	
LPSP:	20-May-2006	140	05:59	15:59	461	882	1137	Full volume arrays at 04:10 UTC
EOL LSP:	20-May-2006	140	05:59	15:59	461	882	1137	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	6.6	4.7
Water depth (m)	55	58
RMS noise @ 5 Hz LC (µB)	6.6	4.6
Weather	255° 10m/s, 2m	230° 8m/s, 2m
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1985	1982

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.3	6.8-7.2
Str 2	6.9-7.2	6.8-7.1
Str 3	6.9-7.1	6.9-7.2
Str 4	6.7-7.2	6.8-7.1
Str 5	6.8-7.4	6.9-7.2
Str 6	6.8-7.4	6.9-7.2
Str 7	6.6-7.1	6.9-7.2
Str 8	6.7-7.2	6.9-7.2

SOL/EOL Comments

Undershoot with Pacific Sword - single source (Stbd source)
 Azimuth thuster down before SOL

Overall Line Observations

Slight swell noise observed on shot records

Birds bad/poll disabled: S7C1:polling disabled, S8C20:no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295			305			
S3:	83, 290						
S4:	116,126,148,318		257,258		116,127,318,336,360		
S5:	75,103,108,153,157				86,88		
S6:	116				205		
S7:	89,100,202,285		130		285		
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1872U1-035**

Seq: **035**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1136		SOT - SOL NOISE FILES
111-120	1582-1564			APPROACH SHOTS
121	1562	1136		FSP @ 04:33 UTC
143	1518	1136		FPSP @ 04:38 UTC
208	1388			V2 passing abeam of Bream A @ 470m
212	1380		Bad	NAVS - Short Nav Header
217	1370			Port Vane passing abeam of Bream A @ 230m
343	1118			TB's passing Bream A, TB1 @ 760m
355	1094			Azimuth thruster dis-engaged
469	/	1136		EOT
470	/	1137		SOT
461	882	1137		LPSP @ 05:59 UTC
461	882	1137		LSP @ 05:59 UTC
462-466	880-872			NAV PROCESSING SHOTS
467-476	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1872U1-035**Seq: **035**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1872U1-035**
 Area: **Gippsland Basin, Bass Strait** Sequence: **035** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1852-1867** Line type: **Undershoot**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: nh sg

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	20-May-2006	140	04:33	14:33	1562	6.6	53	255° 10m/s, 2m
FPSP:	20-May-2006	140	04:38	14:38	1518			
LPSP:	20-May-2006	140	05:59	15:59	882			
EOL LSP:	20-May-2006	140	05:59	15:59	882	4.7	-144	230° 8m/s, 2m
			UTC offset:		10.0			

Separations (m)

		SOL	EOL		SOL	EOL	
Streamer overall:	Str 1-8	522	524				
Per streamer:	Str 1-2	76	76	Sub arrays:	P-C	8.1	8.7
	Str 2-3	74	75		C-S	9.0	8.9
	Str 3-4	67	71				
	Str 4-5	83	82				
	Str 5-6	70	70				
	Str 6-7	73	74				
	Str 7-8	76	76				

P2/94 filename: **G06A-1872U1-035.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **vikings2.RTCN**

BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_5**
 Backup tape: **Tape 4 Seq 2**

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent
 RGPS:
 Compasses: S7C1 S8C20 KO
 Other:

SP	UTC	Local Time	Comments
			Starboard Source
1562	04:33	14:33	SOL, FSP
1518	04:38	14:38	FPSP NB zone 1's being acquired from SP 1518
1388	04:55	14:55	Vessel 470m west of Bream A
1370	04:57	14:57	Vane 230m west of Bream A
1118	05:29	15:29	TB1 760m west of Bream A
882	05:59	15:59	LPSP
882	05:59	15:59	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Craig Bradshaw/Melissa Li**
 Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Sam Griffiths**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1872U1-035**
 Sequence: **035**
 Direction: **190.5°** Nav. Def: **3**
 CMP line range: **1852-1867** Line type: **Undershoot**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	20-May-2006	140	04:33	14:33	121	1562	1136
FPSP:	20-May-2006	140	04:38	14:38	143	1518	1136
LPSP:	20-May-2006	140	05:59	15:59	461	882	1137
EOL LSP	20-May-2006	140	05:59	15:59	461	882	1137

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	6.6	4.7
Water depth (m)	55	58
RMS Noise (µB)	6.6	4.6
Weather	255° 10m/s, 2m	230° 8m/s, 2m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	681
Recorded km	25,538
Production time (hh:mm)	01:21
Production files	319
Production SPs	319
Production km	11,963
Production CMP km	191,400

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	1 / 0.31%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.6	2.0
HDOP	0.9	1.5	1.1
V1G2 PDOP	1.5	2.9	2.2
HDOP	0.9	1.6	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.5	4.80
Speed through water (m/s)	0.0	2.3	2.1	4.05
Feather angle (°)	6.1	8.0	7.4	
Gyro (P) (°)	181.9	192.7	188.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.8	525.9	521.1
Str 1-2	73.0	77.9	75.2
Str 2-3	73.2	75.7	74.7
Str 3-4	67.9	72.5	70.2
Str 4-5	79.9	84.6	82.2
Str 5-6	67.8	71.3	69.8
Str 6-7	72.7	74.5	73.7
Str 7-8	74.1	76.5	75.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source			
Subarray Centre-Port	7.9	9.0	8.6
Stbd-Centre	8.4	9.1	8.7

Birds bad: **S7C1:polling disabled, S8C20:no comms**
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305
Str 3	83, 290			
Str 4	116,126,148,318		257,258	
Str 5	75,103,108,153,157			
Str 6	116			
Str 7	89,100,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4	127, 257, 258, 318	
Str 5		
Str 6	205	
Str 7	203, 205	
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1380	1
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.26

ONLINE COMMENTS

Slight swell noise observed on shot records

PROCESSING QC COMMENTS

Slight strum noise evident on outer cables

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1872U2-040**
 Area: **Gippsland Basin, Bass Strait** Sequence: **040**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1852-1867** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Complete**

Initials: SH, DY
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	21-May-2006	141	07:33	17:33	121	1513	1147	6:33	
FPSP:	21-May-2006	141	07:33	17:33	121	1513	1147		
LPSP:	21-May-2006	141	08:55	18:55	437	881	1147		
EOL LSP:	21-May-2006	141	08:55	18:55	437	881	1147	6:54	
				UTC Offset:	10.0				

Full volume arrays at 6:54 UTC

	SOL	EOL
Feather angle (°)	2.0	-3
Water depth (m)	53	58
RMS noise @ 5 Hz LC (µB)	6.3	6.6
Weather	285° 11m/s, 2m	250° 11m/s, 2m
Source vol. (cu. in.)	4550	4550
Source pressure (psi)	1985	1985

Streamer Depths (m)

	SOL	EOL
Str 1	6.4-7.2	6.8-7.3
Str 2	6.9-7.3	6.7-7.2
Str 3	6.9-7.1	6.9-7.2
Str 4	6.7-7.2	6.9-7.3
Str 5	6.9-7.3	6.9-7.2
Str 6	6.9-7.1	6.9-7.2
Str 7	7.0-7.4	6.9-7.6
Str 8	6.9-8.1	6.8-7.2

SOL/EOL Comments

SOL noise increased D/T sea state
 Azimuth thruster engaged before SOL @ 0717 UTC

Overall Line Observations

Undershoot with Pacific Sword - single source (Port)
 Pacific Sword position on Port side of V2
 Swell noise observed on shot records, increasing during sequence

Birds bad/poll disabled: S7C1:polling disabled, S8C20:no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295		282	305			
S3:	83,290						
S4:	106,124,318		257,258		116,127,318,336		
S5:	75,108,113,153,157				86,88		
S6:	49				205		
S7:	89,166,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1147		SOT - SOL NOISE FILES
111-120	1533-1515			APPROACH SHOTS
121	1513	1147		FSP @ 07:33 UTC
121	1513	1147		FPSP @ 07:33 UTC
185	1385		Bad	Delta Error: S3-3: 1.1
183	1389			V2 passing abeam of Bream A @ 530m
188	1379		Bad	NAVS - Nav short header
192	1371			Port Vane passing abeam of Bream A @ 210m
296	1163		Bad	Delta Error: S3-1: -1.1
316	1123			TB's passing Bream A, TB1 @ 180m
333	1089		Bad	Delta Error: S1-1: -1.1
334	1087		Bad	Delta Error: S1-1: -1.1
335	1085			Azimuth thruster dis-engaged
360	1035		Bad	Delta Error: S1-1: -1.1
437	881	1147		LPSP @ 08:55 UTC
437	881	1147		LSP @ 08:55 UTC
438-443	879-869			NAV PROCESSING SHOTS
444-453	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1872U2-040**Seq: **040**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1872U2-040**
 Area: **Gippsland Basin, Bass Strait** Sequence: **040** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1852-1867** Line type: **Undershoot**
 Type: **3D** No. CMPs: **8** Status: **Complete** Log Status: Final

Initials: nh sg

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	21-May-2006	141	07:33	17:33	1513	2	34	285° 11m/s, 2m
FPSP:	21-May-2006	141	07:33	17:33	1513			
LPSP:	21-May-2006	141	08:55	18:55	881			
EOL LSP:	21-May-2006	141	08:55	18:55	881	-2.6	-71	250° 11m/s, 2m
UTC offset:				10.0				

Separations (m)		SOL	EOL		SOL	EOL
Streamer overall:	Str 1-8	522	521			
Per streamer:	Str 1-2	75	75	Sub arrays:	P-C	6.8
	Str 2-3	75	74		C-S	9.3
	Str 3-4	72	72			8.2
	Str 4-5	80	80			
	Str 5-6	70	70			
	Str 6-7	74	74			
	Str 7-8	78	76			

P2/94 filename: G06A-1872U2-040.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 1 Seq 2

Observations disabled etc.

Acoustics: G2A1 S5A2 intermittent
 RGPS:
 Compasses: S7C1 S8C20 KO
 Other:

SP	UTC	Local Time	Comments
1513	7:33	17:33	Port Source SOL, FSP
1513	7:33	17:33	FPSP
1389	7:49	17:49	Vessel 530 m West of Bream A
1371	7:51	17:51	Vane 210m West of Bream A
1123	8:22	18:22	Tailbuoys 180 West of Bream A
881	8:55	18:55	LPSP
881	8:55	18:55	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1872U2-040**
 Sequence: **040**
 Direction: **190.5°** Nav. Def: **3U**
 CMP line range: **1852-1867** Line type: **Undershoot**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	21-May-2006	141	07:33	17:33	121	1513	1147
FPSP:	21-May-2006	141	07:33	17:33	121	1513	1147
LPSP:	21-May-2006	141	08:55	18:55	437	881	1147
EOL LSP	21-May-2006	141	08:55	18:55	437	881	1147

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	2	-2.6
Water depth (m)	53	58
RMS Noise (µB)	6.3	6.6
Weather	285° 11m/s, 2m	250° 11m/s, 2m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	633
Recorded km	23.738
Production time (hh:mm)	01:22
Production files	317
Production SPs	317
Production km	11.888
Production CMP km	95.100

ERROR STATISTICS

Source errors / %	5 / 1.58%
Missed SPs / %	0 / 0%
Other bad SPs / %	1 / 0.32%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.5	1.7
HDOP	0.8	1.4	0.9
V1G2 PDOP	1.4	2.6	1.8
HDOP	0.8	1.4	0.9

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.7	2.4	4.68
Speed through water (m/s)	0.0	2.6	2.3	4.51
Feather angle (°)	-2.1	2.6	0.3	
Gyro (P) (°)	192.6	206.7	200.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.6	525.0	521.8
Str 1-2	74.1	76.8	75.4
Str 2-3	74.4	76.1	75.2
Str 3-4	70.2	75.3	71.9
Str 4-5	77.1	83.1	79.5
Str 5-6	67.7	70.9	69.5
Str 6-7	73.1	75.2	74.0
Str 7-8	74.7	77.6	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	6.5	7.7	7.1
Centre-Inner	7.7	9.3	8.3

Birds bad: S7C1:polling disabled, S8C20:no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	83,290			
Str 4	106,124,318		257,258	
Str 5	75,108,113,153,157			
Str 6	49			
Str 7	89,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4	127, 233, 257, 258, 318	
Str 5		
Str 6	39, 205	
Str 7	203	
Str 8		

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1385,1163,1089,1087,1035	5
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1379	1
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.34

ONLINE COMMENTS

Undershoot with Pacific Sword - single source (Port)
 Pacific Sword position on Port side of V2
 Swell noise observed on shot records, increasing during sequence

PROCESSING QC COMMENTS

Slight swell noise evident along entire line affecting <5% of traves
 Slight strum noise evident on outer cables.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1872U3-041**

Area: **Gippsland Basin, Bass Strait** Sequence: **041**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**

Job ID: **20323** CMP line range: **1852-1867** Line type: **Undershoot**

Type: **3D** No. CMPs: **8** Status: **Complete**

Initials: MO, MW
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	21-May-2006	141	15:41	01:41	121	1512	1148	15:04	UTC
FPSP:	21-May-2006	141	15:41	01:41	121	1512	1148		
LPSP:	21-May-2006	141	17:07	03:07	410	934	1148		
EOL LSP:	21-May-2006	141	17:07	03:07	410	934	1148	15:25	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-0.7	5
Water depth (m)	52.1	58
RMS noise @ 5 Hz LC (µB)	6.5	5.9
Weather	359° 11m/s 2.0m	245° 11m/s, 2.0m
Source vol. (cu. in.)	4450	4450
Source pressure (psi)	1978	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.3	6.8-7.3
Str 2	6.7-7.4	6.8-7.4
Str 3	6.8-7.4	6.8-7.4
Str 4	6.7-7.3	6.8-7.3
Str 5	6.8-7.3	6.7-7.3
Str 6	6.8-7.4	6.7-7.4
Str 7	6.8-7.4	6.8-7.4
Str 8	6.8-7.3	6.7-7.3

SOL/EOL Comments**Overall Line Observations**

Undershoot with Pacific Sword - single source
Pacific Sword position on PORT side of V2
Sol noise file taken with a WSP of 4.5k, noise value high d/t sea state
Slight noise breakouts d/t sea state

Birds bad/poll disabled: **S7C1:polling disabled, S8C20:no comms**

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					360		
S2:	295		282	305			
S3:	83,290						
S4:	106,124,318		257,258		116,127,318,336		
S5:	75,108,113,153,157				86,88		
S6:	49				205		
S7:	89,166,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1872U3-041

Seq:

041

Dir:

190.5°

FILE	SP	TAPE	BAD	
99-110	/	1148		SOT - SOL NOISE FILES
111-120	1532-1510			APPROACH SHOTS
121	1512	1148		FSP @ 15:41 UTC
121	1512	1148		FPSP @ 15:41 UTC
143	1468		Bad	Gun 1 DE 1.3ms
175	1404		Bad	Gun 1 DE -1.2ms
183	1388			V2 clear of Bream A
189	1376			Pacific Sword clear of Bream A
188	1378		Bad	NAVS - Short Nav Header
198	1358			S1 and vane clear of Bream A
239	1276		Bad	Gun 18 DE 1.2ms
248	1258		Bad	Gun 1 DE -1.1ms
254	1246		Bad	Gun 1 DE -1.1ms
256	1242		Bad	Gun 1 DE -1.2ms and Gun 11 DE 1.2ms
291	1172		Bad	Gun 1 DE -1.2ms
292	1170		Bad	Gun 1 DE -1.2ms
293	1168		Bad	Gun 1 DE -1.1ms
318	1118			TB's are clear of Bream A
332-350	1090-1054			S1C17-S1C14 fluctuating depths from 5.6 - 8.3m
410	934	1148		LPSP @ 17:07 UTC
410	934	1148		LSP @ 17:07 UTC
411-412	932-930			NAV PROCESSING SHOTS
413-422	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1872U3-041**
 Area: **Gippsland Basin, Bass Strait** Sequence: **041** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3**
 Job ID: **20323** CMP line range: **1852-1867** Line type: **Undershoot** Initials: MB
 Type: **3D** No. CMPs **8** Status: **Complete** Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	21-May-2006	141	15:41	01:41	1512	-0.7	125	359° 11m/s 2.0m
FPSP:	21-May-2006	141	15:41	01:41	1512			
LPSP:	21-May-2006	141	17:07	03:07	934			
EOL LSP:	21-May-2006	141	17:07	03:07	934	5	125	245° 11m/s, 2.0m
UTC offset:				10.0				

Separations (m)		SOL		EOL		SOL		EOL	
Streamer overall:	Str 1-8	520	520						
Per streamer:	Str 1-2	75	75	Sub arrays:		P-C	7.9	7.0	
	Str 2-3	76	77			C-S	9.3	9.5	
	Str 3-4	71	72						
	Str 4-5	80	79						
	Str 5-6	69	69						
	Str 6-7	74	74						
	Str 7-8	76	74						

P2/94 filename:
 LMN: BCN:
 SCN: Acoustic file:
 RTCN: Backup tape:

Observations disabled etc.

Acoustics: G1A2, Intermittent
 RGPS:
 Compasses: S7C1, S8C20. Ko'd
 Other:

SP	UTC	Local Time	Comments
1512	15:41	01:41	SOL, FSP
1512	15:41	01:41	FPSP
1376			Pacific Sword clear of Bream A
1358			S1 and vane clear of Bream A
1118			TB's are clear of Bream A
934	17:07	03:07	LPSP
934	17:07	03:07	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1872U3-041**Seq: **041**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxiliary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms

Comments:

Hydrophone sensitivity 20 μ volts / μ bar
Recording polarity: Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning**Navigation System**

Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav

Positioning System

Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1872U3-041**
 Sequence: **041**
 Direction: **190.5°** Nav. Def: **3U**
 CMP line range: **1852-1867** Line type: **Undershoot**
 No. CMPs: **8** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **RWF**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	21-May-2006	141	15:41	01:41	121	1512	1148
FPSP:	21-May-2006	141	15:41	01:41	121	1512	1148
LPSP:	21-May-2006	141	17:07	03:07	410	934	1148
EOL LSP	21-May-2006	141	17:07	03:07	410	934	1148

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-0.7	5
Water depth (m)	52.1	58
RMS Noise (µB)	6.5	5.9
Weather	359° 11m/s 2.0m	245° 11m/s, 2.0m
Source volume (cu in):	4450	4450

TOTALS INFORMATION

Recorded SPs	579
Recorded km	21.713
Production time (hh:mm)	01:26
Production files	290
Production SPs	290
Production km	10.875
Production CMP km	87.000

ERROR STATISTICS

Source errors / %	9 / 3.1%
Missed SPs / %	0 / 0%
Other bad SPs / %	1 / 0.34%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	3.4	2.5
HDOP	0.9	2.1	1.4
V1G2 PDOP	1.9	3.4	2.6
HDOP	1.0	2.2	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.3	2.1	4.09
Speed through water (m/s)	1.8	2.4	2.2	4.18
Feather angle (°)	-0.1	6.0	2.8	
Gyro (P) (°)	185.0	199.4	194.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	512.7	524.6	520.0
Str 1-2	72.6	77.1	75.2
Str 2-3	73.9	76.3	75.3
Str 3-4	68.5	73.4	71.0
Str 4-5	75.9	81.4	78.7
Str 5-6	67.3	71.5	69.6
Str 6-7	72.7	75.4	74.0
Str 7-8	74.4	77.6	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	6.2	7.1	6.5
Centre-Inner	9.0	10.5	9.8

Birds bad: S7C1:polling disabled, S8C20:no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295		282	305
Str 3	83,290			
Str 4	106,124,318		257,258	
Str 5	75,108,113,153,157			
Str 6	49			
Str 7	89,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	304	
Str 2		
Str 3		
Str 4	127, 233, 257, 258, 318, 336	
Str 5		
Str 6	39, 205	
Str 7	285, 203	
Str 8		

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms: 1468,1404,1276,1258,1246,1242,1172,1170,1168
 Autofires / Misfires :
 Missed SPs (NDR):
 Extraction errors:
 NAVS / ITB errors: 1378
 Other Bad shots:
 Other Bad Traces:
 Streamer depth edits: See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m

TOTAL SHOTS

9
 0
 0
 0
 1
 0
 0
 Percentage: 0.34

ONLINE COMMENTS

Undershoot with Pacific Sword - single source
 Pacific Sword position on PORT side of V2
 Sol noise file taken with a WSP of 4.5k, noise value high d/t sea state
 Slight noise breakouts d/t sea state

PROCESSING QC COMMENTS

Slight cable strum on the outer cables
 Slight to moderate swell bursts affecting ~5% - 10% of traces
 Relatively high amplitude screw noise from the P. Sword around SP 1400 (around Bream A)



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1872U4-045**

Area: **Gippsland Basin, Bass Strait** Sequence: **045**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**

Job ID: **20323** CMP line range: **1852-1867** Line type: **Undershoot**

Type: **3D** No. CMPs: **8** Status: **DNP**

Initials: SH, DY
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	26-May-2006	146	08:44	18:44	121	1573	1157	07:36	UTC
FPSP:	26-May-2006	146	08:48	18:48	138	1539	1157		
LPSP:	26-May-2006	146	10:13	20:13	467	881	1158		
EOL LSP:	26-May-2006	146	10:13	20:13	467	881	1158	08:05	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	2.3	6
Water depth (m)	57	60
RMS noise @ 5 Hz LC (µB)	6.4	5.8
Weather	170° 7m/s 2m	180° 6m/s, 2m

Source vol. (cu. in.) 4550 4550

Source pressure (psi) 1975 1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.5	6.9-7.3
Str 2	6.6-7.4	6.9-7.3
Str 3	6.9-7.3	6.9-7.4
Str 4	6.8-7.3	6.8-7.4
Str 5	6.7-7.4	6.9-7.3
Str 6	6.8-7.4	6.8-7.3
Str 7	6.8-7.3	6.9-7.4
Str 8	6.8-7.2	6.7-7.2

SOL/EOL Comments

Azimuth thruster engaged before SOL @ 08:36UTC

Overall Line Observations

Undershoot with Pacific Sword - single source (Port)
Pacific Sword position on Port side of V2
Swell noise observed on shot records
DNP d/t source air leak

Birds bad/poll disabled: S8C20 & S8C16:no comms

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:	282,295			305			
S3:							
S4:	116,318				127,233,318		
S5:	75,153,155,157,255				139		
S6:					91,205		
S7:	89,100,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1872U4-045**Seq: **045**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1157		SOT - SOL NOISE FILES
111-120	1593-1575			APPROACH SHOTS
121	1573	1157		FSP @ 08:44 UTC
138	1539	1157		FPSP @ 08:48 UTC
215	1385			V2 passing abeam of Bream A @ 480m
217	1381		Bad	Short Nav Header Error - NAVS
218	1379		Bad	Short Nav Header Error - NAVS
223	1369			Port Vane passing abeam of Bream A @ 220m
	1320			Airleak starts - pressure dropping from this point on
347	1121			TB's passing Bream A, TB1 @ 660m
375	1065			Azimuth thruster disengaged @ 09:50UTC
403	1009		Bad	Misfire: S3-3
404	1007		Bad	Misfire: S3-3
405	1005		Bad	Pressure Error: String 1: 1867 String 3: 1872
406	1003		Bad	Delta Error: S3-2: -1.1 Pressure Error: String 1: 1865 String 3: 1872
444	927		Bad	Delta Error: S3-2: -1.1
467	881	1158		LPSP @ 10:13 UTC
467	881	1158		LSP @ 10:13 UTC
468-469	879-877			NAV PROCESSING SHOTS
469	877	1157		EOT
470	875	1158		SOT
470-472	875-871			NAV PROCESSING SHOTS
473-482	/			EOT - NOISE FILES

Abbreviations used and their meanings:

AF Gun Autofire
 CAD Cable Depths
 CDP Common Depth Point
 MSRS Multiple Streamer Recording System
 MSTP Multiple Streamer Telemetry Processor
 DNP Do Not Process
 D/T Due To
 D/E Delta Error
 M/F Misfire
 M/O Moveout
 RTNU Real Time Navigation Unit

LGSP Last Good Shotpoint
 LPSP Last Production (Chargeable) Shotpoint
 LSP Last Shotpoint
 MARS Marine Angle Ranging System
 NAV Navigation
 GCS90 Gun Controller
 RN Reel Number
 SAP Source Air Pressure
 S/I Seismic Interference
 NAVS Short Nav Header
 NCN Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1872U4-045**

Seq: **045**

Dir: **190.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Note: no near field data recorded due to no NF sensors	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	NA m
Source separation fluctuation allowed:	NA m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	1
Number of active elements per array:	27
Number of spare elements per array:	0
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4550 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	37.5 m
Source operated from MV Pacific Sword	
Single source acquisition mode	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1872U4-045**
 Area: **Gippsland Basin, Bass Strait** Sequence: **045** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **3U**
 Job ID: **20323** CMP line range: **1852-1867** Line type: **Undershoot**
 Type: **3D** No. CMPs **8** Status: **DNP** Initials: nh sg
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	26-May-2006	146	08:44	18:44	1573	2.3	28	170° 7m/s 2m
FPSP:	26-May-2006	146	08:48	18:48	1539			
LPSP:	26-May-2006	146	10:13	20:13	881			
EOL LSP:	26-May-2006	146	10:13	20:13	881	6.1	-162	180° 6m/s, 2m
UTC offset:				10.0				

Separations (m)		SOL		EOL	
Streamer overall:	Str 1-8	523	518		
Per streamer:	Str 1-2	76	75		
	Str 2-3	76	76		
	Str 3-4	76	75		
	Str 4-5	79	78		
	Str 5-6	66	67		
	Str 6-7	75	74		
	Str 7-8	74	75		
			Sub arrays:		P-C	6.9 8.7
				C-S	8.4 8.0

P2/94 filename: G06A-1872U4-045.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 2 Seq 3

Observations disabled etc.

Acoustics: G1A2, Intermittent
 RGPS:
 Compasses: S8C16, S8C20, KO S5C19 Bad Depth
 Other:

SP	UTC	Local Time	Comments
			Port Source
1573	08:44	18:44	SOL, FSP NB Azimuth thruster lowered prior to SOL
1539	08:48	18:48	FPSP Zone 1 coverage being acquired
1385	09:08	19:08	Vessel 480m west of Bream A
1369	09:10	19:10	Vane 220m west of Bream A
1121	09:43	19:43	Tailbuoy 1 660m west of Bream A
1065	09:50	19:50	Azimuth thruster raised
881	10:13	20:13	LPSP
881	10:13	20:13	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1872U4-045**
 Sequence: **045**
 Direction: **190.5°** Nav. Def: **3U**
 CMP line range: **1852-1867** Line type: **Undershoot**
 No. CMPs: **8** Status: **DNP**

Obs Initials: **DY**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	26-May-2006	146	08:44	18:44	121	1573	1157
FPSP:	26-May-2006	146	08:48	18:48	138	1539	1157
LPSP:	26-May-2006	146	10:13	20:13	467	881	1158
EOL LSP	26-May-2006	146	10:13	20:13	467	881	1158

RECORDING PARAMETERS

SP interval (m)	37.5
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 1
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	2.3	6.1
Water depth (m)	57	60
RMS Noise (µB)	6.4	5.8
Weather	170° 7m/s 2m	180° 6m/s, 2m
Source volume (cu in):	4550	4550

TOTALS INFORMATION

Recorded SPs	693
Recorded km	25,988
Production time (hh:mm)	01:25
Production files	330
Production SPs	330
Production km	12,375
Production CMP km	99,000

ERROR STATISTICS

Source errors / %	4 / 1.21%
Missed SPs / %	0 / 0%
Other bad SPs / %	3 / 0.91%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.1	1.7
HDOP	0.8	1.1	0.9
V1G2 PDOP	1.5	2.1	1.8
HDOP	0.8	1.1	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.5	2.4	4.72
Speed through water (m/s)	0.0	2.4	2.0	3.98
Feather angle (°)	2.8	7.2	4.9	
Gyro (P) (°)	174.4	185.0	179.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	512.9	524.1	518.8
Str 1-2	73.4	77.9	75.7
Str 2-3	74.0	76.9	75.2
Str 3-4	72.5	77.1	74.7
Str 4-5	74.3	82.2	78.2
Str 5-6	64.2	68.7	66.5
Str 6-7	72.0	74.7	73.5
Str 7-8	72.8	78.2	75.0

SOURCE SEPARATIONS

	Min	Max	Mean
Subarray Outer-Centre	7.0	9.2	8.1
Centre-Inner	7.5	9.4	8.5

Birds bad: **S8C20 & S8C16: no comms**
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	282,295			305
Str 3				
Str 4	116,318			
Str 5	75,153,155,157,255			
Str 6				
Str 7	89,100,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4		
Str 5		
Str 6		
Str 7		
Str 8		

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1003,927	2
Autofires / Misfires :	1009,1007	2
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1381, 1379	2
Other Bad shots:	1005	1
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage:

TOTAL SHOTS

ONLINE COMMENTS

Undershoot with Pacific Sword - single source (Port)
 Pacific Sword position on Port side of V2
 Swell noise observed on shot records
 DNP d/t source air leak

PROCESSING QC COMMENTS

Swell noise throughout line - 30-45uBars
 Slight strum noise evident on outer cables
 DNP - due to air leak

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1888P1-051**
 Area: **Gippsland Basin, Bass Strait** Sequence: **051**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **6**
 Job ID: **20323** CMP line range: **1881-1896** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: SH, DY / MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	27-May-2006	147	12:14	22:14	121	1997	1170	11:45 UTC
FPSP:	27-May-2006	147	12:14	22:14	121	1997	1170	
LPSP:	27-May-2006	147	14:43	00:43	1237	881	1173	Full volume arrays at 12:07 UTC
EOL LSP:	27-May-2006	147	14:43	00:43	1237	881	1173	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	2.3	0
Water depth (m)	51	57
RMS noise @ 5 Hz LC (µB)	4.2	4.1
Weather	270° 11m/s, 1.5m	250° 9m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1987	1982
Stbd	1992	1985

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.3	6.9-7.4
Str 2	6.9-7.5	6.8-7.4
Str 3	6.9-7.4	6.8-7.3
Str 4	6.7-7.3	6.9-7.2
Str 5	6.9-7.4	6.8-7.3
Str 6	6.8-7.4	6.9-7.5
Str 7	6.8-7.3	6.9-7.4
Str 8	6.9-7.2	6.7-7.3

SOL/EOL Comments

Overall Line Observations

Swell noise observed on shot records

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:			282	305			
S3:	290						
S4:	43,106,318			116	127,318		
S5:	75,108,155,157		153		86		
S6:	49,116,120,158				37,91,205		
S7:	89,100,166,202,285		130				
S8:							

Vessel Manager: Howie Grizaard **Observers:** 00:00-12:00 Emmanuel Ollada/Michael Wells
Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
Chief Observer: Les Hayden

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1170		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1170		FSP @ 12:14 UTC
121	1997	1170		FPSP @ 12:14 UTC
469	1649	1170		EOT
470	1648	1171		SOT
500	1618			Azimuth thruster engaged @ 13:04UTC
728	1390			V2 passing abeam of Bream A @ 920m
745	1373			Port Vane passing abeam of Bream A @ 600m
802	1316			Azimuth thruster disengaged @ 13:45UTC
840	1278	1171		EOT
841	1277	1172		SOT
	1113			TB1 clear west of Bream A by 670m
1211	907	1172		EOT
1212	906	1173		SOT
1237	881	1173		LPSP @ 14:43 UTC
1237	881	1173		LSP @ 14:43 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1253	/	1173		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1888P1-051**Seq: **051**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1888P1-051**
 Area: **Gippsland Basin, Bass Strait** Sequence: **051** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **6**
 Job ID: **20323** CMP line range: **1881-1896** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final
 Initials: nh sg cb ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	27-May-2006	147	12:14	22:14	1997	2.3	-325	270° 11m/s, 1.5m
FPSP:	27-May-2006	147	12:14	22:14	1997			
LPSP:	27-May-2006	147	14:43	00:43	881			
EOL LSP:	27-May-2006	147	14:43	00:43	881	-0.3	-24	250° 9m/s, 1.5m
UTC offset:				10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	522	521	35.3	35.0	
Per streamer:	Str 1-2	75	75	PI-PC	8.4	8.2
	Str 2-3	75	75	PC-PO	8.2	8.3
	Str 3-4	74	73	SI-SC	8.0	8.2
	Str 4-5	75	76	SC-SO	8.0	7.9
	Str 5-6	72	72			
	Str 6-7	74	74			
	Str 7-8	76	76			

P2/94 filename: G06A-1888P1-051.0.p294

LMN: 20323_Bream.LMN

SCN: 20323_Bream.SCN

RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN

Acoustic file: 20323_5

Backup tape: Tape 3 Seq 3

Observations disabled etc.

Acoustics:

RGPS:

Compasses: S1C19 KO'd

Other:

SP	UTC	Local Time	Comments
1997	12:14	22:14	SOL, FSP
1997	12:14	22:14	FPSP
1618	13:04	23:04	Azimuth thruster down
1390	13:35	23:35	Vessel 920 m west of Bream A
1373	13:37	23:37	Vane 600 m west of Bream A
1316	13:45	23:45	Azimuth thruster stowed
1113	14:12	00:12	TB1 clear west of Bream A by 670m
881	14:43	00:43	LPSP
881	14:43	00:43	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1888P1-051**
 Sequence: **051**
 Direction: **190.5°** Nav. Def: **6**
 CMP line range: **1881-1896** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	27-May-2006	147	12:14	22:14	121	1997	1170
FPSP:	27-May-2006	147	12:14	22:14	121	1997	1170
LPSP:	27-May-2006	147	14:43	00:43	1237	881	1173
EOL LSP	27-May-2006	147	14:43	00:43	1237	881	1173

GENERAL INFORMATION

	SOL	EOL
FA (°)	2.3	-0.3
Water depth (m)	51	57
RMS Noise (µB)	4.2	4.1
Weather	270° 11m/s, 1.5m	250° 9m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1987	1982
Stbd	1992	1985

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:29
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.3	3.1	1.9
HDOP	0.8	1.7	1.1
V1G2 PDOP	1.5	3.1	2.1
HDOP	0.8	1.7	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.4	2.3	4.55
Speed through water (m/s)	1.7	2.5	2.2	4.30
Feather angle (°)	-2.3	3.6	0.7	
Gyro (P) (°)	182.7	203.2	193.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.7	523.2	520.3
Str 1-2	74.2	76.5	75.4
Str 2-3	74.2	76.3	75.3
Str 3-4	70.5	75.2	73.0
Str 4-5	72.2	78.6	75.2
Str 5-6	70.1	74.0	71.8
Str 6-7	72.2	74.6	73.6
Str 7-8	74.4	77.5	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.7	39.0	35.2
Port Subarray			
Outer-Centre	7.8	8.7	8.3
Centre-Inner	7.5	8.7	8.1
Stbd Subarray			
Centre-Inner	7.3	8.5	8.0
Outer-Centre	7.3	8.5	7.9

Birds bad: S1C19: no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4	43,106,318			116
Str 5	75,108,155,157		153	
Str 6	49,116,120,158			
Str 7	89,100,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2	351	
Str 3		
Str 4	127, 179, 233, 318	
Str 5	136, 139	
Str 6	205	
Str 7	203	
Str 8		318

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

Swell noise observed on shot records

PROCESSING QC COMMENTS

Occasional moderate swell bursts apparent toward start of line.
 Str's 2, 5 & 6 show mild strumming.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1904P1-053**
 Area: **Gippsland Basin, Bass Strait** Sequence: **053**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **6**
 Job ID: **20323** CMP line range: **1897-1912** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: MO, MW
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	27-May-2006	147	22:06	08:06	121	1997	1178	21:10	
FPSP:	27-May-2006	147	22:06	08:06	121	1997	1178		
LPSP:	28-May-2006	148	00:29	10:29	1237	881	1181		
EOL LSP:	28-May-2006	148	00:29	10:29	1237	881	1181	21:35	
				UTC Offset:	10.0				

Full volume arrays at 21:35 UTC

	SOL	EOL
Feather angle (°)	4.9	11
Water depth (m)	50	58
RMS noise @ 5 Hz LC (µB)	3.9	4.7
Weather	290° 7m/s, 1.5m	280° 12m/s, 2.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1985	1985
Stbd	1989	1982

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.8-7.3
Str 2	6.8-7.2	6.8-7.3
Str 3	6.9-7.2	6.9-7.4
Str 4	6.8-7.3	6.9-7.2
Str 5	6.8-7.3	6.8-7.3
Str 6	6.8-7.3	6.8-7.2
Str 7	6.9-7.4	6.9-7.2
Str 8	6.9-7.2	6.8-7.3

SOL/EOL Comments

Overall Line Observations

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:			282	305			
S3:	290						
S4:	43,106,318			116	127,318		
S5:	75,108,155,157		153		86	139	
S6:	49,116,120,158				37,91,205		
S7:	89,100,166,202,285		130				
S8:							

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Emmanuel Ollada/Michael Wells
 Operations Supervisor: Paul Turpin 12:00-00:00 Shane Hales/David de Young
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1904P1-053**Seq: **053**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1178		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1178		FSP @ 22:06 UTC
121	1997	1178		FPSP @ 22:06 UTC
469	1649	1178		EOT
470	1648	1179		SOT
542	1576		Bad	Misfire: S-14
739	1379			Vessel pass 900m west of Bream A
751	1367			Vane & S1 pass 590m west of Bream A
840	1278	1179		EOT
841	1277	1180		SOT
998	1120			LSP of the day UTC
1164	954		Bad	Volume Error - Expected volume: 4450 Actual volume 4650
1172	946		Bad	Volume Error - Expected volume: 4450 Actual volume 4650
1211	907	1180		EOT
1212	906	1181		SOT
1227	891		Bad	Delta Error: P-2: 1.1
1237	881	1181		LPSP @ 00:29 UTC
1237	881	1181		LSP @ 00:29 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1181		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1904P1-053**Seq: **053**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1904P1-053**
 Area: **Gippsland Basin, Bass Strait** Sequence: **053** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **6**
 Job ID: **20323** CMP line range: **1897-1912** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: cb, ml

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	27-May-2006	147	22:06	08:06	1997	4.9	-493.7	290° 7m/s, 1.5m
FPSP:	27-May-2006	147	22:06	08:06	1997			
LPSP:	28-May-2006	148	00:29	10:29	881			
EOL LSP:	28-May-2006	148	00:29	10:29	881	11.4	-480	280° 12m/s, 2.5m
	UTC offset:			10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	520	512	35.0	37.7	
Per streamer:	Str 1-2	76	74	PI-PC	7.9	7.8
	Str 2-3	72	74	PC-PO	8.1	7.9
	Str 3-4	71	69	SI-SC	7.8	8.0
	Str 4-5	76	75	SC-SO	8.1	7.8
	Str 5-6	72	71			
	Str 6-7	73	73			
	Str 7-8	75	75			

P2/94 filename: G06A-1904P1-053.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_5
 Backup tape: Tape 3 Seq 5

Observations disabled etc.

Acoustics:
 RGPS:
 Compasses: S1C19 KO
 Other:

SP	UTC	Local Time	Comments
1997	22:06	08:06	SOL, FSP
1997	22:06	08:06	FPSP
1379	23:27	09:27	Vessel pass 900m west of Bream A
1367	23:28	09:28	Vane & S1 pass 590m west of Bream A
			Most of Z1 were buried throughout the line in order to acquire Z4
1153	23:55	09:55	Z1 buried to acquired Z4
1149	23:56	09:56	Starting to acquire Z1
1119	00:00	10:00	TB8 pass 1600m west of Bream A
881	00:29	10:29	LPSP
881	00:29	10:29	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Craig Bradshaw/Melissa Li
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Sam Griffiths



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1904P1-053**
 Sequence: **053**
 Direction: **190.5°** Nav. Def: **6**
 CMP line range: **1897-1912** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **KE**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	27-May-2006	147	22:06	08:06	121	1997	1178
FPSP:	27-May-2006	147	22:06	08:06	121	1997	1178
LPSP:	28-May-2006	148	00:29	10:29	1237	881	1181
EOL LSP	28-May-2006	148	00:29	10:29	1237	881	1181

GENERAL INFORMATION

	SOL	EOL
FA (°)	4.9	11.4
Water depth (m)	50	58
RMS Noise (µB)	3.9	4.7
Weather	290° 7m/s, 1.5m	280° 12m/s, 2.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1985	1985
Stbd	1989	1982

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:23
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	1 / 0.09%
Other bad SPs / %	2 / 0.18%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.6	1.9
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.6	2.0
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.4	4.73
Speed through water (m/s)	0.0	2.4	2.1	4.16
Feather angle (°)	5.1	11.6	7.9	
Gyro (P) (°)	179.9	195.6	188.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	504.8	520.8	514.4
Str 1-2	73.1	76.6	75.0
Str 2-3	72.7	75.9	74.4
Str 3-4	67.8	73.9	71.2
Str 4-5	72.2	80.0	75.3
Str 5-6	68.8	73.1	71.1
Str 6-7	71.3	74.0	72.9
Str 7-8	72.6	76.2	74.5

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	31.1	37.6	34.6
Port Subarray			
Outer-Centre	7.6	8.8	8.2
Centre-Inner	7.3	8.7	8.0
Stbd Subarray			
Centre-Inner	7.3	8.7	7.9
Outer-Centre	7.3	8.5	7.9

Birds bad: S1C19: no comms
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2			282	305
Str 3	290			
Str 4	43,106,318			116
Str 5	75,108,155,157		153	
Str 6	49,116,120,158			
Str 7	89,100,166,202,285		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 318	
Str 5	136, 139	
Str 6	205	
Str 7	203	
Str 8		

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	891	1
Autofires / Misfires :		0
Missed SPs (NDR):	1576	1
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:	954,946	2
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.10

TOTAL SHOTS

ONLINE COMMENTS

PROCESSING QC COMMENTS

Slight strum noise evident on outer cables only
 Some isolated swell bursts along entire line length approx. 25-45uBars in amplitude.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1904F1-117**
 Area: **Gippsland Basin, Bass Strait** Sequence: **117**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **1897-1912** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	18-Jun-2006	169	11:36	21:36	121	1997	1452	at	11:00
FPSP:	18-Jun-2006	169	11:36	21:36	121	1997	1452		
LPSP:	18-Jun-2006	169	14:24	0:24	1237	881	1455	Full volume arrays at	11:20
EOL LSP:	18-Jun-2006	169	14:24	0:24	1237	881	1455		
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-7.8	1.9
Water depth (m)	49	60
RMS noise @ 5 Hz LC (µB)	3.2	4
Weather	120°, 1.m/s, 1.0m	90°, 1m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1973
Stbd	1976	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.1	6.9-7.2
Str 2	6.7-7.1	6.9-7.4
Str 3	6.9-7.2	6.9-7.2
Str 4	6.9-7.1	6.8-7.2
Str 5	6.8-7.2	6.9-7.2
Str 6	6.9-7.1	6.8-7.4
Str 7	6.8-7.2	6.6-7.2
Str 8	6.9-7.3	6.8-7.3

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with Gun # 3's as spare

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295			305 (Phase)			
S3:	83,			290, 339 (Phase)	3		
S4:	106				127		
S5:	75				86, 88, 326		
S6:	120, 158				29,37,91,205,303		
S7:	89, 100, 202, 229, 285, 360		130		203,285		
S8:					318,340		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1904F1-117**Seq: **117**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1452		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1452		FSP @ 11:36 UTC
121	1997	1452		FPSP @ 11:36 UTC
469	1649	1452		EOT
470	1648	1453		SOT
558	1560			Azimuth thruster lowered
732	1386			Vessel 1220m West of Bream A
746	1372			Vane 900m West of Bream A
840	1278	1453		EOT
841	1277	1454		SOT
997	1121			TB1 820m West of Bream A
1211	907	1454		EOT
1212	906	1455		SOT
1237	881	1455		LPSP @ 14:24 UTC
1237	881	1455		LSP @ 14:24 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1455		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1904F1-117**Seq: **117**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1904F1-117**
 Area: **Gippsland Basin, Bass Strait** Sequence: **117** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **1897-1912** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: nh df mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	18-Jun-2006	169	11:36	21:36	1997	-7.8	-79	120°, 1.m/s, 1.0m
FPSP:	18-Jun-2006	169	11:36	21:36	1997			
LPSP:	18-Jun-2006	169	14:24	0:24	881			
EOL LSP:	18-Jun-2006	169	14:24	0:24	881	1.9	-40	90°, 1m/s, 1.5m
	UTC offset:			10.0				

Separations (m)

	SOL	EOL
Streamer overall: Str 1-8	524	526
Per streamer: Str 1-2	75	75
Str 2-3	76	76
Str 3-4	74	74
Str 4-5	72	74
Str 5-6	79	77
Str 6-7	73	73
Str 7-8	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PI-PC	8.7	8.5
	PC-PO	8.6	8.7
	SI-SC	7.7	8.0
	SC-SO	7.4	7.1

P2/94 filename: G06A-1904F1-117.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_10
 Backup tape: Tape 4 Seq 4

Observations disabled etc.

Acoustics: G1A2 S2A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	11:36	21:36	SOL, FSP
1997	11:36	21:36	FPSP
1560	12:45	22:45	Azimuth thruster lowered
1386	13:12	23:12	Vessel 1220m west of Bream A
1372	13:14	23:14	Vane 900m west of Bream A
1121	13:50	23:50	TB 1 west of Bream A CPA 820m
881	14:24	0:24	LPSP
881	14:24	0:24	EOL, LSP

Vessel Manager: Howie Grizaard Navigators: 00:00-12:00 Vera Quinlan/Sam Griffiths/Howard Hewison
 Chief Navigator: Jeremy Collins 12:00-00:00 Noel Harman/Darryl Fletcher/Mikhael Malofeev



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1904F1-117**
 Sequence: **117**
 Direction: **190.5°** Nav. Def: **10**
 CMP line range: **1897-1912** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **N.S.**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	18-Jun-2006	169	11:36	21:36	121	1997	1452
FPSP:	18-Jun-2006	169	11:36	21:36	121	1997	1452
LPSP:	18-Jun-2006	169	14:24	00:24	1237	881	1455
EOL LSP	18-Jun-2006	169	14:24	00:24	1237	881	1455

GENERAL INFORMATION

	SOL	EOL
FA (°)	-7.8	1.9
Water depth (m)	49	60
RMS Noise (µB)	3.2	4
Weather	120°, 1.m/s, 1.0m	90°, 1m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1973
Stbd	1976	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:48
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.3	3.3	2.2
HDOP	0.8	2.1	1.3
V1G2 PDOP	1.5	3.3	2.4
HDOP	0.8	2.2	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.3	2.1	4.06
Speed through water (m/s)	1.9	2.4	2.2	4.25
Feather angle (°)	-7.7	2.6	-4.1	
Gyro (P) (°)	179.4	204.2	192.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.5	529.4	524.8
Str 1-2	73.2	76.7	75.1
Str 2-3	73.6	76.9	75.3
Str 3-4	71.6	76.6	74.4
Str 4-5	69.8	76.7	73.1
Str 5-6	74.8	80.3	77.5
Str 6-7	71.1	74.8	73.2
Str 7-8	73.9	77.9	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.2	40.8	37.4
Port Subarray	7.9	9.2	8.5
Outer-Centre	7.8	9.2	8.4
Centre-Inner	7.4	8.6	8.0
Stbd Subarray	6.9	7.8	7.2
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305 (Phase)
Str 3	83,			290, 339
Str 4	106			
Str 5	75			
Str 6	120, 158			
Str 7	89, 100, 202, 229, 285,		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	127	
Str 5	86, 88, 326	
Str 6	29, 37, 91, 205, 303	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gunstrings operating with Gun # 3's as spare

PROCESSING QC COMMENTS

Mild swell noise, occasional moderate burst. Affects < 5% traces.
 Strum and head wave energy apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1920P1-119**
 Area: **Gippsland Basin, Bass Strait** Sequence: **119**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **1913-1928** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	18-Jun-2006	169	22:01	8:01	121	1997	1460	21:15 UTC
FPSP:	18-Jun-2006	169	22:01	8:01	121	1997	1460	
LPSP:	19-Jun-2006	170	00:51	10:51	1237	881	1463	Full volume arrays at 21:35 UTC
EOL LSP:	19-Jun-2006	170	00:51	10:51	1237	881	1463	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-4.5	-3.7
Water depth (m)	50	57
RMS noise @ 5 Hz LC (µB)	2.9	3.2
Weather	Calm, 1.5m	020°, 3m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1970	1972
Stbd	1971	1973

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.1	6.8-7.2
Str 2	6.7-7.5	6.7-7.1
Str 3	6.7-7.2	6.9-7.1
Str 4	6.8-7.4	6.9-7.0
Str 5	6.8-7.1	6.8-7.1
Str 6	6.7-7.3	6.9-7.2
Str 7	6.8-7.1	6.9-7.2
Str 8	6.9-7.2	6.8-7.3

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with Gun # 3's as spare

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295			305 (Phase)			
S3:	83,			290, 339 (Phase)	112		
S4:	106				127		
S5:	75				86, 88, 326, 352		
S6:	120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 202, 229, 285, 360		130		188		
S8:					137, 233		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1920P1-119**Seq: **119**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1460		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1460		FSP @ 22:01 UTC
121	1997	1460		FPSP @ 22:01 UTC
469	1649	1460		EOT
470	1648	1461		SOT
840	1278	1461		EOT
841	1277	1462		SOT
907	1211			LSP of day
1211	907	1462		EOT
1212	906	1463		SOT
1237	881	1463		LPSP @ 00:51 UTC
1237	881	1463		LSP @ 00:51 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1463		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1920P1-119**Seq: **119**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1920P1-119**

Area: **Gippsland Basin, Bass Strait** Sequence: **119** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **10**

Job ID: **20323** CMP line range: **1913-1928** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: vq sg hh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	18-Jun-2006	169	22:01	8:01	1997	-4.5	155	Calm, 1.5m
FPSP:	18-Jun-2006	169	22:01	8:01	1997			
LPSP:	19-Jun-2006	170	00:51	10:51	881			
EOL LSP:	19-Jun-2006	170	00:51	10:51	881	-3.7	19	020°, 3m/s, 2.0m
			UTC offset:	10.0				

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	526	527			36.6	36.3
Per streamer:	Str 1-2	76	76	Sub arrays:	PI-PC	8.3	8.6
	Str 2-3	75	76		PC-PO	8.5	8.8
	Str 3-4	75	76		SI-SC	8.3	8.0
	Str 4-5	71	73		SC-SO	7.3	7.2
	Str 5-6	79	79				
	Str 6-7	73	73				
	Str 7-8	76	77				

P2/94 filename: **G06A-1920P1-119.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_10**

Backup tape: **Tape 1 Seq 1**

Observations disabled etc.

Acoustics:
RGPS:
Compasses:
Other:

SP	UTC	Local Time	Comments
1997	22:01	8:01	SOL, FSP
1997	22:01	8:01	FPSP
1406	23:30	9:30	Vessel passing Bream A (CPA 1461m)
1373	23:35	9:35	Vane passing Bream A (CPA 1143m)
1199	0:01	10:01	Vessel Speed dropping due to problems with the Port engine
1121	0:09	10:09	Vessel Speed back to normal
1121	0:14	10:14	Tailbouy passing Bream A (CPA 751m)
881	0:51	10:51	LPSP
881	0:51	10:51	EOL, LSP

Vessel Manager: **Howie Grizaard** Navigators: **00:00-12:00** **Vera Quinlan/Sam Griffiths/Howard Hewison**

Chief Navigator: **Jeremy Collins** **12:00-00:00** **Noel Harman/Darryl Fletcher/Mikhael Malofeev**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1920P1-119**
 Sequence: **119**
 Direction: **190.5°** Nav. Def: **10**
 CMP line range: **1913-1928** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	18-Jun-2006	169	22:01	08:01	121	1997	1460
FPSP:	18-Jun-2006	169	22:01	08:01	121	1997	1460
LPSP:	19-Jun-2006	170	00:51	10:51	1237	881	1463
EOL LSP	19-Jun-2006	170	00:51	10:51	1237	881	1463

GENERAL INFORMATION

	SOL	EOL
FA (°)	-4.5	-3.7
Water depth (m)	50	57
RMS Noise (µB)	2.9	3.2
Weather	Calm, 1.5m	020°, 3m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1970	1972
Stbd	1971	1973

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:50
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.1	2.2
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.6	3.1	2.3
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.8	2.2	2.1	4.00
Speed through water (m/s)	1.9	2.3	2.2	4.27
Feather angle (°)	-8.2	-3.1	-6.0	
Gyro (P) (°)	185.7	203.5	195.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.5	527.0	523.4
Str 1-2	73.4	76.6	75.1
Str 2-3	74.0	77.1	75.3
Str 3-4	72.3	76.5	74.4
Str 4-5	70.0	75.2	72.1
Str 5-6	75.2	79.5	77.6
Str 6-7	71.0	74.5	72.9
Str 7-8	74.1	77.4	76.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.9	39.7	36.8
Port Subarray	8.0	9.0	8.4
Stbd Subarray	7.8	8.8	8.2
Centre-Inner	7.4	8.6	8.1
Outer-Centre	7.0	7.5	7.2

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305 (Phase)
Str 3	83,			290, 339
Str 4	106			
Str 5	75			
Str 6	120, 158			
Str 7	89, 100, 202, 229, 285,		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	326	
Str 6	91, 205, 303	
Str 7	203	
Str 8	152, 318	

SHOT / TRACE EDITS:**SPs:****TOTAL SHOTS**

Timing (delta) errors >1.0ms:		0
Autofires / Misfires:		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gunstrings operating with Gun # 3's as spare

PROCESSING QC COMMENTS

Occasional bursts of mild swell noise, verging on negligible.
 Strum and head wave energy apparent.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1936P1-121**

Area: **Gippsland Basin, Bass Strait** Sequence: **121**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **10**

Job ID: **20323** CMP line range: **1929-1944** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC, RF, AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	19-Jun-2006	170	08:37	18:37	121	1997	1469	08:00	UTC
FPSP:	19-Jun-2006	170	08:37	18:37	121	1997	1469		
LPSP:	19-Jun-2006	170	11:17	21:17	1237	881	1472	Full volume arrays at	08:20 UTC
EOL LSP:	19-Jun-2006	170	11:17	21:17	1237	881	1472		
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	3.7	-3.0
Water depth (m)	50	57
RMS noise @ 5 Hz LC (µB)	4	3.5
Weather	300°, 2m/s, 1.5m	270°, 3m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1978	1970
Stbd	1982	1973

Streamer Depths (m)

	SOL	EOL
Str 1	7.0-7.3	6.8-7.2
Str 2	6.9-7.3	6.9-7.3
Str 3	6.9-7.2	6.8-7.2
Str 4	6.9-7.4	6.9-7.2
Str 5	6.9-7.3	6.8-7.2
Str 6	6.8-7.4	6.9-7.1
Str 7	6.9-7.3	6.9-7.2
Str 8	6.9-7.2	6.7-7.3

SOL/EOL Comments**Overall Line Observations**

All gunstrings operating with Gun #3 as spare

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	312			305 (Phase)			
S3:	83, 290		339		3		
S4:	43, 106, 110				127		
S5:	75				86, 88, 326, 358		
S6:	49, 120, 158, 161				29,37,91,205		
S7:	89, 100, 202, 229, 285		130, 360		203,285		
S8:					318,340		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1936P1-121

Seq:

121

Dir:

190.5°

FILE	SP	TAPE	BAD	
99-110	/	1469		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1469		FSP @ 08:37 UTC
121	1997	1469		FPSP @ 08:37 UTC
469	1649	1469		EOT
470	1648	1470		SOT
840	1278	1470		EOT
841	1277	1471		SOT
1211	907	1471		EOT
1212	906	1472		SOT
1237	881	1472		LPSP @ 11:17 UTC
1237	881	1472		LSP @ 11:17 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1472		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1936P1-121**

Seq: **121**

Dir: **190.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1936P1-121**
 Sequence: **121**
 Direction: **190.5°** Nav. Def: **10**
 CMP line range: **1929-1944** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	19-Jun-2006	170	08:37	18:37	121	1997	1469
FPSP:	19-Jun-2006	170	08:37	18:37	121	1997	1469
LPSP:	19-Jun-2006	170	11:17	21:17	1237	881	1472
EOL LSP	19-Jun-2006	170	11:17	21:17	1237	881	1472

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	3.7	-3
Water depth (m)	50	57
RMS Noise (µB)	4	3.5
Weather	300°, 2m/s, 1.5m	270°, 3m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1978	1970
Stbd	1982	1973

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:40
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.2	2.2	1.7
HDOP	0.8	1.1	1.0
V1G2 PDOP	1.2	2.2	1.8
HDOP	0.8	1.1	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.4	2.2	4.24
Speed through water (m/s)	2.1	2.3	2.2	4.33
Feather angle (°)	-9.1	3.8	-5.7	
Gyro (P) (°)	190.0	202.8	197.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.6	526.8	521.4
Str 1-2	73.7	77.5	75.1
Str 2-3	73.8	76.2	75.2
Str 3-4	71.5	76.3	74.3
Str 4-5	68.1	73.7	71.0
Str 5-6	75.3	79.6	77.4
Str 6-7	70.9	74.4	72.5
Str 7-8	74.4	77.3	75.8

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.1	39.1	36.3
Port Subarray			
Outer-Centre	7.7	8.8	8.3
Centre-Inner	7.4	8.6	8.1
Stbd Subarray			
Centre-Inner	7.5	8.5	7.9
Outer-Centre	7.0	7.7	7.2

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290		339	
Str 4	43, 106, 110			
Str 5	75			
Str 6	49, 120, 158, 161			
Str 7	89, 100, 202, 229, 285		130, 360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109, 340	
Str 2	289	
Str 3		
Str 4	127	
Str 5	87, 326, 358	
Str 6	91, 205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS: SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gunstrings operating with Gun #3 as spare

PROCESSING QC COMMENTS

Shots free from any discernable swell noise at the every 200th shot interval QC samples
 Strum and head wave energy apparent due to good weather and clean data quality.
 Diffraction event observed midway along line.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1952P1-123**
 Area: **Gippsland Basin, Bass Strait** Sequence: **123**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **1945-1960** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	19-Jun-2006	170	18:38	4:38	121	1997	1477	at	18:00
FPSP:	19-Jun-2006	170	18:38	4:38	121	1997	1477		
LPSP:	19-Jun-2006	170	20:59	6:59	1237	881	1480	Full volume arrays at	18:20
EOL LSP:	19-Jun-2006	170	20:59	6:59	1237	881	1480		
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	8.9	-0.2
Water depth (m)	51	58
RMS noise @ 5 Hz LC (µB)	3.2	3.5
Weather	320°, 3m/s, 1.0m	320°, 3m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1971	1975
Stbd	1970	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.2	7.0-7.4
Str 2	6.8-7.3	6.9-7.2
Str 3	6.8-7.1	6.6-7.1
Str 4	6.9-7.1	6.9-7.3
Str 5	6.9-7.2	6.9-7.1
Str 6	6.8-7.1	6.9-7.3
Str 7	6.8-7.2	6.8-7.3
Str 8	6.9-7.0	6.7-7.3

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3 as spares.
 Gun depth indicator on S-27 occasionally reading deep, max 6.6m

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	312			305 (Phase)			
S3:	83, 290		339				
S4:	43, 106, 110				127		
S5:	75				88		
S6:	49, 120, 158, 161				29,37, 205		
S7:	89, 100, 202, 229, 285		130, 360		164, 203, 285		
S8:					318,340		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-1952P1-123**

Seq: **123**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1477		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1477		FSP @ 18:38 UTC
121	1997	1477		FPSP @ 18:38 UTC
469	1649	1477		EOT
470	1648	1478		SOT
720	1398		Bad	Misfire: S-4
840	1278	1478		EOT
841	1277	1479		SOT
1211	907	1479		EOT
1212	906	1480		SOT
1237	881	1480		LPSP @ 20:59 UTC
1237	881	1480		LSP @ 20:59 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1480		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1952P1-123**Seq: **123**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1952P1-123**
 Area: **Gippsland Basin, Bass Strait** Sequence: **123** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **1945-1960** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: vq , vt , at , hh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	19-Jun-2006	170	18:38	4:38	1997	8.9	-645.3	320°, 3m/s, 1.0m
FPSP:	19-Jun-2006	170	18:38	4:38	1997			
LPSP:	19-Jun-2006	170	20:59	6:59	881			
EOL LSP:	19-Jun-2006	170	20:59	6:59	881	-0.2	-382.6	320°, 3m/s, 1.0m
	UTC offset:			10.0				

Separations (m)

	SOL	EOL
Streamer overall:	520	524
Per streamer:		
Str 1-8	76	75
Str 2-3	74	76
Str 3-4	74	74
Str 4-5	72	72
Str 5-6	76	79
Str 6-7	74	74
Str 7-8	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
PO-PC		8.5	8.4
PC-PI		8.8	8.5
SI-SC		7.5	8.0
SC-SO		7.2	7.1

P2/94 filename: G06A-1952P1-123.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_10
 Backup tape: Tape 1 Seq 5

Observations disabled etc.

Acoustics: G1A2 S2A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	18:38	4:38	SOL, FSP
1997	18:38	4:38	FPSP
1546			Veripos 2 loss of positioning - Positioning on Veripos 1 Ultra solution
1543			Veripos 2 Back in
881	20:59	6:59	LPSP
881	20:59	6:59	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1952P1-123**
 Sequence: **123**
 Direction: **190.5°** Nav. Def: **10**
 CMP line range: **1945-1960** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	19-Jun-2006	170	18:38	04:38	121	1997	1477
FPSP:	19-Jun-2006	170	18:38	04:38	121	1997	1477
LPSP:	19-Jun-2006	170	20:59	06:59	1237	881	1480
EOL LSP	19-Jun-2006	170	20:59	06:59	1237	881	1480

GENERAL INFORMATION

	SOL	EOL
FA (°)	8.9	-0.2
Water depth (m)	51	58
RMS Noise (µB)	3.2	3.5
Weather	320°, 3m/s, 1.0m	320°, 3m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1971	1975
Stbd	1970	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:21
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.7	2.1
HDOP	0.9	1.3	1.1
V1G2 PDOP	1.7	2.8	2.2
HDOP	0.9	2.0	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.5	4.83
Speed through water (m/s)	2.1	2.3	2.2	4.21
Feather angle (°)	-0.6	9.0	2.9	
Gyro (P) (°)	176.6	197.1	188.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.1	527.9	523.9
Str 1-2	74.0	77.0	75.6
Str 2-3	72.6	76.2	74.9
Str 3-4	72.4	76.5	74.4
Str 4-5	69.4	74.4	72.2
Str 5-6	75.2	79.2	77.4
Str 6-7	72.2	74.5	73.4
Str 7-8	74.0	77.1	76.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.2	39.0	36.5
Port Subarray	7.7	9.1	8.4
Outer-Centre	8.0	9.1	8.5
Centre-Inner	7.4	8.3	7.8
Stbd Subarray	6.9	7.7	7.3
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290		339	
Str 4	43, 106, 110			
Str 5	75			
Str 6	49, 120, 158, 161			
Str 7	89, 100, 202, 229, 285		130, 360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	88, 326, 358	
Str 6	91, 205	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :	1398	1
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

TOTAL SHOTS

ONLINE COMMENTS

All gunstrings operating with gun # 3 as spares.
 Gun depth indicator on S-27 occasionally reading deep, max 6.6m

PROCESSING QC COMMENTS

Shots free from any discernable swell noise at the every 200th shot interval QC samples
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1952F1-125**
 Area: **Gippsland Basin, Bass Strait** Sequence: **125**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **1945-1960** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/JC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	20-Jun-2006	171	04:01	14:01	121	1997	1486	3:30	
FPSP:	20-Jun-2006	171	04:01	14:01	121	1997	1486		
LPSP:	20-Jun-2006	171	06:30	16:30	1237	881	1489		
EOL LSP:	20-Jun-2006	171	06:30	16:30	1237	881	1489	3:50	
				UTC Offset:	10.0				

Full volume arrays at 3:50 UTC

	SOL	EOL
Feather angle (°)	3.2	8.1
Water depth (m)	50	58
RMS noise @ 5 Hz LC (µB)	3.4	3.5
Weather	215°, 2m/s, 1.0m	light airs, 0.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1967	1971
Stbd	1975	1973

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.6-7.3
Str 2	6.9-7.2	7.0-7.2
Str 3	6.9-7.3	6.9-7.1
Str 4	6.9-7.3	6.9-7.2
Str 5	6.9-7.2	6.9-7.2
Str 6	6.9-7.2	6.9-7.2
Str 7	6.9-7.3	6.9-7.1
Str 8	6.9-7.2	6.6-7.2

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3 as spares.
 Depth indicator on gun S-27 occasionally reading deep, max 6.6m

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	312			305 (Phase)			
S3:	83		339	290 (Phase)	3		
S4:	21,43, 106, 110				127		
S5:	75				88, 326		
S6:	49,116, 120, 158				29,37,91,205,303		
S7:	89, 100, 202, 229, 285		130, 360				
S8:							

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1952F1-125**Seq: **125**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1486		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1486		FSP @ 04:01 UTC
121	1997	1486		FPSP @ 04:01 UTC
456	1662			S7C1-4 set to 6.5m. S8C1-4 set to 7.5m d/t inadequate seperation between tailbouys
469	1649	1486		EOT
470	1648	1487		SOT
474	1644	1278		S7 retrieved 10m
553	1585			S7 back @ mark, S7 & S8 birds back @ depth
840	1278	1487		EOT
841	1277	1488		SOT
1211	907	1488		EOT
1212	906	1489		SOT
1237	881	1489		LPSP @ 06:30 UTC
1237	881	1489		LSP @ 06:30 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1489		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1952F1-125**Seq: **125**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1952F1-125**
 Area: **Gippsland Basin, Bass Strait** Sequence: **125** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **1945-1960** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final
 Initials: df, tt, mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	20-Jun-2006	171	04:01	14:01	1997	3.2	-350	215°, 2m/s, 1.0m
FPSP:	20-Jun-2006	171	04:01	14:01	1997			
LPSP:	20-Jun-2006	171	06:30	16:30	881			
EOL LSP:	20-Jun-2006	171	06:30	16:30	881	8.1	-444	light airs, 0.5m
UTC offset:				10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL	
Streamer overall:	Str 1-8	524	524		36.8	37.2	
Per streamer:	Str 1-2	75	76	Sub arrays:	PO-PC	8.6	8.0
	Str 2-3	76	76		PC-PI	8.3	8.3
	Str 3-4	74	74		SI-SC	7.8	7.9
	Str 4-5	71	71		SC-SO	7.2	7.0
	Str 5-6	79	78				
	Str 6-7	74	74				
	Str 7-8	76	76				

P2/94 filename: G06A-1952F1-125.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_10
 Backup tape: Tape 2 Seq 2

Observations disabled etc.

Acoustics: G1A2, S2A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	4:01	14:01	SOL, FSP
1997	4:01	14:01	FPSP
1662	4:48	14:48	Adjustig last 4 birds on S7 to 6.5m & S8 to 7.5m
1644	4:50	14:50	Coming in 10 mtrs on S7 d/t seps on 7&8
1585	4:58	14:58	S7 back at marks
881	6:30	16:30	LPSP
881	6:30	16:30	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator: Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1952F1-125**
 Sequence: **125**
 Direction: **190.5°** Nav. Def: **10**
 CMP line range: **1945-1960** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	20-Jun-2006	171	04:01	14:01	121	1997	1486
FPSP:	20-Jun-2006	171	04:01	14:01	121	1997	1486
LPSP:	20-Jun-2006	171	06:30	16:30	1237	881	1489
EOL LSP	20-Jun-2006	171	06:30	16:30	1237	881	1489

GENERAL INFORMATION

	SOL	EOL
FA (°)	3.2	8.1
Water depth (m)	50	58
RMS Noise (µB)	3.4	3.5
Weather	215°, 2m/s, 1.0m	light airs, 0.5m
Source volume (cu in):	Port 4450	4450
Stbd	4450	4450
Source pressure (psi):	Port 1967	1971
Stbd	1975	1973

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:29
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	6.0	2.2
HDOP	0.7	2.0	1.2
V1G2 PDOP	1.5	16.9	3.0
HDOP	0.8	3.9	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.53
Speed through water (m/s)	2.1	2.3	2.2	4.34
Feather angle (°)	2.7	8.7	4.8	
Gyro (P) (°)	176.3	191.4	183.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	512.0	528.5	520.1
Str 1-2	73.5	76.8	75.2
Str 2-3	71.7	75.5	74.0
Str 3-4	71.4	76.8	74.0
Str 4-5	68.7	74.5	71.0
Str 5-6	75.3	79.4	77.4
Str 6-7	71.4	74.3	73.2
Str 7-8	73.6	77.4	75.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.3	40.0	37.3
Port-Subarray	7.5	9.0	8.3
Outer-Centre	7.8	9.1	8.4
Stbd Subarray	7.4	8.4	7.9
Centre-Inner	6.8	7.4	7.1
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	21,43, 106, 110			
Str 5	75			
Str 6	49,116, 120, 158			
Str 7	89, 100, 202, 229, 285		130, 360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2	289	
Str 3		
Str 4	127	
Str 5	326, 352	
Str 6	91, 205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.08

ONLINE COMMENTS

All gunstrings operating with gun # 3 as spares.
 Depth indicator on gun S-27 occasionally reading deep, max 6.6m

PROCESSING QC COMMENTS

Shots free from any discernable swell noise at the every 200th shot interval QC samples
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1952F2-184**
 Area: **Gippsland Basin, Bass Strait** Sequence: **184**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **1945-1960** Line type: **Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/JC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	3-Jul-2006	184	06:18	16:18	121	1997	1710	5:45	
FPSP:	3-Jul-2006	184	06:18	16:18	121	1997	1710		
LPSP:	3-Jul-2006	184	06:57	16:57	414	1704	1710		
EOL LSP:	3-Jul-2006	184	06:57	16:57	414	1704	1710	6:05	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	7.0	2.5
Water depth (m)	50	50
RMS noise @ 5 Hz LC (µB)	3.7	3.6
Weather	200°, 8m/s, 1.0m	200°, 8m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1978	1980
Stbd	1985	1984

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.4	6.9-7.2
Str 2	6.9-7.3	7.0-7.2
Str 3	6.8-7.4	6.9-7.2
Str 4	6.9-7.4	6.8-7.2
Str 5	6.8-7.4	6.9-7.1
Str 6	6.8-7.4	6.7-7.2
Str 7	6.9-7.3	6.8-7.2
Str 8	6.9-7.4	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.
 Zone 3 and zone 4 Infill

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	305,305, 345		
S3:	290			339 (Phase)	3		
S4:	106, 110, 148, 177				127		
S5:	75				88,326		
S6:	49,116,158,161,307				29,37,91,205		
S7:	89,100,166, 202, 229, 269, 285		360		164		
S8:	198						

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1710		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1710		FSP @ 06:18 UTC
121	1997	1710		FPSP @ 06:18 UTC
414	1704	1710		LPSP @ 06:57 UTC
414	1704	1710		LSP @ 06:57 UTC
415-422	1703-1696			NAV PROCESSING SHOTS
423-432	/	1710		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1952F2-184**Seq: **184**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1952F2-184**
 Sequence: **184**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **1945-1960** Line type: **Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	3-Jul-2006	184	06:18	16:18	121	1997	1710
FPSP:	3-Jul-2006	184	06:18	16:18	121	1997	1710
LPSP:	3-Jul-2006	184	06:57	16:57	414	1704	1710
EOL LSP	3-Jul-2006	184	06:57	16:57	414	1704	1710

GENERAL INFORMATION

	SOL	EOL
FA (°)	7	2.5
Water depth (m)	50	50
RMS Noise (µB)	3.7	3.6
Weather	200°, 8m/s, 1.0m	200°, 8m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1978	1980
Stbd	1985	1984

TOTALS INFORMATION

Recorded SPs	294
Recorded km	5.513
Production time (hh:mm)	00:39
Production files	294
Production SPs	294
Production km	5.513
Production CMP km	88.200

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	2.4	1.9
HDOP	0.8	1.3	1.0
V1G2 PDOP	1.7	2.4	2.1
HDOP	0.8	1.3	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.4	2.3	4.52
Speed through water (m/s)	2.1	2.3	2.2	4.25
Feather angle (°)	2.5	7.1	4.2	
Gyro (P) (°)	178.5	192.0	186.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.3	528.1	524.9
Str 1-2	73.9	76.3	75.4
Str 2-3	73.7	76.1	75.4
Str 3-4	72.6	76.7	75.1
Str 4-5	69.7	74.7	72.9
Str 5-6	74.6	78.0	76.5
Str 6-7	72.6	74.2	73.5
Str 7-8	75.0	76.8	76.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.7	40.8	36.6
Port-Subarray	7.8	8.5	8.2
Outer-Centre	7.8	8.5	8.2
Centre-Inner	8.2	9.1	8.7
Stbd Subarray	7.3	8.4	7.8
Centre-Inner	7.3	8.4	7.8
Outer-Centre	7.7	8.3	8.0

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49,116,158,161,307			
Str 7	89,100,166, 202, 229,		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	88, 326, 352	
Str 6	91, 205	
Str 7	164	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.16

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.
 Zone 3 and zone 4 Infill

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-1968P1-127**
 Area: **Gippsland Basin, Bass Strait** Sequence: **127**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **1961-1976** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC, RA, LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	20-Jun-2006	171	13:44	23:44	121	1997	1494	at 13:00	UTC
FPSP:	20-Jun-2006	171	13:44	23:44	121	1997	1494		
LPSP:	20-Jun-2006	171	16:31	2:31	1237	881	1497	Full volume arrays at 13:20	UTC
EOL LSP:	20-Jun-2006	171	16:31	2:31	1237	881	1497		
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-6.5	5.4
Water depth (m)	50	58
RMS noise @ 5 Hz LC (µB)	3.5	3.1
Weather	090°, 5m/s, 1.0m	090°, 7m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1975
Stbd	1977	1975

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.2	6.8-7.3
Str 2	6.9-7.3	6.9-7.2
Str 3	6.8-7.2	6.9-7.3
Str 4	6.9-7.2	6.8-7.2
Str 5	6.9-7.3	6.8-7.1
Str 6	6.8-7.3	6.9-7.2
Str 7	6.9-7.2	6.9-7.3
Str 8	6.9-7.3	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3 as spares.
 Depth indicator on gun S-27 occasionally reading deep, max 6.6m

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	312			305 (Phase)			
S3:	83		339	290 (Phase)	3		
S4:	21,43, 106, 110				127		
S5:	75				86, 88, 326		
S6:	49,116, 120, 158				29,37,91,205,303		
S7:	89, 100, 202, 229, 285		130, 360		203,285		
S8:					318,340		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1494		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1494		FSP @ 13:44 UTC
121	1997	1494		FPSP @ 13:44 UTC
469	1649	1494		EOT
470	1648	1495		SOT
840	1278	1495		EOT
841	1277	1496		SOT
1211	907	1496		EOT
1212	906	1497		SOT
1237	881	1497		LPSP @ 16:31 UTC
1237	881	1497		LSP @ 16:31 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1497		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1968P1-127**Seq: **127**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1968P1-127**
 Sequence: **127**
 Direction: **190.5°** Nav. Def: **10**
 CMP line range: **1961-1976** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	20-Jun-2006	171	13:44	23:44	121	1997	1494
FPSP:	20-Jun-2006	171	13:44	23:44	121	1997	1494
LPSP:	20-Jun-2006	171	16:31	02:31	1237	881	1497
EOL LSP	20-Jun-2006	171	16:31	02:31	1237	881	1497

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.5	5.4
Water depth (m)	50	58
RMS Noise (µB)	3.5	3.1
Weather	090°, 5m/s, 1.0m	090°, 7m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1975
Stbd	1977	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:47
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	3.4	2.3
HDOP	0.9	2.2	1.3
V1G2 PDOP	1.7	3.4	2.5
HDOP	1.0	2.3	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.3	2.1	4.09
Speed through water (m/s)	2.0	2.3	2.2	4.20
Feather angle (°)	-6.2	6.1	-1.1	
Gyro (P) (°)	175.3	196.3	184.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.5	528.7	523.3
Str 1-2	73.1	76.0	74.8
Str 2-3	73.5	76.5	75.5
Str 3-4	72.8	76.3	74.7
Str 4-5	70.2	75.4	72.4
Str 5-6	74.3	78.8	76.5
Str 6-7	72.1	74.3	73.3
Str 7-8	74.5	77.3	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.8	39.7	37.5
Port-Subarray	7.7	8.6	8.1
Stbd Subarray	7.2	8.5	7.8
Centre-Inner	7.5	8.9	8.2
Outer-Centre	7.0	8.1	7.5

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	21,43, 106, 110			
Str 5	75			
Str 6	49,116, 120, 158			
Str 7	89, 100, 202, 229, 285		130, 360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2	289,	
Str 3		
Str 4	127,	
Str 5	326,352,	
Str 6	91,205,303,	
Str 7	203,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.04

ONLINE COMMENTS

All gunstrings operating with gun # 3 as spares.
 Depth indicator on gun S-27 occasionally reading deep, max 6.6m

PROCESSING QC COMMENTS

Shots free from any discernable swell noise
 Strum and head wave energy apparent due to good weather and clean data quality.
 Some slight out of plane diffractions towards EOL

Client: **Esso Australia Pty. Ltd.**Line Name: **G06A-1984P1-130**Area: **Gippsland Basin, Bass Strait**Sequence: **130**Prospect: **2006 Greater Bream 3D**Direction: **190.5°**Nav Def: **10**Job ID: **20323**CMP line range: **1977-1992**Line type: **Prime**Type: **3D**No. CMPs: **16**Status: **Complete**Initials: NC/RA/LT
Log Status: Final**SOL / EOL Information**

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	21-Jun-2006	172	17:41	03:41	121	1997	1503	at	17:10
FPSP:	21-Jun-2006	172	17:41	03:41	121	1997	1503		
LPSP:	21-Jun-2006	172	20:00	06:00	1233	881	1506	Full volume arrays at	17:30
EOL LSP:	21-Jun-2006	172	20:00	06:00	1233	881	1506		UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	7.2	12.0
Water depth (m)	50	58
RMS noise @ 5 Hz LC (µB)	5.7	5.1
Weather	070°, 14m/s, 2.0m	070°, 14m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1979	1975
Stbd	1981	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	7.1-7.3
Str 2	6.9-7.2	6.9-7.4
Str 3	6.8-7.2	6.8-7.3
Str 4	6.9-7.1	6.9-7.4
Str 5	6.8-7.3	6.8-7.2
Str 6	6.9-7.1	6.9-7.2
Str 7	6.9-7.3	6.8-7.4
Str 8	6.8-7.2	6.7-7.3

SOL/EOL Comments**Overall Line Observations**

All gunstrings operating with gun # 4 as spares.
Mild swell noise visible on RMS Display for all streamers
Guns operating at fluctuating depth d/t Wx

Birds bad/poll disabled: Birds deep/shallow: **Status of Streamer Traces:**

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340	133	
S2:	295, 312			305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	21, 106				127	178	
S5:	75				86, 88, 326		
S6:	49, 116, 158				29,37,91,205,303		
S7:	100, 202, 229, 285		360		203,285		
S8:					318,340		

Vessel Manager: Morgan McNelly

Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar

Operations Supervisor: Glenn Cassim

12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie

Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-1984P1-130

Seq:

130

Dir:

190.5°

FILE	SP	TAPE	BAD	
99-110	/	1503		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1503		FSP @ 17:41 UTC
121	1997	1503		FPSP @ 17:41 UTC
285	1833			Vessel moving stbd for coverage. Some bird depths occasionally deep, max 8.1m
318	1800			Vessel VC normal. All bird depths at 7m
378	1740		Bad	Delta Error: S-1: 1.1
469	1649	1503		EOT
470	1648	1504		SOT
840	1278	1504		EOT
841	1277	1505		SOT
	956		Missed	Missed Shotpoint: SPs 955 and 957 Not Concurrent d/t vessel speed
	936		Missed	Missed Shotpoint: SPs 935 and 937 Not Concurrent d/t vessel speed
	932		Missed	Missed Shotpoint: SPs 935 and 937 Not Concurrent d/t vessel speed
	930		Missed	Missed Shotpoint: SPs 929 and 931 Not Concurrent d/t vessel speed
1211	903	1505		EOT
1212	902	1506		SOT
1233	881	1506		LPSP @ 20:00 UTC
1233	881	1506		LSP @ 20:00 UTC
1234-1238	880-876			NAV PROCESSING SHOTS
1239-1248	/	1506		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-1984P1-130**Seq: **130**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms

Comments:

Hydrophone sensitivity 20 μ volts / μ bar
Recording polarity: Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m

Flip-flop acquisition mode, even shotpoints from stbd source,
 odd shotpoints from port source

Positioning**Navigation System**

Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav

Positioning System

Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-1984P1-130**
 Area: **Gippsland Basin, Bass Strait** Sequence: **130** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **1977-1992** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Initials: vq at vt hh
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	21-Jun-2006	172	17:41	03:41	1997	7.2	-572.5	070°, 14m/s, 2.0m
FPSP:	21-Jun-2006	172	17:41	03:41	1997			
LPSP:	21-Jun-2006	172	20:00	06:00	881			
EOL LSP:	21-Jun-2006	172	20:00	06:00	881	12	-731.8	070°, 14m/s, 2.0m
			UTC offset:	10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	526	520					36.5	37.1
Per streamer:	Str 1-2	76	76			Sub arrays:	PO-PC	8.5	9.2
	Str 2-3	76	76				PC-PI	8.2	8.5
	Str 3-4	76	76				SI-SC	8.2	7.7
	Str 4-5	77	73				SC-SO	8.4	7.7
	Str 5-6	74	71						
	Str 6-7	73	73						
	Str 7-8	77	76						

P2/94 filename: G06A-1984P1-130.0.p294
LMN: 20323_Bream.LMN
SCN: 20323_Bream.SCN
RTCN: viking2.RTCN
BCN: 20323_Bream_Static.BCN
Acoustic file: 20323_10
Backup tape: Tape 3 Seq 2

Observations disabled etc.

Acoustics: S2A2 Ko'd
RGPS:
Compasses:
Other:

SP	UTC	Local Time	Comments
1997	17:41	03:41	SOL, FSP
1997	17:41	03:41	FPSP
			Vessel moving 0.5 - 0.6 kts to stbd from run
1748	18:12	04:12	Strong stbd feather on run in to line - zone 4 lack of coverage from SOL - Sp 1748
1800	18:05	04:05	Vessel VC normal
881	20:00	06:00	LPSP
881	20:00	06:00	EOL, LSP

Vessel Manager: Morgan McNelly
Chief Navigator : Rick Fleming
Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tai
 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-1984P1-130**
 Sequence: **130**
 Direction: **190.5°** Nav. Def: **10**
 CMP line range: **1977-1992** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	21-Jun-2006	172	17:41	03:41	121	1997	1503
FPSP:	21-Jun-2006	172	17:41	03:41	121	1997	1503
LPSP:	21-Jun-2006	172	20:00	06:00	1233	881	1506
EOL LSP:	21-Jun-2006	172	20:00	06:00	1233	881	1506

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	7.2	12
Water depth (m)	50	58
RMS Noise (µB)	5.7	5.1
Weather	070°, 14m/s, 2.0m	070°, 14m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1979	1975
Stbd	1981	1975

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:19
Production files	1113
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	4 / 0.36%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.5	2.3	2.0
HDOP	0.9	1.3	1.1
V1G2 PDOP	1.8	2.6	2.1
HDOP	1.0	2.0	1.2

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.7	2.5	4.88
Speed through water (m/s)	1.3	2.3	2.0	3.90
Feather angle (°)	6.5	11.9	8.8	
Gyro (P) (°)	155.7	178.6	165.7	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	496.6	525.1	512.7
Str 1-2	70.1	76.6	73.8
Str 2-3	70.7	76.4	73.3
Str 3-4	71.0	77.3	74.2
Str 4-5	69.2	79.4	74.0
Str 5-6	67.4	74.5	71.2
Str 6-7	70.4	74.0	72.3
Str 7-8	71.3	76.7	74.0

	Min	Max	Mean
Source-Source Port-Stbd	30.1	38.3	35.2
Port Subarray Outer-Centre	7.9	9.1	8.5
Centre-Inner	7.6	8.9	8.3
Stbd Subarray Centre-Inner	6.9	8.2	7.7
Outer-Centre	6.7	8.6	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	21, 106			
Str 5	75			
Str 6	49, 116,			
Str 7	100,		360	
Str 8				

	Noisy	Weak
Str 1	134,340,	
Str 2		
Str 3		
Str 4	127,	
Str 5	326, 352,	
Str 6	91, 205,	
Str 7	164, 203,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1740	1
Autofires / Misfires :		0
Missed SPs (NDR):	956, 936, 932, 930	4
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.52

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.
 Mild swell noise visible on RMS Display for all streamers
 Guns operating at fluctuating depth d/t Wx

PROCESSING QC COMMENTS

Mild swell noise on line effecting 5-10% of traces.
 Strum and head wave energy apparent.
 Some low amplitude <7ubars, high frequency noise with moveout throughtout line. Most likely screw noise from supply vessel along side Bream A platform.

Client: **Esso Australia Pty. Ltd.**Line Name: **G06A-2000P1-132**Area: **Gippsland Basin, Bass Strait**Sequence: **132**Prospect: **2006 Greater Bream 3D**Direction: **190.5°**Nav Def: **10**Job ID: **20323**CMP line range: **1993-2008**Line type: **Prime**Type: **3D**No. CMPs: **16**Status: **Complete**Initials: GC/JC/RF/AD
Log Status: Final**SOL / EOL Information**

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	22-Jun-2006	173	04:21	14:21	121	1997	1511	at	03:30
FPSP:	22-Jun-2006	173	04:21	14:21	121	1997	1511		
LPSP:	22-Jun-2006	173	06:54	16:54	1237	881	1514	Full volume arrays at	03:50
EOL LSP:	22-Jun-2006	173	06:54	16:54	1237	881	1514		UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-0.4	4.8
Water depth (m)	48	57.6
RMS noise @ 5 Hz LC (µB)	4.4	4.1
Weather	090°, 12m/s, 2.0m	080°, 9m/s, 3.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1970	1976
Stbd	1973	1979

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.9-7.4
Str 2	6.8-7.2	6.9-7.3
Str 3	6.7-7.1	6.8-7.2
Str 4	6.8-7.3	6.9-7.3
Str 5	6.9-7.3	6.9-7.3
Str 6	6.8-7.3	6.8-7.2
Str 7	6.9-7.3	6.9-7.3
Str 8	6.8-7.4	6.9-7.2

SOL/EOL Comments**Overall Line Observations**

All gunstrings operating with gun # 4 as spares.
Guns depth fluctuating d/t Wx.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340	134	
S2:	295, 312			305 (Phase)			
S3:			339	290 (Phase)			
S4:	21, 106				127		
S5:	75				86, 326		
S6:	49, 116, 158				29, 37, 91, 205, 303		
S7:	100, 202, 229, 285		360		166, 285		
S8:					137, 340		318

Vessel Manager: Morgan McNelly

Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar

Operations Supervisor: Glenn Cassim

12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie

Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2000P1-132**Seq: **132**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1511		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1511		FSP @ 04:21 UTC
121	1997	1511		FPSP @ 04:21 UTC
272	1846		Bad	Delta Error: S-1: 1.1
398	1720			S8C13-14 running shallow @ approx 6.0m
413	1705			S8C13-14 back @ depth
469	1649	1511		EOT
470	1648	1512		SOT
572	1546		Bad	Delta Error: S-1: 1.1
798	1320			S7C1-5 set to 6.5m & S8C1-5 set to 7.5m d/t inadequate tailbouy seperation
800	1318			S7 retrieve 10m d/t inadequate tailbouy seperation
840	1278	1512		EOT
841	1277	1513		SOT
856	1262			Birds S8C1-5 and S7C1-5 set back to 7.0m. STR 7 back on its mark
1064	1054		Bad	Delta Error: S-1: 1.1
1211	907	1513		EOT
1212	906	1514		SOT
1218	900		Bad	Delta Error: S-1: -1.2
1237	881	1514		LPSP @ 06:54 UTC
1237	881	1514		LSP @ 06:54 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1514		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2000P1-132**

Seq: **132**

Dir: **190.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2000P1-132**
 Area: **Gippsland Basin, Bass Strait** Sequence: **132** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **1993-2008** Line type: **Prime** Initials: tt, df,mm
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	22-Jun-2006	173	04:21	14:21	1997	-0.4	-574	090°, 12m/s, 2.0m
FPSP:	22-Jun-2006	173	04:21	14:21	1997			
LPSP:	22-Jun-2006	173	06:54	16:54	881			
EOL LSP:	22-Jun-2006	173	06:54	16:54	881	4.8	-589	080°, 9m/s, 3.0m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	525	525					37.1	36.6
Per streamer:	Str 1-2	76	75			Sub arrays:	PO-PC	8.3	8.3
	Str 2-3	76	76				PC-PI	8.2	8.2
	Str 3-4	76	75				SI-SC	8.3	8.2
	Str 4-5	74	77				SC-SO	7.7	7.9
	Str 5-6	74	73						
	Str 6-7	76	74						
	Str 7-8	76	76						

P2/94 filename: G06A-2000PI-132.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_10
 Backup tape: Tape 3 Seq 4

Observations disabled etc.

Acoustics: S2A2 ko'd
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	04:21	14:21	SOL, FSP
1997	04:21	14:21	FPSP
1320	05:56	15:56	Setting birds 1-5 on S8 to 7.5m and S7 to 6.5m Pulled S7 in 10m
1262	06:03	16:03	Setting birds 1-5 on S8 & S7 back to depths. S7 moved back to marks
881	06:54	16:54	LPSP
881	06:54	16:54	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tai
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2000P1-132**
 Sequence: **132**
 Direction: **190.5°** Nav. Def: **10**
 CMP line range: **1993-2008** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	22-Jun-2006	173	04:21	14:21	121	1997	1511
FPSP:	22-Jun-2006	173	04:21	14:21	121	1997	1511
LPSP:	22-Jun-2006	173	06:54	16:54	1237	881	1514
EOL LSP	22-Jun-2006	173	06:54	16:54	1237	881	1514

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	-0.4	4.8
Water depth (m)	48	57.6
RMS Noise (µB)	4.4	4.1
Weather	090°, 12m/s, 2.0m	080°, 9m/s, 3.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1970	1976
Stbd	1973	1979

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:33
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	4 / 0.36%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.4	5.9	2.0
HDOP	0.7	2.0	1.1
V1G2 PDOP	1.4	6.0	2.2
HDOP	0.7	2.0	1.1

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.3	4.45
Speed through water (m/s)	1.8	2.3	2.2	4.18
Feather angle (°)	-1.5	4.6	0.4	
Gyro (P) (°)	167.4	188.9	178.0	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.7	527.8	522.9
Str 1-2	73.2	77.2	75.1
Str 2-3	73.7	76.8	75.3
Str 3-4	73.1	77.5	75.1
Str 4-5	72.2	78.7	75.0
Str 5-6	70.4	76.4	73.4
Str 6-7	71.7	74.5	73.1
Str 7-8	73.7	77.3	75.8

	Min	Max	Mean
Source-Source Port-Stbd	32.9	39.5	36.8
Port Subarray Outer-Centre	8.0	8.8	8.3
Centre-Inner	7.5	9.0	8.1
Stbd Subarray Centre-Inner	7.8	8.8	8.3
Outer-Centre	7.0	8.7	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	21, 106			
Str 5	75			
Str 6	49, 116, 158			
Str 7	100, 202, 229, 285		360	
Str 8				

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	69, 127, 178, 283	
Str 5	326, 351	
Str 6	91, 205	
Str 7	164, 166, 285	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1846, 1546, 1054, 900	4
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.59

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.
 Guns depth fluctuating d/t Wx.

PROCESSING QC COMMENTS

Mild swell noise on line, occasional moderate burst. Affects 5% to 10% of traces.
 Strum and head wave energy apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2000F1-134**
 Area: **Gippsland Basin, Bass Strait** Sequence: **134**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **1993-2008** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Incomplete**

Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	22-Jun-2006	173	15:26	1:26	121	1997	1519	14:40	
FPSP:	22-Jun-2006	173	15:26	1:26	121	1997	1519		
LPSP:	22-Jun-2006	173	17:59	3:59	1237	881	1522		
EOL LSP:	22-Jun-2006	173	17:59	3:59	1237	881	1522	15:00	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-5.2	3.1
Water depth (m)	49	56
RMS noise @ 5 Hz LC (µB)	4.8	4.7
Weather	060°, 12m/s, 2.5m	070°, 7m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1978	1970
Stbd	1980	1976

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.3	6.6-7.3
Str 2	6.8-7.4	6.9-7.2
Str 3	6.8-7.2	6.9-7.2
Str 4	6.9-7.2	6.8-7.2
Str 5	6.7-7.3	6.8-7.2
Str 6	6.9-7.1	6.8-7.2
Str 7	6.9-7.2	6.9-7.3
Str 8	6.9-7.1	6.5-7.3

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 4 as spares.
 Mild swell noise visible on RMS Display for all streamers

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					134, 340		
S2:	295, 312			305 (Phase)			354
S3:			339	290 (Phase)			
S4:	21, 106				127, 178, 233		
S5:	75				86, 88, 326		
S6:	49, 116, 158				29, 37, 91, 205, 303		
S7:	100, 202, 229, 285		360		166, 203, 285		
S8:					137, 172, 340		318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2000F1-134**

Seq: **134**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1519		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1519		FSP @ 15:26 UTC
121	1997	1519		FPSP @ 15:26 UTC
189	1929			LGSP @ 15:36 d/t DMU lock-up. Seg 1
190	1928		Bad	DMU loc-up, stuck accx and compass data.
	1890-1881		Bad	DMU reboot.
	1881			Good accx and compass data
239	1879	1519		FGSP @ 15:43 DMU back on line. Seg 2
430	1688		Bad	Delta Error: S-11: -1.1
469	1649	1519		EOT
470	1648	1520		SOT
840	1278	1520		EOT
841	1277	1521		SOT
1211	907	1521		EOT
1212	906	1522		SOT
1237	881	1522		LPSP @ 17:59 UTC
1237	881	1522		LSP @ 17:59 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1522		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2000F1-134**Seq: **134**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2000F1-134**
 Area: **Gippsland Basin, Bass Strait** Sequence: **134** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **1993-2008** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **Incomplete** Log Status: Final

Initials: vq, hh, at,vt

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	22-Jun-2006	173	15:26	1:26	1997	-5.2	-279	060°, 12m/s, 2.5m
FPSP:	22-Jun-2006	173	15:26	1:26	1997			
LPSP:	22-Jun-2006	173	17:59	3:59	881			
EOL LSP:	22-Jun-2006	173	17:59	3:59	881	3.1	-272	070°, 7m/s, 2.0m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	524	527
Per streamer:		
Str 1-8	75	75
Str 1-2	76	76
Str 2-3	75	76
Str 3-4	74	75
Str 4-5	76	75
Str 5-6	73	73
Str 6-7	77	77
Str 7-8		

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
PO-PC		8.1	8.4
PC-PI		8.3	8.6
SI-SC		8.8	8.8
SC-SO		7.4	7.2

P2/94 filename: **G06A-2000F1-134.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_11**
 Backup tape: **Tape 4 Seq 1**

Observations disabled etc.

Acoustics: **S2A2 KO**
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	15:26	1:26	SOL, FSP
1997	15:26	1:26	FPSP
1929	15:36	1:36	LGSP
1928	15:36	1:36	DMU lock-up, stuck accx and compass data.
1890-1882			DMU reboot
1881	15:43	1:43	Good accx and compass data NOTE: Missed shots 1928-1882
1879	15:43	1:43	FGSP
881	17:59	3:59	LPSP
881	17:59	3:59	EOL, LSP

Vessel Manager: **Morgan McNelly** Navigators: **00:00-12:00** **Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan**
 Chief Navigator: **Rick Fleming** **12:00-00:00** **Darryl Fletcher/Mikhael Malofeev/Thomas Tibor**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2000F1-134**
 Sequence: **134**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **1993-2008** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Incomplete**

Obs Initials: **nc**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	22-Jun-2006	173	15:26	01:26	121	1997	1519
FPSP:	22-Jun-2006	173	15:26	01:26	121	1997	1519
LPSP:	22-Jun-2006	173	17:59	03:59	1237	881	1522
EOL LSP	22-Jun-2006	173	17:59	03:59	1237	881	1522

GENERAL INFORMATION

	SOL	EOL
FA (°)	-5.2	3.1
Water depth (m)	49	56
RMS Noise (µB)	4.8	4.7
Weather	060°, 12m/s, 2.5m	070°, 7m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1978	1970
Stbd	1980	1976

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:33
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	48 / 4.3%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	2.9	2.2
HDOP	1.0	2.2	1.3
V1G2 PDOP	1.7	3.0	2.4
HDOP	1.0	2.3	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.5	2.3	4.46
Speed through water (m/s)	1.7	2.3	2.1	4.15
Feather angle (°)	-4.7	3.7	-1.7	
Gyro (P) (°)	175.4	196.1	184.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.0	529.3	524.3
Str 1-2	59.5	76.4	75.1
Str 2-3	73.3	76.8	75.5
Str 3-4	73.2	92.7	75.0
Str 4-5	71.7	78.9	74.9
Str 5-6	60.9	77.7	74.8
Str 6-7	71.3	74.7	73.1
Str 7-8	74.4	88.9	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.8	41.2	38.5
Port Subarray	7.7	8.9	8.2
Stbd Subarray	7.5	8.9	8.2
Centre-Inner	7.7	9.4	8.5
Outer-Centre	6.9	8.2	7.5

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	21, 106			
Str 5	75			
Str 6	49, 116, 158			
Str 7	100, 202, 229, 285		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134,340,	
Str 2		
Str 3		
Str 4	69,127,178,	
Str 5	326,351,	
Str 6	91,205,	
Str 7	203,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1688	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1928 - 1880	48
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.19

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.
 Mild swell noise visible on RMS Display for all streamers

PROCESSING QC COMMENTS

Very mild swell noise on line effecting < 5% of traces.
 Strum and head wave energy apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2000F2-186**

Area: **Gippsland Basin, Bass Strait** Sequence: **186**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **1993-2008** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/RF/AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	3-Jul-2006	184	12:22	22:22	121	1997	1712	11:50	
FPSP:	3-Jul-2006	184	12:22	22:22	121	1997	1712		
LPSP:	3-Jul-2006	184	12:40	22:40	238	1880	1712		
EOL LSP:	3-Jul-2006	184	13:03	23:03	388	1730	1712	12:10	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-4.6	-3.8
Water depth (m)	49	50
RMS noise @ 5 Hz LC (µB)	3.7	
Weather	150°, 6m/s, 1.5m	150°, 6m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1977
Stbd	1982	1985

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.2	6.8-7.2
Str 2	6.9-7.2	6.9-7.2
Str 3	6.8-7.2	6.9-7.3
Str 4	6.9-7.3	6.9-7.2
Str 5	6.7-7.3	6.9-7.3
Str 6	6.9-7.2	6.8-7.2
Str 7	6.8-7.4	7.0-7.3
Str 8	6.8-7.1	6.9-7.2

SOL/EOL Comments

No EOL noise files recorded.

Overall Line Observations

All gun strings operating with gun # 4 as spare.
Partial progressive infill d/t DMU lockup on Seq # 134
SPs 1879 - 1730 acquired for minimum line length

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:				305 (Phase)	304,305		
S3:	290			339 (Phase)			
S4:	106, 110, 148, 177				127		
S5:	75				88,326,333		
S6:	49,116,158,161,307				29,37,91,205,303		
S7:	89,100,166, 202, 229, 269, 285		360				
S8:	198						

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2000F2-186**

Seq: **186**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1712		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1712		FSP @ 12:22 UTC
121	1997	1712		FPSP @ 12:22 UTC
238	1880	1712		LPSP @ 12:40 UTC
370	1748		Bad	Delta Error: S-1: -1.4
388	1730	1712		LSP @ 13:03 UTC
389-393	1729-1725	1712		NAV PROCESSING SHOTS

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2000F2-186**Seq: **186**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2000F2-186**
 Sequence: **186**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **1993-2008** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	3-Jul-2006	184	12:22	22:22	121	1997	1712
FPSP:	3-Jul-2006	184	12:22	22:22	121	1997	1712
LPSP:	3-Jul-2006	184	12:40	22:40	238	1880	1712
EOL LSP	3-Jul-2006	184	13:03	23:03	388	1730	1712

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-4.6	-3.8
Water depth (m)	49	50
RMS Noise (µB)	3.7	
Weather	150°, 6m/s, 1.5m	150°, 6m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1977
Stbd	1982	1985

TOTALS INFORMATION

Recorded SPs	268
Recorded km	5.025
Production time (hh:mm)	00:18
Production files	118
Production SPs	118
Production km	2.213
Production CMP km	35.400

ERROR STATISTICS

Source errors / %	1 / 0.85%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	2.2	2.5	2.4
HDOP	1.3	1.5	1.4
V1G2 PDOP	2.2	2.9	2.4
HDOP	1.3	2.2	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.1	2.0	3.97
Speed through water (m/s)	2.1	2.3	2.2	4.31
Feather angle (°)	-4.3	-3.3	-3.9	
Gyro (P) (°)	183.5	193.0	190.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	522.3	526.2	524.5
Str 1-2	74.4	75.9	75.2
Str 2-3	75.2	76.5	75.8
Str 3-4	74.1	76.4	75.3
Str 4-5	71.0	73.8	72.4
Str 5-6	75.1	77.9	76.4
Str 6-7	72.3	74.1	73.1
Str 7-8	75.8	77.2	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.9	38.2	36.5
Port Subarray			
Outer-Centre	7.3	8.1	7.8
Centre-Inner	8.0	8.8	8.3
Stbd Subarray			
Centre-Inner	7.7	8.4	8.0
Outer-Centre	7.7	8.4	8.0

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49,116,158,161,307			
Str 7	89,100,166, 202, 229,		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	88,326,352,	
Str 6	91,205,	
Str 7	164,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1748	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.
 Partial progressive infill d/t DMU lockup on Seq # 134
 SPs 1879 - 1730 acquired for minimum line length

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2016P1-136**
 Area: **Gippsland Basin, Bass Strait** Sequence: **136**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2009-2024** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/ RA/ LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	23-Jun-2006	174	01:25	11:25	121	1997	1528	0:50	
FPSP:	23-Jun-2006	174	01:25	11:25	121	1997	1528		
LPSP:	23-Jun-2006	174	04:18	14:18	1237	881	1531		
EOL LSP:	23-Jun-2006	174	04:18	14:18	1237	881	1531	1:10	
				UTC Offset:	10.0				

Full volume arrays at 1:10 UTC

	SOL	EOL
Feather angle (°)	-1.9	-10.4
Water depth (m)	50	58.4
RMS noise @ 5 Hz LC (µB)	4	3.3
Weather	110°, 4m/s, 2.0m	340°, 7m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1974	1975
Stbd	1973	1977

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.8-7.4
Str 2	6.8-7.5	6.9-7.2
Str 3	6.9-7.4	6.9-7.3
Str 4	6.8-7.4	6.8-7.4
Str 5	6.8-7.4	6.9-7.2
Str 6	6.9-7.2	6.9-7.3
Str 7	6.9-7.3	6.8-7.2
Str 8	6.8-7.2	6.9-7.3

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 4 as spares.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:				305 (Phase)			354
S3:	290		339				
S4:	52, 61, 106, 110				127, 233		
S5:	75				86, 326		
S6:	49, 120, 158				29, 37, 91, 205, 303		
S7:	100, 130, 202, 229, 285,		360				
S8:							318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2016P1-136**

Seq: **136**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1528		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1528		FSP @ 01:25 UTC
121	1997	1528		FPSP @ 01:25 UTC
469	1649	1528		EOT
470	1648	1529		SOT
840	1278	1529		EOT
841	1277	1530		SOT
1211	907	1530		EOT
1212	906	1531		SOT
1237	881	1531		LPSP @ 04:18 UTC
1237	881	1531		LSP @ 04:18 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1531		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2016P1-136**Seq: **136**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2016P1-136**

Area: **Gippsland Basin, Bass Strait** Sequence: **136** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**

Job ID: **20323** CMP line range: **2009-2024** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: vq, hh, at, vt

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	23-Jun-2006	174	01:25	11:25	1997	-1.9	-386.3	110°, 4m/s, 2.0m
FPSP:	23-Jun-2006	174	01:25	11:25	1997			
LPSP:	23-Jun-2006	174	04:18	14:18	881			
EOL LSP:	23-Jun-2006	174	04:18	14:18	881	-10.4	-131	340°, 7m/s, 2.0m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	518	524
Per streamer:		
Str 1-8	76	75
Str 1-2	75	75
Str 2-3	74	74
Str 3-4	68	72
Str 4-5	74	78
Str 5-6	73	73
Str 6-7	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
PO-PC		8.5	8.6
PC-PI		8.3	8.5
SI-SC		8.3	8.3
SC-SO		7.4	7.1

P2/94 filename: **G06A-2016P1-136.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_11**

Backup tape: **Tape 4 Seq 3**

Observations disabled etc.

Acoustics: **S2A2 KO**

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1997	1:25	11:25	SOL, FSP
1997	1:25	11:25	FPSP
1588	2:22	12:22	F° > 10°
1056	3:48	13:48	F° < 10° SP
881	4:18	14:18	LPSP
881	4:18	14:18	EOL, LSP

Vessel Manager: **Morgan McNelly** Navigators: **00:00-12:00** Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan

Chief Navigator: **Rick Fleming** **12:00-00:00** Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2016P1-136**
 Sequence: **136**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **2009-2024** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	23-Jun-2006	174	01:25	11:25	121	1997	1528
FPSP:	23-Jun-2006	174	01:25	11:25	121	1997	1528
LPSP:	23-Jun-2006	174	04:18	14:18	1237	881	1531
EOL LSP	23-Jun-2006	174	04:18	14:18	1237	881	1531

GENERAL INFORMATION

	SOL	EOL
FA (°)	-1.9	-10.4
Water depth (m)	50	58.4
RMS Noise (µB)	4	3.3
Weather	110°, 4m/s, 2.0m	340°, 7m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1974	1975
Stbd	1973	1977

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:53
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	5.0	2.5
HDOP	0.9	2.0	1.3
V1G2 PDOP	1.5	5.3	2.8
HDOP	0.9	2.0	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.8	2.4	2.0	3.95
Speed through water (m/s)	1.9	2.5	2.2	4.30
Feather angle (°)	-11.3	-1.8	-8.9	
Gyro (P) (°)	187.3	209.6	200.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	507.5	526.2	518.3
Str 1-2	72.7	76.7	74.3
Str 2-3	73.7	76.4	75.0
Str 3-4	71.7	76.2	73.7
Str 4-5	66.2	74.1	71.5
Str 5-6	72.6	78.7	76.3
Str 6-7	69.9	73.6	72.0
Str 7-8	73.1	76.9	75.5

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.6	39.9	37.3
Port Subarray	8.1	9.1	8.6
Stbd Subarray	7.5	8.9	8.1
Outer-Centre	6.6	7.4	7.0
Centre-Inner	7.6	8.6	8.1
Outer-Centre	6.6	7.4	7.0

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	290		339	
Str 4	52, 61, 106, 110			
Str 5	75			
Str 6	49, 120, 158			
Str 7	100, 130, 202, 229, 285,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2	186	
Str 3		
Str 4	69, 127, 178	
Str 5	326, 352	
Str 6	91, 205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2016F1-138**
 Area: **Gippsland Basin, Bass Strait** Sequence: **138**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2009-2024** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC, JC, RF, AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	23-Jun-2006	174	11:53	21:53	121	1997	1537	at	11:10
FPSP:	23-Jun-2006	174	11:53	21:53	121	1997	1537		
LPSP:	23-Jun-2006	174	14:51	0:51	1237	881	1540	Full volume arrays at	11:30
EOL LSP:	23-Jun-2006	174	14:51	0:51	1237	881	1540		
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-3.0	-10.0
Water depth (m)	49	55
RMS noise @ 5 Hz LC (µB)	3.5	3.9
Weather	240°, 7m/s, 2.0m	260°, 11m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1970
Stbd	1977	1973

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.2	6.8-7.2
Str 2	6.9-7.1	6.9-7.2
Str 3	6.9-7.2	6.8-7.2
Str 4	6.8-7.1	6.9-7.1
Str 5	6.8-7.2	6.7-7.2
Str 6	6.9-7.2	6.9-7.2
Str 7	6.9-7.3	6.8-7.2
Str 8	6.9-7.2	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3 as spares.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:				305 (Phase)			
S3:	83, 290		339				
S4:	61, 106, 110, 148				127		
S5:	75				86, 88, 326		
S6:	49, 120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 202, 229, 285,		360		166, 203, 285		
S8:							318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1537		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1537		FSP @ 11:53 UTC
121	1997	1537		FPSP @ 11:53 UTC
469	1649	1537		EOT
470	1648	1538		SOT
840	1278	1538		EOT
841	1277	1539		SOT
1211	907	1539		EOT
1212	906	1540		SOT
1237	881	1540		LPSP @ 14:51 UTC
1237	881	1540		LSP @ 14:51 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1253	/	1540		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2016F1-138**Seq: **138**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2016F1-138**
 Area: **Gippsland Basin, Bass Strait** Sequence: **138** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2009-2024** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: df, tt, mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	23-Jun-2006	174	11:53	21:53	1997	-3	-207	240°, 7m/s, 2.0m
FPSP:	23-Jun-2006	174	11:53	21:53	1997			
LPSP:	23-Jun-2006	174	14:51	0:51	881			
EOL LSP:	23-Jun-2006	174	14:51	0:51	881	-10	116	260°, 11m/s, 1.5m
			UTC offset: 10.0					

Separations (m)		SOL	EOL	Sources overall:		Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	525	526	Sub arrays:	PO-PC	38.0	37.9	
Per streamer:	Str 1-2	76	75		PC-PI	8.3	8.5	
	Str 2-3	75	75		SI-SC	8.3	8.2	
	Str 3-4	74	72		SC-SO	8.3	7.9	
	Str 4-5	73	75			7.1	7.6	
	Str 5-6	73	78					
	Str 6-7	78	74					
	Str 7-8	76	76					

P2/94 filename: **G06A--2016F1-138.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**
 BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_11**
 Backup tape: **Tape 4 Seq 5**

Observations disabled etc.

Acoustics: **S2A2 KO**
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	11:53	21:53	SOL, FSP
1997	11:53	21:53	FPSP
1700			Increase WSP
1290	13:42	23:42	Feathering angle > 10°
1026	14:26	0:26	Feathering angle < 10°
881	14:51	0:51	LPSP
881	14:51	0:51	EOL, LSP

Vessel Manager: **Morgan McNelly** Navigators: **00:00-12:00** **Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan**
 Chief Navigator: **Rick Fleming** **12:00-00:00** **Darryl Fletcher/Mikhael Malofeev/Thomas Tibor**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2016F1-138**
 Sequence: **138**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **2009-2024** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	23-Jun-2006	174	11:53	21:53	121	1997	1537
FPSP:	23-Jun-2006	174	11:53	21:53	121	1997	1537
LPSP:	23-Jun-2006	174	14:51	00:51	1237	881	1540
EOL LSP	23-Jun-2006	174	14:51	00:51	1237	881	1540

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-3	-10
Water depth (m)	49	55
RMS Noise (µB)	3.5	3.9
Weather	240°, 7m/s, 2.0m	260°, 11m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1970
Stbd	1977	1973

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:58
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	3.4	2.4
HDOP	0.9	2.1	1.4
V1G2 PDOP	1.9	3.4	2.6
HDOP	1.0	2.2	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.8	2.1	2.0	3.82
Speed through water (m/s)	1.9	2.5	2.2	4.29
Feather angle (°)	-10.3	-2.4	-7.0	
Gyro (P) (°)	190.7	212.0	204.1	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8			
Str 1-2	73.0	76.1	74.5
Str 2-3	74.0	76.2	75.1
Str 3-4	70.6	75.3	72.8
Str 4-5	71.2	77.2	73.9
Str 5-6	75.4	80.0	77.8
Str 6-7	71.0	74.3	72.6
Str 7-8	73.7	76.9	75.6

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.5	39.3	36.7
Port Subarray			
Outer-Centre	7.9	9.1	8.3
Centre-Inner	7.3	8.7	8.0
Stbd Subarray			
Centre-Inner	7.5	9.0	8.4
Outer-Centre	6.8	7.7	7.2

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290		339	
Str 4	61, 106, 110, 148			
Str 5	75			
Str 6	49, 120, 158			
Str 7	89, 100, 202, 229, 285,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134,340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	326,	
Str 6	91,205,	
Str 7	203,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:	TOTAL SHOTS
Timing (delta) errors >1.0ms:	0
Autofires / Misfires :	0
Missed SPs (NDR):	0
Extraction errors:	0
NAVS / ITB errors:	0
Other Bad shots:	0
Other Bad Traces:	0
Streamer depth edits: See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gunstrings operating with gun # 3 as spares.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2032P1-140**
 Area: **Gippsland Basin, Bass Strait** Sequence: **140**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2025-2040** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/ RA /LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	23-Jun-2006	174	22:14	8:14	121	1997	1545	21:30	
FPSP:	23-Jun-2006	174	22:14	8:14	121	1997	1545		
LPSP:	24-Jun-2006	175	00:36	10:36	1237	881	1548		
EOL LSP:	24-Jun-2006	175	00:36	10:36	1237	881	1548	21:50	
				UTC Offset:	10.0				

Full volume arrays at 21:50 UTC

	SOL	EOL
Feather angle (°)	7.0	-2.3
Water depth (m)	50	56
RMS noise @ 5 Hz LC (µB)	5.2	5.5
Weather	300°, 15m/s, 2.0m	250°, 12m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1971	1975
Stbd	1975	1979

Streamer Depths (m)

	SOL	EOL
Str 1	6.5-7.1	6.9-7.1
Str 2	6.6-7.6	6.9-7.3
Str 3	6.6-7.1	6.8-7.2
Str 4	6.6-7.2	6.8-7.3
Str 5	6.7-7.5	6.9-7.2
Str 6	6.5-7.2	6.9-7.1
Str 7	6.5-7.2	6.8-7.1
Str 8	6.7-7.2	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 4 as spares.
 Gun depth erratic d/t swell.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)			354
S3:	83, 290		339		3, 16, 355		
S4:	61, 106, 110, 148				127, 353		
S5:	75				86, 88, 326		
S6:	49, 120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 202, 229, 285,		360		203		
S8:					137, 340		318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2032P1-140**Seq: **140**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1545		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1545		FSP @ 22:14 UTC
121	1997	1545		FPSP @ 22:14 UTC
469	1649	1545		EOT
470	1648	1546		SOT
840	1278	1546		EOT
841	1277	1547		SOT
956	1162			LSP of the day
1211	907	1547		EOT
1212	906	1548		SOT
1237	881	1548		LPSP @ 00:36 UTC
1237	881	1548		LSP @ 00:36 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1255	/	1548		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2032P1-140**Seq: **140**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2032P1-140**
 Sequence: **140**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **2025-2040** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	23-Jun-2006	174	22:14	08:14	121	1997	1545
FPSP:	23-Jun-2006	174	22:14	08:14	121	1997	1545
LPSP:	24-Jun-2006	175	00:36	10:36	1237	881	1548
EOL LSP	24-Jun-2006	175	00:36	10:36	1237	881	1548

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	7	-2.3
Water depth (m)	50	56
RMS Noise (µB)	5.2	5.5
Weather	300°, 15m/s, 2.0m	250°, 12m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1971	1975
Stbd	1975	1979

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:22
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.1	2.1
HDOP	0.8	1.4	1.0
V1G2 PDOP	1.6	3.1	2.2
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.5	4.78
Speed through water (m/s)	2.0	2.3	2.2	4.27
Feather angle (°)	-1.7	7.4	2.0	
Gyro (P) (°)	193.0	209.2	201.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.2	530.2	525.7
Str 1-2	73.5	76.5	75.1
Str 2-3	73.1	76.5	75.3
Str 3-4	68.9	73.7	71.6
Str 4-5	71.7	77.9	75.1
Str 5-6	76.6	80.9	78.7
Str 6-7	72.8	74.9	73.7
Str 7-8	75.2	77.3	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.9	39.9	36.6
Port Subarray			
Outer-Centre	7.7	9.5	8.4
Centre-Inner	7.5	8.8	8.2
Stbd Subarray			
Centre-Inner	8.1	9.1	8.6
Outer-Centre	7.3	8.1	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290		339	
Str 4	61, 106, 110, 148			
Str 5	75			
Str 6	49, 120, 158			
Str 7	89, 100, 202, 229, 285,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	326, 352	
Str 6	91, 205	
Str 7	203	
Str 8	152, 318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.
 Gun depth erratic d/t swell.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log

Client: **Esso Australia Pty. Ltd.**Line Name: **G06A-2032F1-142**Area: **Gippsland Basin, Bass Strait**Sequence: **142**Prospect: **2006 Greater Bream 3D**Direction: **190.5°**Nav Def: **11**Job ID: **20323**CMP line range: **2025-2040**Line type: **Prog.Infill**Type: **3D**No. CMPs: **16**Status: **Incomplete**Initials: GC/JC/RF/AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	24-Jun-2006	175	09:11	19:11	121	1997	1554	08:30	
FPSP:	24-Jun-2006	175	09:14	19:14	143	1975	1554		
LPSP:	24-Jun-2006	175	11:57	21:57	1237	881	1557		
EOL LSP:	24-Jun-2006	175	11:57	21:57	1237	881	1557	08:50	
			UTC Offset:	10.0					

Full volume arrays
at 08:50 UTC

	SOL	EOL
Feather angle (°)	-2.3	-2.2
Water depth (m)	50	58
RMS noise @ 5 Hz LC (µB)	4.5	5.2
Weather	280°, 12m/s, 2.0m	280°, 14m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1974	1975
Stbd	1980	1978

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.8-7.2
Str 2	6.9-7.3	6.8-7.3
Str 3	6.9-7.4	6.9-7.4
Str 4	6.8-7.3	6.8-7.4
Str 5	6.8-7.3	6.8-7.3
Str 6	6.9-7.2	6.9-7.3
Str 7	7.0-7.2	6.8-7.4
Str 8	6.9-7.3	6.8-7.3

SOL/EOL Comments

DMU lock up at SOL. LGSP 1993, FGSP 1975

Overall Line Observations

All gunstrings operating with gun # 4 as spares.
Gun depth erratic d/t swell.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	312			305 (Phase)			
S3:	83, 290		339				
S4:	43, 106, 148				127	178	
S5:	75				86, 326		
S6:	49, 116, 120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							

Vessel Manager: Morgan McNelly

Observers: 00:00-12:00

Neil Collinge, Larry Tan, Rashid Anwar

Operations Supervisor: Glenn Cassim

12:00-00:00

Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie

Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1554		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1554		FSP @ 09:11 UTC
143	1975	1554		FGSP @ 09:14 UTC d/t DMU lock up
469	1649	1554		EOT
470	1648	1555		SOT
840	1278	1555		EOT
841	1277	1556		SOT
1104	1014		Bad	Delta Error: S-14: 1.4
1108	1010		Bad	Delta Error: S-14: 1.1
1110	1008		Bad	Delta Error: S-14: -1.1
1150	968		Bad	Delta Error: S-14: -1.1
1211	907	1556		EOT
1212	906	1557		SOT
1237	881	1557		LPSP @ 11:57 UTC
1237	881	1557		LSP @ 11:57 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1557		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2032F1-142**Seq: **142**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2032F1-142**

Area: **Gippsland Basin, Bass Strait** Sequence: **142** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**

Job ID: **20323** CMP line range: **2025-2040** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Incomplete** Log Status: Final

Initials: df,tt,mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	24-Jun-2006	175	09:11	19:11	1997	-2.3	-256	280°, 12m/s, 2.0m
FPSP:	24-Jun-2006	175	09:14	19:14	1975			
LPSP:	24-Jun-2006	175	11:57	21:57	881			
EOL LSP:	24-Jun-2006	175	11:57	21:57	881	-2.2	5	280°, 14m/s, 1.5m
UTC offset:				10.0				

Separations (m)

	SOL	EOL
Streamer overall:	525	524
Per streamer:		
Str 1-8	75	75
Str 2-3	76	76
Str 3-4	73	71
Str 4-5	73	72
Str 5-6	79	80
Str 6-7	73	74
Str 7-8	77	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PO-PC	8.1	8.1
	PC-PI	8.2	7.5
	SI-SC	8.3	8.7
	SC-SO	7.8	7.6

P2/94 filename: G06A-2032F1-142.0.p294

LMN: 20323_Bream.LMN

SCN: 20323_Bream.SCN

RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN

Acoustic file: 20323_11

Backup tape: Tape 1 Seq 4

Observations disabled etc.

Acoustics: S2A2 KO'd

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1997	09:11	19:11	SOL, FSP
1997	09:11	19:11	FPSP
1993	09:11	19:11	LGSP d/t DMU lock up
1975	09:14	19:14	FGSP for this line.
			DNP 1997-1976
881	11:57	21:57	LPSP
881	11:57	21:57	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan

Chief Navigator: Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2032F1-142**
 Sequence: **142**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **2025-2040** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Incomplete**

Obs Initials: **AD**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	24-Jun-2006	175	09:11	19:11	121	1997	1554
FPSP:	24-Jun-2006	175	09:14	19:14	143	1975	1554
LPSP:	24-Jun-2006	175	11:57	21:57	1237	881	1557
EOL LSP	24-Jun-2006	175	11:57	21:57	1237	881	1557

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-2.3	-2.2
Water depth (m)	50	58
RMS Noise (µB)	4.5	5.2
Weather	280°, 12m/s, 2.0m	280°, 14m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1974	1975
Stbd	1980	1978

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:43
Production files	1095
Production SPs	1095
Production km	20.531
Production CMP km	328.500

ERROR STATISTICS

Source errors / %	4 / 0.37%
Missed SPs / %	0 / 0%
Other bad SPs / %	21 / 1.92%

GPS

	Min	Max	Mean
V1G1 PDOP	1.2	2.2	1.8
HDOP	0.8	1.1	1.0
V1G2 PDOP	1.5	2.3	1.9
HDOP	0.9	1.2	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.2	2.1	4.08
Speed through water (m/s)	2.0	2.4	2.2	4.23
Feather angle (°)	-3.0	-0.8	-1.9	
Gyro (P) (°)	195.8	212.0	203.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.4	529.9	524.8
Str 1-2	73.5	78.3	74.8
Str 2-3	74.5	77.1	75.6
Str 3-4	69.5	74.3	71.8
Str 4-5	68.7	77.5	73.3
Str 5-6	76.2	81.6	79.2
Str 6-7	72.5	74.8	73.6
Str 7-8	74.5	77.6	76.5

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	31.1	38.6	35.3
Port Subarray			
Outer-Centre	7.7	9.0	8.2
Centre-Inner	7.3	8.8	8.0
Stbd Subarray			
Centre-Inner	8.0	9.2	8.5
Outer-Centre	7.3	8.3	7.8

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290		339	
Str 4	43, 106, 148			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134,340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	326,	
Str 6	91,205,	
Str 7	203,	
Str 8	152,318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1014,1010,1008,968	4
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1997 - 1976	21
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.11

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.
 Gun depth erratic d/t swell.

PROCESSING QC COMMENTS

Mild swell noise on line, occasional moderate burst. Affects 5% to 10% of traces.
 Strum and head wave energy are observed

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2032F2-188**
 Area: **Gippsland Basin, Bass Strait** Sequence: **188**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2025-2040** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: **NC/RA/LT**
 Log Status: **Final**

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	3-Jul-2006	184	19:10	5:10	121	1997	1714	18:35 UTC
FPSP:	3-Jul-2006	184	19:10	5:10	121	1997	1714	
LPSP:	3-Jul-2006	184	19:13	5:13	144	1976	1714	
EOL LSP:	3-Jul-2006	184	19:44	5:44	388	1730	1714	Full volume arrays at 18:55 UTC
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	3.7	2.7
Water depth (m)	49	49
RMS noise @ 5 Hz LC (µB)	3.4	5.2
Weather	Calm, 1.0m	Calm, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1980	1982
Stbd	1980	1981

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.4	6.9-7.1
Str 2	6.8-7.4	6.9-7.2
Str 3	6.7-7.3	6.9-7.1
Str 4	6.8-7.4	6.9-7.2
Str 5	6.7-7.2	6.8-7.2
Str 6	6.8-7.3	6.9-7.2
Str 7	6.8-7.4	6.9-7.1
Str 8	6.8-7.3	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.
F2 Line d/t Seq 142 DMU lock up
SPs 1973-1730 acquired for 5km minimum line length
 Mild swell noise visible on RMS Display for all streamers

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305, 321		
S3:	290			339 (Phase)			
S4:	106, 110, 148, 177				127, 178, 304		
S5:	75				88, 325		
S6:	49, 116, 158, 161, 307				91, 205, 303		
S7:	89, 100, 166, 202, 229, 269, 285		360		189, 336		
S8:	198				233		

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1714		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1714		FSP @ 19:10 UTC
121	1997	1714		FPSP @ 19:10 UTC
144	1976	1714		LPSP @ 19:13 UTC
388	1730	1714		LSP @ 19:44 UTC
389-403	/	1714		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2032F2-188**Seq: **188**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2032F2-188**
 Area: **Gippsland Basin, Bass Strait** Sequence: **188** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2025-2040** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: vq, hh, at, vt

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	3-Jul-2006	184	19:10	5:10	1997	3.7	-319.4	Calm, 1.0m
FPSP:	3-Jul-2006	184	19:10	5:10	1997			
LPSP:	3-Jul-2006	184	19:13	5:13	1976			
EOL LSP:	3-Jul-2006	184	19:44	5:44	1730	2.7	-322	Calm, 1.0m
	UTC offset:			10.0				

Separations (m)

		SOL	EOL			SOL	EOL
Streamer overall:	Str 1-8	523	525	Sources overall:	Port-Stbd	36.6	37.2
Per streamer:	Str 1-2	75	76	Sub arrays:	PO-PC	8.3	8.2
	Str 2-3	75	76		PC-PI	8.8	9.1
	Str 3-4	75	76		SI-SC	7.7	7.8
	Str 4-5	73	72		SC-SO	7.8	8.0
	Str 5-6	75	77				
	Str 6-7	74	74				
	Str 7-8	76	76				

P2/94 filename: **G06A-2032F2-188.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_12**
 Backup tape: **Tape 2 Seq 5**

Observations disabled etc.

Acoustics: S2A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	19:10	5:10	SOL, FSP
1997	19:10	5:10	FPSP
1976	19:13	5:13	LPSP Continue down line to complete 5km
1730	19:44	5:44	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2032F2-188**
 Sequence: **188**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2025-2040** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	3-Jul-2006	184	19:10	05:10	121	1997	1714
FPSP:	3-Jul-2006	184	19:10	05:10	121	1997	1714
LPSP:	3-Jul-2006	184	19:13	05:13	144	1976	1714
EOL LSP	3-Jul-2006	184	19:44	05:44	388	1730	1714

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	3.7	2.7
Water depth (m)	49	49
RMS Noise (µB)	3.4	5.2
Weather	Calm, 1.0m	Calm, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1980	1982
Stbd	1980	1981

TOTALS INFORMATION

Recorded SPs	268
Recorded km	5.025
Production time (hh:mm)	00:03
Production files	24
Production SPs	22
Production km	0.413
Production CMP km	6.600

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.9	2.7	2.3
HDOP	1.1	1.3	1.2
V1G2 PDOP	1.9	2.8	2.5
HDOP	1.1	1.3	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.5	4.84
Speed through water (m/s)	1.7	2.3	2.2	4.21
Feather angle (°)	3.1	4.1	3.7	
Gyro (P) (°)	182.1	186.8	184.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	521.4	525.5	523.7
Str 1-2	74.4	76.6	75.5
Str 2-3	74.4	76.1	75.2
Str 3-4	73.8	76.7	75.5
Str 4-5	70.9	74.3	72.4
Str 5-6	74.6	76.5	75.7
Str 6-7	72.8	74.4	73.5
Str 7-8	75.0	76.7	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.0	38.7	36.8
Port-Subarray	7.8	8.5	8.2
Outer-Centre	8.4	9.4	8.9
Centre-Inner	7.4	8.5	8.0
Stbd Subarray	7.5	8.1	7.8
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49,116,158,161,307			
Str 7	89,100,166, 202, 229,		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109,340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	88,326,352,	
Str 6	91,205,	
Str 7	164,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.00

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.
 F2 Line d/t Seq 142 DMU lock up
 SPs 1973-1730 acquired for 5km minimum line length
 Mild swell noise visible on RMS Display for all streamers

PROCESSING QC COMMENTS

Mild swell noise affecting < 5% of traces, easing towards EOL.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2048P1-144**

Area: **Gippsland Basin, Bass Strait** Sequence: **144**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**

Job ID: **20323** CMP line range: **2041-2056** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **DNP** Initials: NC/ RA/ LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	24-Jun-2006	175	19:37	5:37	121	1997	1562	19:00	
FPSP:	24-Jun-2006	175	19:37	5:37	121	1997	1562		
LPSP:	24-Jun-2006	175	22:09	8:09	1237	881	1565		
EOL LSP:	24-Jun-2006	175	22:09	8:09	1237	881	1565	19:20	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-0.4	5.1
Water depth (m)	49	57
RMS noise @ 5 Hz LC (µB)	6.8	6.9
Weather	260°, 12m/s, 1.5m	240°, 12m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1979	1973
Stbd	1978	1977

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.8-7.3
Str 2	6.8-7.2	6.9-7.4
Str 3	6.7-7.3	6.6-7.4
Str 4	6.6-7.2	6.8-7.1
Str 5	6.9-7.3	6.8-7.2
Str 6	6.6-7.2	6.9-7.3
Str 7	6.9-7.3	6.9-7.3
Str 8	6.8-7.2	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 4 as spares.
Gun depths sometimes erratic d/t swell
Swell bursts, max 20µB affecting approx 10% of traces

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:	312			305 (Phase)			
S3:	83, 290		339				
S4:	43, 106, 148				127, 233		
S5:	75				86, 88, 326		
S6:	49, 116, 120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 166, 202, 229, 285		360		89, 203		
S8:					318		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2048P1-144**

Seq: **144**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
89-98	/	1562		GUN SIGNATURE TEST - S-14 @ 05:22 (19:22 UTC)
99-110	/	1562		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1562		FSP @ 19:37 UTC
121	1997	1562		FPSP @ 19:37 UTC
129	1989		Bad	Delta Error: P-8: 1.1
133	1985		Bad	Streamer Error: NAVS
189	1929		Bad	Misfire: P-10
191	1927		Bad	Misfire: P-10
193	1925		Bad	Delta Error: P-10: 10.4
459	1659	1562		EOT
460	1658	1563		SOT
829	1289		Bad	Delta Error: P-10: 10.3
830	1288	1563		EOT
831	1287	1564		SOT
1201	917	1564		EOT
1202	916	1565		SOT
1237	881	1565		LPSP @ 22:09 UTC
1237	881	1565		LSP @ 22:09 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1565		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2048P1-144**Seq: **144**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2048P1-144**
 Sequence: **144**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **2041-2056** Line type: **Prime**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **NC**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	24-Jun-2006	175	19:37	05:37	121	1997	1562
FPSP:	24-Jun-2006	175	19:37	05:37	121	1997	1562
LPSP:	24-Jun-2006	175	22:09	08:09	1237	881	1565
EOL LSP	24-Jun-2006	175	22:09	08:09	1237	881	1565

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-0.4	5.1
Water depth (m)	49	57
RMS Noise (µB)	6.8	6.9
Weather	260°, 12m/s, 1.5m	240°, 12m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1979	1973
Stbd	1978	1977

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:32
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	5 / 0.45%
Missed SPs / %	0 / 0%
Other bad SPs / %	1 / 0.09%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.7	2.0
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.8	2.1
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.5	2.3	4.49
Speed through water (m/s)	1.7	2.3	2.2	4.20
Feather angle (°)	0.2	5.7	3.5	
Gyro (P) (°)	187.3	201.0	194.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.8	527.4	523.2
Str 1-2	73.0	76.0	74.6
Str 2-3	73.7	76.4	75.1
Str 3-4	70.6	74.5	72.4
Str 4-5	69.6	75.6	72.8
Str 5-6	76.7	80.2	78.5
Str 6-7	72.7	74.7	73.7
Str 7-8	75.2	77.3	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.9	38.2	35.8
Port Subarray	7.7	8.9	8.3
Outer-Centre	7.6	8.9	8.2
Centre-Inner	7.7	9.0	8.3
Stbd Subarray	7.7	8.7	8.3
Outer-Centre	7.7	8.7	8.3

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290		339	
Str 4	43, 106, 148			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1		
Str 2		
Str 3		
Str 4		
Str 5		
Str 6		
Str 7		
Str 8		

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1989, 1925, 1289	3
Autofires / Misfires :	1929, 1927	2
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1985	1
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.19

TOTAL SHOTS

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.
 Gun depths sometimes erratic d/t swell
 Swell bursts, max 20µB affecting approx 10% of traces

PROCESSING QC COMMENTS

No Tension data - PC rebooted this line change

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2048F1-148**
 Area: **Gippsland Basin, Bass Strait** Sequence: **148**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2041-2056** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	25-Jun-2006	176	16:15	2:15	121	1997	1579	15:40 UTC
FPSP:	25-Jun-2006	176	16:15	2:15	121	1997	1579	
LPSP:	25-Jun-2006	176	19:12	5:12	1237	881	1582	Full volume arrays at 16:00 UTC
EOL LSP:	25-Jun-2006	176	19:12	5:12	1237	881	1582	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-4.3	-4.4
Water depth (m)	49	56
RMS noise @ 5 Hz LC (µB)	3.8	3.6
Weather	260°, 6m/s, 1.0m	280°, 5m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1971	1975
Stbd	1979	1975

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.2	6.8-7.1
Str 2	7.0-7.2	6.9-7.3
Str 3	6.8-7.6	6.9-7.2
Str 4	6.8-7.1	6.9-7.3
Str 5	6.8-7.3	6.8-7.4
Str 6	6.8-7.1	6.8-7.2
Str 7	6.8-7.1	6.9-7.3
Str 8	6.7-7.3	6.8-7.3

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spares.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)			
S3:			339	290 (Phase)			
S4:	106,110, 148				127, 233		
S5:	75				86, 326		
S6:	49, 116, 120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1579		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1579		FSP @ 16:15 UTC
121	1997	1579		FPSP @ 16:15 UTC
469	1649	1579		EOT
470	1648	1580		SOT
840	1278	1580		EOT
841	1277	1581		SOT
1211	907	1581		EOT
1212	906	1582		SOT
1237	881	1582		LPSP @ 19:12 UTC
1237	881	1582		LSP @ 19:12 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1582		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2048F1-148**Seq: **148**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2048F1-148**
 Sequence: **148**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **2041-2056** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	25-Jun-2006	176	16:15	02:15	121	1997	1579
FPSP:	25-Jun-2006	176	16:15	02:15	121	1997	1579
LPSP:	25-Jun-2006	176	19:12	05:12	1237	881	1582
EOL LSP	25-Jun-2006	176	19:12	05:12	1237	881	1582

GENERAL INFORMATION

	SOL	EOL
FA (°)	-4.3	-4.4
Water depth (m)	49	56
RMS Noise (µB)	3.8	3.6
Weather	260°, 6m/s, 1.0m	280°, 5m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1971	1975
Stbd	1979	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:57
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.9	2.1
HDOP	0.9	1.5	1.2
V1G2 PDOP	1.5	2.9	2.3
HDOP	0.9	1.5	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.1	2.0	3.85
Speed through water (m/s)	2.0	2.3	2.2	4.24
Feather angle (°)	-8.4	-4.3	-7.0	
Gyro (P) (°)	192.6	205.6	198.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.8	527.1	522.7
Str 1-2	73.5	76.5	74.7
Str 2-3	74.6	76.4	75.7
Str 3-4	71.9	75.3	73.7
Str 4-5	69.1	74.3	71.6
Str 5-6	76.1	80.0	78.1
Str 6-7	71.6	74.3	72.9
Str 7-8	74.6	77.2	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.9	38.2	35.5
Port-Subarray	8.0	8.7	8.4
Outer-Centre	7.4	8.5	7.9
Stbd Subarray	7.7	8.6	8.2
Centre-Inner	7.3	8.0	7.7
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3			339	290 (Phase)
Str 4	106,110, 148			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	326,	
Str 6	91,205,	
Str 7	164,203,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.00

ONLINE COMMENTS

All gun strings operating with gun # 4 as spares.

PROCESSING QC COMMENTS

Mild swell noise on line, effecting <5% of traces. Almost negligible.
 Strum and head wave energy are observed



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2048P2-146**

Area: **Gippsland Basin, Bass Strait** Sequence: **146**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**

Job ID: **20323** CMP line range: **2041-2056** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/JC/RF/AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	25-Jun-2006	176	05:46	15:46	121	1997	1570	05:00	UTC
FPSP:	25-Jun-2006	176	05:46	15:46	121	1997	1570		
LPSP:	25-Jun-2006	176	08:54	18:54	1237	881	1573	Full volume arrays at	05:20 UTC
EOL LSP:	25-Jun-2006	176	08:54	18:54	1237	881	1573		
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-7.9	-1.9
Water depth (m)	50	57
RMS noise @ 5 Hz LC (µB)	4.3	4.5
Weather	250°, 7m/s, 1.0m	250°, 9m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1974
Stbd	1976	1979

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.6-7.3
Str 2	6.9-7.2	6.7-7.3
Str 3	6.8-7.2	6.9-7.2
Str 4	6.8-7.1	6.9-7.3
Str 5	6.9-7.2	6.9-7.3
Str 6	6.8-7.2	6.9-7.1
Str 7	6.8-7.1	6.9-7.2
Str 8	6.8-7.2	6.8-7.3

SOL/EOL Comments**Overall Line Observations**

All gunstrings operating with gun # 4 as spares.
Original seq 144 - Reshoot
S27 gun occasionally erratic depth d/t sea state.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	312			305 (Phase)			
S3:	83, 290		339				
S4:	43, 106, 148				127, 178		
S5:	75				326		
S6:	49, 116, 120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-2048P2-146

Seq:

146

Dir:

190.5°

FILE	SP	TAPE	BAD	
99-110	/	1570		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1570		FSP @ 05:46 UTC
121	1997	1570		FPSP @ 05:46 UTC
469	1649	1570		EOT
470	1648	1571		SOT
840	1278	1571		EOT
841	1277	1572		SOT
1211	907	1572		EOT
1212	906	1573		SOT
1237	881	1573		LPSP @ 08:54 UTC
1237	881	1573		LSP @ 08:54 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1573		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2048P2-146**Seq: **146**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms

Comments:

Hydrophone sensitivity 20 μ volts / μ bar
Recording polarity: Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m

Flip-flop acquisition mode, even shotpoints from stbd source,
 odd shotpoints from port source

Positioning**Navigation System**

Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav

Positioning System

Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2048P2-146**
 Sequence: **146**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **2041-2056** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	25-Jun-2006	176	05:46	15:46	121	1997	1570
FPSP:	25-Jun-2006	176	05:46	15:46	121	1997	1570
LPSP:	25-Jun-2006	176	08:54	18:54	1237	881	1573
EOL LSP	25-Jun-2006	176	08:54	18:54	1237	881	1573

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-7.9	-1.9
Water depth (m)	50	57
RMS Noise (µB)	4.3	4.5
Weather	250°, 7m/s, 1.0m	250°, 9m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1974
Stbd	1976	1979

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	03:08
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.2	2.2	1.8
HDOP	0.7	1.1	1.0
V1G2 PDOP	1.4	2.2	1.8
HDOP	0.7	1.1	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.7	2.1	1.9	3.62
Speed through water (m/s)	1.9	2.3	2.2	4.21
Feather angle (°)	-8.1	-1.3	-5.9	
Gyro (P) (°)	188.4	211.7	201.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.7	529.1	524.0
Str 1-2	73.2	76.4	74.8
Str 2-3	74.5	76.5	75.5
Str 3-4	71.2	75.9	73.2
Str 4-5	68.8	76.0	72.4
Str 5-6	75.8	80.9	78.7
Str 6-7	71.2	74.3	73.2
Str 7-8	74.2	77.6	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source Port-Stbd	32.8	38.8	35.6
Port Subarray Outer-Centre	7.8	8.6	8.2
Centre-Inner	7.4	8.4	7.8
Stbd Subarray Centre-Inner	7.6	8.8	8.3
Outer-Centre	7.2	8.6	7.9

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290		339	
Str 4	43, 106, 148			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	326, 352	
Str 6	91, 205	
Str 7	203	
Str 8	152, 318	

SHOT / TRACE EDITS: SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.
 Original seq 144 - Reshoot
 S27 gun occasionally erratic depth d/t sea state.

PROCESSING QC COMMENTS

Mild level to moderate swell noise on line, generally effecting 5% of traces.
 Strum and head wave energy are observed

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2064P1-150**
 Area: **Gippsland Basin, Bass Strait** Sequence: **150**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2057-2072** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/JC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	26-Jun-2006	177	02:56	12:56	121	1997	1587	2:15	
FPSP:	26-Jun-2006	177	02:56	12:56	121	1997	1587		
LPSP:	26-Jun-2006	177	05:42	15:42	1237	881	1590		
EOL LSP:	26-Jun-2006	177	05:42	15:42	1237	881	1590	2:35	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	1.5	-11.5
Water depth (m)	49.6	57
RMS noise @ 5 Hz LC (µB)	3	3
Weather	330°, 5m/s, 1.0m	330°, 5m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1980	1975
Stbd	1982	1976

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.1	6.8-7.3
Str 2	6.9-7.2	6.9-7.3
Str 3	6.9-7.3	6.9-7.2
Str 4	6.9-7.4	6.9-7.2
Str 5	7.0-7.2	6.8-7.3
Str 6	6.9-7.2	6.9-7.2
Str 7	6.9-7.1	6.9-7.2
Str 8	6.9-7.3	6.8-7.1

SOL/EOL Comments

EOL noise taken with S2C1-5 on surface for workboat.

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)	345		
S3:			339	290 (Phase)	16		
S4:	106, 110, 148				127, 178		
S5:	75				326		
S6:	49, 116, 120, 158				91, 205		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2064P1-150**Seq: **150**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1587		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1587		FSP @ 02:56 UTC
121	1997	1587		FPSP @ 02:56 UTC
469	1649	1587		EOT
470	1648	1588		SOT
522	1596		Bad	Streamer Error: NAVS
840	1278	1588		EOT
841	1277	1589		SOT
1211	907	1589		EOT
1212	906	1590		SOT
1237	881	1590		LPSP @ 05:42 UTC
1237	881	1590		LSP @ 05:42 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1590		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2064P1-150**Seq: **150**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 μ volts / μ bar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2064P1-150**
 Area: **Gippsland Basin, Bass Strait** Sequence: **150** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2057-2072** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: tt, df, mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	26-Jun-2006	177	02:56	12:56	1997	1.5	-362	330°, 5m/s, 1.0m
FPSP:	26-Jun-2006	177	02:56	12:56	1997			
LPSP:	26-Jun-2006	177	05:42	15:42	881			
EOL LSP:	26-Jun-2006	177	05:42	15:42	881	-11.5	260	330°, 5m/s, 1.0m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall: Str 1-8	523	524
Per streamer: Str 1-2	76	75
Str 2-3	75	75
Str 3-4	73	74
Str 4-5	70	71
Str 5-6	77	71
Str 6-7	73	73
Str 7-8	76	77

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PO-PC	8.6	8.4
	PC-PI	8.1	8.2
	SI-SC	8.1	8.1
	SC-SO	7.8	8.0

P2/94 filename: G06A-2064P1-150.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_11
 Backup tape: Tape 3 Seq 2

Observations disabled etc.

Acoustics: S2A2 KO'd
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	2:56	12:56	SOL, FSP
1997	2:56	12:56	FPSP
1230	4:46	14:46	FA > 10°
881	5:42	15:42	LPSP
881	5:42	15:42	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator: Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2064P1-150**
 Sequence: **150**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **2057-2072** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	26-Jun-2006	177	02:56	12:56	121	1997	1587
FPSP:	26-Jun-2006	177	02:56	12:56	121	1997	1587
LPSP:	26-Jun-2006	177	05:42	15:42	1237	881	1590
EOL LSP	26-Jun-2006	177	05:42	15:42	1237	881	1590

GENERAL INFORMATION

	SOL	EOL
FA (°)	1.5	-11.5
Water depth (m)	49.6	57
RMS Noise (µB)	3	3
Weather	330°, 5m/s, 1.0m	330°, 5m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1980	1975
Stbd	1982	1976

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:46
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	1 / 0.09%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	5.8	2.2
HDOP	0.8	2.0	1.2
V1G2 PDOP	1.6	6.0	2.4
HDOP	0.8	2.0	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.3	2.1	4.11
Speed through water (m/s)	2.1	2.3	2.2	4.30
Feather angle (°)	-11.8	1.6	-7.3	
Gyro (P) (°)	192.4	209.0	200.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	508.2	524.8	518.3
Str 1-2	72.6	76.1	74.3
Str 2-3	74.1	76.2	75.4
Str 3-4	71.5	75.1	73.6
Str 4-5	67.7	72.8	70.0
Str 5-6	74.0	79.1	76.9
Str 6-7	70.3	73.8	72.3
Str 7-8	74.1	77.1	75.7

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.1	37.8	35.1
Port-Subarray	7.9	8.8	8.4
Outer-Centre	7.0	8.2	7.7
Stbd Subarray	7.4	8.5	8.0
Centre-Inner	7.2	8.1	7.7
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3			339	290 (Phase)
Str 4	106,110, 148			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109, 340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	86, 326, 352	
Str 6	91, 205	
Str 7	164, 203, 257	
Str 8	318	

SHOT / TRACE EDITS:**SPs:****TOTAL SHOTS**

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1596	1
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.05

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise
 Strum and head wave energy apparent due to good weather and clean data quality.
 Diffraction energy observed on the midway of line, at near offset zone and time gate at 5.5 sac above.
 Work boat screw noise was observed on the RMS noise map.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2080P1-152**
 Area: **Gippsland Basin, Bass Strait** Sequence: **152**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2073-2088** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	26-Jun-2006	177	13:17	23:17	121	1997	1596	12:40	
FPSP:	26-Jun-2006	177	13:17	23:17	121	1997	1596		
LPSP:	26-Jun-2006	177	15:59	1:59	1237	881	1599		
EOL LSP:	26-Jun-2006	177	15:59	1:59	1237	881	1599	13:00	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	2.2	-5.5
Water depth (m)	49.6	57
RMS noise @ 5 Hz LC (µB)	2.8	2.8
Weather	290°, 5m/s, 1.0m	310°, 8m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1983	1967
Stbd	1984	1975

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.2	6.9-7.1
Str 2	6.8-7.3	7.0-7.2
Str 3	6.8-7.2	6.9-7.1
Str 4	6.8-7.1	6.9-7.2
Str 5	6.9-7.3	7.0-7.2
Str 6	6.9-7.2	6.9-7.1
Str 7	6.9-7.3	7.0-7.1
Str 8	6.9-7.2	6.9-7.3

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)	345		
S3:	83		339	290 (Phase)	16		
S4:	106, 110				127, 178		
S5:	75				326		
S6:	49, 116, 120, 158				91, 205		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2080P1-152**Seq: **152**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1596		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1596		FSP @ 13:17 UTC
121	1997	1596		FPSP @ 13:17 UTC
469	1649	1596		EOT
470	1648	1597		SOT
840	1278	1597		EOT
841	1277	1598		SOT
1211	907	1598		EOT
1212	906	1599		SOT
1237	881	1599		LPSP @ 15:59 UTC
1237	881	1599		LSP @ 15:59 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1599		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2080P1-152**Seq: **152**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2080P1-152**
 Sequence: **152**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **2073-2088** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	26-Jun-2006	177	13:17	23:17	121	1997	1596
FPSP:	26-Jun-2006	177	13:17	23:17	121	1997	1596
LPSP:	26-Jun-2006	177	15:59	01:59	1237	881	1599
EOL LSP	26-Jun-2006	177	15:59	01:59	1237	881	1599

GENERAL INFORMATION

	SOL	EOL
FA (°)	2.2	-5.5
Water depth (m)	49.6	57
RMS Noise (µB)	2.8	2.8
Weather	290°, 5m/s, 1.0m	310°, 8m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1983	1967
Stbd	1984	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:42
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	3.4	2.3
HDOP	1.0	2.2	1.3
V1G2 PDOP	1.7	3.4	2.5
HDOP	1.0	2.3	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.2	2.1	4.17
Speed through water (m/s)	2.0	2.3	2.2	4.18
Feather angle (°)	-5.0	2.4	-1.6	
Gyro (P) (°)	188.6	202.7	194.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	519.8	524.8	522.5
Str 1-2	74.3	76.2	75.3
Str 2-3	74.7	76.5	75.6
Str 3-4	71.8	75.4	73.6
Str 4-5	69.2	72.9	70.8
Str 5-6	76.0	79.5	77.6
Str 6-7	72.4	74.2	73.3
Str 7-8	75.4	77.2	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.3	38.3	35.5
Port Subarray			
Outer-Centre	8.1	8.9	8.5
Centre-Inner	7.0	8.2	7.8
Stbd Subarray			
Centre-Inner	7.6	8.6	8.1
Outer-Centre	7.3	8.1	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106,110			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134,340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	86,326,352,	
Str 6	91,205,	
Str 7	203,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.00

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2080F1-154**

Area: **Gippsland Basin, Bass Strait** Sequence: **154**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**

Job ID: **20323** CMP line range: **2073-2088** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	26-Jun-2006	177	23:25	9:25	121	1997	1604	22:55	
FPSP:	26-Jun-2006	177	23:25	9:25	121	1997	1604		
LPSP:	27-Jun-2006	178	01:45	11:45	1237	881	1607		
EOL LSP:	27-Jun-2006	178	01:45	11:45	1237	881	1607	23:15	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	8.6	4.2
Water depth (m)	50	56.8
RMS noise @ 5 Hz LC (µB)	2.5	2.8
Weather	290°, 6m/s, 1.5m	300°, 11m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1983	1975
Stbd	1980	1975

Streamer Depths (m)

	SOL	EOL
Str 1	7.0-7.3	6.8-7.2
Str 2	6.8-7.2	6.8-7.2
Str 3	6.9-7.3	6.8-7.1
Str 4	6.9-7.2	6.9-7.2
Str 5	6.9-7.2	6.9-7.2
Str 6	6.8-7.3	6.9-7.1
Str 7	6.8-7.1	6.8-7.2
Str 8	6.9-7.3	7.0-7.3

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)			
S3:	83		339	290 (Phase)			
S4:	106,110				127		
S5:	75				86, 88, 326		
S6:	49, 116, 120, 158				20, 29, 37, 91, 205, 303		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2080F1-154**Seq: **154**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1604		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1604		FSP @ 23:25 UTC
121	1997	1604		FPSP @ 23:25 UTC
387	1731			LSP of the day
469	1649	1604		EOT
470	1648	1605		SOT
840	1278	1605		EOT
841	1277	1606		SOT
1211	907	1606		EOT
1212	906	1607		SOT
1237	881	1607		LPSP @ 01:45 UTC
1237	881	1607		LSP @ 01:45 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1607		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2080F1-154**Seq: **154**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2080F1-154**
 Area: **Gippsland Basin, Bass Strait** Sequence: **154** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2073-2088** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final
 Initials: vq, hh, at, vt

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	26-Jun-2006	177	23:25	9:25	1997	8.6	-433.2	290°, 6m/s, 1.5m
FPSP:	26-Jun-2006	177	23:25	9:25	1997			
LPSP:	27-Jun-2006	178	01:45	11:45	881			
EOL LSP:	27-Jun-2006	178	01:45	11:45	881	4.2	-242	300°, 11m/s, 1.5m
			UTC offset:	10.0				

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	519	520	Sub arrays:	PO-PC	37.0	35.1
Per streamer:	Str 1-2	75	75		PC-PI	8.2	7.7
	Str 2-3	84	75		SI-SC	7.9	7.7
	Str 3-4	89	72		SC-SO	8.0	7.9
	Str 4-5	65	71			7.7	7.9
	Str 5-6	71	77				
	Str 6-7	72	74				
	Str 7-8	72	76				

P2/94 filename: **G06A-2080F1-154.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**
 BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_11**
 Backup tape: **Tape 4 Seq 1**

Observations disabled etc.

Acoustics:
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	23:25	9:25	SOL, FSP
1997	23:25	9:25	FPSP
1148	1:12	11:12	Verify has 6 satellites and pdop > 4.5
881	1:45	11:45	LPSP
881	1:45	11:45	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2080F1-154**
 Sequence: **154**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **2073-2088** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	26-Jun-2006	177	23:25	09:25	121	1997	1604
FPSP:	26-Jun-2006	177	23:25	09:25	121	1997	1604
LPSP:	27-Jun-2006	178	01:45	11:45	1237	881	1607
EOL LSP	27-Jun-2006	178	01:45	11:45	1237	881	1607

GENERAL INFORMATION

	SOL	EOL
FA (°)	8.6	4.2
Water depth (m)	50	56.8
RMS Noise (µB)	2.5	2.8
Weather	290°, 6m/s, 1.5m	300°, 11m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1983	1975
Stbd	1980	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:20
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	4.9	2.7
HDOP	0.8	2.0	1.2
V1G2 PDOP	1.9	4.9	3.0
HDOP	0.8	2.0	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.6	2.5	4.87
Speed through water (m/s)	1.9	2.3	2.2	4.18
Feather angle (°)	3.7	8.7	6.0	
Gyro (P) (°)	179.9	197.3	191.1	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	511.6	523.0	519.4
Str 1-2	73.3	76.1	74.9
Str 2-3	72.5	75.6	74.4
Str 3-4	70.2	73.7	71.9
Str 4-5	68.8	74.1	71.6
Str 5-6	75.5	78.7	77.4
Str 6-7	72.2	74.1	73.4
Str 7-8	74.5	76.6	75.7

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.3	38.2	35.5
Port Subarray			
Outer-Centre	7.6	8.7	8.2
Centre-Inner	7.2	8.7	7.7
Stbd Subarray			
Centre-Inner	7.5	8.6	8.0
Outer-Centre	7.3	8.2	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106,110			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	326, 352	
Str 6	91, 205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2096P1-156**
 Area: **Gippsland Basin, Bass Strait** Sequence: **156**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2089-2104** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	27-Jun-2006	178	09:08	19:08	121	1997	1612	08:20	
FPSP:	27-Jun-2006	178	09:08	19:08	121	1997	1612		
LPSP:	27-Jun-2006	178	12:01	22:01	1237	881	1615		
EOL LSP:	27-Jun-2006	178	12:01	22:01	1237	881	1615	08:40	
				UTC Offset:	10.0				

Full volume arrays at 08:40 UTC

EOL

Feather angle (°)	-7.1	-0.1
Water depth (m)	49.6	57
RMS noise @ 5 Hz LC (µB)	5.2	5
Weather	270°, 7m/s, 2.0m	250°, 12m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1979	1974
Stbd	1980	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.8-7.3
Str 2	6.9-7.3	6.8-7.2
Str 3	6.8-7.2	6.8-7.3
Str 4	6.8-7.1	6.8-7.3
Str 5	6.9-7.3	6.8-7.3
Str 6	6.8-7.1	6.7-7.2
Str 7	6.7-7.1	6.9-7.3
Str 8	6.8-7.2	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.
Slight swell noise visible on RMS display through out the line.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)	345		
S3:	83		339	290 (Phase)	16		
S4:	106, 110, 148				127	178	
S5:	75				86, 326		
S6:	49, 116, 158				91, 205		
S7:	89, 100, 166, 202, 229, 285		360			203	
S8:							318

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2096P1-156**Seq: **156**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1612		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1612		FSP @ 09:08 UTC
121	1997	1612		FPSP @ 09:08 UTC
469	1649	1612		EOT
470	1648	1613		SOT
474	1644		Bad	Delta Error: S-1: 1.1
840	1278	1613		EOT
841	1277	1614		SOT
1211	907	1614		EOT
1212	906	1615		SOT
1237	881	1615		LPSP @ 12:01 UTC
1237	881	1615		LSP @ 12:01 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1615		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2096P1-156**Seq: **156**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2096P1-156**
 Sequence: **156**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **2089-2104** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	27-Jun-2006	178	09:08	19:08	121	1997	1612
FPSP:	27-Jun-2006	178	09:08	19:08	121	1997	1612
LPSP:	27-Jun-2006	178	12:01	22:01	1237	881	1615
EOL LSP	27-Jun-2006	178	12:01	22:01	1237	881	1615

GENERAL INFORMATION

	SOL	EOL
FA (°)	-7.1	-0.1
Water depth (m)	49.6	57
RMS Noise (µB)	5.2	5
Weather	270°, 7m/s, 2.0m	250°, 12m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1979	1974
Stbd	1980	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:53
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.5	1.9
HDOP	0.8	1.3	1.0
V1G2 PDOP	1.5	2.5	2.0
HDOP	0.9	1.3	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.8	2.2	2.0	3.93
Speed through water (m/s)	2.0	2.4	2.2	4.28
Feather angle (°)	-7.4	-0.4	-4.1	
Gyro (P) (°)	195.4	216.1	203.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.1	528.0	523.0
Str 1-2	73.2	75.9	74.7
Str 2-3	74.5	76.8	75.6
Str 3-4	69.2	75.7	71.7
Str 4-5	68.0	76.2	72.0
Str 5-6	74.8	81.0	78.9
Str 6-7	72.2	74.8	73.6
Str 7-8	74.7	78.2	76.5

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.2	38.1	35.1
Port-Subarray	7.6	8.8	8.2
Outer-Centre	7.2	8.6	7.8
Centre-Inner	7.5	8.7	8.1
Stbd Subarray	7.6	8.4	8.0
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106,110,148			
Str 5	75			
Str 6	49, 116, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2	302,	
Str 3		
Str 4	127,178,	
Str 5	86,326,352,	
Str 6	91,205,	
Str 7	203,	
Str 8	152,340,318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1644	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.04

TOTAL SHOTS

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.
 Slight swell noise visible on RMS display through out the line.

PROCESSING QC COMMENTS

Mild swell ot moderale swell noise energy on line, effecting 5% of traces. .
 Strum and head wave energy observed along the line

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2112P1-158**
 Area: **Gippsland Basin, Bass Strait** Sequence: **158**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2105-2120** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	27-Jun-2006	178	18:47	4:47	121	1997	1619	18:10	
FPSP:	27-Jun-2006	178	18:47	4:47	121	1997	1619		
LPSP:	27-Jun-2006	178	21:42	7:42	1237	881	1622		
EOL LSP:	27-Jun-2006	178	21:42	7:42	1237	881	1622	18:30	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-6.7	-1.6
Water depth (m)	49	55
RMS noise @ 5 Hz LC (µB)	3.8	3.5
Weather	255°, 6m/s, 1.0m	245°, 5m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1972	1977
Stbd	1978	1976

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.2	6.9-7.2
Str 2	6.8-7.1	6.8-7.2
Str 3	6.7-7.0	6.8-7.1
Str 4	6.7-7.1	6.7-7.2
Str 5	6.6-7.0	6.8-7.1
Str 6	6.8-7.3	6.9-7.2
Str 7	6.6-7.1	6.9-7.1
Str 8	6.7-7.2	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	345		
S3:	83		339	290 (Phase)	3, 16		
S4:	106, 110, 148				127		
S5:	75				86, 326		
S6:	49, 116, 158				91, 205, 303, 360		
S7:	89, 100, 166, 202, 229, 285		360		336, 348		
S8:					64, 340		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2112P1-158**

Seq: **158**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1619		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1619		FSP @ 18:47 UTC
121	1997	1619		FPSP @ 18:47 UTC
469	1649	1619		EOT
470	1648	1620		SOT
840	1278	1620		EOT
841	1277	1621		SOT
1211	907	1621		EOT
1212	906	1622		SOT
1237	881	1622		LPSP @ 21:42 UTC
1237	881	1622		LSP @ 21:42 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1253	/	1622		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2112P1-158**Seq: **158**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2112P1-158**

Area: **Gippsland Basin, Bass Strait** Sequence: **158** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **11**

Job ID: **20323** CMP line range: **2105-2120** Line type: **Prime**

Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: vq hh at vt

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	27-Jun-2006	178	18:47	4:47	1997	-6.7	-368	255°, 6m/s, 1.0m
FPSP:	27-Jun-2006	178	18:47	4:47	1997			
LPSP:	27-Jun-2006	178	21:42	7:42	881			
EOL LSP:	27-Jun-2006	178	21:42	7:42	881	-1.6	-202	245°, 5m/s, 1.5m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	524	519
Per streamer:		
Str 1-8	75	75
Str 2-3	76	75
Str 3-4	73	73
Str 4-5	71	70
Str 5-6	78	76
Str 6-7	74	74
Str 7-8	77	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
PO-PC		8.1	8.7
PC-PI		8.1	7.8
SI-SC		8.0	8.1
SC-SO		7.7	7.8

P2/94 filename: **G06A-2112P1-158.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_11**

Backup tape: **Tape 4 Seq 5**

Observations disabled etc.

Acoustics: S2A2 Intermittent

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1997	18:47	4:47	SOL, FSP
1997	18:47	4:47	FPSP
1838	19:13	5:13	Main DN was locked up and was restarted.
881	21:42	7:42	LPSP
881	21:42	7:42	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan

Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2112P1-158**
 Sequence: **158**
 Direction: **190.5°** Nav. Def: **11**
 CMP line range: **2105-2120** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	27-Jun-2006	178	18:47	04:47	121	1997	1619
FPSP:	27-Jun-2006	178	18:47	04:47	121	1997	1619
LPSP:	27-Jun-2006	178	21:42	07:42	1237	881	1622
EOL LSP	27-Jun-2006	178	21:42	07:42	1237	881	1622

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.7	-1.6
Water depth (m)	49	55
RMS Noise (µB)	3.8	3.5
Weather	255°, 6m/s, 1.0m	245°, 5m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1972	1977
Stbd	1978	1976

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:55
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.7	2.0
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.8	2.0
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.2	2.0	3.88
Speed through water (m/s)	1.9	2.3	2.2	4.20
Feather angle (°)	-6.9	-1.9	-5.5	
Gyro (P) (°)	188.8	202.2	196.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.4	526.7	522.1
Str 1-2	73.7	76.2	75.0
Str 2-3	74.7	76.9	75.6
Str 3-4	71.5	75.7	73.6
Str 4-5	66.0	72.9	70.4
Str 5-6	75.3	79.7	77.8
Str 6-7	72.1	74.3	73.3
Str 7-8	75.1	77.6	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	30.8	38.8	34.8
Port Subarray	7.9	8.8	8.4
Outer-Centre	7.2	8.2	7.8
Stbd Subarray	7.6	8.6	8.2
Centre-Inner	7.3	8.0	7.6
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106,110,148			
Str 5	75			
Str 6	49, 116, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2	302,	
Str 3		
Str 4	127,178,	
Str 5	86,326,352,	
Str 6	91,205,	
Str 7	203,	
Str 8	152,340,318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.00

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2112F1-160**
 Area: **Gippsland Basin, Bass Strait** Sequence: **160**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2105-2120** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/JC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	28-Jun-2006	179	05:17	15:17	121	1997	1626	4:45	
FPSP:	28-Jun-2006	179	05:17	15:17	121	1997	1626		
LPSP:	28-Jun-2006	179	08:02	18:02	1237	881	1629		
EOL LSP:	28-Jun-2006	179	08:02	18:02	1237	881	1629	5:05	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	0.9	-10.3
Water depth (m)	50	56.4
RMS noise @ 5 Hz LC (µB)	2.8	2.7
Weather	090°, 3m/s, 0.5m	090°, 3m/s, 0.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1973	1972
Stbd	1975	1978

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.4	6.9-7.2
Str 2	6.9-7.3	7.0-7.2
Str 3	6.7-7.4	6.9-7.2
Str 4	6.8-7.4	6.9-7.1
Str 5	7.0-7.4	6.8-7.1
Str 6	6.7-7.2	6.9-7.2
Str 7	6.8-7.2	6.9-7.1
Str 8	6.9-7.3	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)	345		
S3:	83		339	290 (Phase)	16		
S4:	106, 110, 148				127, 178		
S5:	75				326		
S6:	49, 116, 158				91, 205		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							318

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2112F1-160**Seq: **160**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1626		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1626		FSP @ 05:17 UTC
121	1997	1626		FPSP @ 05:17 UTC
134	1984			S8C12-15 running shallow @ approx 6.2m d/t vane wash
173	1945			S8C12-15 back @ target depth
342	1776		Bad	Delta Error: S-1: 1.1
469	1649	1626		EOT
470	1648	1627		SOT
840	1278	1627		EOT
841	1277	1628		SOT
1054	1064		Bad	Delta Error: S-10: -1.9
1056	1062		Bad	Delta Error: S-10: -1.3
1211	907	1628		EOT
1212	906	1629		SOT
1237	881	1629		LPSP @ 08:02 UTC
1237	881	1629		LSP @ 08:02 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1629		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2112F1-160**Seq: **160**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2112F1-160**
 Area: **Gippsland Basin, Bass Strait** Sequence: **160** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2105-2120** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: tt, df, mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	28-Jun-2006	179	05:17	15:17	1997	0.9	-380	090°, 3m/s, 0.5m
FPSP:	28-Jun-2006	179	05:17	15:17	1997			
LPSP:	28-Jun-2006	179	08:02	18:02	881			
EOL LSP:	28-Jun-2006	179	08:02	18:02	881	-10.3	150	090°, 3m/s, 0.5m
			UTC offset:	10.0				

Separations (m)		SOL	EOL	Sources overall:		Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	520	523	Sub arrays:	PO-PC	35.1	36.0	
Per streamer:	Str 1-2	76	75		PC-PI	8.6	8.1	
	Str 2-3	76	76		SI-SC	7.6	8.1	
	Str 3-4	76	75		SC-SO	7.4	7.9	
	Str 4-5	69	71			7.2	7.1	
	Str 5-6	75	76					
	Str 6-7	76	71					
	Str 7-8	76	77					

P2/94 filename: G06A-2112F1-160.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_12
 Backup tape: Tape 1 Seq 2

Observations disabled etc.

Acoustics: S2A2 Intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	5:17	15:17	SOL, FSP
1997	5:17	15:17	FPSP
1355	6:49	16:49	Separation S4/S5 < 70m
1170	7:16	17:16	FA > 10.0°
881	8:02	18:02	LPSP
881	8:02	18:02	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator: Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2112F1-160**
 Sequence: **160**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2105-2120** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	28-Jun-2006	179	05:17	15:17	121	1997	1626
FPSP:	28-Jun-2006	179	05:17	15:17	121	1997	1626
LPSP:	28-Jun-2006	179	08:02	18:02	1237	881	1629
EOL LSP	28-Jun-2006	179	08:02	18:02	1237	881	1629

GENERAL INFORMATION

	SOL	EOL
FA (°)	0.9	-10.3
Water depth (m)	50	56.4
RMS Noise (µB)	2.8	2.7
Weather	090°, 3m/s, 0.5m	090°, 3m/s, 0.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1973	1972
Stbd	1975	1978

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:45
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	3 / 0.27%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.2	1.8
HDOP	0.7	1.1	0.9
V1G2 PDOP	1.4	2.6	1.9
HDOP	0.7	1.4	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.3	2.1	4.12
Speed through water (m/s)	2.1	2.4	2.2	4.34
Feather angle (°)	-10.6	0.8	-7.6	
Gyro (P) (°)	184.1	206.7	198.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	509.4	520.8	515.4
Str 1-2	73.2	76.2	74.6
Str 2-3	74.5	76.4	75.3
Str 3-4	71.7	75.7	74.2
Str 4-5	65.3	71.0	68.0
Str 5-6	73.6	78.5	75.7
Str 6-7	70.7	73.5	72.1
Str 7-8	74.3	77.1	75.7

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.0	37.5	34.3
Port Subarray			
Outer-Centre	7.6	9.1	8.4
Centre-Inner	6.6	8.2	7.3
Stbd Subarray			
Centre-Inner	7.5	8.4	8.0
Outer-Centre	6.5	7.6	7.0

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106,110,148			
Str 5	75			
Str 6	49, 116, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	86, 326, 352	
Str 6	91, 205	
Str 7	164, 251	
Str 8	340, 318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1776,1064,1062		3
Autofires / Misfires :			0
Missed SPs (NDR):			0
Extraction errors:			0
NAVS / ITB errors:			0
Other Bad shots:			0
Other Bad Traces:			0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage:	0.14

TOTAL SHOTS

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2128P1-162**
 Area: **Gippsland Basin, Bass Strait** Sequence: **162**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2121-2136** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: **NC/RA/LT**
 Log Status: **Final**

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	28-Jun-2006	179	16:23	2:23	121	1997	1634	15:50	
FPSP:	28-Jun-2006	179	16:23	2:23	121	1997	1634		
LPSP:	28-Jun-2006	179	19:03	5:03	1237	881	1637		
EOL LSP:	28-Jun-2006	179	19:03	5:03	1237	881	1637	16:10	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-0.5	-7.8
Water depth (m)	49	56
RMS noise @ 5 Hz LC (µB)	3.4	3.2
Weather	060°, 3m/s, 0.5m	035°, 5m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1968
Stbd	1975	1972

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.4	6.9-7.1
Str 2	6.6-7.4	7.0-7.2
Str 3	6.6-7.3	6.9-7.1
Str 4	6.8-7.2	6.8-7.2
Str 5	6.9-7.3	6.9-7.1
Str 6	6.9-7.2	6.9-7.1
Str 7	6.8-7.4	6.8-7.1
Str 8	6.8-7.1	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)	345		
S3:	83, 290			339 (Phase)	16		
S4:	43, 106, 110				127, 353		
S5:	75				86, 326		
S6:	44, 49, 116, 120, 158				29, 39, 91, 205, 360		
S7:	89, 100, 166, 202, 229, 285		360		348		
S8:					340		318

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2128P1-162**Seq: **162**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1634		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1634		FSP @ 16:23 UTC
121	1997	1634		FPSP @ 16:23 UTC
469	1649	1634		EOT
470	1648	1635		SOT
840	1278	1635		EOT
841	1277	1636		SOT
1211	907	1636		EOT
1212	906	1637		SOT
1237	881	1637		LPSP @ 19:03 UTC
1237	881	1637		LSP @ 19:03 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1637		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2128P1-162**Seq: **162**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2128P1-162**
 Sequence: **162**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2121-2136** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	28-Jun-2006	179	16:23	02:23	121	1997	1634
FPSP:	28-Jun-2006	179	16:23	02:23	121	1997	1634
LPSP:	28-Jun-2006	179	19:03	05:03	1237	881	1637
EOL LSP	28-Jun-2006	179	19:03	05:03	1237	881	1637

GENERAL INFORMATION

	SOL	EOL
FA (°)	-0.5	-7.8
Water depth (m)	49	56
RMS Noise (µB)	3.4	3.2
Weather	060°, 3m/s, 0.5m	035°, 5m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1968
Stbd	1975	1972

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:40
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.9	2.2
HDOP	0.9	1.5	1.2
V1G2 PDOP	1.5	2.9	2.3
HDOP	0.9	1.5	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.3	2.2	4.24
Speed through water (m/s)	2.1	2.3	2.2	4.25
Feather angle (°)	-7.4	0.1	-3.7	
Gyro (P) (°)	187.3	201.3	193.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.0	526.2	522.6
Str 1-2	74.1	76.0	75.0
Str 2-3	75.0	76.5	75.8
Str 3-4	73.1	76.0	74.8
Str 4-5	69.1	73.4	71.2
Str 5-6	74.6	78.0	76.7
Str 6-7	71.9	74.1	73.0
Str 7-8	75.3	77.2	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.6	39.1	36.7
Port Subarray	8.0	9.0	8.4
Outer-Centre	7.7	8.8	8.3
Centre-Inner	7.0	7.9	7.5
Stbd Subarray	6.6	7.5	7.0
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	43, 106, 110			
Str 5	75			
Str 6	44, 49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127, 178,	
Str 5	326, 352,	
Str 6	91, 205,	
Str 7	164,	
Str 8	340, 318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2128F1-164**
 Area: **Gippsland Basin, Bass Strait** Sequence: **164**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2121-2136** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	29-Jun-2006	180	01:15	11:15	123	1997	1641	0:45	
FPSP:	29-Jun-2006	180	01:15	11:15	123	1997	1641		
LPSP:	29-Jun-2006	180	03:33	13:33	1239	881	1644		
EOL LSP:	29-Jun-2006	180	03:33	13:33	1239	881	1644	1:05	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	9.4	2.1
Water depth (m)	49	56
RMS noise @ 5 Hz LC (µB)	3.4	2.5
Weather	350°, 2m/s, 1.5m	020°, 3m/s, 0.3m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1971	1967
Stbd	1975	1969

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.1	6.8-7.3
Str 2	6.9-7.2	6.9-7.2
Str 3	6.8-7.1	6.9-7.2
Str 4	6.9-7.1	6.9-7.2
Str 5	6.9-7.3	6.8-7.2
Str 6	6.8-7.1	6.9-7.2
Str 7	6.8-7.2	6.8-7.2
Str 8	6.6-7.2	6.8-7.1

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)			
S3:	83, 290			339 (Phase)	3, 16		
S4:	43, 106, 110				127		
S5:	75				86, 326		
S6:	44, 49, 116, 120, 158				29, 37, 91, 205, 303, 360		
S7:	89, 100, 166, 202, 229, 285		360				
S8:					280, 281, 340		

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
103-112	/	1641		SOT - SOL NOISE FILES
113-122	2007-1998			APPROACH SHOTS
123	1997	1641		FSP @ 01:15 UTC
123	1997	1641		FPSP @ 01:15 UTC
469	1651	1641		EOT
470	1650	1642		SOT
840	1280	1642		EOT
841	1279	1643		SOT
1211	909	1643		EOT
1212	908	1644		SOT
1239	881	1644		LPSP @ 03:33 UTC
1239	881	1644		LSP @ 03:33 UTC
1240-1244	880-876			NAV PROCESSING SHOTS
1245-1254	/	1644		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2128F1-164**Seq: **164**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2128F1-164**

Area: **Gippsland Basin, Bass Strait** Sequence: **164** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **2121-2136** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: tt, df, mm.

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	29-Jun-2006	180	01:15	11:15	1997	9.4	355	350°, 2m/s, 1.5m
FPSP:	29-Jun-2006	180	01:15	11:15	1997			
LPSP:	29-Jun-2006	180	03:33	13:33	881			
EOL LSP:	29-Jun-2006	180	03:33	13:33	881	2.1	-170	020°, 3m/s, 0.3m
UTC offset:				10.0				

Separations (m)		SOL	EOL	Sources overall:		Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	518	522	Sub arrays:	PO-PC	38.5	35.4	
Per streamer:	Str 1-2	74	75		PC-PI	8.5	8.7	
	Str 2-3	75	76		SI-SC	8.4	8.3	
	Str 3-4	74	75		SC-SO	7.6	8.1	
	Str 4-5	71	70			7.3	7.2	
	Str 5-6	76	77					
	Str 6-7	73	73					
	Str 7-8	76	76					

P2/94 filename: **G06A-2128F1-164.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_12**

Backup tape: **Tape 2 Seq 1**

Observations disabled etc.

Acoustics: S2A2 Intermittent

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1997	1:15	11:15	SOL, FSP
1997	1:15	11:15	FPSP
			FA° > 10° at SOL
1744	1:46	11:46	FA° < 10° at SOL
881	3:33	13:33	LPSP
881	3:33	13:33	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan

Chief Navigator: Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2128F1-164**
 Sequence: **164**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2121-2136** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	29-Jun-2006	180	01:15	11:15	123	1997	1641
FPSP:	29-Jun-2006	180	01:15	11:15	123	1997	1641
LPSP:	29-Jun-2006	180	03:33	13:33	1239	881	1644
EOL LSP	29-Jun-2006	180	03:33	13:33	1239	881	1644

GENERAL INFORMATION

	SOL	EOL
FA (°)	9.4	2.1
Water depth (m)	49	56
RMS Noise (µB)	3.4	2.5
Weather	350°, 2m/s, 1.5m	020°, 3m/s, 0.3m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1971	1967
Stbd	1975	1969

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:18
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	4.9	2.3
HDOP	0.9	2.0	1.3
V1G2 PDOP	1.5	4.9	2.4
HDOP	0.9	2.0	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.6	2.5	4.93
Speed through water (m/s)	2.0	2.4	2.1	4.16
Feather angle (°)	2.2	11.0	7.0	
Gyro (P) (°)	172.1	191.2	183.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	505.3	522.7	517.0
Str 1-2	71.8	76.4	74.7
Str 2-3	71.2	76.1	74.2
Str 3-4	71.5	76.7	74.3
Str 4-5	67.5	73.5	70.2
Str 5-6	73.3	76.9	75.1
Str 6-7	71.3	73.9	73.0
Str 7-8	73.4	76.7	75.5

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.9	38.9	35.6
Port Subarray			
Outer-Centre	8.1	9.4	8.8
Centre-Inner	7.5	8.8	8.2
Stbd Subarray			
Centre-Inner	7.0	8.1	7.6
Outer-Centre	6.9	7.8	7.3

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	43, 106, 110			
Str 5	75			
Str 6	44, 49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 176, 178	
Str 5	326	
Str 6	91, 205	
Str 7	164	
Str 8	340, 318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.10

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2144P1-166**
 Area: **Gippsland Basin, Bass Strait** Sequence: **166**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2137-2152** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/JC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	29-Jun-2006	180	10:27	20:27	121	1997	1649	09:50	
FPSP:	29-Jun-2006	180	10:27	20:27	121	1997	1649		
LPSP:	29-Jun-2006	180	13:06	23:06	1237	881	1652		
EOL LSP:	29-Jun-2006	180	13:06	23:06	1237	881	1652	10:10	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-4.7	0.0
Water depth (m)	49.2	56
RMS noise @ 5 Hz LC (µB)	3.6	3.6
Weather	080°, 6m/s, 1.0m	001°, 5m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1978	1974
Stbd	1979	1976

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.8-7.2
Str 2	6.9-7.4	6.8-7.2
Str 3	6.8-7.3	6.8-7.3
Str 4	6.9-7.2	6.9-7.2
Str 5	6.8-7.2	6.8-7.3
Str 6	6.9-7.2	6.8-7.2
Str 7	6.8-7.3	6.9-7.2
Str 8	6.8-7.2	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:	312			305 (Phase)			
S3:	83, 290			339 (Phase)	3, 16		
S4:	106, 110, 148, 177				127		
S5:	75				86, 326		
S6:	49, 116, 120, 158, 161				29, 37, 91, 205, 360		
S7:	89, 100, 166, 202, 229, 285		360				
S8:					340		

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2144P1-166**

Seq: **166**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1649		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1649		FSP @ 10:27 UTC
121	1997	1649		FPSP @ 10:27 UTC
469	1649	1649		EOT
470	1648	1650		SOT
840	1278	1650		EOT
841	1277	1651		SOT
922	1196		Bad	Delta Error: S-1: 1.2
1211	907	1651		EOT
1212	906	1652		SOT
1237	881	1652		LPSP @ 13:06 UTC
1237	881	1652		LSP @ 13:06 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1652		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2144P1-166**Seq: **166**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2144P1-166**
 Sequence: **166**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2137-2152** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	29-Jun-2006	180	10:27	20:27	121	1997	1649
FPSP:	29-Jun-2006	180	10:27	20:27	121	1997	1649
LPSP:	29-Jun-2006	180	13:06	23:06	1237	881	1652
EOL LSP	29-Jun-2006	180	13:06	23:06	1237	881	1652

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-4.7	0
Water depth (m)	49.2	56
RMS Noise (µB)	3.6	3.6
Weather	080°, 6m/s, 1.0m	001°, 5m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1978	1974
Stbd	1979	1976

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:39
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.8	1.9
HDOP	0.8	1.2	1.0
V1G2 PDOP	1.5	2.8	2.0
HDOP	0.9	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.2	4.28
Speed through water (m/s)	2.1	2.4	2.2	4.27
Feather angle (°)	-4.5	0.4	-1.9	
Gyro (P) (°)	182.3	197.7	188.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	521.0	527.6	524.6
Str 1-2	74.0	76.0	75.1
Str 2-3	74.9	76.5	75.7
Str 3-4	73.7	76.2	75.0
Str 4-5	70.3	75.0	72.8
Str 5-6	74.5	77.7	76.2
Str 6-7	72.6	74.3	73.4
Str 7-8	75.6	77.1	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.9	40.3	37.3
Port Subarray			
Outer-Centre	7.9	9.0	8.5
Centre-Inner	7.8	8.9	8.3
Stbd Subarray			
Centre-Inner	7.1	8.1	7.6
Outer-Centre	6.8	7.8	7.2

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	326,	
Str 6	91,205,	
Str 7	164,	
Str 8	340,318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1196	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.07

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2144F1-168**
 Area: **Gippsland Basin, Bass Strait** Sequence: **168**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2137-2152** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: **NC/RA/LT**
 Log Status: **Final**

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	29-Jun-2006	180	19:49	5:49	121	1997	1655	19:15 UTC
FPSP:	29-Jun-2006	180	19:49	5:49	121	1997	1655	
LPSP:	29-Jun-2006	180	22:34	8:34	1237	881	1658	Full volume arrays at 19:35 UTC
EOL LSP:	29-Jun-2006	180	22:34	8:34	1237	881	1658	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-6.3	-4.3
Water depth (m)	49	54
RMS noise @ 5 Hz LC (µB)	2.6	3.5
Weather	285°, 2m/s, 1.0m	020°, 4m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1980	1977
Stbd	1980	1980

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.4	6.9-7.2
Str 2	6.9-7.3	7.0-7.2
Str 3	6.9-7.3	6.9-7.2
Str 4	6.8-7.2	7.0-7.2
Str 5	6.9-7.3	7.0-7.2
Str 6	6.8-7.2	6.8-7.2
Str 7	6.9-7.3	6.9-7.3
Str 8	6.9-7.4	6.9-7.1

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	312			305 (Phase)	345		
S3:	83, 290			339 (Phase)	3, 16		
S4:	106, 110, 148, 177				127, 178, 223, 353		
S5:	75				86, 326		
S6:	49, 116, 120, 158, 161				29, 37, 40, 91, 205, 360		
S7:	89, 100, 166, 202, 229, 285		360		164, 256		
S8:					318, 340		

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2144F1-168**Seq: **168**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1655		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1655		FSP @ 19:49 UTC
121	1997	1655		FPSP @ 19:49 UTC
469	1649	1655		EOT
470	1648	1656		SOT
820	1298			Rig/ pipeline reflection H-T from stbd side @ 20µB
840	1278	1656		EOT
841	1277	1657		SOT
890	1228			Rig/ pipeline reflection no longer seen
1018	1100		Bad	Delta Error: S-1: 1.1
1056	1062		Bad	Delta Error: S-1: 1.1
1090	1028		Bad	Delta Error: S-1: 1.2
1211	907	1657		EOT
1212	906	1658		SOT
1237	881	1658		LPSP @ 22:34 UTC
1237	881	1658		LSP @ 22:34 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1658		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2144F1-168**Seq: **168**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2144F1-168**
 Sequence: **168**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2137-2152** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	29-Jun-2006	180	19:49	05:49	121	1997	1655
FPSP:	29-Jun-2006	180	19:49	05:49	121	1997	1655
LPSP:	29-Jun-2006	180	22:34	08:34	1237	881	1658
EOL LSP	29-Jun-2006	180	22:34	08:34	1237	881	1658

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.3	-4.3
Water depth (m)	49	54
RMS Noise (µB)	2.6	3.5
Weather	285°, 2m/s, 1.0m	020°, 4m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1980	1977
Stbd	1980	1980

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:45
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	3 / 0.27%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.6	2.0
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.6	2.0
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.2	2.1	4.11
Speed through water (m/s)	2.1	2.3	2.2	4.24
Feather angle (°)	-6.6	-4.6	-5.9	
Gyro (P) (°)	189.4	201.0	194.1	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	519.2	525.2	522.7
Str 1-2	74.2	75.8	75.0
Str 2-3	75.3	76.7	75.8
Str 3-4	72.9	76.1	74.6
Str 4-5	70.3	73.8	71.8
Str 5-6	74.5	77.7	76.3
Str 6-7	72.0	73.9	72.8
Str 7-8	75.4	77.0	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.5	38.4	36.2
Port Subarray	7.9	8.9	8.5
Outer-Centre	7.7	8.8	8.2
Centre-Inner	7.3	8.4	7.8
Stbd Subarray	6.9	7.6	7.2
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	326,	
Str 6	91,205,	
Str 7	164,	
Str 8	340,318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1100, 1062, 1028	3
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2160P1-170**
 Area: **Gippsland Basin, Bass Strait** Sequence: **170**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2153-2168** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	30-Jun-2006	181	06:21	16:21	121	1997	1662	5:45	
FPSP:	30-Jun-2006	181	06:21	16:21	121	1997	1662		
LPSP:	30-Jun-2006	181	09:17	19:17	1237	881	1665		
EOL LSP:	30-Jun-2006	181	09:17	19:17	1237	881	1665	6:05	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-3.1	-13.3
Water depth (m)	48	56
RMS noise @ 5 Hz LC (µB)	1.9	2.6
Weather	020°, 3m/s, 1.0m	305°, 11m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1972
Stbd	1976	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.8-7.4
Str 2	7.9-7.4	6.9-7.1
Str 3	6.8-7.4	6.9-7.2
Str 4	6.9-7.3	6.9-7.2
Str 5	6.9-7.3	6.8-7.2
Str 6	6.9-7.2	6.6-7.1
Str 7	6.9-7.3	6.8-7.3
Str 8	6.8-7.2	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340,360		
S2:				305 (Phase)			
S3:	83, 290			339 (Phase)			
S4:	106, 110, 148, 177				127		
S5:	75				86,326		
S6:	49, 116, 120, 158, 161				29,37,91,205,303		
S7:	100, 166, 202, 229, 285		360		164,348		
S8:							

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1662		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1662		FSP @ 06:21 UTC
121	1997	1662		FPSP @ 06:21 UTC
469	1649	1662		EOT
470	1648	1663		SOT
840	1278	1663		EOT
841	1277	1664		SOT
1211	907	1664		EOT
1212	906	1665		SOT
1237	881	1665		LPSP @ 09:17 UTC
1237	881	1665		LSP @ 09:17 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1665		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2160P1-170**Seq: **170**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2160P1-170**
 Area: **Gippsland Basin, Bass Strait** Sequence: **170** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2153-2168** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: tt, df, mm.

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	30-Jun-2006	181	06:21	16:21	1997	-3.1	355	020°, 3m/s, 1.0m
FPSP:	30-Jun-2006	181	06:21	16:21	1997			
LPSP:	30-Jun-2006	181	09:17	19:17	881			
EOL LSP:	30-Jun-2006	181	09:17	19:17	881	-13.3	141	305°, 11m/s, 1.0m
			UTC offset: 10.0					

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL	
Streamer overall:	Str 1-8	523	524			34.8	36.8	
Per streamer:	Str 1-2	76	75	Sub arrays:	PO-PC	8.0	7.8	
	Str 2-3	75	75		PC-PI	8.8	9.1	
	Str 3-4	74	73		SI-SC	7.5	7.3	
	Str 4-5	71	74		SC-SO	7.3	7.2	
	Str 5-6	76	78					
	Str 6-7	77	74					
	Str 7-8	79	76					

P2/94 filename: G06A-2160P1-170.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_12
 Backup tape: Tape 3 Seq 2

Observations disabled etc.

Acoustics: S2A2 Intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	6:21	16:21	SOL, FSP
1997	6:21	16:21	FPSP
1260	8:10	18:10	FA > 10°
881	9:17	19:17	LPSP
881	9:17	19:17	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2160P1-170**
 Sequence: **170**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2153-2168** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	30-Jun-2006	181	06:21	16:21	121	1997	1662
FPSP:	30-Jun-2006	181	06:21	16:21	121	1997	1662
LPSP:	30-Jun-2006	181	09:17	19:17	1237	881	1665
EOL LSP	30-Jun-2006	181	09:17	19:17	1237	881	1665

GENERAL INFORMATION

	SOL	EOL
FA (°)	-3.1	-13.3
Water depth (m)	48	56
RMS Noise (µB)	1.9	2.6
Weather	020°, 3m/s, 1.0m	305°, 11m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1972
Stbd	1976	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:56
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.3	3.6	2.1
HDOP	0.8	3.3	1.4
V1G2 PDOP	1.4	3.6	2.2
HDOP	0.8	3.3	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.7	2.3	2.0	3.90
Speed through water (m/s)	2.1	2.3	2.2	4.26
Feather angle (°)	-13.6	-3.3	-8.6	
Gyro (P) (°)	191.0	216.0	202.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	504.5	524.0	516.8
Str 1-2	71.9	76.1	74.4
Str 2-3	73.6	76.2	75.2
Str 3-4	69.6	75.6	73.3
Str 4-5	68.3	72.6	70.3
Str 5-6	73.9	77.9	76.0
Str 6-7	69.9	73.7	72.0
Str 7-8	73.0	77.5	75.6

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.5	38.7	34.8
Port-Subarray	7.2	8.7	8.0
Outer-Centre	8.0	9.0	8.4
Stbd Subarray	7.1	8.2	7.7
Centre-Inner	6.7	7.6	7.1
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	100, 166, 202, 229, 285		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	326	
Str 6	37, 91, 205	
Str 7	164	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2160F1-172**
 Area: **Gippsland Basin, Bass Strait** Sequence: **172**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2153-2168** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: **NC/RA/LT**
 Log Status: **Final**

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	30-Jun-2006	181	16:25	2:25	121	1997	1668	15:50	
FPSP:	30-Jun-2006	181	16:25	2:25	121	1997	1668		
LPSP:	30-Jun-2006	181	19:03	5:03	1237	881	1671		
EOL LSP:	30-Jun-2006	181	19:03	5:03	1237	881	1671	16:10	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	1.3	-8.1
Water depth (m)	49	55
RMS noise @ 5 Hz LC (µB)	2.7	3.2
Weather	320°, 8m/s, 1.0m	320°, 10m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1980	1980
Stbd	1980	1982

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.1	7.0-7.3
Str 2	6.9-7.4	7.1-7.3
Str 3	6.9-7.3	6.9-7.2
Str 4	6.9-7.1	7.0-7.2
Str 5	6.8-7.1	6.8-7.3
Str 6	6.9-7.2	7.0-7.3
Str 7	6.7-7.3	6.9-7.3
Str 8	6.9-7.2	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	83, 290			339 (Phase)	3, 16		
S4:	106, 110, 148, 177				127, 353		
S5:	75				88, 326		
S6:	49, 116, 120, 158, 161				29, 37, 91, 205, 360		
S7:	100, 166, 202, 229, 285		360				
S8:							

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1668		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1668		FSP @ 16:25 UTC
121	1997	1668		FPSP @ 16:25 UTC
469	1649	1668		EOT
470	1648	1669		SOT
840	1278	1669		EOT
841	1277	1670		SOT
1211	907	1670		EOT
1212	906	1671		SOT
1237	881	1671		LPSP @ 19:03 UTC
1237	881	1671		LSP @ 19:03 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1671		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2160F1-172**Seq: **172**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2160F1-172**
 Sequence: **172**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2153-2168** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	30-Jun-2006	181	16:25	02:25	121	1997	1668
FPSP:	30-Jun-2006	181	16:25	02:25	121	1997	1668
LPSP:	30-Jun-2006	181	19:03	05:03	1237	881	1671
EOL LSP	30-Jun-2006	181	19:03	05:03	1237	881	1671

GENERAL INFORMATION

	SOL	EOL
FA (°)	1.3	-8.1
Water depth (m)	49	55
RMS Noise (µB)	2.7	3.2
Weather	320°, 8m/s, 1.0m	320°, 10m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1980	1980
Stbd	1980	1982

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:38
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.9	2.1
HDOP	0.8	1.5	1.2
V1G2 PDOP	1.5	2.9	2.2
HDOP	0.9	1.5	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.3	2.2	4.28
Speed through water (m/s)	2.0	2.3	2.2	4.24
Feather angle (°)	-8.2	1.1	-2.4	
Gyro (P) (°)	189.0	207.7	197.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	517.6	526.6	523.5
Str 1-2	73.9	76.2	75.2
Str 2-3	74.8	76.3	75.5
Str 3-4	71.4	74.9	73.4
Str 4-5	70.2	75.1	72.6
Str 5-6	75.5	78.9	77.4
Str 6-7	72.0	74.0	73.2
Str 7-8	74.9	77.0	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.0	38.1	35.9
Port Subarray			
Outer-Centre	7.3	8.4	7.9
Centre-Inner	8.4	9.4	8.8
Stbd Subarray			
Centre-Inner	7.2	8.2	7.7
Outer-Centre	6.9	7.8	7.3

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	100, 166, 202, 229, 285		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,	
Str 5	326,352,	
Str 6	91,205,	
Str 7	164,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2176P1-174**
 Area: **Gippsland Basin, Bass Strait** Sequence: **174**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2169-2184** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Incomplete** Initials: GC/JC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	1-Jul-2006	182	02:11	12:11	121	1997	1674	at	1:40
FPSP:	1-Jul-2006	182	02:11	12:11	121	1997	1674		
LPSP:	1-Jul-2006	182	04:00	14:00	903	1215	1676	Full volume arrays at	2:00
EOL LSP:	1-Jul-2006	182	04:00	14:00	903	1215	1676		
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	1.5	3.1
Water depth (m)	48.8	54
RMS noise @ 5 Hz LC (µB)	3.4	2.9
Weather	300°, 9m/s, 1.5m	300°, 9m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1985	1984
Stbd	1987	1985

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.1	6.8-7.1
Str 2	6.9-7.2	6.9-7.2
Str 3	6.9-7.2	6.9-7.2
Str 4	6.8-7.2	6.8-7.2
Str 5	6.9-7.3	6.9-7.3
Str 6	6.8-7.2	6.8-7.2
Str 7	6.8-7.1	6.8-7.1
Str 8	6.9-7.2	6.9-7.2

SOL/EOL Comments

No noise files taken at EOL d/t line aborted d/t whale sighting within 3km of vessel

Overall Line Observations

All gun strings operating with gun # 4 as spare.
Line aborted SP 1215 d/t whale sighting within 3km's of vessel @ 04:00UTC

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)			
S3:	83, 290			339 (Phase)			
S4:	106, 110, 148, 177				127		
S5:	75				86, 326		
S6:	49, 116, 120, 158, 161						
S7:	100, 166, 202, 229, 285		360				
S8:							

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2176P1-174**Seq: **174**Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1674		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1674		FSP @ 02:11 UTC
121	1997	1674		FPSP @ 02:11 UTC
469	1649	1674		EOT
470	1648	1675		SOT
840	1278	1675		EOT
841	1277	1676		SOT
903	1215			LGSP @ 04:00UTC d/t whale sighting within 3km of vessel
903	1215	1676		LPSP @ 04:00 UTC
903	1215	1676		LSP @ 04:00 UTC
n/a	n/a			NAV PROCESSING SHOTS
n/a				EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2176P1-174**Seq: **174**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2176P1-174**

Area: **Gippsland Basin, Bass Strait** Sequence: **174** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **2169-2184** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Incomplete** Log Status: Final

Initials: tt,df,mm.

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	1-Jul-2006	182	02:11	12:11	1997	1.5	-329	300°, 9m/s, 1.5m
FPSP:	1-Jul-2006	182	02:11	12:11	1997			
LPSP:	1-Jul-2006	182	04:00	14:00	1215			
EOL LSP:	1-Jul-2006	182	04:00	14:00	1215	3.1	-407	300°, 9m/s, 1.5m
UTC offset:				10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL	
Streamer overall:	Str 1-8	522	522		37.9	36.0	
Per streamer:	Str 1-2	75	77	Sub arrays:	PO-PC	7.8	8.0
	Str 2-3	76	75		PC-PI	9.0	8.3
	Str 3-4	74	77		SI-SC	7.5	7.2
	Str 4-5	72	72		SC-SO	7.3	7.7
	Str 5-6	77	75				
	Str 6-7	73	74				
	Str 7-8	76	76				

P2/94 filename: **G06A-2176P1-174.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_12**

Backup tape: **Tape 4 Seq 1**

Observations disabled etc.

Acoustics:
RGPS:
Compasses:
Other:

SP	UTC	Local Time	Comments
1997	2:11	12:11	SOL, FSP
1997	2:11	12:11	FPSP
1320	3:46	13:46	Low number of SVs on V1G1 & V1G2 (<5), V1G3 OK
1272	3:53	13:53	Number of SVs on V1G1 & V1G2 (>5), V1G3 OK.Back to normal
1215	4:00	14:00	Line stopped due to whale within 3000km
1215	4:00	14:00	LGSP 1215
1215	4:00	14:00	LPSP
1215	4:00	14:00	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan

Chief Navigator: Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2176P1-174**
 Sequence: **174**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2169-2184** Line type: **Prime**
 No. CMPs: **16** Status: **Incomplete**

Obs Initials: **GC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	1-Jul-2006	182	02:11	12:11	121	1997	1674
FPSP:	1-Jul-2006	182	02:11	12:11	121	1997	1674
LPSP:	1-Jul-2006	182	04:00	14:00	903	1215	1676
EOL LSP:	1-Jul-2006	182	04:00	14:00	903	1215	1676

GENERAL INFORMATION

	SOL	EOL
FA (°)	1.5	3.1
Water depth (m)	48.8	54
RMS Noise (µB)	3.4	2.9
Weather	300°, 9m/s, 1.5m	300°, 9m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1985	1984
Stbd	1987	1985

TOTALS INFORMATION

Recorded SPs	783
Recorded km	14.681
Production time (hh:mm)	01:49
Production files	783
Production SPs	783
Production km	14.681
Production CMP km	234.900

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	56.2	2.8
HDOP	1.1	14.5	1.5
V1G2 PDOP	0.2	17630.8	13.0
HDOP	1.1	584512.0	131.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.3	4.38
Speed through water (m/s)	1.9	2.3	2.2	4.23
Feather angle (°)	1.2	3.7	2.9	
Gyro (P) (°)	179.2	198.3	188.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.6	524.3	521.6
Str 1-2	73.5	76.4	75.0
Str 2-3	73.7	75.8	74.8
Str 3-4	72.0	75.9	73.8
Str 4-5	70.2	73.8	71.8
Str 5-6	75.0	78.4	76.7
Str 6-7	72.7	74.3	73.5
Str 7-8	75.4	76.9	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.5	38.6	35.6
Port-Subarray			
Outer-Centre	7.4	8.5	8.0
Centre-Inner	8.2	9.5	8.8
Stbd Subarray			
Centre-Inner	7.1	8.2	7.6
Outer-Centre	7.1	8.2	7.6

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	100, 166, 202, 229, 285		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	326	
Str 6	91, 205	
Str 7	164	
Str 8	65, 318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires:		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.11

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.
 Line aborted SP 1215 d/t whale sighting within 3km's of vessel @ 04:00UTC

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2176P2-176**

Area: **Gippsland Basin, Bass Strait** Sequence: **176**

Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **2169-2184** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/RF/AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	1-Jul-2006	182	11:10	21:10	121	1224	1680	10:30	UTC
FPSP:	1-Jul-2006	182	11:12	21:12	131	1214	1680		
LPSP:	1-Jul-2006	182	12:10	22:10	464	881	1680		
EOL LSP:	1-Jul-2006	182	12:10	22:10	464	881	1680	10:50	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-10.2	-8.4
Water depth (m)	54	55
RMS noise @ 5 Hz LC (µB)	3.4	3.7
Weather	340°, 5m/s, 1.5m	300°, 6m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1974	1977
Stbd	1978	1980

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.8-7.1
Str 2	6.8-7.3	6.9-7.2
Str 3	6.8-7.3	6.9-7.1
Str 4	6.8-7.3	6.9-7.2
Str 5	6.9-7.4	6.8-7.2
Str 6	6.8-7.3	6.8-7.1
Str 7	6.8-7.3	6.8-7.1
Str 8	6.8-7.3	6.9-7.3

SOL/EOL Comments

SOL noise taken with FA of 10°
Note: Tape 1681 contained "noise files only".

Overall Line Observations

All gun strings operating with gun # 3 as spare.
Original seq 174 was incomplete d/t whale sighting within 3km of vessel

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	305		
S3:	83, 290				3, 16		
S4:	21,106, 110, 148, 177				127		
S5:	75				86, 326		
S6:	49,116,120,158,161				29, 37, 91, 205,		
S7:	100,166, 202, 229, 285		360		164		
S8:	198						

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-2176P2-176

Seq:

176

Dir:

190.5°

FILE	SP	TAPE	BAD	
99-110	/	1680		SOT - SOL NOISE FILES
111-120	1234-1225			APPROACH SHOTS
121	1224	1680		FSP @ 11:10 UTC FIRST OVERLAP SP, 'A' Shots 1224-1215
131	1214	1680		FPSP @ 11:12 UTC
464	881	1680		LPSP @ 12:10 UTC
464	881	1680		LSP @ 12:10 UTC
465-469	880-876	1680		NAV PROCESSING SHOTS EOT
470-479	/	1681		SOT - EOT - NOISE FILES ONLY

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2176P2-176**

Seq: **176**

Dir: **190.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2176P2-176**
 Area: **Gippsland Basin, Bass Strait** Sequence: **176** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2169-2184** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Initials: tt,df,mm
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	1-Jul-2006	182	11:10	21:10	1224	-10.2	-88	340°, 5m/s, 1.5m
FPSP:	1-Jul-2006	182	11:12	21:12	1214			
LPSP:	1-Jul-2006	182	12:10	22:10	881			
EOL LSP:	1-Jul-2006	182	12:10	22:10	881	-8.4	5.5	300°, 6m/s, 1.5m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	525	524			36.4	34.7		
Per streamer:	Str 1-2	75	75			7.8	7.8		
	Str 2-3	76	76			9.1	9.3		
	Str 3-4	73	74			7.7	7.7		
	Str 4-5	75	73			7.6	7.8		
	Str 5-6	76	72						
	Str 6-7	74	73						
	Str 7-8	77	77						
				Sub arrays:		PO-PC			
						PC-PI			
						SI-SC			
						SC-SO			

P2/94 filename: G06A-2176P2-176.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_12
 Backup tape: Tape 4 Seq 3

Observations disabled etc.

Acoustics:
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1224	11:10	21:10	SOL, FSP
1214	11:12	21:12	FPSP
			F° > 10° since SOL.
1192	11:16	21:16	F° < 10°
1047	11:42	21:42	F° > 10°
1017	11:47	21:47	F° < 10°
881	12:10	22:10	LPSP
881	12:10	22:10	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tai
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2176P2-176**
 Sequence: **176**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2169-2184** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	1-Jul-2006	182	11:10	21:10	121	1224	1680
FPSP:	1-Jul-2006	182	11:12	21:12	131	1214	1680
LPSP:	1-Jul-2006	182	12:10	22:10	464	881	1680
EOL LSP	1-Jul-2006	182	12:10	22:10	464	881	1680

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	-10.2	-8.4
Water depth (m)	54	55
RMS Noise (µB)	3.4	3.7
Weather	340°, 5m/s, 1.5m	300°, 6m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1974	1977
Stbd	1978	1980

Recorded SPs	344
Recorded km	6.450
Production time (hh:mm)	00:58
Production files	334
Production SPs	334
Production km	6.263
Production CMP km	100.200

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.7	3.1	2.3
HDOP	1.0	1.7	1.3
V1G2 PDOP	1.9	3.1	2.5
HDOP	1.1	1.8	1.4

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.7	1.9	1.8	3.45
Speed through water (m/s)	2.0	2.3	2.2	4.28
Feather angle (°)	-10.6	-8.7	-10.1	
Gyro (P) (°)	195.1	208.3	199.6	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	512.0	523.9	518.5
Str 1-2	73.2	75.7	74.4
Str 2-3	74.8	76.3	75.6
Str 3-4	71.5	74.8	72.8
Str 4-5	67.4	73.4	70.6
Str 5-6	74.7	78.7	76.8
Str 6-7	71.2	73.3	72.2
Str 7-8	74.6	77.5	76.0

	Min	Max	Mean
Source-Source Port-Stbd	32.8	37.4	35.0
Port Subarray Outer-Centre	7.5	8.0	7.7
Centre-Inner	8.2	9.3	8.7
Stbd Subarray Centre-Inner	7.1	7.9	7.5
Outer-Centre	7.3	7.9	7.6

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			
Str 4	21,106, 110, 148, 177			
Str 5	75			
Str 6	49,116,120,158,161			
Str 7	100,166, 202, 229, 285		360	
Str 8	198			

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	86, 326, 352	
Str 6	91, 205	
Str 7	164, 251	
Str 8	65, 318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 Original seq 174 was incomplete d/t whale sighting within 3km of vessel

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2192P1-178**
 Area: **Gippsland Basin, Bass Strait** Sequence: **178**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2185-2200** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	1-Jul-2006	182	19:19	5:19	121	1997	1684	18:40 UTC
FPSP:	1-Jul-2006	182	19:19	5:19	121	1997	1684	
LPSP:	1-Jul-2006	182	22:21	8:21	1237	881	1687	Full volume arrays at 19:00 UTC
EOL LSP:	1-Jul-2006	182	22:21	8:21	1237	881	1687	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-3.8	-9.1
Water depth (m)	48	55
RMS noise @ 5 Hz LC (µB)	2.7	4
Weather	310°, 3m/s, 1.5m	168°, 6m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1973	1975
Stbd	1979	1980

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.6	6.8-7.2
Str 2	6.6-7.4	7.0-7.3
Str 3	6.8-7.1	7.0-7.2
Str 4	6.9-7.2	6.8-7.4
Str 5	6.9-7.3	7.0-7.3
Str 6	6.8-7.2	7.0-7.2
Str 7	6.9-7.2	7.0-7.4
Str 8	6.8-7.1	7.0-7.4

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	83, 290				3, 16		
S4:	21, 106, 110, 148, 177				127		
S5:	75				86, 326		
S6:	49, 116, 120, 158, 161				21, 37, 91, 154, 205		
S7:	100, 166, 202, 229, 285		360		164		
S8:	198				277		

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1684		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1684		FSP @ 19:19 UTC
121	1997	1684		FPSP @ 19:19 UTC
469	1649	1684		EOT
470	1648	1685		SOT
840	1278	1685		EOT
841	1277	1686		SOT
976	1142		Bad	Delta Error: S-11: 1.1
1211	907	1686		EOT
1212	906	1687		SOT
1237	881	1687		LPSP @ 22:21 UTC
1237	881	1687		LSP @ 22:21 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1687		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2192P1-178**Seq: **178**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2192P1-178**
 Sequence: **178**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2185-2200** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	1-Jul-2006	182	19:19	05:19	121	1997	1684
FPSP:	1-Jul-2006	182	19:19	05:19	121	1997	1684
LPSP:	1-Jul-2006	182	22:21	08:21	1237	881	1687
EOL LSP	1-Jul-2006	182	22:21	08:21	1237	881	1687

GENERAL INFORMATION

	SOL	EOL
FA (°)	-3.8	-9.1
Water depth (m)	48	55
RMS Noise (µB)	2.7	4
Weather	310°, 3m/s, 1.5m	168°, 6m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1973	1975
Stbd	1979	1980

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	03:02
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.7	2.0
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.8	2.1
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.8	2.1	1.9	3.75
Speed through water (m/s)	2.0	2.3	2.2	4.20
Feather angle (°)	-10.6	-3.9	-6.9	
Gyro (P) (°)	188.3	207.2	196.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.1	524.1	519.9
Str 1-2	73.5	76.1	75.0
Str 2-3	74.5	76.3	75.5
Str 3-4	72.7	75.5	74.2
Str 4-5	68.2	73.3	70.6
Str 5-6	73.8	78.2	76.0
Str 6-7	71.0	73.9	72.6
Str 7-8	74.2	77.1	76.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.0	38.5	35.4
Port Subarray			
Outer-Centre	7.2	8.3	7.9
Centre-Inner	7.7	8.9	8.4
Stbd Subarray			
Centre-Inner	7.0	8.2	7.7
Outer-Centre	6.9	7.8	7.4

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			
Str 4	21,106, 110, 148, 177			
Str 5	75			
Str 6	49,116,120,158,161			
Str 7	100,166, 202, 229, 285		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	326,352,	
Str 6	91,205,	
Str 7	164,251,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1142	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

TOTAL SHOTS

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2192F1-180**
 Area: **Gippsland Basin, Bass Strait** Sequence: **180**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2185-2200** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/JC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	2-Jun-2006	153	07:34	17:34	121	1997	1692	6:55 UTC
FPSP:	2-Jun-2006	153	07:34	17:34	121	1997	1692	
LPSP:	2-Jun-2006	153	10:26	20:26	1237	881	1695	Full volume arrays at 7:15 UTC
EOL LSP:	2-Jun-2006	153	10:26	20:26	1237	881	1695	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-1.3	-11.1
Water depth (m)	48	55
RMS noise @ 5 Hz LC (µB)	4.4	4.5
Weather	160°, 7m/s, 1.0m	140°, 7m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1972	1979
Stbd	1976	1982

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.8-7.2
Str 2	6.8-7.3	6.9-7.3
Str 3	6.9-7.3	6.8-7.2
Str 4	6.9-7.3	6.7-7.2
Str 5	6.8-7.2	6.8-7.3
Str 6	6.7-7.3	6.8-7.2
Str 7	6.8-7.4	6.9-7.2
Str 8	6.6-7.3	6.7-7.3

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.
 SP 1600 to 1375. Disabled manifold pressure in GCS90 d/t no signal.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304,305		
S3:	83, 290						
S4:	21,106, 110, 148, 177				127,179		
S5:	75				86		
S6:	49,116,120,158,161				29,32, 91, 205, 303		
S7:	100,166, 202, 229, 285		360				
S8:	198						

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1692		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1692		FSP @ 07:34 UTC
121	1997	1692		FPSP @ 07:34 UTC
180	1938			S8C13 running deep @ approx. 8.0m
200	1918			S8C13 back at Target depth
469	1649	1692		EOT
470	1648	1693		SOT
524	1594			S8C13 running deep @ approx. 8.0m
544	1574			S8C13 back at Target depth
518	1600			Disabled manifold pressure in GCS90 d/t no signal.
743	1375			Manifold pressure back on line.
840	1278	1693		EOT
841	1277	1694		SOT
1211	907	1694		EOT
1212	906	1695		SOT
1237	881	1695		LPSP @ 10:26 UTC
1237	881	1695		LSP @ 10:26 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1695		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2192F1-180**Seq: **180**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2192F1-180**
 Area: **Gippsland Basin, Bass Strait** Sequence: **180** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2185-2200** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: tt, df, mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	2-Jun-2006	153	07:34	17:34	1997	-1.3	-208	160°, 7m/s, 1.0m
FPSP:	2-Jun-2006	153	07:34	17:34	1997			
LPSP:	2-Jun-2006	153	10:26	20:26	881			
EOL LSP:	2-Jun-2006	153	10:26	20:26	881	-11.1	178	140°, 7m/s, 1.5m
UTC offset:				10.0				

Separations (m)

	SOL	EOL
Streamer overall:	523	523
Per streamer:		
Str 1-8	76	76
Str 2-3	76	76
Str 3-4	75	76
Str 4-5	70	72
Str 5-6	77	76
Str 6-7	73	74
Str 7-8	77	77

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PO-PC	8.0	7.9
	PC-PI	8.7	8.8
	SI-SC	7.8	7.7
	SC-SO	8.1	8.0

P2/94 filename: G06A-2192F1-180.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_12
 Backup tape: Tape 1 Seq 2

Observations disabled etc.

Acoustics:
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	7:34	17:34	SOL, FSP
1997	7:34	17:34	FPSP
1726	8:14	18:14	V1G2 off
1680	8:17	18:17	Veripos 1 restart
1670	8:21	18:21	V1G2 on
1078	9:53	19:53	FA > 10°
881	10:26	20:26	LPSP
881	10:26	20:26	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2192F1-180**
 Sequence: **180**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2185-2200** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	2-Jun-2006	153	07:34	17:34	121	1997	1692
FPSP:	2-Jun-2006	153	07:34	17:34	121	1997	1692
LPSP:	2-Jun-2006	153	10:26	20:26	1237	881	1695
EOL LSP	2-Jun-2006	153	10:26	20:26	1237	881	1695

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-1.3	-11.1
Water depth (m)	48	55
RMS Noise (µB)	4.4	4.5
Weather	160°, 7m/s, 1.0m	140°, 7m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1972	1979
Stbd	1976	1982

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:52
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	3.6	2.0
HDOP	0.9	3.3	1.3
V1G2 PDOP	-1.0	3.6	2.1
HDOP	-1.0	3.3	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.8	2.3	2.0	3.96
Speed through water (m/s)	2.0	2.3	2.2	4.27
Feather angle (°)	-11.6	-1.5	-6.5	
Gyro (P) (°)	182.5	204.2	193.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	510.2	525.3	520.3
Str 1-2	73.3	75.9	74.7
Str 2-3	74.3	76.5	75.6
Str 3-4	72.5	76.8	75.0
Str 4-5	68.6	73.1	70.7
Str 5-6	72.8	77.8	75.8
Str 6-7	70.5	74.0	72.6
Str 7-8	73.6	77.4	76.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.9	39.2	36.4
Port Subarray			
Outer-Centre	7.3	8.3	7.7
Centre-Inner	7.7	8.7	8.2
Stbd Subarray			
Centre-Inner	7.5	8.6	8.0
Outer-Centre	7.6	8.4	7.9

Birds bad:
 Birds depths: S8C11-17 running erratically throughout line d/t vane wash

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			
Str 4	21,106, 110, 148, 177			
Str 5	75			
Str 6	49,116,120,158,161			
Str 7	100,166, 202, 229, 285		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109, 340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	326, 352	
Str 6	91, 205	
Str 7	164, 251	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.57

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.
 SP 1600 to 1375. Disabled manifold pressure in GCS90 d/t no signal.

PROCESSING QC COMMENTS

Mild level of swell noise energy on line, effecting < 5% of traces. .
 Strum and head wave energy observed along the line

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2192F2-182**
 Area: **Gippsland Basin, Bass Strait** Sequence: **182**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2185-2200** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: **NC/RA/LT**
 Log Status: **Final**

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	2-Jul-2006	183	19:26	5:26	121	1997	1701	18:45 UTC
FPSP:	2-Jul-2006	183	19:26	5:26	121	1997	1701	
LPSP:	2-Jul-2006	183	22:09	8:09	1237	881	1704	Full volume arrays at 19:05 UTC
EOL LSP:	2-Jul-2006	183	22:09	8:09	1237	881	1704	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-0.2	-9.6
Water depth (m)	49	55
RMS noise @ 5 Hz LC (µB)	4.2	3.9
Weather	240°, 7m/s, 1.0m	220°, 6m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1980	1980
Stbd	1985	1980

Streamer Depths (m)

	SOL	EOL
Str 1	6.6-7.5	6.9-7.3
Str 2	6.5-7.2	6.9-7.3
Str 3	6.6-7.3	6.9-7.2
Str 4	6.8-7.2	6.9-7.2
Str 5	6.7-7.2	7.0-7.3
Str 6	6.8-7.1	6.9-7.1
Str 7	6.7-7.4	6.8-7.1
Str 8	6.6-7.5	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	83, 290				3, 16		
S4:	61, 106, 110, 311				127, 178, 223		
S5:	75				86, 88, 326		
S6:	49, 116, 120, 158, 161				20, 29, 37, 91, 205, 360		
S7:	100, 166, 202, 229, 269, 285		360		164, 251		
S8:					4, 5, 172		

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2192F2-182**

Seq: **182**

Dir: **190.5°**

FILE	SP	TAPE	BAD	
99-110	/	1701		SOT - SOL NOISE FILES
111-120	2007-1998			APPROACH SHOTS
121	1997	1701		FSP @ 19:26 UTC
121	1997	1701		FPSP @ 19:26 UTC
469	1649	1701		EOT
470	1648	1702		SOT
840	1278	1702		EOT
841	1277	1703		SOT
1211	907	1703		EOT
1212	906	1704		SOT
1237	881	1704		LPSP @ 22:09 UTC
1237	881	1704		LSP @ 22:09 UTC
1238-1242	880-876			NAV PROCESSING SHOTS
1243-1252	/	1704		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2192F2-182**Seq: **182**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2192F2-182**
 Area: **Gippsland Basin, Bass Strait** Sequence: **182** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2185-2200** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: vq, hh, at, vt

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	2-Jul-2006	183	19:26	5:26	1997	-0.2	-447	240°, 7m/s, 1.0m
FPSP:	2-Jul-2006	183	19:26	5:26	1997			
LPSP:	2-Jul-2006	183	22:09	8:09	881			
EOL LSP:	2-Jul-2006	183	22:09	8:09	881	-9.6	350.5	220°, 6m/s, 1.0m
	UTC offset:			10.0				

Separations (m)		SOL	EOL	Sources overall:		Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	524	521	Sub arrays:	PO-PC	36.1	38.0	
Per streamer:	Str 1-2	76	75		PC-PI	8.2	7.8	
	Str 2-3	75	76		SI-SC	9.0	8.8	
	Str 3-4	75	75		SC-SO	7.9	7.7	
	Str 4-5	72	71			8.2	7.8	
	Str 5-6	75	76					
	Str 6-7	76	73					
	Str 7-8	71	76					

P2/94 filename: **G06A-2192F2-182.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**
 BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_12**
 Backup tape: **Tape 1 Seq 4**

Observations disabled etc.

Acoustics: S2A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1997	19:26	5:26	SOL, FSP
1997	19:26	5:26	FPSP
1482		20:36	Slow WSP from 4.35 to 4.2
881	22:09	8:09	LPSP
881	22:09	8:09	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator: Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2192F2-182**
 Sequence: **182**
 Direction: **190.5°** Nav. Def: **12**
 CMP line range: **2185-2200** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	2-Jul-2006	183	19:26	05:26	121	1997	1701
FPSP:	2-Jul-2006	183	19:26	05:26	121	1997	1701
LPSP:	2-Jul-2006	183	22:09	08:09	1237	881	1704
EOL LSP	2-Jul-2006	183	22:09	08:09	1237	881	1704

GENERAL INFORMATION

	SOL	EOL
FA (°)	-0.2	-9.6
Water depth (m)	49	55
RMS Noise (µB)	4.2	3.9
Weather	240°, 7m/s, 1.0m	220°, 6m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1980	1980
Stbd	1985	1980

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:43
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.7	2.0
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.7	2.1
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.3	2.1	4.16
Speed through water (m/s)	2.0	2.4	2.2	4.20
Feather angle (°)	-9.2	0.4	-3.6	
Gyro (P) (°)	188.6	204.5	196.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	514.3	526.1	521.9
Str 1-2	74.2	76.4	75.3
Str 2-3	74.4	76.0	75.3
Str 3-4	73.1	76.2	74.6
Str 4-5	68.8	73.9	71.2
Str 5-6	73.6	78.4	76.5
Str 6-7	71.1	74.1	72.9
Str 7-8	74.8	77.0	76.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.0	38.8	36.2
Port Subarray			
Outer-Centre	7.6	8.5	8.0
Centre-Inner	8.1	9.4	8.7
Stbd Subarray			
Centre-Inner	7.3	8.6	7.9
Outer-Centre	7.2	8.3	7.9

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			
Str 4	61, 106, 110, 311			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	100, 166, 202, 229, 269,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127, 178,	
Str 5	326, 352,	
Str 6	91, 205,	
Str 7	164, 251,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.04

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.

PROCESSING QC COMMENTS

Mild level of swell noise energy on line, effecting < 5% of traces. .
 Strum and head wave energy observed along the line

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2192F3-196**
 Area: **Gippsland Basin, Bass Strait** Sequence: **196**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **14**
 Job ID: **20323** CMP line range: **2185-2200** Line type: **Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC,RF,AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	5-Jul-2006	186	11:44	21:44	121	1300	1738	11:00 UTC
FPSP:	5-Jul-2006	186	11:44	21:44	121	1300	1738	
LPSP:	5-Jul-2006	186	12:48	22:48	495	926	1739	Full volume arrays at
EOL LSP:	5-Jul-2006	186	12:48	22:48	495	926	1739	11:20 UTC
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-15.2	-8.2
Water depth (m)	50.8	55
RMS noise @ 5 Hz LC (µB)	2.8	3.5
Weather	300°, 10m/s, 2.5m	320°, 8m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1983	1975
Stbd	1985	1978

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.4	6.7-7.4
Str 2	6.9-7.3	6.9-7.3
Str 3	6.8-7.2	6.8-7.4
Str 4	6.9-7.3	6.8-7.3
Str 5	6.8-7.2	6.8-7.2
Str 6	6.9-7.3	6.9-7.2
Str 7	6.9-7.2	6.9-7.2
Str 8	6.8-7.3	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 4 as spare.
Zone 4 Infill

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	83			290 (Phase)	3		
S4:	106,110,177,311				127		
S5:	75				86, 88		
S6:	49,116,120,158,161,315				29, 37, 91, 205, 303		
S7:	89,166, 202, 229, 269, 285		100,360				
S8:	198						

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1738		SOT - SOL NOISE FILES
111-120	1310-1301			APPROACH SHOTS
121	1300	1738		FSP @ 11:44 UTC
121	1300	1738		FPSP @ 11:44 UTC
469	952	1738		EOT
470	951	1739		SOT
495	926	1739		LPSP @ 12:48 UTC
495	926	1739		LSP @ 12:48 UTC
496 - 501	925 - 920			NAV PROCESSING SHOTS
502 - 510	/	1739		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2192F3-196**Seq: **196**Dir: **190.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2192F3-196**
 Area: **Gippsland Basin, Bass Strait** Sequence: **196** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **190.5°** Nav Def: **14**
 Job ID: **20323** CMP line range: **2185-2200** Line type: **Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: tt,df,mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	5-Jul-2006	186	11:44	21:44	1300	-15.2	508	300°, 10m/s, 2.5m
FPSP:	5-Jul-2006	186	11:44	21:44	1300			
LPSP:	5-Jul-2006	186	12:48	22:48	926			
EOL LSP:	5-Jul-2006	186	12:48	22:48	926	-8.2	321	320°, 8m/s, 2.0m
UTC offset:				10.0				

Separations (m)

	Str	SOL	EOL
Streamer overall:	Str 1-8	525	525
Per streamer:	Str 1-2	76	75
	Str 2-3	76	76
	Str 3-4	73	73
	Str 4-5	74	71
	Str 5-6	77	80
	Str 6-7	77	74
	Str 7-8	76	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:	PO-PC	7.9	7.6
	PC-PI	9.1	9.3
	SI-SC	7.7	8.3
	SC-SO	7.3	7.5

P2/94 filename: G06A-2192F3-196.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_14
 Backup tape: Tape 4 Seq 3

Observations disabled etc.

Acoustics: S4A4 intermittent
 RGPS:
 Compasses:
 Other: Zone 4 Infill

SP	UTC	Local Time	Comments
1300	11:44	21:44	SOL, FSP
1300	11:44	21:44	FPSP
			SOL FA > 10°
1075	12:23	22:23	FA < 10°
926	12:48	22:48	LPSP
926	12:48	22:48	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2192F3-196**
 Sequence: **196**
 Direction: **190.5°** Nav. Def: **14**
 CMP line range: **2185-2200** Line type: **Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	5-Jul-2006	186	11:44	21:44	121	1300	1738
FPSP:	5-Jul-2006	186	11:44	21:44	121	1300	1738
LPSP:	5-Jul-2006	186	12:48	22:48	495	926	1739
EOL LSP	5-Jul-2006	186	12:48	22:48	495	926	1739

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-15.2	-8.2
Water depth (m)	50.8	55
RMS Noise (µB)	2.8	3.5
Weather	300°, 10m/s, 2.5m	320°, 8m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1983	1975
Stbd	1985	1978

TOTALS INFORMATION

Recorded SPs	375
Recorded km	7.031
Production time (hh:mm)	01:04
Production files	375
Production SPs	375
Production km	7.031
Production CMP km	112.500

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	2.2	3.1	2.3
HDOP	1.3	1.7	1.4
V1G2 PDOP	2.2	3.2	2.4
HDOP	1.3	2.2	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.7	1.9	1.8	3.53
Speed through water (m/s)	2.0	2.4	2.3	4.38
Feather angle (°)	-16.3	-8.6	-12.1	
Gyro (P) (°)	200.4	219.2	205.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	497.7	524.1	519.2
Str 1-2	70.7	75.9	74.5
Str 2-3	72.4	76.1	75.1
Str 3-4	67.4	74.0	72.0
Str 4-5	65.5	72.6	69.2
Str 5-6	78.1	82.0	80.2
Str 6-7	69.0	73.8	72.4
Str 7-8	71.6	77.1	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.6	38.7	36.5
Port-Subarray			
Outer-Centre	7.1	7.8	7.5
Centre-Inner	7.4	9.2	8.5
Stbd Subarray			
Centre-Inner	7.7	8.7	8.3
Outer-Centre	7.0	7.9	7.4

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83			290 (Phase)
Str 4	106,110,177,311			
Str 5	75			
Str 6	49,116,120,158,161,315			
Str 7	89,166, 202, 229, 269,		100,360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	88,326,352,	
Str 6	91,205,	
Str 7	164,251,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.10

ONLINE COMMENTS

All gun strings operating with gun # 4 as spare.
 Zone 4 Infill

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2208P1-179**
 Area: **Gippsland Basin, Bass Strait** Sequence: **179**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2201-2216** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: NC/RA/LT/GC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	2-Jul-2006	183	01:26	11:26	121	1001	1688	0:55	
FPSP:	2-Jul-2006	183	01:26	11:26	121	1001	1688		
LPSP:	2-Jul-2006	183	04:03	14:03	1237	2117	1691		
EOL LSP:	2-Jul-2006	183	04:03	14:03	1237	2117	1691	1:15	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	1.3	-5.7
Water depth (m)	54	48
RMS noise @ 5 Hz LC (µB)	4	2.8
Weather	110°, 6m/s, 1.5m	060°, 3m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1978	1980
Stbd	1981	1983

	Streamer Depths (m)	
	SOL	EOL
Str 1	7.0-7.2	6.9-7.2
Str 2	7.0-7.3	6.9-7.3
Str 3	6.9-7.2	6.9-7.2
Str 4	6.9-7.2	6.9-7.2
Str 5	6.8-7.2	6.8-7.2
Str 6	6.7-7.1	6.9-7.2
Str 7	6.9-7.3	6.8-7.1
Str 8	6.7-7.3	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					280, 340, 360		
S2:				305 (Phase)	304, 305		
S3:	83, 290						
S4:	21, 106, 110, 148, 177				127, 178		
S5:	75				326		
S6:	49, 116, 120, 158, 161				91, 205, 303		
S7:	100, 166, 202, 229, 285		360				
S8:	198				64		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2208P1-179**

Seq: **179**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1688		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1688		FSP @ 01:26 UTC
121	1001	1688		FPSP @ 01:26 UTC
469	1349	1688		EOT
470	1350	1689		SOT
840	1720	1689		EOT
841	1721	1690		SOT
1211	2091	1690		EOT
1212	2092	1691		SOT
1237	2117	1691		LPSP @ 04:03 UTC
1237	2117	1691		LSP @ 04:03 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1691		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2208P1-179**Seq: **179**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2208P1-179**

Area: **Gippsland Basin, Bass Strait** Sequence: **179** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **2201-2216** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: vq. hh. at. vt

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	2-Jul-2006	183	01:26	11:26	1001	1.3	-376.2	110°, 6m/s, 1.5m
FPSP:	2-Jul-2006	183	01:26	11:26	1001			
LPSP:	2-Jul-2006	183	04:03	14:03	2117			
EOL LSP:	2-Jul-2006	183	04:03	14:03	2117	-5.7	7.7	060°, 3m/s, 1.0m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	522	520
Per streamer:		
Str 1-8	76	76
Str 1-2	76	75
Str 2-3	75	74
Str 3-4	71	69
Str 4-5	75	77
Str 5-6	73	73
Str 6-7	76	77
Str 7-8		

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
PO-PC		8.3	7.9
PC-PI		8.7	8.8
SI-SC		7.4	7.7
SC-SO		7.8	8.3

P2/94 filename: **G06A-2208P1-179.0.p294**

LMN: **20323_Bream.LMN**

SCN: **20323_Bream.SCN**

RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**

Acoustic file: **20323_12**

Backup tape: **Tape 1 Seq 1**

Observations disabled etc.

Acoustics:
RGPS:
Compasses:
Other:

SP	UTC	Local Time	Comments
1001	1:26	11:26	SOL, FSP
1001	1:26	11:26	FPSP
1919	3:34	13:34	Veripos 1 & 2 PDOP > 4
1985	3:43	13:43	V1G2 KO'd d/t bad constellations
2005	3:46	13:46	V1G2 back in
2117	4:03	14:03	LPSP
2117	4:03	14:03	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan

Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2208P1-179**
 Sequence: **179**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2201-2216** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	2-Jul-2006	183	01:26	11:26	121	1001	1688
FPSP:	2-Jul-2006	183	01:26	11:26	121	1001	1688
LPSP:	2-Jul-2006	183	04:03	14:03	1237	2117	1691
EOL LSP	2-Jul-2006	183	04:03	14:03	1237	2117	1691

GENERAL INFORMATION

	SOL	EOL
FA (°)	1.3	-5.7
Water depth (m)	54	48
RMS Noise (µB)	4	2.8
Weather	110°, 6m/s, 1.5m	060°, 3m/s, 1.0m
Source volume (cu in):	Port 4450	4450
Stbd	4450	4450
Source pressure (psi):	Port 1978	1980
Stbd	1981	1983

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:37
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	62.5	2.8
HDOP	1.1	16.2	1.5
V1G2 PDOP	0.5	47691.6	11.3
HDOP	0.6	5812227.2	625.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.5	2.2	4.35
Speed through water (m/s)	2.1	2.4	2.2	4.19
Feather angle (°)	-6.7	0.8	-5.0	
Gyro (P) (°)	12.1	25.7	17.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.5	522.7	519.5
Str 1-2	74.2	76.2	75.3
Str 2-3	74.7	76.2	75.4
Str 3-4	72.7	75.9	74.1
Str 4-5	67.5	72.7	69.3
Str 5-6	73.9	78.2	76.4
Str 6-7	71.5	73.9	73.0
Str 7-8	74.6	77.1	76.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.5	38.9	35.8
Port Subarray			
Outer-Centre	7.3	8.3	7.9
Centre-Inner	8.2	9.3	8.8
Stbd Subarray			
Centre-Inner	7.0	8.1	7.6
Outer-Centre	7.5	8.5	8.0

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			
Str 4	21,106, 110, 148, 177			
Str 5	75			
Str 6	49,116,120,158,161			
Str 7	100,166, 202, 229, 285		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109, 340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	326, 352	
Str 6	91, 205	
Str 7	164, 251	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.07

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2208F1-181**

Area: **Gippsland Basin, Bass Strait** Sequence: **181**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **2201-2216** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/JC/RF/AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	2-Jul-2006	183	13:40	23:40	121	1001	1697	13:00 UTC
FPSP:	2-Jul-2006	183	13:40	23:40	121	1001	1697	
LPSP:	2-Jul-2006	183	16:01	2:01	1237	2117	1700	Full volume arrays at 13:20 UTC
EOL LSP:	2-Jul-2006	183	16:01	2:01	1237	2117	1700	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	2.0	-4.4
Water depth (m)	54	49
RMS noise @ 5 Hz LC (µB)	3	4
Weather	060°, 3m/s, 1.0m	270°, 3m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1981	1975
Stbd	1985	1979

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.9-7.2
Str 2	6.9-7.4	6.8-7.1
Str 3	6.8-7.3	6.9-7.3
Str 4	6.8-7.2	6.9-7.2
Str 5	6.8-7.3	7.0-7.2
Str 6	6.8-7.1	6.8-7.1
Str 7	6.8-7.3	7.0-7.3
Str 8	6.8-7.2	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	83, 290				3, 16		
S4:	61, 106, 110, 311				127, 178		
S5:	75				88, 326		
S6:	49, 116, 120, 158, 161				29, 37, 91, 205, 360		
S7:	100, 166, 202, 229, 269, 285		360			251	
S8:							

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-109	/	1697		SOT - SOL NOISE FILES
110-120	991-1000			APPROACH SHOTS
121	1001	1697		FSP @ 13:40 UTC
121	1001	1697		FPSP @ 13:40 UTC
469	1349	1697		EOT
470	1350	1698		SOT
840	1720	1698		EOT
841	1721	1699		SOT
1211	2091	1699		EOT
1212	2092	1700		SOT
1237	2117	1700		LPSP @ 16:01 UTC
1237	2117	1700		LSP @ 16:01 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1700		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2208F1-181**Seq: **181**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2208F1-181**
 Sequence: **181**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2201-2216** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	2-Jul-2006	183	13:40	23:40	121	1001	1697
FPSP:	2-Jul-2006	183	13:40	23:40	121	1001	1697
LPSP:	2-Jul-2006	183	16:01	02:01	1237	2117	1700
EOL LSP	2-Jul-2006	183	16:01	02:01	1237	2117	1700

GENERAL INFORMATION

	SOL	EOL
FA (°)	2	-4.4
Water depth (m)	54	49
RMS Noise (µB)	3	4
Weather	060°, 3m/s, 1.0m	270°, 3m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1981	1975
Stbd	1985	1979

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:21
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	2.5	1.9
HDOP	0.9	1.7	1.1
V1G2 PDOP	1.6	2.5	2.0
HDOP	0.9	1.7	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.6	2.5	4.83
Speed through water (m/s)	2.1	2.4	2.3	4.42
Feather angle (°)	-4.5	2.5	-2.1	
Gyro (P) (°)	3.9	20.8	14.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.4	526.4	523.7
Str 1-2	73.7	76.4	75.1
Str 2-3	74.5	76.6	75.7
Str 3-4	72.2	75.4	74.0
Str 4-5	69.5	74.9	72.3
Str 5-6	75.4	78.2	76.7
Str 6-7	72.5	74.3	73.4
Str 7-8	75.6	77.6	76.5

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.4	40.9	37.2
Port Subarray	7.2	8.4	7.7
Outer-Centre	8.5	9.7	9.0
Stbd Subarray	7.1	8.4	7.8
Centre-Inner	7.7	8.5	8.2
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			
Str 4	61, 106, 110, 311			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	100, 166, 202, 229, 269,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127, 178,	
Str 5	326, 352,	
Str 6	91, 205,	
Str 7	164, 251,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.

PROCESSING QC COMMENTS

Gun Autofire during noise file 110 - removed from SOL noise analysis
 Mild level of swell noise energy on line, effecting < 5% of traces. .
 Strum and head wave energy observed along the line
 Veripos 2 Height spike to 80m Sp 1241 to 1243

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2208F2-183**
 Area: **Gippsland Basin, Bass Strait** Sequence: **183**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2201-2216** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: **NC/RA/LT**
 Log Status: **Final**

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	3-Jul-2006	184	01:21	11:21	121	1001	1705	0:45	
FPSP:	3-Jul-2006	184	01:21	11:21	121	1001	1705		
LPSP:	3-Jul-2006	184	03:48	13:48	1237	2117	1708		
EOL LSP:	3-Jul-2006	184	03:48	13:48	1237	2117	1708	1:08	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	3.5	-4.9
Water depth (m)	53	48.4
RMS noise @ 5 Hz LC (µB)	3	2.9
Weather	190°, 3m/s, 1.5m	160°, 3m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1984	1985
Stbd	1985	1990

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.3	6.9-7.3
Str 2	6.8-7.2	6.9-7.4
Str 3	6.9-7.2	6.8-7.3
Str 4	6.8-7.2	6.9-7.2
Str 5	6.9-7.2	6.9-7.3
Str 6	6.9-7.2	6.8-7.2
Str 7	6.9-7.2	6.9-7.2
Str 8	6.9-7.0	6.8-7.3

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	305		
S3:	83, 290						
S4:	61, 106, 110, 311				127, 178		
S5:	75				88, 326		
S6:	49, 116, 120, 158, 161				29, 37, 91, 205		
S7:	100, 166, 202, 229, 269, 285		360				
S8:							

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1705		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1705		FSP @ 01:21 UTC
121	1001	1705		FPSP @ 01:21 UTC
469	1349	1705		EOT
470	1350	1706		SOT
773	1653		Bad	Delta Error: P-2: 1.4
840	1720	1706		EOT
841	1721	1707		SOT
1211	2091	1707		EOT
1212	2092	1708	Bad	SOT - Delta Error: S-1: -1.4
1237	2117	1708		LPSP @ 03:48 UTC
1237	2117	1708		LSP @ 03:48 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1708		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2208F2-183**Seq: **183**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2208F2-183**
 Sequence: **183**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2201-2216** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	3-Jul-2006	184	01:21	11:21	121	1001	1705
FPSP:	3-Jul-2006	184	01:21	11:21	121	1001	1705
LPSP:	3-Jul-2006	184	03:48	13:48	1237	2117	1708
EOL LSP	3-Jul-2006	184	03:48	13:48	1237	2117	1708

GENERAL INFORMATION

	SOL	EOL
FA (°)	3.5	-4.9
Water depth (m)	53	48.4
RMS Noise (µB)	3	2.9
Weather	190°, 3m/s, 1.5m	160°, 3m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1984	1985
Stbd	1985	1990

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:27
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	2 / 0.18%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	64.1	2.8
HDOP	1.1	16.5	1.5
V1G2 PDOP	0.2	28875.1	11.1
HDOP	0.9	643110.0	107.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.5	2.4	4.61
Speed through water (m/s)	2.0	2.5	2.2	4.28
Feather angle (°)	-5.2	3.3	-2.8	
Gyro (P) (°)	0.0	359.9	14.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.9	526.2	522.0
Str 1-2	74.1	76.7	75.3
Str 2-3	74.5	76.5	75.6
Str 3-4	72.6	76.1	74.5
Str 4-5	68.2	73.8	70.9
Str 5-6	73.8	78.0	76.3
Str 6-7	72.0	74.1	73.2
Str 7-8	75.2	77.3	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.1	39.9	36.7
Port Subarray	7.1	8.4	7.9
Outer-Centre	7.6	9.4	8.8
Stbd Subarray	7.1	8.2	7.6
Centre-Inner	7.6	9.0	8.2
Outer-Centre	7.6	9.0	8.2

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			
Str 4	61, 106, 110, 311			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	100, 166, 202, 229, 269,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	88, 326, 352	
Str 6	91, 205	
Str 7	164, 251	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1653, 2092		2
Autofires / Misfires :			0
Missed SPs (NDR):			0
Extraction errors:			0
NAVS / ITB errors:			0
Other Bad shots:			0
Other Bad Traces:			0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage:	0.03

TOTAL SHOTS

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2224P1-118**
 Area: **Gippsland Basin, Bass Strait** Sequence: **118**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **2217-2232** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NS/MW/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	18-Jun-2006	169	16:52	2:52	121	1001	1456	16:20	
FPSP:	18-Jun-2006	169	16:52	2:52	121	1001	1456		
LPSP:	18-Jun-2006	169	19:40	5:40	1237	2117	1459		
EOL LSP:	18-Jun-2006	169	19:40	5:40	1237	2117	1459	16:40	
				UTC Offset:	10.0				

Full volume arrays at 16:40 UTC

	SOL	EOL
Feather angle (°)	-7.0	-1.7
Water depth (m)	55	49
RMS noise @ 5 Hz LC (µB)	4	2.9
Weather	045°, 3m/s, 1.5m	Calm, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1970	1970
Stbd	1978	1974

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.9-7.1
Str 2	6.7-7.0	6.8-7.2
Str 3	6.8-7.1	6.5-7.2
Str 4	6.9-7.5	6.8-7.3
Str 5	6.8-7.4	6.8-7.2
Str 6	6.8-7.2	6.8-7.2
Str 7	6.9-7.1	6.9-7.2
Str 8	6.7-7.4	6.8-7.3

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with Gun # 4's as spare

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					134,340		
S2:	295			305 (Phase)			
S3:	83,			290, 339 (Phase)	3		
S4:	106				127,176		
S5:	75				326,352		
S6:	120, 158				29, 91,205		
S7:	89, 100, 202, 229, 285, 360		130		203		
S8:					318		

Vessel Manager: Howie Grizaard Observers: 00:00-12:00 Neil Shelley, Michael Wells, Larry Tan
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Rashid Anwar, Anthony Doyle
 Chief Observer: Les Hayden

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2224P1-118**Seq: **118**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1456		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1456		FSP @ 16:52 UTC
121	1001	1456		FPSP @ 16:52 UTC
469	1349	1456		EOT
470	1350	1457		SOT
840	1720	1457		EOT
841	1722	1458		SOT
1211	2091	1458		EOT
1212	2092	1459		SOT
1237	2117	1459		LPSP @ 19:40 UTC
1237	2117	1459		LSP @ 19:40 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1459		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2224P1-118**Seq: **118**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2224P1-118**
 Sequence: **118**
 Direction: **10.5°** Nav. Def: **10**
 CMP line range: **2217-2232** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **MW**
 Proc Initials: **PJ**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	18-Jun-2006	169	16:52	02:52	121	1001	1456
FPSP:	18-Jun-2006	169	16:52	02:52	121	1001	1456
LPSP:	18-Jun-2006	169	19:40	05:40	1237	2117	1459
EOL LSP	18-Jun-2006	169	19:40	05:40	1237	2117	1459

GENERAL INFORMATION

	SOL	EOL
FA (°)	-7	-1.7
Water depth (m)	55	49
RMS Noise (µB)	4	2.9
Weather	045°, 3m/s, 1.5m	Calm, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1970	1970
Stbd	1978	1974

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:48
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.9	2.2
HDOP	0.9	1.5	1.2
V1G2 PDOP	1.8	2.9	2.3
HDOP	1.0	2.0	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.2	2.1	4.06
Speed through water (m/s)	2.1	2.3	2.2	4.25
Feather angle (°)	-7.2	-1.3	-4.6	
Gyro (P) (°)	10.1	18.0	14.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.4	527.9	523.9
Str 1-2	73.1	76.4	74.8
Str 2-3	73.9	77.0	75.5
Str 3-4	71.9	75.3	73.7
Str 4-5	68.3	75.3	72.4
Str 5-6	76.0	79.7	77.9
Str 6-7	71.8	74.4	73.2
Str 7-8	74.9	78.0	76.6

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.0	40.4	37.1
Port Subarray	8.3	9.3	8.8
Stbd Subarray	7.6	8.8	8.3
Outer-Centre	7.6	8.6	8.1
Centre-Inner	7.0	7.5	7.2

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305 (Phase)
Str 3	83,			290, 339
Str 4	106			
Str 5	75			
Str 6	120, 158			
Str 7	89, 100, 202, 229, 285,		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 223	
Str 5	86, 88, 163, 326	
Str 6	29, 37, 91, 205, 303	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

ONLINE COMMENTS

All gunstrings operating with Gun # 4's as spare

PROCESSING QC COMMENTS

Occasional bursts of mild swell noise, verging on negligible.
 Strum and head wave energy apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2240P1-120**
 Area: **Gippsland Basin, Bass Strait** Sequence: **120**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **2233-2248** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	19-Jun-2006	170	03:24	13:24	121	1001	1464	2:50	
FPSP:	19-Jun-2006	170	03:24	13:24	121	1001	1464		
LPSP:	19-Jun-2006	170	06:12	16:12	1237	2117	1467		
EOL LSP:	19-Jun-2006	170	06:12	16:12	1237	2117	1467	3:10	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-4.9	-7.6
Water depth (m)	54	49
RMS noise @ 5 Hz LC (µB)	3	3
Weather	330°, 1m/s, 1.5m	330°, 1m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1972	1970
Stbd	1975	1974

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.2	6.9-7.2
Str 2	6.9-7.1	6.9-7.3
Str 3	6.9-7.2	6.9-7.2
Str 4	6.9-7.2	6.9-7.1
Str 5	6.9-7.3	6.9-7.2
Str 6	6.9-7.1	6.9-7.3
Str 7	6.9-7.2	6.9-7.1
Str 8	6.7-7.4	6.8-7.3

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with Gun #4 as spare

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295			305 (Phase)			
S3:	83,			290, 339 (Phase)	3		
S4:	106				127		
S5:	75				86, 88, 326		
S6:	120, 158				29,37,91,205,303		
S7:	89, 100, 202, 229, 285, 360		130		203,285		
S8:					318,340		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1464		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1464		FSP @ 03:24 UTC
121	1001	1464		FPSP @ 03:24 UTC
469	1349	1464		EOT
470	1350	1465		SOT
840	1720	1465		EOT
841	1721	1466		SOT
1211	2091	1466		EOT
1212	2092	1467		SOT
1237	2117	1467		LPSP @ 06:12 UTC
1237	2117	1467		LSP @ 06:12 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1467		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2240P1-120**Seq: **120**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2240P1-120**
 Sequence: **120**
 Direction: **10.5°** Nav. Def: **10**
 CMP line range: **2233-2248** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **GC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	19-Jun-2006	170	03:24	13:24	121	1001	1464
FPSP:	19-Jun-2006	170	03:24	13:24	121	1001	1464
LPSP:	19-Jun-2006	170	06:12	16:12	1237	2117	1467
EOL LSP	19-Jun-2006	170	06:12	16:12	1237	2117	1467

GENERAL INFORMATION

	SOL	EOL
FA (°)	-4.9	-7.6
Water depth (m)	54	49
RMS Noise (µB)	3	3
Weather	330°, 1m/s, 1.5m	330°, 1m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1972	1970
Stbd	1975	1974

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:48
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	3.5	2.2
HDOP	0.8	1.9	1.2
V1G2 PDOP	1.7	16.5	3.0
HDOP	0.9	3.9	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.3	2.1	4.06
Speed through water (m/s)	2.1	2.3	2.2	4.35
Feather angle (°)	-9.6	-4.7	-7.9	
Gyro (P) (°)	10.6	27.8	18.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.3	526.4	521.1
Str 1-2	72.5	76.0	74.6
Str 2-3	73.9	76.4	75.2
Str 3-4	71.4	76.1	73.7
Str 4-5	68.3	74.9	71.3
Str 5-6	75.2	79.4	77.5
Str 6-7	71.1	74.2	72.7
Str 7-8	74.5	77.9	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.0	38.7	36.3
Port Subarray			
Outer-Centre	7.9	9.0	8.6
Centre-Inner	7.3	8.3	7.8
Stbd Subarray			
Centre-Inner	7.5	8.4	8.0
Outer-Centre	6.8	7.6	7.2

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295			305 (Phase)
Str 3	83,			290, 339
Str 4	106			
Str 5	75			
Str 6	120, 158			
Str 7	89, 100, 202, 229, 285,		130	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109, 134, 340	
Str 2		
Str 3		
Str 4	127	
Str 5	326, 358	
Str 6	91, 205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.06

ONLINE COMMENTS

All gunstrings operating with Gun #4 as spare

PROCESSING QC COMMENTS

Shots free from any discernable swell noise at the every 200th shot interval QC samples
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2256P1-122**
 Area: **Gippsland Basin, Bass Strait** Sequence: **122**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **2249-2264** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	19-Jun-2006	170	13:51	23:51	121	1001	1473	13:15 UTC
FPSP:	19-Jun-2006	170	13:51	23:51	121	1001	1473	
LPSP:	19-Jun-2006	170	16:17	2:17	1237	2117	1476	Full volume arrays at 13:35 UTC
EOL LSP:	19-Jun-2006	170	16:17	2:17	1237	2117	1476	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	7.4	-4.6
Water depth (m)	54	49
RMS noise @ 5 Hz LC (µB)	2.6	3.1
Weather	290°, 5m/s, 1.0m	320°, 4m/s, 1m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1976	1975
Stbd	1978	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.4	6.8-7.2
Str 2	6.8-7.3	6.8-7.3
Str 3	6.7-7.3	6.8-7.1
Str 4	6.8-7.3	6.8-7.1
Str 5	6.6-7.4	6.9-7.4
Str 6	6.9-7.4	6.9-7.2
Str 7	6.9-7.4	6.9-7.3
Str 8	6.8-7.3	6.9-7.2

SOL/EOL Comments

SOL noise recorded with feather angle >10°

Overall Line Observations

All gunstrings operating with gun # 4 as spares.
 Gun depth indicator on S-27 occasionally deep, max 6.6m

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	312			305 (Phase)			
S3:	83, 290		339		3		
S4:	43, 106, 110				127		
S5:	75				86, 88, 326		
S6:	49, 120, 158, 161				29,37,91,205,303		
S7:	89, 100, 202, 229, 285		130, 360		203,285		
S8:					318,340		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1473		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1473		FSP @ 13:51 UTC
121	1001	1473		FPSP @ 13:51 UTC
469	1349	1473		EOT
470	1350	1474		SOT
840	1720	1474		EOT
841	1721	1475		SOT
1036	1916			S8C11-12 running deep @ 8m (Max)
1062	1942			S8C11-12 back at target depth
1211	2091	1475		EOT
1212	2092	1476		SOT
1237	2117	1476		LPSP @ 16:17 UTC
1237	2117	1476		LSP @ 16:17 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1476		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2256P1-122**Seq: **122**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2256P1-122**
 Sequence: **122**
 Direction: **10.5°** Nav. Def: **10**
 CMP line range: **2249-2264** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	19-Jun-2006	170	13:51	23:51	121	1001	1473
FPSP:	19-Jun-2006	170	13:51	23:51	121	1001	1473
LPSP:	19-Jun-2006	170	16:17	02:17	1237	2117	1476
EOL LSP	19-Jun-2006	170	16:17	02:17	1237	2117	1476

GENERAL INFORMATION

	SOL	EOL
FA (°)	7.4	-4.6
Water depth (m)	54	49
RMS Noise (µB)	2.6	3.1
Weather	290°, 5m/s, 1.0m	320°, 4m/s, 1m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1976	1975
Stbd	1978	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:26
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	3.4	2.3
HDOP	0.9	2.1	1.3
V1G2 PDOP	1.7	3.4	2.5
HDOP	1.0	2.3	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.4	4.66
Speed through water (m/s)	2.0	2.3	2.1	4.13
Feather angle (°)	-4.2	7.2	0.1	
Gyro (P) (°)	0.0	359.9	12.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.4	528.2	523.9
Str 1-2	74.2	76.7	75.6
Str 2-3	73.9	76.4	75.3
Str 3-4	72.3	75.7	74.0
Str 4-5	69.8	74.6	72.1
Str 5-6	75.4	79.6	77.3
Str 6-7	72.3	74.6	73.4
Str 7-8	74.8	77.5	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.1	39.8	36.8
Port Subarray	8.0	9.5	8.8
Stbd Subarray	7.5	8.6	8.1
Outer-Centre	7.5	8.6	8.0
Centre-Inner	6.7	7.5	7.1

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290		339	
Str 4	43, 106, 110			
Str 5	75			
Str 6	49, 120, 158, 161			
Str 7	89, 100, 202, 229, 285		130, 360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	109,340,	
Str 2	289,	
Str 3		
Str 4	127,	
Str 5	88,326,	
Str 6	91,205,	
Str 7	203,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.05

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.
 Gun depth indicator on S-27 occasionally deep, max 6.6m

PROCESSING QC COMMENTS

Shots free from any discernable swell noise at the every 200th shot interval QC samples
 Strum and head wave energy apparent due to good weather and clean data quality.
 QCN reports spike in Gyro data d/t Spectra bug. When gyro moves through spectra software creates spike.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2272P1-124**
 Area: **Gippsland Basin, Bass Strait** Sequence: **124**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **2265-2280** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	19-Jun-2006	170	23:17	9:17	121	1001	1481	22:35	
FPSP:	19-Jun-2006	170	23:17	9:17	121	1001	1481		
LPSP:	20-Jun-2006	171	01:36	11:36	1237	2117	1484		
EOL LSP:	20-Jun-2006	171	01:36	11:36	1237	2117	1484	22:55	
				UTC Offset:	10.0				

Full volume arrays at 22:55 UTC

	SOL	EOL
Feather angle (°)	9.8	4.5
Water depth (m)	54	48
RMS noise @ 5 Hz LC (µB)	3.5	2.8
Weather	350°, 1m/s, 1.0m	310°, 5m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1970	1972
Stbd	1975	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.9-7.1
Str 2	6.9-7.3	6.9-7.3
Str 3	6.8-7.3	6.9-7.2
Str 4	6.8-7.1	6.9-7.2
Str 5	7.0-7.4	6.8-7.4
Str 6	6.5-7.3	6.9-7.2
Str 7	6.9-7.2	6.4-7.4
Str 8	6.9-7.2	6.9-7.1

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 4 as spares.
 Depth indicator on gun S-27 occasionally reading deep, max 6.6m

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	312			305 (Phase)	282, 289, 305		
S3:	83, 290		339		3		
S4:	43, 106, 110				127		
S5:	75				86, 88, 326		
S6:	49, 120, 158, 161				29, 37, 91, 205, 303		
S7:	89, 100, 202, 229, 285		130, 360		203, 285		
S8:					318, 340		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1481		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1481		FSP @ 23:17 UTC
121	1001	1481		FPSP @ 23:17 UTC
465	1345			LSP of day
469	1349	1481		EOT
470	1350	1482		SOT
778	1658		Bad	Delta Error: S-1: 1.2
840	1720	1482		EOT
841	1721	1483		SOT
1211	2091	1483		EOT
1212	2092	1484		SOT
1237	2117	1484		LPSP @ 01:36 UTC
1237	2117	1484		LSP @ 01:36 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1255	/	1484		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2272P1-124**Seq: **124**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2272P1-124**
 Sequence: **124**
 Direction: **10.5°** Nav. Def: **10**
 CMP line range: **2265-2280** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	19-Jun-2006	170	23:17	09:17	121	1001	1481
FPSP:	19-Jun-2006	170	23:17	09:17	121	1001	1481
LPSP:	20-Jun-2006	171	01:36	11:36	1237	2117	1484
EOL LSP	20-Jun-2006	171	01:36	11:36	1237	2117	1484

GENERAL INFORMATION

	SOL	EOL
FA (°)	9.8	4.5
Water depth (m)	54	48
RMS Noise (µB)	3.5	2.8
Weather	350°, 1m/s, 1.0m	310°, 5m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1970	1972
Stbd	1975	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:19
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.1	2.1
HDOP	0.8	1.2	1.0
V1G2 PDOP	1.6	4.3	2.4
HDOP	0.8	1.5	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.5	2.6	2.5	4.90
Speed through water (m/s)	2.0	2.3	2.1	4.05
Feather angle (°)	4.4	10.0	6.6	
Gyro (P) (°)	0.0	359.9	82.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.8	524.6	520.4
Str 1-2	73.8	76.3	75.1
Str 2-3	72.9	75.2	74.0
Str 3-4	72.8	76.2	74.4
Str 4-5	69.7	74.3	71.6
Str 5-6	74.9	78.4	76.7
Str 6-7	72.2	74.2	73.2
Str 7-8	74.3	76.6	75.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.9	40.9	37.9
Port Subarray	7.6	9.1	8.2
Outer-Centre	7.2	8.9	7.9
Centre-Inner	7.5	8.7	8.1
Stbd Subarray	6.6	7.5	7.0
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290		339	
Str 4	43, 106, 110			
Str 5	75			
Str 6	49, 120, 158, 161			
Str 7	89, 100, 202, 229, 285		130, 360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2	289	
Str 3		
Str 4	127	
Str 5	326, 358	
Str 6	91, 205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1658		1
Autofires / Misfires :			0
Missed SPs (NDR):			0
Extraction errors:			0
NAVS / ITB errors:			0
Other Bad shots:			0
Other Bad Traces:			0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage:	0.02

TOTAL SHOTS

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.
 Depth indicator on gun S-27 occasionally reading deep, max 6.6m

PROCESSING QC COMMENTS

Shots free from any discernable swell noise at the every 200th shot interval QC samples
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2272F1-126**
 Area: **Gippsland Basin, Bass Strait** Sequence: **126**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **2265-2280** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/JC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	20-Jun-2006	171	08:50	18:50	121	1001	1490	8:10	
FPSP:	20-Jun-2006	171	08:50	18:50	121	1001	1490		
LPSP:	20-Jun-2006	171	11:17	21:17	1237	2117	1493		
EOL LSP:	20-Jun-2006	171	11:17	21:17	1237	2117	1493	8:30	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-2.2	6.3
Water depth (m)	54	48
RMS noise @ 5 Hz LC (µB)	2.7	2.1
Weather	090°, 3m/s, 0.5m	090°, 5m/s, .*m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1972
Stbd	1980	1975

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.3	6.9-7.2
Str 2	6.8-7.3	6.9-7.3
Str 3	6.9-7.2	6.8-7.3
Str 4	6.9-7.3	6.9-7.3
Str 5	6.8-7.3	6.8-7.3
Str 6	6.8-7.2	6.8-7.2
Str 7	6.7-7.3	6.9-7.2
Str 8	6.9-7.4	6.9-7.3

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 4 as spares.
 Depth indicator on gun S-27 occasionally reading deep, max 6.6m

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	312			305 (Phase)			
S3:	83		339	290 (Phase)	3		
S4:	21,43, 106, 110				127		
S5:	75				86, 326		
S6:	49,116, 120, 158				29,37,91,205,303		
S7:	89, 100, 202, 229, 285		130, 360				
S8:							

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1490		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1490		FSP @ 08:50 UTC
121	1001	1490		FPSP @ 08:50 UTC
278	1158			S1C1-6 set to 7.5m & S2C1-6 set to 6.5m due to inadequate streamer separation
320	1200			S1 & S2 back @ depth
469	1349	1490		EOT
470	1350	1491		SOT
840	1720	1491		EOT
841	1721	1492		SOT
1211	2091	1492		EOT
1212	2092	1493		SOT
1237	2117	1493		LPSP @ 11:17 UTC
1237	2117	1493		LSP @ 11:17 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1493		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2272F1-126**Seq: **126**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2272F1-126**
 Area: **Gippsland Basin, Bass Strait** Sequence: **126** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **2265-2280** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: tt,df,mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	20-Jun-2006	171	08:50	18:50	1001	-2.2	-0.5	090°, 3m/s, 0.5m
FPSP:	20-Jun-2006	171	08:50	18:50	1001			
LPSP:	20-Jun-2006	171	11:17	21:17	2117			
EOL LSP:	20-Jun-2006	171	11:17	21:17	2117	6.3	-118	090°, 5m/s, .*m
			UTC offset: 10.0					

Separations (m)		SOL	EOL	Sources overall:		Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	522	522	Sub arrays:	PO-PC	36.7	35.8	
Per streamer:	Str 1-2	75	75		PC-PI	8.6	8.4	
	Str 2-3	75	76		SI-SC	8.1	8.3	
	Str 3-4	71	74		SC-SO	8.2	8.5	
	Str 4-5	73	71			6.9	7.2	
	Str 5-6	78	78					
	Str 6-7	73	74					
	Str 7-8	76	76					

P2/94 filename: G06A-2272F1-126.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_10
 Backup tape: Tape 2 Seq 3

Observations disabled etc.

Acoustics: G1A2 , S2A2 intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	8:50	18:50	SOL, FSP
1001	8:50	18:50	FPSP
1832	10:41	20:41	ko'd S2A2 and estimated position. Causing false reading in seps
2117	11:17	21:17	LPSP
2117	11:17	21:17	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2272F1-126**
 Sequence: **126**
 Direction: **10.5°** Nav. Def: **10**
 CMP line range: **2265-2280** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	20-Jun-2006	171	08:50	18:50	121	1001	1490
FPSP:	20-Jun-2006	171	08:50	18:50	121	1001	1490
LPSP:	20-Jun-2006	171	11:17	21:17	1237	2117	1493
EOL LSP	20-Jun-2006	171	11:17	21:17	1237	2117	1493

GENERAL INFORMATION

	SOL	EOL
FA (°)	-2.2	6.3
Water depth (m)	54	48
RMS Noise (µB)	2.7	2.1
Weather	090°, 3m/s, 0.5m	090°, 5m/s, .7m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1972
Stbd	1980	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:27
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.2	2.2	1.7
HDOP	0.8	1.1	1.0
V1G2 PDOP	1.2	2.2	1.8
HDOP	0.8	1.1	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.5	2.4	4.62
Speed through water (m/s)	2.1	2.3	2.2	4.36
Feather angle (°)	-2.0	7.0	4.0	
Gyro (P) (°)	1.5	18.0	9.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.4	525.9	520.8
Str 1-2	73.5	98.0	75.0
Str 2-3	72.8	75.9	74.6
Str 3-4	50.0	77.2	73.1
Str 4-5	68.9	74.8	70.9
Str 5-6	75.8	95.8	77.8
Str 6-7	72.7	74.5	73.5
Str 7-8	54.6	78.9	75.8

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.3	39.3	36.9
Port-Subarray	7.9	9.0	8.6
Outer-Centre	7.7	10.4	8.1
Stbd Subarray	7.7	9.1	8.3
Centre-Inner	6.7	7.6	7.1
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	21,43, 106, 110			
Str 5	75			
Str 6	49,116, 120, 158			
Str 7	89, 100, 202, 229, 285		130, 360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	326, 352	
Str 6	91, 205, 303	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.09

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.
 Depth indicator on gun S-27 occasionally reading deep, max 6.6m

PROCESSING QC COMMENTS

Shots free from any discernable swell noise at the every 200th shot interval QC samples
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2288P1-128**

Area: **Gippsland Basin, Bass Strait** Sequence: **128**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **10**

Job ID: **20323** CMP line range: **2281-2296** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Incomplete**

Initials: NC / RA / LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	20-Jun-2006	171	19:03	5:03	121	1001	1498	18:10 UTC
FPSP:	20-Jun-2006	171	19:03	5:03	121	1001	1498	
LPSP:	20-Jun-2006	171	21:09	7:09	940	1820	1500	Full volume arrays at 18:30 UTC
EOL LSP:	20-Jun-2006	171	21:09	7:09	940	1820	1500	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-12.1	-3.5
Water depth (m)	54	48
RMS noise @ 5 Hz LC (µB)	3.4	3.5
Weather	080°, 8m/s 1.0m	080°, 8m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1975
Stbd	1975	1975

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.7-7.1	6.6-7.2
Str 2	6.6-7.3	6.6-7.2
Str 3	6.6-7.4	6.7-7.3
Str 4	6.7-7.2	6.8-7.2
Str 5	6.8-7.2	6.9-7.3
Str 6	6.6-7.3	6.6-7.3
Str 7	6.7-7.3	6.8-7.4
Str 8	6.8-7.4	6.8-7.4

SOL/EOL Comments

LINE SHUT DOWN EARLY TO ALLOW BUNKERING OPERATIONS

Overall Line Observations

All gunstrings operating with gun # 4 as spares.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	312			305 (Phase)			
S3:	83		339	290 (Phase)	3		
S4:	21,43, 106, 110				127		
S5:	75				86, 88, 326		
S6:	49,116, 120, 158				29,37,91,205,303		
S7:	89, 100, 202, 229, 285		130, 360		203,285		
S8:					318,340		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1498		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1498		FSP @ 19:03 UTC
121	1001	1498		FPSP @ 19:03 UTC
469	1349	1498		EOT
470	1350	1499		SOT
840	1720	1499		EOT
841	1721	1500		SOT
940	1820	1500		LPSP @ 21:09 UTC
940	1820	1500		LSP @ 21:09 UTC
941-947	1821-1827			NAV PROCESSING SHOTS
948-957	/	1500		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2288P1-128**Seq: **128**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2288P1-128**
 Area: **Gippsland Basin, Bass Strait** Sequence: **128** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **2281-2296** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Incomplete** Log Status: Final

Initials: vq ,at, vt, hh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	20-Jun-2006	171	19:03	5:03	1001	-12.1	446.9	080°, 8m/s 1.0m
FPSP:	20-Jun-2006	171	19:03	5:03	1001			
LPSP:	20-Jun-2006	171	21:09	7:09	1820			
EOL LSP:	20-Jun-2006	171	21:09	7:09	1820	-3.5	298.4	080°, 8m/s, 1.0m
			UTC offset: 10.0					

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	529	526			36.5	37.0
Per streamer:	Str 1-2	75	75	Sub arrays:	PO-PC	8.3	8.3
	Str 2-3	75	76		PC-PI	8.2	8.1
	Str 3-4	72	73		SI-SC	8.2	8.0
	Str 4-5	73	73		SC-SO	7.2	7.2
	Str 5-6	81	80				
	Str 6-7	74	74				
	Str 7-8	77	76				

P2/94 filename: G06A-2288P1-128.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_10
 Backup tape: Tape 2 Seq 5

Observations disabled etc.

Acoustics: S2A2 Ko'd
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	19:03	5:03	SOL, FSP
1001	19:03	5:03	FPSP
1820	21:09	7:09	LPSP
1820	21:09	7:09	EOL, LSP Line aborted early to turn stbd for re-fueling

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2288P1-128**
 Sequence: **128**
 Direction: **10.5°** Nav. Def: **10**
 CMP line range: **2281-2296** Line type: **Prime**
 No. CMPs: **16** Status: **Incomplete**

Obs Initials: **nc**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	20-Jun-2006	171	19:03	05:03	121	1001	1498
FPSP:	20-Jun-2006	171	19:03	05:03	121	1001	1498
LPSP:	20-Jun-2006	171	21:09	07:09	940	1820	1500
EOL LSP	20-Jun-2006	171	21:09	07:09	940	1820	1500

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-12.1	-3.5
Water depth (m)	54	48
RMS Noise (µB)	3.4	3.5
Weather	080°, 8m/s 1.0m	080°, 8m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1975
Stbd	1975	1975

TOTALS INFORMATION

Recorded SPs	820
Recorded km	15.375
Production time (hh:mm)	02:06
Production files	820
Production SPs	820
Production km	15.375
Production CMP km	246.000

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	3.5	2.6
HDOP	0.8	2.0	1.3
V1G2 PDOP	1.6	2.8	2.1
HDOP	0.9	1.3	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.1	2.0	3.97
Speed through water (m/s)	2.0	2.3	2.2	4.26
Feather angle (°)	-11.9	-3.8	-7.0	
Gyro (P) (°)	14.5	29.0	23.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.6	529.1	524.8
Str 1-2	73.6	76.0	74.8
Str 2-3	74.8	76.5	75.6
Str 3-4	71.0	74.1	72.5
Str 4-5	69.9	75.1	72.5
Str 5-6	77.9	81.6	79.9
Str 6-7	72.1	74.3	73.2
Str 7-8	75.2	77.6	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.5	39.0	36.6
Port Subarray			
Outer-Centre	7.7	8.9	8.3
Centre-Inner	7.3	8.3	7.9
Stbd Subarray			
Centre-Inner	7.8	8.7	8.2
Outer-Centre	6.9	7.7	7.3

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	21,43, 106, 110			
Str 5	75			
Str 6	49,116, 120, 158			
Str 7	89, 100, 202, 229, 285		130, 360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	326, 352	
Str 6	91, 205	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise
 Strum and head wave energy apparent due to good weather and clean data quality.
 Some low amplitude ~7ubars, high frequency noise with moveout throughout line. Most likely screw noise from supply vessel



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2288P2-129**

Area: **Gippsland Basin, Bass Strait** Sequence: **129**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **10**

Job ID: **20323** CMP line range: **2281-2296** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **DNP**

Initials: NC / RA / LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	21-Jun-2006	172	14:37	00:37	121	1811	1502	13:50	UTC
FPSP:	21-Jun-2006	172	14:38	00:38	131	1821	1502		
LPSP:	21-Jun-2006	172	15:16	01:16	427	2117	1502		
EOL LSP:	21-Jun-2006	172	15:16	01:16	427	2117	1502	14:10	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	3.8	0.5
Water depth (m)	47	48
RMS noise @ 5 Hz LC (µB)	6.9	5
Weather	080°, 14m/s, 2.0m	080°, 14m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1977
Stbd	1975	1978

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.6-7.3
Str 2	6.9-7.5	6.9-7.2
Str 3	6.7-7.4	6.8-7.3
Str 4	6.8-7.4	6.5-7.2
Str 5	6.8-7.3	6.7-7.1
Str 6	6.9-7.4	6.8-7.0
Str 7	6.8-7.3	6.8-7.3
Str 8	6.8-7.2	6.8-7.3

SOL/EOL Comments

DNP due to insufficient acoustic ranges for accurate positioning

Overall Line Observations

Partial prime d/t bunkering original seq 128.
All gunstrings operating with gun # 3 as spares.
Gun depths erratic d/t swell

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:	295, 312			305 (Phase)			
S3:			339	290 (Phase)	3		
S4:	21, 106				127		
S5:	75				86, 88, 326		
S6:	49, 116, 158				29,37,91,205,303		
S7:	100, 202, 229, 285		360		203,285		
S8:					318,340		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-2288P2-129

Seq:

129

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1502		SOT - SOL NOISE FILES
111-120	1801-1810			APPROACH SHOTS
121	1811	1502		FSP @ 14:37 UTC Overlap 'A' shots 1811 - 1820
131	1821	1502		FPSP @ 14:38 UTC
431	2121	1502		EOT
427	2117	1502		LPSP @ 15:16 UTC
427	2117	1502		LSP @ 15:16 UTC
428-432	2118-2122			NAV PROCESSING SHOTS
433-442	/	1502		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2288P2-129**

Seq: **129**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2288P2-129**
 Area: **Gippsland Basin, Bass Strait** Sequence: **129** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **2281-2296** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **DNP** Initials: vq at vt hh
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	21-Jun-2006	172	14:37	00:37	1811	3.8	-6.7	080°, 14m/s, 2.0m
FPSP:	21-Jun-2006	172	14:38	00:38	1821			
LPSP:	21-Jun-2006	172	15:16	01:16	2117			
EOL LSP:	21-Jun-2006	172	15:16	01:16	2117	0.5	131	080°, 14m/s, 2.0m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL		EOL	
Streamer overall:	Str 1-8	525	528			32.2	33.6				
Per streamer:	Str 1-2	75	75			8.0	8.5				
	Str 2-3	75	76			7.9	8.1				
	Str 3-4	69	72			8.2	8.3				
	Str 4-5	75	72			8.0	8.0				
	Str 5-6	80	81								
	Str 6-7	74	74								
	Str 7-8	76	76								

P2/94 filename: G06A-2288P2-129.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_10
 Backup tape: Tape 3 Seq 1

Observations disabled etc.

Acoustics: S2A2 Ko'd
 RGPS:
 Compasses:
 Other: Echosounder 2 out from SOL - sp 1962

SP	UTC	Local Time	Comments
1811	14:37	00:37	SOL, FSP
1821	14:38	00:38	FPSP
1962			Echosounder 2 in
DNP due to insufficient acoustic ranges for accurate positioning			
2117	15:16	01:16	LPSP
2117	15:16	01:16	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tai
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2288P2-129**
 Sequence: **129**
 Direction: **10.5°** Nav. Def: **10**
 CMP line range: **2281-2296** Line type: **Prime**
 No. CMPs: **16** Status: **DNP**

Obs Initials: **NC**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	21-Jun-2006	172	14:37	00:37	121	1811	1502
FPSP:	21-Jun-2006	172	14:38	00:38	131	1821	1502
LPSP:	21-Jun-2006	172	15:16	01:16	427	2117	1502
EOL LSP:	21-Jun-2006	172	15:16	01:16	427	2117	1502

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	3.8	0.5
Water depth (m)	47	48
RMS Noise (µB)	6.9	5
Weather	080°, 14m/s, 2.0m	080°, 14m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1977
Stbd	1975	1978

Recorded SPs	307
Recorded km	5.756
Production time (hh:mm)	00:38
Production files	297
Production SPs	297
Production km	5.569
Production CMP km	89.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.7	2.3	2.1
HDOP	0.9	1.1	1.1
V1G2 PDOP	2.0	2.4	2.2
HDOP	1.0	1.1	1.1

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.6	2.5	4.77
Speed through water (m/s)	1.9	2.4	2.2	4.24
Feather angle (°)	1.0	4.4	2.6	
Gyro (P) (°)	18.0	30.2	23.5	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.8	529.3	526.2
Str 1-2	74.2	76.8	75.4
Str 2-3	74.1	76.5	75.4
Str 3-4	67.1	74.1	71.2
Str 4-5	70.2	77.3	73.8
Str 5-6	78.6	82.3	80.3
Str 6-7	72.9	74.8	73.9
Str 7-8	75.0	77.9	76.2

	Min	Max	Mean
Source-Source Port-Stbd	32.8	37.8	35.1
Port Subarray Outer-Centre	7.8	8.7	8.3
Centre-Inner	7.8	8.6	8.2
Stbd Subarray Centre-Inner	7.9	8.9	8.4
Outer-Centre	7.5	8.4	7.9

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	21, 106			
Str 5	75			
Str 6	49, 116, 158			
Str 7	100, 202, 229, 285		360	
Str 8				

	Noisy	Weak
Str 1	134,340,	
Str 2		
Str 3		
Str 4	127,	
Str 5	326,352,	
Str 6	91,205,	
Str 7	164,203,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.45

ONLINE COMMENTS

Partial prime d/t bunkering original seq 128.
 All gunstrings operating with gun # 3 as spares.
 Gun depths erratic d/t swell

PROCESSING QC COMMENTS

Mild swell noise on line effecting 5-10% of traces.
 Strum and head wave energy apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2288P3-185**
 Area: **Gippsland Basin, Bass Strait** Sequence: **185**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2281-2296** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/JC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	3-Jul-2006	184	09:18	19:18	121	1811	1711	8:45	
FPSP:	3-Jul-2006	184	09:20	19:20	131	1821	1711		
LPSP:	3-Jul-2006	184	09:57	19:57	427	2117	1711		
EOL LSP:	3-Jul-2006	184	09:57	19:57	427	2117	1711	9:05	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	6.1	6.7
Water depth (m)	47	47
RMS noise @ 5 Hz LC (µB)	2.6	2
Weather	115°, 4m/s, 1.0m	110°, 3m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1983	1983
Stbd	1985	1987

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.3	6.8-7.2
Str 2	6.9-7.3	6.9-7.2
Str 3	7.0-7.3	6.9-7.3
Str 4	7.0-7.4	6.8-7.2
Str 5	7.0-7.4	6.8-7.1
Str 6	6.9-7.4	6.9-7.2
Str 7	6.8-7.4	6.8-7.2
Str 8	6.7-7.4	6.8-7.3

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.
 Partial Prime - reshoot of seq 129 DNP d/t Wx / front net accx.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:				305 (Phase)	304,305		
S3:	290			339 (Phase)	3,344		
S4:	106, 110, 148, 177				126		
S5:	75				86,88,326		
S6:	49,116,158,161,307				29,37,91,205,303		
S7:	89,100,166, 202, 229, 269, 285		360				
S8:	198						

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1711		SOT - SOL NOISE FILES
111-120	1801-1810			APPROACH SHOTS
121	1811	1711		FSP @ 09:18 UTC "A shots" SP 1811 - 1820
131	1821	1711		FPSP @ 09:20 UTC
393	2083			False Pressure Error: String 3: 1797
427	2117	1711		LPSP @ 09:57 UTC
427	2117	1711		LSP @ 09:57 UTC
428-432	2118-2122			NAV PROCESSING SHOTS
433-442	/	1711		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2288P3-185**Seq: **185**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2288P3-185**
 Sequence: **185**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2281-2296** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	3-Jul-2006	184	09:18	19:18	121	1811	1711
FPSP:	3-Jul-2006	184	09:20	19:20	131	1821	1711
LPSP:	3-Jul-2006	184	09:57	19:57	427	2117	1711
EOL LSP	3-Jul-2006	184	09:57	19:57	427	2117	1711

GENERAL INFORMATION

	SOL	EOL
FA (°)	6.1	6.7
Water depth (m)	47	47
RMS Noise (µB)	2.6	2
Weather	115°, 4m/s, 1.0m	110°, 3m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1983	1983
Stbd	1985	1987

TOTALS INFORMATION

Recorded SPs	307
Recorded km	5.756
Production time (hh:mm)	00:37
Production files	297
Production SPs	297
Production km	5.569
Production CMP km	89.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	2.2	1.9
HDOP	1.0	1.0	1.0
V1G2 PDOP	1.8	2.2	1.9
HDOP	1.0	1.0	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.5	2.5	2.5	4.86
Speed through water (m/s)	2.1	2.3	2.2	4.37
Feather angle (°)	5.5	6.3	5.9	
Gyro (P) (°)	0.0	359.9	29.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	514.1	522.8	519.8
Str 1-2	73.3	76.1	74.6
Str 2-3	73.0	75.3	74.4
Str 3-4	71.5	74.7	73.4
Str 4-5	70.7	73.5	72.0
Str 5-6	75.1	77.5	76.4
Str 6-7	72.2	73.8	73.2
Str 7-8	75.1	76.4	75.8

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.1	38.1	36.6
Port-Subarray	7.3	8.2	7.8
Outer-Centre	8.6	9.6	9.1
Stbd Subarray	7.2	8.1	7.6
Centre-Inner	7.9	8.6	8.3
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49,116,158,161,307			
Str 7	89,100,166, 202, 229,		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	88, 326, 352	
Str 6	91, 205	
Str 7	164	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 Partial Prime - reshoot of seq 129 DNP d/t Wx / front net accx.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2304P1-131**
 Area: **Gippsland Basin, Bass Strait** Sequence: **131**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **2297-2312** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	21-Jun-2006	172	23:17	09:17	121	1001	1507	22:40	
FPSP:	21-Jun-2006	172	23:17	09:17	121	1001	1507		
LPSP:	22-Jun-2006	173	01:48	11:48	1237	2117	1510		
EOL LSP:	22-Jun-2006	173	01:48	11:48	1237	2117	1510	23:00	
				UTC Offset:	10.0				

Full volume arrays at 23:00 UTC

	SOL	EOL
Feather angle (°)	-0.4	5.6
Water depth (m)	53	47
RMS noise @ 5 Hz LC (µB)	7.6	4.5
Weather	060°, 15m/s, 3.5m	060°, 13m/s, 3.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1969	1971
Stbd	1972	1976

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.3	6.8-7.1
Str 2	6.5-7.1	6.8-7.2
Str 3	6.6-7.4	6.8-7.6
Str 4	6.7-7.5	6.9-7.3
Str 5	6.6-7.1	6.8-7.3
Str 6	6.8-7.2	6.8-7.2
Str 7	6.8-7.3	6.8-7.3
Str 8	6.9-7.1	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3 as spares.
 Guns operating at fluctuating depth d/t Wx

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					134, 340		
S2:	295, 312			305 (Phase)			354
S3:			339	290 (Phase)			
S4:	21, 106				127, 233		
S5:	75				86, 88, 326		
S6:	49, 116, 158				29, 37, 91, 205, 303		
S7:	100, 202, 229, 285		360		166, 203, 285		
S8:					137, 340		318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1507		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1507		FSP @ 23:17 UTC
121	1001	1507		FPSP @ 23:17 UTC
418	1298			Last SP of the day
469	1349	1507		EOT
470	1350	1508		SOT
840	1720	1508		EOT
841	1721	1509		SOT
1211	2091	1509		EOT
1212	2092	1510		SOT
1237	2117	1510		LPSP @ 01:48 UTC
1237	2117	1510		LSP @ 01:48 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1510		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2304P1-131**Seq: **131**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2304P1-131**

Area: **Gippsland Basin, Bass Strait** Sequence: **131** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **10**

Job ID: **20323** CMP line range: **2297-2312** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final

Initials: vq at vt hh

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	21-Jun-2006	172	23:17	09:17	1001	-0.4	319	060°, 15m/s, 3.5m
FPSP:	21-Jun-2006	172	23:17	09:17	1001			
LPSP:	22-Jun-2006	173	01:48	11:48	2117			
EOL LSP:	22-Jun-2006	173	01:48	11:48	2117	5.6	140	060°, 13m/s, 3.0m
UTC offset:				10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL	
Streamer overall:	Str 1-8	525	524		35.6	35.6	
Per streamer:	Str 1-2	75	74	Sub arrays:	PO-PC	8.2	8.7
	Str 2-3	76	75		PC-PI	9.0	8.7
	Str 3-4	70	72		SI-SC	8.3	8.0
	Str 4-5	73	74		SC-SO	7.3	7.2
	Str 5-6	81	79				
	Str 6-7	74	74				
	Str 7-8	77	76				

P2/94 filename: G06A-2304P1-131.0.p294

LMN: 20323_Bream.LMN

SCN: 20323_Bream.SCN

RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN

Acoustic file: 20323_10

Backup tape: Tape 3 Seq 3

Observations disabled etc.

Acoustics: S2A2 KO'D , G1A2 intermittent

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1001	23:17	09:17	SOL, FSP
1001	23:17	09:17	FPSP
1876	01:17	11:17	Move trigger offset for acoustics from .4 sec to 1 sec to improve front end acoustics
Note: QCLN missed shots 1507 , 1816. All shots logged on p294			
2117	01:48	11:48	LPSP
2117	01:48	11:48	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan

Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2304P1-131**
 Sequence: **131**
 Direction: **10.5°** Nav. Def: **10**
 CMP line range: **2297-2312** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	21-Jun-2006	172	23:17	09:17	121	1001	1507
FPSP:	21-Jun-2006	172	23:17	09:17	121	1001	1507
LPSP:	22-Jun-2006	173	01:48	11:48	1237	2117	1510
EOL LSP	22-Jun-2006	173	01:48	11:48	1237	2117	1510

GENERAL INFORMATION

	SOL	EOL
FA (°)	-0.4	5.6
Water depth (m)	53	47
RMS Noise (µB)	7.6	4.5
Weather	060°, 15m/s, 3.5m	060°, 13m/s, 3.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1969	1971
Stbd	1972	1976

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:31
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	5.0	2.5
HDOP	0.8	2.0	1.1
V1G2 PDOP	1.6	5.0	2.7
HDOP	0.8	2.0	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.5	2.3	4.51
Speed through water (m/s)	1.9	2.4	2.2	4.26
Feather angle (°)	-0.8	5.5	2.9	
Gyro (P) (°)	10.5	27.1	18.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.4	530.1	524.0
Str 1-2	72.9	76.8	74.8
Str 2-3	73.0	76.8	75.0
Str 3-4	67.5	75.4	71.4
Str 4-5	69.0	76.9	73.1
Str 5-6	77.5	82.0	79.7
Str 6-7	72.7	74.8	73.8
Str 7-8	74.7	77.8	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.5	39.3	35.8
Port Subarray			
Outer-Centre	7.7	9.0	8.4
Centre-Inner	7.9	9.0	8.5
Stbd Subarray			
Centre-Inner	7.6	8.8	8.2
Outer-Centre	7.0	8.2	7.5

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	21, 106			
Str 5	75			
Str 6	49, 116, 158			
Str 7	100, 202, 229, 285		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	69, 127, 178	
Str 5	326	
Str 6	91, 205	
Str 7	164, 166, 230	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.60

ONLINE COMMENTS

All gunstrings operating with gun # 3 as spares.
 Guns operating at fluctuating depth d/t Wx

PROCESSING QC COMMENTS

Mild swell noise on line, occasional moderate burst. Affects 5% to 10% of traces.
 Strum and head wave energy apparent.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2304F1-133**

Area: **Gippsland Basin, Bass Strait** Sequence: **133**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **10**

Job ID: **20323** CMP line range: **2297-2312** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/JC/RF/AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	22-Jun-2006	173	09:29	19:29	121	1001	1515	08:25	UTC
FPSP:	22-Jun-2006	173	09:29	19:29	121	1001	1515		
LPSP:	22-Jun-2006	173	12:09	22:09	1237	2117	1518		
EOL LSP:	22-Jun-2006	173	12:19	22:19	1314	2194	1518	08:45	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-5.5	5.9
Water depth (m)	53	47
RMS noise @ 5 Hz LC (µB)	7.5	3.9
Weather	070°, 10m/s, 3.0m	065°, 14m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1974	1973
Stbd	1975	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.4	6.6-7.3
Str 2	6.7-7.4	6.5-7.4
Str 3	6.8-7.4	6.8-7.3
Str 4	6.5-7.4	6.8-7.3
Str 5	6.8-7.4	6.8-7.2
Str 6	6.8-7.4	6.8-7.3
Str 7	6.8-7.4	6.9-7.2
Str 8	6.7-7.3	6.8-7.4

SOL/EOL Comments

LPSP 2117. Sp's 2123-2194 are Nav run-out shots to trouble shoot acoustics

Overall Line Observations

Pressure errors from SP 1013 to 1053 d/t depth scan delay being set to 3 and Xducer power delay being set to 1 causing inaccurate pressure reading during acoustic troubleshooting
All gunstrings operating with gun # 3 as spares.
Guns depth fluctuating d/t Wx.
Swell noise visible on data through out the line.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					134, 340		
S2:	295, 312			305 (Phase)			354
S3:			339	290 (Phase)			
S4:	21, 106				127, 233		
S5:	75				86, 88, 326		
S6:	49, 116, 158				29, 37, 91, 205, 303		
S7:	100, 202, 229, 285		360		166, 203, 285		
S8:					137, 340		318

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-2304F1-133

Seq:

133

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1515		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1515		FSP @ 09:29 UTC
121	1001	1515		FPSP @ 09:29 UTC
210	1090			S1C1-5 set to 7.5m & S2C1-5 set to 6.5m d/t inadequate streamer separation
240	1120			S2 retrieved 10m d/t inadequate streamer separation
272	1152			S1C1-5 & S2C1-5 set to 7m. S2 returned to marks
469	1349	1515		EOT
470	1350	1516		SOT
543	1423		Bad	Streamer Error: NAVS
840	1720	1516		EOT
841	1721	1517		SOT
1077	1957			S1C1-5 set to 7.5m & S2C1-5 set to 6.5m d/t inadequate streamer separation
1088	1968			S2 retrieved 10m d/t inadequate streamer separation
1211	2091	1517		EOT
1212	2092	1518		SOT
1237	2117	1518		LPSP @ 12:09 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1314	2194	1518		LSP @ 12:19 UTC
1315-1336	/	1518		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2304F1-133**

Seq: **133**

Dir: **10.5°**

Streamers - TUS Guardian

Seismic Recording System - SYNTRAK 960 24-bit

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Positioning

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2304F1-133**
 Area: **Gippsland Basin, Bass Strait** Sequence: **133** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **10**
 Job ID: **20323** CMP line range: **2297-2312** Line type: **Prog.Infill** Initials: df,tt,mm
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	22-Jun-2006	173	09:29	19:29	1001	-5.5	288	070°, 10m/s, 3.0m
FPSP:	22-Jun-2006	173	09:29	19:29	1001			
LPSP:	22-Jun-2006	173	12:09	22:09	2117			
EOL LSP:	22-Jun-2006	173	12:19	22:19	2194	5.9	-66	065°, 14m/s, 2.0m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL		EOL	
Streamer overall:	Str 1-8	525	528			37.5	36.5				
Per streamer:	Str 1-2	75	75			8.8	8.0				
	Str 2-3	76	72			8.1	8.6				
	Str 3-4	71	74			8.0	8.0				
	Str 4-5	73	81			7.8	7.6				
	Str 5-6	81	75								
	Str 6-7	74	74								
	Str 7-8	77	76								

P2/94 filename: **G06A2304F1-133.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**
 BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_10**
 Backup tape: **Tape 3 Seq 5**

Observations disabled etc.

Acoustics: S2A2 ko'd S4 intermittent front acoustics
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	09:29	19:29	SOL, FSP
1001	09:29	19:29	FPSP
1060	09:42	19:42	Setting birds 1-5 on S1 to 7.5m.Birds 1-5 on S2 1-5m to 6.5m
1120	09:47	19:47	S2 in 10m
1152	09:51	19:51	Setting birds 1-5 on S1 and S2 to 7m. S2 back to marks
1957	11:47	21:47	Setting birds 1-5 on S1 to 7.5m.Birds 1-5 on S2 1-5m to 6.5m
1968	11:49	21:49	S2 in 10m
2117	12:09	22:09	LPSP
2194	12:19	22:19	EOL, LSP Line Ran out to SP 2240 to trouble shoot front end Acoustics

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tai
 Chief Navigator: Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2304F1-133**
 Sequence: **133**
 Direction: **10.5°** Nav. Def: **10**
 CMP line range: **2297-2312** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	22-Jun-2006	173	09:29	19:29	121	1001	1515
FPSP:	22-Jun-2006	173	09:29	19:29	121	1001	1515
LPSP:	22-Jun-2006	173	12:09	22:09	1237	2117	1518
EOL LSP	22-Jun-2006	173	12:19	22:19	1314	2194	1518

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-5.5	5.9
Water depth (m)	53	47
RMS Noise (µB)	7.5	3.9
Weather	070°, 10m/s, 3.0m	065°, 14m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1974	1973
Stbd	1975	1975

TOTALS INFORMATION

Recorded SPs	1194
Recorded km	22.388
Production time (hh:mm)	02:40
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	1 / 0.09%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.5	1.9
HDOP	0.8	1.4	1.0
V1G2 PDOP	1.5	3.0	2.0
HDOP	0.9	1.6	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.0	2.4	2.2	4.30
Speed through water (m/s)	1.5	2.4	2.1	4.10
Feather angle (°)	-5.0	6.8	2.2	
Gyro (P) (°)	8.7	34.2	21.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.8	529.1	523.8
Str 1-2	70.0	76.7	74.4
Str 2-3	73.2	77.0	75.2
Str 3-4	68.0	76.3	71.7
Str 4-5	66.7	77.3	72.6
Str 5-6	77.3	82.3	80.0
Str 6-7	72.4	75.1	73.7
Str 7-8	74.2	78.4	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source Port-Stbd	31.6	38.6	35.4
Port Subarray Outer-Centre	7.5	8.7	8.2
Centre-Inner	7.8	8.9	8.3
Stbd Subarray Centre-Inner	7.3	8.7	8.1
Outer-Centre	7.3	8.3	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	295, 312			305 (Phase)
Str 3			339	290 (Phase)
Str 4	21, 106			
Str 5	75			
Str 6	49, 116, 158			
Str 7	100, 202, 229, 285		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134,340,	
Str 2		
Str 3		
Str 4	69,127,178,	
Str 5	326,351,	
Str 6	91,205,	
Str 7	164,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:	1423	1
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.85

ONLINE COMMENTS

Pressure errors from SP 1013 to 1053 d/t depth scan delay being set to 3 and Xducer power delay being set to 1 causing inaccurate pressure reading during acoustic troubleshooting
 All gunstrings operating with gun # 3 as spares.
 Guns depth fluctuating d/t Wx.
 Swell noise visible on data through out the line.
 LINE Ran out to SP 2240 to Trouble shoot front end acoustics

PROCESSING QC COMMENTS

Mild swell noise on line effecting 5-10% of traces.
 Strum and head wave energy apparent.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2320P1-135**
 Area: **Gippsland Basin, Bass Strait** Sequence: **135**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2313-2328** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/ RA/ LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	22-Jun-2006	173	20:23	6:23	121	1001	1524	19:50	
FPSP:	22-Jun-2006	173	20:23	6:23	121	1001	1524		
LPSP:	22-Jun-2006	173	23:03	9:03	1237	2117	1527		
EOL LSP:	22-Jun-2006	173	23:03	9:03	1237	2117	1527	20:10	
				UTC Offset:	10.0				

Full volume arrays at 20:10 UTC

	SOL	EOL
Feather angle (°)	-6.2	-1.4
Water depth (m)	54	47
RMS noise @ 5 Hz LC (µB)	6	3.1
Weather	310°, 5m/s, 2.5m	310°, 6m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1971	1975
Stbd	1972	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.4	6.8-7.2
Str 2	6.9-7.5	6.9-7.2
Str 3	6.9-7.3	6.9-7.1
Str 4	6.9-7.2	6.9-7.3
Str 5	6.9-7.1	6.8-7.3
Str 6	7.0-7.2	7.1-7.3
Str 7	6.8-7.5	6.9-7.1
Str 8	6.9-7.3	6.9-7.1

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3 as spares.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					134, 340		
S2:				305 (Phase)			354
S3:	290		339				
S4:	52, 61, 106, 110				127, 178, 233		
S5:	75				86, 88, 326		
S6:	49, 120, 158				29, 37, 91, 205, 303		
S7:	100, 130, 202, 229, 285		360		166, 203, 285		
S8:					137, 172, 340		318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2320P1-135**Seq: **135**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1524		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1524		FSP @ 20:23 UTC
121	1001	1524	Bad	FPSP @ 20:23 UTC Misfire: P-1 P-2 P-4 P-5 P-6 P-7 P-8
469	1349	1524		EOT
470	1350	1525		SOT
642	1522		Bad	Delta Error: S-14: -2.1
840	1720	1525		EOT
841	1721	1526		SOT
1044	1924		Bad	Delta Error: S-1: 1.1
1211	2091	1526		EOT
1212	2092	1527		SOT
1237	2117	1527		LPSP @ 23:03 UTC
1237	2117	1527		LSP @ 23:03 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1527		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2320P1-135**Seq: **135**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2320P1-135**
 Sequence: **135**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2313-2328** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	22-Jun-2006	173	20:23	06:23	121	1001	1524
FPSP:	22-Jun-2006	173	20:23	06:23	121	1001	1524
LPSP:	22-Jun-2006	173	23:03	09:03	1237	2117	1527
EOL LSP	22-Jun-2006	173	23:03	09:03	1237	2117	1527

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6.2	-1.4
Water depth (m)	54	47
RMS Noise (µB)	6	3.1
Weather	310°, 5m/s, 2.5m	310°, 6m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1971	1975
Stbd	1972	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:40
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	3 / 0.27%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.6	1.9
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.4	2.6	2.0
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.2	4.25
Speed through water (m/s)	1.5	2.4	2.2	4.23
Feather angle (°)	-7.5	-1.7	-5.4	
Gyro (P) (°)	6.0	27.4	16.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	512.9	529.2	525.5
Str 1-2	72.7	75.5	74.2
Str 2-3	74.3	76.3	75.4
Str 3-4	71.4	75.5	73.5
Str 4-5	66.7	77.4	73.7
Str 5-6	74.1	80.5	78.6
Str 6-7	71.5	74.5	73.3
Str 7-8	75.4	78.3	76.8

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.8	41.3	37.5
Port Subarray	7.5	8.6	8.2
Outer-Centre	7.6	9.1	8.6
Stbd Subarray	8.1	9.3	8.7
Centre-Inner	7.1	7.7	7.3
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	290		339	
Str 4	52, 61, 106, 110			
Str 5	75			
Str 6	49, 120, 158			
Str 7	100, 130, 202, 229, 285		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	69, 127	
Str 5	326,351,	
Str 6	91,205,	
Str 7	203,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1522, 1924	2
Autofires / Misfires :	1001	1
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.04

TOTAL SHOTS

ONLINE COMMENTS

All gunstrings operating with gun # 3 as spares.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2336P1-137**
 Area: **Gippsland Basin, Bass Strait** Sequence: **137**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2329-2344** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC, JC, RF, AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	23-Jun-2006	174	07:01	17:01	121	1001	1532	6:25	
FPSP:	23-Jun-2006	174	07:01	17:01	121	1001	1532		
LPSP:	23-Jun-2006	174	09:25	19:25	1237	2117	1535		
EOL LSP:	23-Jun-2006	174	09:25	19:25	1237	2117	1535	6:45	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	4.2	-0.4
Water depth (m)	53	48
RMS noise @ 5 Hz LC (µB)	3.4	2.4
Weather	320°, 3m/s, 1.5m	320°, 5m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1980	1972
Stbd	1984	1975

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.2	6.9-7.2
Str 2	6.8-7.3	6.9-7.4
Str 3	6.9-7.2	6.9-7.2
Str 4	6.9-7.3	6.8-7.2
Str 5	6.8-7.1	6.9-7.4
Str 6	6.8-7.2	6.8-7.3
Str 7	6.8-7.2	6.9-7.3
Str 8	6.9-7.3	6.9-7.3

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 4 as spares.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					134, 340		
S2:				305 (Phase)			
S3:	290		339				
S4:	52, 61, 106, 110				127, 233		
S5:	75				86, 326		
S6:	49, 120, 158				29, 37, 91, 205, 303		
S7:	100, 130, 202, 229, 285,		360				
S8:					137, 340		

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2336P1-137**

Seq: **137**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1532		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1532		FSP @ 07:01 UTC
121	1001	1532		FPSP @ 07:01 UTC
469	1349	1532		EOT
470	1350	1533		SOT
840	1720	1533		EOT
841	1721	1534		SOT
1211	2091	1534		EOT
1212	2092	1535		SOT
1237	2117	1535		LPSP @ 09:25 UTC
1237	2117	1535		LSP @ 09:25 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1535		EOT - NOISE FILES
1253-1262				Stbd gun #12 - gun signature test. 10 Shots
1263-1272				Stbd gun #13 - gun signature test. 10 Shots

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2336P1-137**Seq: **137**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2336P1-137**
 Area: **Gippsland Basin, Bass Strait** Sequence: **137** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2329-2344** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: tt,df,mm

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	23-Jun-2006	174	07:01	17:01	1001	4.2	355	320°, 3m/s, 1.5m
FPSP:	23-Jun-2006	174	07:01	17:01	1001			
LPSP:	23-Jun-2006	174	09:25	19:25	2117			
EOL LSP:	23-Jun-2006	174	09:25	19:25	2117	-0.4	370	320°, 5m/s, 2.0m
			UTC offset:	10.0				

Separations (m)

	SOL	EOL
Streamer overall:	524	525
Per streamer:		
Str 1-8	76	75
Str 1-2	75	76
Str 2-3	74	74
Str 3-4	73	74
Str 4-5	73	77
Str 5-6	76	74
Str 6-7	77	76

Sources overall:	Port-Stbd	SOL	EOL
Sub arrays:			
PO-PC		8.6	8.7
PC-PI		8.1	8.2
SI-SC		9.0	8.7
SC-SO		9.1	7.1

P2/94 filename: **G06A-2336P1-137.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**

BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_11**
 Backup tape: **Tape 4 Seq 4**

Observations disabled etc.

Acoustics: **S2A2 KO**
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	7:01	17:01	SOL, FSP
1001	7:01	17:01	FPSP
1300			Increase in WSP speed
2117	9:25	19:25	LPSP
2117	9:25	19:25	EOL, LSP

Vessel Manager: **Morgan McNelly** Navigators: **00:00-12:00** **Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan**
 Chief Navigator: **Rick Fleming** **12:00-00:00** **Darryl Fletcher/Mikhael Malofeev/Thomas Tibor**



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2336P1-137**
 Sequence: **137**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2329-2344** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	23-Jun-2006	174	07:01	17:01	121	1001	1532
FPSP:	23-Jun-2006	174	07:01	17:01	121	1001	1532
LPSP:	23-Jun-2006	174	09:25	19:25	1237	2117	1535
EOL LSP	23-Jun-2006	174	09:25	19:25	1237	2117	1535

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	4.2	-0.4
Water depth (m)	53	48
RMS Noise (µB)	3.4	2.4
Weather	320°, 3m/s, 1.5m	320°, 5m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1980	1972
Stbd	1984	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:24
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.2	2.2	1.8
HDOP	0.8	1.1	1.0
V1G2 PDOP	1.2	2.2	1.8
HDOP	0.8	1.1	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.4	4.73
Speed through water (m/s)	2.0	2.3	2.2	4.20
Feather angle (°)	-0.3	4.2	0.7	
Gyro (P) (°)	2.3	17.5	9.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	522.4	528.6	525.3
Str 1-2	74.1	76.7	75.2
Str 2-3	74.2	76.4	75.3
Str 3-4	73.0	76.1	74.4
Str 4-5	71.1	76.0	73.5
Str 5-6	75.3	78.5	77.0
Str 6-7	72.4	74.5	73.4
Str 7-8	75.3	77.5	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.6	40.6	37.1
Port Subarray	8.1	9.1	8.6
Outer-Centre	7.2	8.5	8.0
Centre-Inner	8.0	9.1	8.6
Stbd Subarray	6.9	7.6	7.3
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	290		339	
Str 4	52, 61, 106, 110			
Str 5	75			
Str 6	49, 120, 158			
Str 7	100, 130, 202, 229, 285,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	66, 326, 352	
Str 6	37, 91, 205	
Str 7	203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.11

ONLINE COMMENTS

All gunstrings operating with gun # 4 as spares.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise
 Strum and head wave energy apparent due to good weather and clean data quality.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2336F1-139**
 Area: **Gippsland Basin, Bass Strait** Sequence: **139**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2329-2344** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/ RA/ LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	23-Jun-2006	174	17:33	03:33	121	1001	1541	17:00	UTC
FPSP:	23-Jun-2006	174	17:33	03:33	121	1001	1541		
LPSP:	23-Jun-2006	174	19:54	05:54	1237	2117	1544		
EOL LSP:	23-Jun-2006	174	19:54	05:54	1237	2117	1544	17:20	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	7.8	-2.5
Water depth (m)	52	48
RMS noise @ 5 Hz LC (µB)	3	3
Weather	290°, 11m/s, 2.0m	310°, 13m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1976	1975
Stbd	1973	1977

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.5	6.8-7.1
Str 2	7.0-7.6	6.9-7.1
Str 3	6.8-7.2	6.9-7.3
Str 4	6.9-7.1	6.9-7.1
Str 5	6.8-7.1	6.8-7.3
Str 6	6.8-7.1	6.8-7.1
Str 7	6.6-7.6	6.8-7.2
Str 8	6.7-7.4	6.9-7.3

SOL/EOL Comments**Overall Line Observations**

All gunstrings operating with gun # 3 as spares.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)			354
S3:	83, 290		339		3		
S4:	61,106, 110, 148				127		
S5:	75				86, 326		
S6:	49, 120, 158				29, 37, 91, 205		
S7:	89, 100, 202, 229, 285,		360		203		
S8:							318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-2336F1-139

Seq:

139

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1541		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1541		FSP @ 17:33 UTC
121	1001	1541		FPSP @ 17:33 UTC
469	1349	1541		EOT
470	1350	1542		SOT
840	1720	1542		EOT
841	1721	1543		SOT
1211	2091	1543		EOT
1212	2092	1544		SOT
1237	2117	1544		LPSP @ 19:54 UTC
1237	2117	1544		LSP @ 19:54 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1544		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2336F1-139**

Seq: **139**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2336F1-139**
 Sequence: **139**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2329-2344** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	23-Jun-2006	174	17:33	03:33	121	1001	1541
FPSP:	23-Jun-2006	174	17:33	03:33	121	1001	1541
LPSP:	23-Jun-2006	174	19:54	05:54	1237	2117	1544
EOL LSP:	23-Jun-2006	174	19:54	05:54	1237	2117	1544

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	7.8	-2.5
Water depth (m)	52	48
RMS Noise (µB)	3	3
Weather	290°, 11m/s, 2.0m	310°, 13m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1976	1975
Stbd	1973	1977

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:21
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.5	2.3	2.0
HDOP	0.9	1.3	1.1
V1G2 PDOP	1.5	2.6	2.1
HDOP	0.9	1.4	1.2

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.6	2.5	4.80
Speed through water (m/s)	1.9	2.3	2.1	4.05
Feather angle (°)	-2.3	7.8	1.2	
Gyro (P) (°)	-7.7	5.3	-1.1	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.7	528.0	524.7
Str 1-2	73.7	77.1	75.4
Str 2-3	74.0	76.5	75.4
Str 3-4	73.9	77.3	75.7
Str 4-5	71.7	79.1	75.1
Str 5-6	72.0	76.1	73.9
Str 6-7	71.9	74.3	73.2
Str 7-8	74.6	77.4	76.1

	Min	Max	Mean
Source-Source Port-Stbd	34.0	40.9	37.0
Port Subarray Outer-Centre	7.7	9.0	8.3
Centre-Inner	7.3	8.3	7.7
Stbd Subarray Centre-Inner	7.6	8.8	8.2
Outer-Centre	7.6	9.1	8.4

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290		339	
Str 4	61,106, 110, 148			
Str 5	75			
Str 6	49, 120, 158			
Str 7	89, 100, 202, 229, 285,		360	
Str 8				

	Noisy	Weak
Str 1	134,340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	326,	
Str 6	91,205,	
Str 7	203,	
Str 8	318	

SHOT / TRACE EDITS: SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gunstrings operating with gun # 3 as spares.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise
 Strum and head wave energy apparent due to good weather and clean data quality.
 Gyro Mean values invalid d/t spectra spiking as Gyro swing thru 0°

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2352P1-141**
 Area: **Gippsland Basin, Bass Strait** Sequence: **141**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2345-2360** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/JC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	24-Jun-2006	175	03:33	13:33	121	1001	1549	03:00	
FPSP:	24-Jun-2006	175	03:33	13:33	121	1001	1549		
LPSP:	24-Jun-2006	175	05:51	15:51	1237	2117	1552		
EOL LSP:	24-Jun-2006	175	05:51	15:51	1237	2117	1552	03:20	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	15.0	8.4
Water depth (m)	52	47
RMS noise @ 5 Hz LC (µB)	4.3	3
Weather	280°, 14m/s, 2.0m	280°, 14m/s, 2.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1982	1975
Stbd	1984	1977

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.1	6.9-7.3
Str 2	6.7-7.2	7.0-7.3
Str 3	6.8-7.1	6.8-7.4
Str 4	6.9-7.2	6.8-7.1
Str 5	6.8-7.2	6.8-7.4
Str 6	6.9-7.3	6.8-7.4
Str 7	6.8-7.2	6.7-7.4
Str 8	6.9-7.3	6.6-7.3

SOL/EOL Comments

Overall Line Observations

All gunstrings operating with gun # 3 as spares.
 Gun depth erratic d/t swell.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					134, 340		
S2:				305 (Phase)			
S3:	83, 290		339				
S4:	61, 106, 110, 148				127	178	
S5:	75				326		
S6:	49, 120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 202, 229, 285,		360				
S8:							

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2352P1-141**Seq: **141**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1549		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1549		FSP @ 03:33 UTC
121	1001	1549		FPSP @ 03:33 UTC
208	1088		Bad	Delta Error: S-11: 1.1
469	1349	1549		EOT
470	1350	1550		SOT
840	1720	1550		EOT
841	1721	1551		SOT
1211	2091	1551		EOT
1212	2092	1552		SOT
1237	2117	1552		LPSP @ 05:51 UTC
1237	2117	1552		LSP @ 05:51 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1552		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2352P1-141**Seq: **141**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2352P1-141**
 Sequence: **141**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2345-2360** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	24-Jun-2006	175	03:33	13:33	121	1001	1549
FPSP:	24-Jun-2006	175	03:33	13:33	121	1001	1549
LPSP:	24-Jun-2006	175	05:51	15:51	1237	2117	1552
EOL LSP	24-Jun-2006	175	05:51	15:51	1237	2117	1552

GENERAL INFORMATION

	SOL	EOL
FA (°)	15	8.4
Water depth (m)	52	47
RMS Noise (µB)	4.3	3
Weather	280°, 14m/s, 2.0m	280°, 14m/s, 2.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1982	1975
Stbd	1984	1977

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:18
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	3.4	2.3
HDOP	0.8	1.8	1.2
V1G2 PDOP	1.6	6.0	2.5
HDOP	0.8	2.0	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.6	2.5	4.92
Speed through water (m/s)	1.9	2.3	2.1	4.06
Feather angle (°)	8.3	14.9	11.1	
Gyro (P) (°)	337.0	352.9	345.7	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	503.5	518.9	511.9
Str 1-2	72.1	76.3	73.9
Str 2-3	71.3	75.0	73.4
Str 3-4	71.8	76.6	74.5
Str 4-5	66.8	76.3	72.4
Str 5-6	69.3	73.5	71.7
Str 6-7	70.3	73.5	72.0
Str 7-8	71.7	75.6	74.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	31.3	38.9	35.0
Port Subarray			
Outer-Centre	7.6	8.5	8.1
Centre-Inner	7.6	8.6	8.0
Stbd Subarray			
Centre-Inner	7.4	8.7	8.0
Outer-Centre	7.6	8.9	8.3

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290		339	
Str 4	61, 106, 110, 148			
Str 5	75			
Str 6	49, 120, 158			
Str 7	89, 100, 202, 229, 285,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134, 340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	326, 352	
Str 6	91, 205	
Str 7	203	
Str 8	152, 318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1088	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.31

TOTAL SHOTS

ONLINE COMMENTS

All gunstrings operating with gun # 3 as spares.
 Gun depth erratic d/t swell.

PROCESSING QC COMMENTS

Mild swell noise on line, occasional moderate burst. Affects 5% of traces.
 Strum and head wave energy are observed



VERITAS
Geophysical Integrity

Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2368P1-143**
 Area: **Gippsland Basin, Bass Strait** Sequence: **143**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2361-2376** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	24-Jun-2006	175	14:36	0:36	121	1001	1558	14:00	
FPSP:	24-Jun-2006	175	14:36	0:36	121	1001	1558		
LPSP:	24-Jun-2006	175	16:54	2:54	1237	2117	1561		
EOL LSP:	24-Jun-2006	175	16:54	2:54	1237	2117	1561	14:20	
				UTC Offset:	10.0				

Full volume arrays at 14:20 UTC

	SOL	EOL
Feather angle (°)	14.5	8.1
Water depth (m)	54	46
RMS noise @ 5 Hz LC (µB)	4.5	3.9
Weather	250°, 12m/s, 1.5m	270°, 12m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4275
Source pressure (psi)		
Port	1977	1975
Stbd	1979	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.3	6.8-7.4
Str 2	6.8-7.6	6.8-7.3
Str 3	6.8-7.5	6.9-7.2
Str 4	6.8-7.3	6.7-7.3
Str 5	6.6-8.1	6.8-7.6
Str 6	6.9-7.2	6.8-7.5
Str 7	6.9-7.6	6.8-7.3
Str 8	6.4-7.5	6.9-7.2

SOL/EOL Comments

SOL Noise files generated with feather angle > 10°

Overall Line Observations

All gunstrings operating with gun # 3 as spares.
 Swell noise visible on RMS Display for all streamers
 SP 1678 - Gun S-14 disabled d/t multiple delta errors. Stbd array vol - 4275cuin

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:	312			305 (Phase)			
S3:	83, 290		339				
S4:	43, 106, 148				127, 233		
S5:	75				86, 88, 326		
S6:	49, 116, 120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 166, 202, 229, 285		360		89, 203		
S8:					318		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2368P1-143**Seq: **143**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1558		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1558		FSP @ 14:36 UTC
121	1001	1558		FPSP @ 14:36 UTC
469	1349	1558		EOT
470	1350	1559		SOT
677	1557		Bad	Delta Error: P-8: 1.1
681	1561		Bad	Delta Error: P-8: 1.1
746	1626		Bad	Delta Error: S-14: 5.8
774	1654		Bad	Delta Error: S-14: -1.4
778	1658		Bad	Delta Error: S-14: -1.3
796	1676		Bad	Delta Error: S-14: -1.3
798	1678			Gun S-14 disabled d/t multiple delta errors. Stbd array vol - 4275cuin
840	1720	1559		EOT
841	1721	1560		SOT
1147	2027		Bad	Delta Error: P-8: -1.1
1211	2091	1560		EOT
1212	2092	1561		SOT
1237	2117	1561		LPSP @ 16:54 UTC
1237	2117	1561		LSP @ 16:54 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1561		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2368P1-143**Seq: **143**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84

SR/V Veritas Viking II

Navigation Line Log



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2368P1-143**
 Area: **Gippsland Basin, Bass Strait** Sequence: **143** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2361-2376** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Log Status: Final
 Initials: vq, hh, at, vt

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	24-Jun-2006	175	14:36	0:36	1001	14.5	114.1	250°, 12m/s, 1.5m
FPSP:	24-Jun-2006	175	14:36	0:36	1001			
LPSP:	24-Jun-2006	175	16:54	2:54	2117			
EOL LSP:	24-Jun-2006	175	16:54	2:54	2117	8.1	155	270°, 12m/s, 1.5m
UTC offset:				10.0				

Separations (m)

	SOL	EOL	Sources overall:	Port-Stbd	SOL	EOL	
Streamer overall:	Str 1-8	522	525		36.0	36.1	
Per streamer:	Str 1-2	76	76	Sub arrays:	PO-PC	8.0	7.8
	Str 2-3	75	76		PC-PI	8.2	8.0
	Str 3-4	75	74		SI-SC	8.3	7.5
	Str 4-5	72	74		SC-SO	8.1	9.0
	Str 5-6	74	74				
	Str 6-7	73	73				
	Str 7-8	77	76				

P2/94 filename: G06A-2368P1-143.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_11
 Backup tape: Tape 1 Seq 5

Observations disabled etc.

Acoustics: S2A2 KO'd
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	14:36	0:36	Crab Angle of 25° at SOL. Feathering angle > 10° at start of line SOL, FSP
1001	14:36	0:36	FPSP
1690	16:01	2:01	Feathering angle < 10°
2117	16:54	2:54	LPSP
2117	16:54	2:54	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator: Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2368P1-143**
 Sequence: **143**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2361-2376** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	24-Jun-2006	175	14:36	00:36	121	1001	1558
FPSP:	24-Jun-2006	175	14:36	00:36	121	1001	1558
LPSP:	24-Jun-2006	175	16:54	02:54	1237	2117	1561
EOL LSP	24-Jun-2006	175	16:54	02:54	1237	2117	1561

GENERAL INFORMATION

	SOL	EOL
FA (°)	14.5	8.1
Water depth (m)	54	46
RMS Noise (µB)	4.5	3.9
Weather	250°, 12m/s, 1.5m	270°, 12m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4275
Source pressure (psi): Port	1977	1975
Stbd	1979	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:18
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	7 / 0.63%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	2.9	2.1
HDOP	1.0	2.2	1.2
V1G2 PDOP	1.7	3.0	2.3
HDOP	1.0	2.3	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.6	2.5	4.91
Speed through water (m/s)	1.4	2.0	1.9	3.69
Feather angle (°)	8.2	14.5	10.9	
Gyro (P) (°)	339.0	356.8	349.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	504.4	519.0	512.4
Str 1-2	72.0	76.2	74.3
Str 2-3	71.5	74.8	73.3
Str 3-4	72.4	76.8	74.5
Str 4-5	68.3	74.8	71.4
Str 5-6	68.7	74.8	72.2
Str 6-7	70.9	73.5	72.2
Str 7-8	72.6	76.0	74.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.1	40.1	35.4
Port Subarray	7.0	8.2	7.7
Outer-Centre	7.3	8.5	7.9
Stbd Subarray	6.8	8.4	7.7
Centre-Inner	7.5	9.4	8.4
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290		339	
Str 4	43, 106, 148			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134,340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	326,	
Str 6	91,205,	
Str 7	203,	
Str 8	152,318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1557, 1561, 1626, 1654, 1658, 1676, 2027	7
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.75

TOTAL SHOTS

ONLINE COMMENTS

All gunstrings operating with gun # 3 as spares.
 Swell noise visible on RMS Display for all streamers
 SP 1678 - Gun S-14 disabled d/t multiple delta errors. Stbd array vol - 4275cuin

PROCESSING QC COMMENTS

Moderate sea noise on line, occasional moderate burst, effecting ~10% of traces.
 Strum and head wave energy are observed
 No tension data



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2384P1-145**

Area: **Gippsland Basin, Bass Strait** Sequence: **145**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**

Job ID: **20323** CMP line range: **2377-2392** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/ RA/ LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	25-Jun-2006	176	00:33	10:33	121	1001	1566	23:55	UTC
FPSP:	25-Jun-2006	176	00:33	10:33	121	1001	1566		
LPSP:	25-Jun-2006	176	03:04	13:04	1237	2117	1569		
EOL LSP:	25-Jun-2006	176	03:04	13:04	1237	2117	1569	00:15	UTC
UTC Offset:				10.0					

	SOL	EOL
Feather angle (°)	-3.4	4.8
Water depth (m)	53	46
RMS noise @ 5 Hz LC (µB)	4.4	2.6
Weather	260°, 9m/s, 1.5m	290°, 10m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1976	1977
Stbd	1978	1977

Streamer Depths (m)

	SOL	EOL
Str 1	7.0-7.6	6.9-7.2
Str 2	6.9-7.4	6.8-7.2
Str 3	6.9-7.4	6.8-7.1
Str 4	6.9-7.3	6.9-7.2
Str 5	6.9-7.3	6.8-7.2
Str 6	6.9-7.4	6.8-7.3
Str 7	6.9-7.6	6.9-7.3
Str 8	6.7-7.6	6.9-7.2

SOL/EOL Comments**Overall Line Observations**

All gunstrings operating with gun # 3 as spares.
Gun depths sometimes erratic d/t swell
Mild swell noise visible on RMS Display for all streamers

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:	312			305 (Phase)			
S3:	83, 290		339				
S4:	43, 106, 148				127		
S5:	75				326		
S6:	49, 116, 120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-2384P1-145

Seq:

145

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1566		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1566		FSP @ 00:33 UTC
121	1001	1566		FPSP @ 00:33 UTC
469	1349	1566		EOT
470	1350	1567		SOT
840	1720	1567		EOT
841	1721	1568		SOT
1211	2091	1568		EOT
1212	2092	1569		SOT
1237	2117	1569		LPSP @ 03:04 UTC
1237	2117	1569		LSP @ 03:04 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1569		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2384P1-145**

Seq: **145**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2384P1-145**
 Area: **Gippsland Basin, Bass Strait** Sequence: **145** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2377-2392** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Initials: vq, hh, at, vt
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	25-Jun-2006	176	00:33	10:33	1001	-3.4	720.5	260°, 9m/s, 1.5m
FPSP:	25-Jun-2006	176	00:33	10:33	1001			
LPSP:	25-Jun-2006	176	03:04	13:04	2117			
EOL LSP:	25-Jun-2006	176	03:04	13:04	2117	4.8	385	290°, 10m/s, 1.5m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	526	523					38.2	36.0
Per streamer:	Str 1-2	75	75			Sub arrays:	PO-PC	7.6	8.0
	Str 2-3	75	75				PC-PI	7.3	7.3
	Str 3-4	74	75				SI-SC	8.3	8.3
	Str 4-5	74	72				SC-SO	8.0	8.2
	Str 5-6	76	75						
	Str 6-7	73	74						
	Str 7-8	77	76						

P2/94 filename: G06A-2384P1-145.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_11
 Backup tape: Tape Seq

Observations disabled etc.

Acoustics: S2A2 KO'd , G1A2 Intermittent comms
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1001	00:33	10:33	SOL, FSP
1001	00:33	10:33	FPSP
1280	01:11	11:11	Navigating on 6 satellites PDOP >4.0m
2117	03:04	13:04	LPSP
2117	03:04	13:04	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tai
 Chief Navigator: Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2384P1-145**
 Sequence: **145**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2377-2392** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	25-Jun-2006	176	00:33	10:33	121	1001	1566
FPSP:	25-Jun-2006	176	00:33	10:33	121	1001	1566
LPSP:	25-Jun-2006	176	03:04	13:04	1237	2117	1569
EOL LSP	25-Jun-2006	176	03:04	13:04	1237	2117	1569

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	-3.4	4.8
Water depth (m)	53	46
RMS Noise (µB)	4.4	2.6
Weather	260°, 9m/s, 1.5m	290°, 10m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1976	1977
Stbd	1978	1977

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:31
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.5	4.9	2.5
HDOP	0.9	2.0	1.3
V1G2 PDOP	1.5	4.9	2.8
HDOP	0.9	2.0	1.4

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.3	4.50
Speed through water (m/s)	2.0	2.5	2.2	4.24
Feather angle (°)	-3.3	4.6	1.7	
Gyro (P) (°)	-8.6	6.9	-0.4	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	518.0	525.1	522.4
Str 1-2	73.7	76.0	75.0
Str 2-3	74.0	76.2	75.0
Str 3-4	73.5	76.4	75.2
Str 4-5	70.8	75.5	72.7
Str 5-6	73.6	77.6	75.4
Str 6-7	72.4	74.1	73.2
Str 7-8	75.0	77.0	75.9

	Min	Max	Mean
Source-Source Port-Stbd	35.3	40.3	37.7
Port Subarray Outer-Centre	7.2	8.1	7.6
Centre-Inner	7.2	8.2	7.7
Stbd Subarray Centre-Inner	7.9	8.9	8.3
Outer-Centre	7.3	8.7	8.1

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290		339	
Str 4	43, 106, 148			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

	Noisy	Weak
Str 1	109, 134, 340	
Str 2	186	
Str 3		
Str 4	127, 178	
Str 5	326	
Str 6	91, 205	
Str 7	203	
Str 8	152, 318	

SHOT / TRACE EDITS: SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.11

ONLINE COMMENTS

All gunstrings operating with gun # 3 as spares.
 Gun depths sometimes erratic d/t swell
 Mild swell noise visible on RMS Display for all streamers

PROCESSING QC COMMENTS

Mild level to moderate swell noise on line, generally effecting 5% of traces.
 Strum and head wave energy are observed

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2384F1-147**
 Area: **Gippsland Basin, Bass Strait** Sequence: **147**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2377-2392** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/JC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	25-Jun-2006	176	11:22	21:22	121	1001	1575	10:50 UTC
FPSP:	25-Jun-2006	176	11:22	21:22	121	1001	1575	
LPSP:	25-Jun-2006	176	13:45	23:45	1237	2117	1578	Full volume arrays at 11:10 UTC
EOL LSP:	25-Jun-2006	176	13:45	23:45	1237	2117	1578	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	-3.4	1.6
Water depth (m)	54	47
RMS noise @ 5 Hz LC (µB)	3.7	2.3
Weather	280°, 8m/s, 1.0m	270°, 8m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1978	1974
Stbd	1982	1979

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.4	6.9-7.2
Str 2	6.9-7.3	6.9-7.2
Str 3	6.7-7.3	6.9-7.3
Str 4	6.8-7.3	6.9-7.2
Str 5	6.8-7.2	6.9-7.2
Str 6	6.8-7.4	6.9-7.1
Str 7	6.9-7.4	6.8-7.2
Str 8	6.9-7.4	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spares.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					134, 340		
S2:				305 (Phase)			
S3:			339	290 (Phase)			
S4:	106, 110, 148				127		
S5:	75				86, 326		
S6:	49, 116, 120, 158				29, 37, 91, 205, 303		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2384F1-147**Seq: **147**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1575		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1575		FSP @ 11:22 UTC
121	1001	1575		FPSP @ 11:22 UTC
469	1349	1575		EOT
470	1350	1576		SOT
840	1720	1576		EOT
841	1721	1577		SOT
1211	2091	1577		EOT
1212	2092	1578		SOT
1237	2117	1578		LPSP @ 13:45 UTC
1237	2117	1578		LSP @ 13:45 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1578		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2384F1-147**Seq: **147**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2384F1-147**
 Sequence: **147**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2377-2392** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	25-Jun-2006	176	11:22	21:22	121	1001	1575
FPSP:	25-Jun-2006	176	11:22	21:22	121	1001	1575
LPSP:	25-Jun-2006	176	13:45	23:45	1237	2117	1578
EOL LSP	25-Jun-2006	176	13:45	23:45	1237	2117	1578

GENERAL INFORMATION

	SOL	EOL
FA (°)	-3.4	1.6
Water depth (m)	54	47
RMS Noise (µB)	3.7	2.3
Weather	280°, 8m/s, 1.0m	270°, 8m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1978	1974
Stbd	1982	1979

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:23
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	3.2	2.3
HDOP	1.0	2.1	1.3
V1G2 PDOP	1.8	3.2	2.4
HDOP	1.0	2.2	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.4	4.75
Speed through water (m/s)	2.0	2.3	2.2	4.29
Feather angle (°)	-3.3	2.0	0.6	
Gyro (P) (°)	-2.6	12.1	4.9	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.6	527.4	524.4
Str 1-2	73.5	76.3	75.1
Str 2-3	74.3	76.6	75.4
Str 3-4	73.0	76.2	74.7
Str 4-5	70.9	76.2	73.4
Str 5-6	73.6	77.9	76.1
Str 6-7	72.4	74.2	73.5
Str 7-8	75.4	77.3	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	35.3	40.3	38.1
Port-Subarray	7.2	8.7	7.7
Outer-Centre	7.2	8.6	7.8
Stbd Subarray	7.2	8.6	8.0
Centre-Inner	7.2	8.7	7.7
Outer-Centre	7.2	8.7	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3			339	290 (Phase)
Str 4	106,110, 148			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134,340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	326,	
Str 6	91,205,	
Str 7	203,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.05

ONLINE COMMENTS

All gun strings operating with gun # 3 as spares.

PROCESSING QC COMMENTS

Mild swell noise on line, effecting <5% of traces. Almost negligible.
 Strum and head wave energy are observed Mean Gyro result erroneous d/t spectra software spiking when gyro swings thru zero.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2384F2-149**
 Area: **Gippsland Basin, Bass Strait** Sequence: **149**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2377-2392** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	25-Jun-2006	176	21:40	7:40	121	1001	1583	21:12	
FPSP:	25-Jun-2006	176	21:40	7:40	121	1001	1583		
LPSP:	26-Jun-2006	177	00:22	10:22	1237	2117	1586		
EOL LSP:	26-Jun-2006	177	00:22	10:22	1237	2117	1586	21:32	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-6.0	-5.7
Water depth (m)	53	47
RMS noise @ 5 Hz LC (µB)	3.1	3
Weather	300°, 6m/s, 1.0m	300°, 6m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1972	1970
Stbd	1980	1975

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.3	6.8-7.2
Str 2	6.9-7.1	6.9-7.1
Str 3	6.9-7.1	6.9-7.1
Str 4	6.9-7.2	6.9-7.1
Str 5	6.9-7.2	6.8-7.2
Str 6	6.8-7.0	6.8-7.2
Str 7	6.9-7.4	6.8-7.3
Str 8	6.9-7.2	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.
 Gun depths erratic d/t swell

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)	345		
S3:			339	290 (Phase)	16		
S4:	106, 110, 148				127, 178		
S5:	75				326		
S6:	49, 116, 120, 158				29, 37, 91, 205		
S7:	89, 100, 166, 202, 229, 285		360			202	
S8:							318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1583		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1583		FSP @ 21:40 UTC
121	1001	1583		FPSP @ 21:40 UTC
469	1349	1583		EOT
470	1350	1584		SOT
840	1720	1584		EOT
841	1721	1585		SOT
1086	1966			LSP of the day
1211	2091	1585		EOT
1212	2092	1586		SOT
1237	2117	1586		LPSP @ 00:22 UTC
1237	2117	1586		LSP @ 00:22 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1253	/	1586		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2384F2-149**Seq: **149**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2384F2-149**
 Sequence: **149**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2377-2392** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	25-Jun-2006	176	21:40	07:40	121	1001	1583
FPSP:	25-Jun-2006	176	21:40	07:40	121	1001	1583
LPSP:	26-Jun-2006	177	00:22	10:22	1237	2117	1586
EOL LSP	26-Jun-2006	177	00:22	10:22	1237	2117	1586

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	-6	-5.7
Water depth (m)	53	47
RMS Noise (µB)	3.1	3
Weather	300°, 6m/s, 1.0m	300°, 6m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1972	1970
Stbd	1980	1975

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:42
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	3.0	2.2
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.6	3.0	2.3
HDOP	0.8	1.4	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.3	2.2	4.19
Speed through water (m/s)	2.0	2.4	2.2	4.27
Feather angle (°)	-8.4	-4.9	-6.6	
Gyro (P) (°)	2.4	20.5	9.6	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.4	526.7	523.6
Str 1-2	73.7	75.9	74.8
Str 2-3	74.8	76.5	75.7
Str 3-4	73.2	76.2	74.8
Str 4-5	70.2	76.2	73.2
Str 5-6	73.3	77.6	75.8
Str 6-7	71.3	73.9	72.9
Str 7-8	74.3	77.3	76.2

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.2	40.1	37.3
Port-Subarray	7.3	8.3	7.7
Outer-Centre	6.8	8.1	7.3
Centre-Inner	7.4	8.8	8.2
Stbd Subarray	7.4	8.8	7.9
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3			339	290 (Phase)
Str 4	106,110, 148			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3	3	
Str 4	127, 178	
Str 5	326	
Str 6	91, 205	
Str 7	164, 203	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 Gun depths erratic d/t swell

PROCESSING QC COMMENTS

Mild swell noise on line, effecting <5% of traces. Almost negligible.
 Strum and head wave energy apparent due to good weather and clean data quality.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2384F3-151**
 Area: **Gippsland Basin, Bass Strait** Sequence: **151**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2377-2392** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	26-Jun-2006	177	08:27	18:27	121	1001	1591	07:50	UTC
FPSP:	26-Jun-2006	177	08:27	18:27	121	1001	1591		
LPSP:	26-Jun-2006	177	10:49	20:49	1237	2117	1594		
EOL LSP:	26-Jun-2006	177	10:49	20:49	1237	2117	1594	08:10	UTC
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	7.3	-0.7
Water depth (m)	53.6	47.2
RMS noise @ 5 Hz LC (µB)	2.7	2.3
Weather	330°, 8m/s, 1.0m	350°, 6m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1992	1975
Stbd	1995	1978

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.9-7.2	6.9-7.2
Str 2	6.9-7.2	6.9-7.2
Str 3	6.9-7.2	6.9-7.1
Str 4	6.9-7.1	6.9-7.2
Str 5	6.8-7.2	6.9-7.1
Str 6	6.9-7.1	6.8-7.2
Str 7	6.9-7.1	6.8-7.2
Str 8	6.9-7.2	6.9-7.1

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)	345		
S3:			339	290 (Phase)	16		
S4:	106,110, 148				127, 178		
S5:	75				86, 326, 352		
S6:	49, 116, 120, 158				91, 205		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-2384F3-151

Seq:

151

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1591		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1591		FSP @ 08:27 UTC
121	1001	1591		FPSP @ 08:27 UTC
469	1349	1591		EOT
470	1350	1592		SOT
840	1720	1592		EOT
841	1721	1593		SOT
1211	2091	1593		EOT
1212	2092	1594		SOT
1237	2117	1594		LPSP @ 10:49 UTC
1237	2117	1594		LSP @ 10:49 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1594		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2384F3-151**Seq: **151**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms

Comments:

Hydrophone sensitivity 20 μ volts / μ bar
Recording polarity: Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning**Navigation System**

Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav

Positioning System

Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2384F3-151**
 Sequence: **151**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2377-2392** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	26-Jun-2006	177	08:27	18:27	121	1001	1591
FPSP:	26-Jun-2006	177	08:27	18:27	121	1001	1591
LPSP:	26-Jun-2006	177	10:49	20:49	1237	2117	1594
EOL LSP	26-Jun-2006	177	10:49	20:49	1237	2117	1594

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	7.3	-0.7
Water depth (m)	53.6	47.2
RMS Noise (µB)	2.7	2.3
Weather	330°, 8m/s, 1.0m	350°, 6m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1992	1975
Stbd	1995	1978

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:22
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.2	2.2	1.7
HDOP	0.8	1.1	1.0
V1G2 PDOP	1.2	2.2	1.8
HDOP	0.8	1.1	1.0

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.5	4.80
Speed through water (m/s)	2.0	2.3	2.2	4.25
Feather angle (°)	-1.0	7.4	2.2	
Gyro (P) (°)	-2.9	15.4	7.2	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.7	524.6	521.5
Str 1-2	73.6	76.2	75.2
Str 2-3	73.8	76.2	75.3
Str 3-4	72.4	76.1	74.5
Str 4-5	68.7	73.5	70.9
Str 5-6	73.8	78.4	76.1
Str 6-7	72.4	74.1	73.3
Str 7-8	75.2	77.1	76.2

	Min	Max	Mean
Source-Source Port-Stbd	33.7	39.0	36.1
Port Subarray Outer-Centre	7.6	8.7	8.1
Centre-Inner	7.1	8.6	7.9
Stbd Subarray Centre-Inner	7.1	8.1	7.7
Outer-Centre	7.3	8.4	7.8

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3			339	290 (Phase)
Str 4	106,110, 148			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	86,326,352,	
Str 6	91,205,	
Str 7	203,257,	
Str 8	318	

SHOT / TRACE EDITS: SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2384F4-153**
 Area: **Gippsland Basin, Bass Strait** Sequence: **153**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2377-2392** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: NC/RA/LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	26-Jun-2006	177	18:37	4:37	121	1001	1600	18:05	
FPSP:	26-Jun-2006	177	18:37	4:37	121	1001	1600		
LPSP:	26-Jun-2006	177	20:57	6:57	1237	2117	1603		
EOL LSP:	26-Jun-2006	177	20:57	6:57	1237	2117	1603	18:25	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	8.8	0.0
Water depth (m)	52	46
RMS noise @ 5 Hz LC (µB)	2.7	1.9
Weather	320°, 9m/s, 1.0m	320°, 8m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1974
Stbd	1975	1979

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.8-7.3	7.0-7.2
Str 2	6.8-7.4	6.8-7.1
Str 3	6.6-7.2	6.9-7.1
Str 4	6.7-7.4	6.9-7.1
Str 5	6.8-7.2	6.9-7.2
Str 6	6.8-7.4	7.0-7.2
Str 7	6.9-7.2	6.9-7.2
Str 8	6.7-7.4	6.8-7.3

SOL/EOL Comments

SOL Noise file recorded with feather angle > 10° (Stbd)

Overall Line Observations

All gun strings operating with gun # 3 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)			
S3:	83		339	290 (Phase)			
S4:	106,110				127		
S5:	75				86, 88, 326		
S6:	49, 116, 120, 158				20, 29, 37, 91, 205, 303		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							318

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2384F4-153**

Seq: **153**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1600		SOT - SOL NOISE FILES
111-120	991-1000			APPROACH SHOTS
121	1001	1600		FSP @ 18:37 UTC
121	1001	1600		FPSP @ 18:37 UTC
165	1045		Bad	Delta Error: P-8: -1.2
469	1349	1600		EOT
470	1350	1601		SOT
840	1720	1601		EOT
841	1721	1602		SOT
1211	2091	1602		EOT
1212	2092	1603		SOT
1237	2117	1603		LPSP @ 20:57 UTC
1237	2117	1603		LSP @ 20:57 UTC
1238-1242	2118-2122			NAV PROCESSING SHOTS
1243-1252	/	1603		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2384F4-153**Seq: **153**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2384F4-153**
 Sequence: **153**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2377-2392** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	26-Jun-2006	177	18:37	04:37	121	1001	1600
FPSP:	26-Jun-2006	177	18:37	04:37	121	1001	1600
LPSP:	26-Jun-2006	177	20:57	06:57	1237	2117	1603
EOL LSP	26-Jun-2006	177	20:57	06:57	1237	2117	1603

GENERAL INFORMATION

	SOL	EOL
FA (°)	8.8	0
Water depth (m)	52	46
RMS Noise (µB)	2.7	1.9
Weather	320°, 9m/s, 1.0m	320°, 8m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1974
Stbd	1975	1979

TOTALS INFORMATION

Recorded SPs	1117
Recorded km	20.944
Production time (hh:mm)	02:20
Production files	1117
Production SPs	1117
Production km	20.944
Production CMP km	335.100

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.09%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.7	2.0
HDOP	0.8	1.3	1.1
V1G2 PDOP	1.4	2.8	2.1
HDOP	0.8	1.3	1.1

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.6	2.5	4.85
Speed through water (m/s)	2.0	2.3	2.1	4.15
Feather angle (°)	0.3	8.8	4.7	
Gyro (P) (°)	-6.6	10.9	2.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.3	524.8	521.3
Str 1-2	73.8	76.4	75.2
Str 2-3	73.5	76.0	75.0
Str 3-4	73.6	76.1	75.0
Str 4-5	69.9	73.8	71.8
Str 5-6	73.2	77.1	75.3
Str 6-7	72.4	73.9	73.2
Str 7-8	74.7	77.0	75.9

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	34.2	39.2	36.5
Port Subarray			
Outer-Centre	7.2	8.6	7.8
Centre-Inner	7.3	8.4	7.8
Stbd Subarray			
Centre-Inner	7.2	8.5	7.8
Outer-Centre	7.4	8.4	7.8

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106,110			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134,340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	86,326,352,	
Str 6	91,205,	
Str 7	203,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1045	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.00

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2400P1-155**

Area: **Gippsland Basin, Bass Strait** Sequence: **155**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**

Job ID: **20323** CMP line range: **2393-2408** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/JC/RF/AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	27-Jun-2006	178	04:13	14:13	121	1051	1608	03:30	UTC
FPSP:	27-Jun-2006	178	04:13	14:13	121	1051	1608		
LPSP:	27-Jun-2006	178	06:31	16:31	1187	2117	1610		
EOL LSP:	27-Jun-2006	178	06:31	16:31	1187	2117	1610	03:50	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	6.8	9.2
Water depth (m)	52	45.6
RMS noise @ 5 Hz LC (µB)	3.4	2.8
Weather	310°, 13m/s, 1.0m	270°, 8m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1979	1975
Stbd	1978	1972

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.4	6.8-7.2
Str 2	6.9-7.4	6.8-7.1
Str 3	6.8-7.3	6.9-7.2
Str 4	6.8-7.1	6.9-7.2
Str 5	6.6-7.3	6.9-7.3
Str 6	6.8-7.4	6.8-7.2
Str 7	6.9-7.2	6.9-7.2
Str 8	6.9-7.4	6.8-7.2

SOL/EOL Comments**Overall Line Observations**

All gun strings operating with gun # 3 as spare.
S8 from C17 to 13 ccasionally erratic depth d/t vase wash.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)	345		
S3:	83		339	290 (Phase)	16		
S4:	106,110				127, 178		
S5:	75				326		
S6:	49, 116, 120, 158				91, 205		
S7:	89, 100, 166, 202, 229, 285		360				
S8:					340		318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-2400P1-155

Seq:

155

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1608		SOT - SOL NOISE FILES
111-120	1041-1050			APPROACH SHOTS
121	1051	1608		FSP @ 04:13 UTC
121	1051	1608		FPSP @ 04:13 UTC
469	1399	1608		EOT
470	1400	1609		SOT
840	1770	1609		EOT
841	1771	1610		SOT
1187	2117	1610		LPSP @ 06:31 UTC
1187	2117	1610		LSP @ 06:31 UTC
1188-1192	2118-2122			NAV PROCESSING SHOTS
1193-1202	/	1610		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2400P1-155**

Seq: **155**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2400P1-155**

Area: **Gippsland Basin, Bass Strait** Sequence: **155** Nav System: **Veripos**

Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **11**

Job ID: **20323** CMP line range: **2393-2408** Line type: **Prime**

Type: **3D** No. CMPs **16** Status: **Complete** Initials: tt, df, mm.
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	27-Jun-2006	178	04:13	14:13	1051	6.8	-190	310°, 13m/s, 1.0m
FPSP:	27-Jun-2006	178	04:13	14:13	1051			
LPSP:	27-Jun-2006	178	06:31	16:31	2117			
EOL LSP:	27-Jun-2006	178	06:31	16:31	2117	9.2	-330	270°, 8m/s, 1.5m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	526	522					39.9	38.1
Per streamer:	Str 1-2	76	75			Sub arrays:	PO-PC	8.2	8.2
	Str 2-3	76	76				PC-PI	7.7	7.6
	Str 3-4	77	75				SI-SC	8.1	8.0
	Str 4-5	76	72				SC-SO	8.5	8.2
	Str 5-6	76	76						
	Str 6-7	75	74						
	Str 7-8	74	75						

P2/94 filename: G06A-2400P1-155.0.p294

LMN: 20323_Bream.LMN

SCN: 20323_Bream.SCN

RTCN: viking2.RTCN

BCN: 20323_Bream_Static.BCN

Acoustic file: 20323_11

Backup tape: Tape 4 Seq 2

Observations disabled etc.

Acoustics: S2A2 Intermittent

RGPS:

Compasses:

Other:

SP	UTC	Local Time	Comments
1051	04:13	14:13	SOL, FSP
1051	04:13	14:13	FPSP
1565	05:22	15:22	F° > 10°
1585	05:24	15:24	F° < 10°
2117	06:31	16:31	LPSP
2117	06:31	16:31	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tai

Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2400P1-155**
 Sequence: **155**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2393-2408** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	27-Jun-2006	178	04:13	14:13	121	1051	1608
FPSP:	27-Jun-2006	178	04:13	14:13	121	1051	1608
LPSP:	27-Jun-2006	178	06:31	16:31	1187	2117	1610
EOL LSP:	27-Jun-2006	178	06:31	16:31	1187	2117	1610

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	6.8	9.2
Water depth (m)	52	45.6
RMS Noise (µB)	3.4	2.8
Weather	310°, 13m/s, 1.0m	270°, 8m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1979	1975
Stbd	1978	1972

Recorded SPs	1067
Recorded km	20.006
Production time (hh:mm)	02:18
Production files	1067
Production SPs	1067
Production km	20.006
Production CMP km	320.100

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.4	2.5	2.0
HDOP	0.7	1.3	1.0
V1G2 PDOP	1.4	2.6	2.0
HDOP	0.7	1.4	1.1

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.6	2.4	4.71
Speed through water (m/s)	2.1	2.3	2.2	4.23
Feather angle (°)	6.3	10.1	8.8	
Gyro (P) (°)	-16.1	1.8	-6.6	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	508.9	521.8	515.2
Str 1-2	72.0	75.9	74.1
Str 2-3	72.3	75.5	73.7
Str 3-4	71.8	76.1	74.3
Str 4-5	69.9	74.9	71.9
Str 5-6	71.4	75.5	74.0
Str 6-7	71.5	73.7	72.6
Str 7-8	73.4	75.9	74.7

	Min	Max	Mean
Source-Source Port-Stbd	33.2	39.0	35.7
Port Subarray Outer-Centre	7.4	8.6	8.0
Centre-Inner	7.0	8.2	7.7
Stbd Subarray Centre-Inner	7.4	8.5	7.9
Outer-Centre	7.3	9.1	8.0

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106,110			
Str 5	75			
Str 6	49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127	
Str 5	86, 326, 352	
Str 6	91, 205	
Str 7	203	
Str 8	340, 318	

SHOT / TRACE EDITS: SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.09

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 S8 from C17 to 13 ccasionally erratic depth d/t vase wash.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2416P1-157**

Area: **Gippsland Basin, Bass Strait** Sequence: **157**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**

Job ID: **20323** CMP line range: **2409-2424** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	27-Jun-2006	178	14:10	00:10	121	1145	1616	13:30	UTC
FPSP:	27-Jun-2006	178	14:10	00:10	121	1145	1616		
LPSP:	27-Jun-2006	178	16:17	02:17	1093	2117	1618		
EOL LSP:	27-Jun-2006	178	16:17	02:17	1093	2117	1618	13:50	UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-2.1	3.4
Water depth (m)	52	45
RMS noise @ 5 Hz LC (µB)	3	2.1
Weather	280°, 4m/s, 1.5m	275°, 8m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1977	1975
Stbd	1977	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.1	6.9-7.2
Str 2	6.9-7.5	6.9-7.4
Str 3	6.9-7.4	6.8-7.1
Str 4	6.5-7.3	6.9-7.2
Str 5	6.8-7.4	6.8-7.3
Str 6	6.8-7.4	6.9-7.3
Str 7	6.8-7.5	6.7-7.2
Str 8	6.9-7.3	6.8-7.1

SOL/EOL Comments**Overall Line Observations**

All gun strings operating with gun # 3 as spare.
Guns running at erratic depth d/t Wx

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	345		
S3:	83		339	290 (Phase)	3, 16		
S4:	106, 110, 148				127		
S5:	75				86, 326		
S6:	49, 116, 158				91, 205, 303, 360		
S7:	89, 100, 166, 202, 229, 285		360		336, 348		
S8:					64, 340		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-2416P1-157

Seq:

157

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1616		SOT - SOL NOISE FILES
111-120	1135-1144			APPROACH SHOTS
121	1145	1616		FSP @ 14:10 UTC
121	1145	1616		FPSP @ 14:10 UTC
469	1493	1616		EOT
470	1494	1617		SOT
840	1864	1617		EOT
841	1865	1618		SOT
858	1882		Bad	Delta Error: S-10: 1.2
1093	2117	1618		LPSP @ 16:17 UTC
1093	2117	1618		LSP @ 16:17 UTC
1094-1098	2118-2122			NAV PROCESSING SHOTS
1099-1108	/	1618		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2416P1-157**

Seq: **157**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2416P1-157**
 Sequence: **157**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2409-2424** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: RA
 Proc Initials: PH
 Report Status: Final

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	27-Jun-2006	178	14:10	00:10	121	1145	1616
FPSP:	27-Jun-2006	178	14:10	00:10	121	1145	1616
LPSP:	27-Jun-2006	178	16:17	02:17	1093	2117	1618
EOL LSP	27-Jun-2006	178	16:17	02:17	1093	2117	1618

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	-2.1	3.4
Water depth (m)	52	45
RMS Noise (µB)	3	2.1
Weather	280°, 4m/s, 1.5m	275°, 8m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1977	1975
Stbd	1977	1975

Recorded SPs	973
Recorded km	18,244
Production time (hh:mm)	02:07
Production files	973
Production SPs	973
Production km	18,244
Production CMP km	291,900

ERROR STATISTICS

Source errors / %	1 / 0.1%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.7	2.9	2.1
HDOP	1.0	2.2	1.2
V1G2 PDOP	1.7	3.0	2.2
HDOP	1.0	2.3	1.3

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.4	4.65
Speed through water (m/s)	2.0	2.3	2.2	4.23
Feather angle (°)	-2.2	3.7	2.0	
Gyro (P) (°)	-6.7	8.3	1.6	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	519.6	524.1	521.5
Str 1-2	73.8	76.2	75.2
Str 2-3	74.1	76.1	75.0
Str 3-4	73.4	76.1	74.9
Str 4-5	70.0	74.5	72.0
Str 5-6	72.9	76.6	75.1
Str 6-7	72.4	74.2	73.3
Str 7-8	75.1	77.0	76.0

	Min	Max	Mean
Source-Source Port-Stbd	33.9	39.5	37.1
Port Subarray Outer-Centre	7.1	8.2	7.7
Centre-Inner	7.2	8.2	7.7
Stbd Subarray Centre-Inner	7.4	8.7	8.0
Outer-Centre	7.2	8.9	7.9

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106,110,148			
Str 5	75			
Str 6	49, 116, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	86,326,352,	
Str 6	91,205,	
Str 7	164,	
Str 8	340,318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	1882	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 Guns running at erratic depth d/t Wx

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.
 No mean value on port Gyro d/t spectra software spiking when gyro swings thru zero

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2432P1-159**
 Area: **Gippsland Basin, Bass Strait** Sequence: **159**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **11**
 Job ID: **20323** CMP line range: **2425-2440** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: NC/ RA/ LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	27-Jun-2006	178	23:57	9:57	121	1145	1623	23:25	
FPSP:	27-Jun-2006	178	23:57	9:57	121	1145	1623		
LPSP:	28-Jun-2006	179	02:26	12:26	1093	2117	1625		
EOL LSP:	28-Jun-2006	179	02:26	12:26	1093	2117	1625	23:45	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-7.7	-5.8
Water depth (m)	50	46
RMS noise @ 5 Hz LC (µB)	2.2	1.6
Weather	330°, 4m/s, 1.0m	001°, 5m/s, 0.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1977	1973
Stbd	1978	1974

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.3	6.8-7.4
Str 2	6.9-7.1	6.8-7.2
Str 3	6.9-7.1	6.9-7.4
Str 4	6.9-7.1	6.8-7.2
Str 5	6.9-7.2	6.8-7.3
Str 6	6.9-7.1	6.9-7.3
Str 7	6.8-7.2	7.0-7.2
Str 8	6.9-7.2	6.7-7.2

SOL/EOL Comments

Gun P-22 (280cu.in) disabled before SOL d/t leakage. Spare gun P-21 (280cu.in) enabled. Port volume array still 4450 cu.in

Overall Line Observations

Gun strings 1, 2, 4, 5 & 6 operating with gun # 3 as spare.
Line name for shot records in Gun Controller Logs reading 32P1-159 d/t spectra reset before SOL. Log saved as GUN-G06A-2432P1-159

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)	345		
S3:	83		339	290 (Phase)	16		
S4:	106, 110, 148				127, 178		
S5:	75				326		
S6:	49, 116, 158				91, 205		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							318

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1623		SOT - SOL NOISE FILES
111-120	1135-1144			APPROACH SHOTS
121	1145	1623		FSP @ 23:57 UTC
121	1145	1623		FPSP @ 23:57 UTC
139	1163			LSP of the day
216	1240			First pre-plot SP @ 00:11 UTC
284	1308		Bad	Delta Error: S-1: -1.1
469	1493	1623		EOT
470	1494	1624		SOT
840	1864	1624		EOT
841	1865	1625		SOT
1024	2048		Bad	Delta Error: S-1: 1.2
1093	2117	1625		LPSP @ 02:26 UTC
1093	2117	1625		LSP @ 02:26 UTC
1094-1098	2118-2122			NAV PROCESSING SHOTS
1099-1108	/	1625		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2432P1-159**Seq: **159**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2432P1-159**
 Sequence: **159**
 Direction: **10.5°** Nav. Def: **11**
 CMP line range: **2425-2440** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	27-Jun-2006	178	23:57	09:57	121	1145	1623
FPSP:	27-Jun-2006	178	23:57	09:57	121	1145	1623
LPSP:	28-Jun-2006	179	02:26	12:26	1093	2117	1625
EOL LSP	28-Jun-2006	179	02:26	12:26	1093	2117	1625

GENERAL INFORMATION

	SOL	EOL
FA (°)	-7.7	-5.8
Water depth (m)	50	46
RMS Noise (µB)	2.2	1.6
Weather	330°, 4m/s, 1.0m	001°, 5m/s, 0.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1977	1973
Stbd	1978	1974

TOTALS INFORMATION

Recorded SPs	973
Recorded km	18.244
Production time (hh:mm)	02:29
Production files	973
Production SPs	973
Production km	18.244
Production CMP km	291.900

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	2 / 0.21%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	4.9	2.6
HDOP	0.9	2.0	1.3
V1G2 PDOP	1.8	4.9	2.9
HDOP	0.9	2.0	1.4

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.8	2.1	2.0	3.96
Speed through water (m/s)	2.0	2.5	2.2	4.22
Feather angle (°)	-8.3	-6.2	-7.3	
Gyro (P) (°)	5.5	25.2	15.5	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	515.2	524.3	519.7
Str 1-2	73.8	75.6	74.8
Str 2-3	74.7	76.1	75.4
Str 3-4	72.9	76.1	74.5
Str 4-5	67.4	72.6	69.6
Str 5-6	74.4	78.6	76.3
Str 6-7	71.7	74.0	72.7
Str 7-8	75.0	77.3	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.5	38.6	35.5
Port-Subarray	7.4	8.5	8.0
Outer-Centre	7.0	8.1	7.6
Stbd Subarray	7.4	8.5	7.9
Centre-Inner	6.8	7.8	7.3
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83		339	290 (Phase)
Str 4	106,110,148			
Str 5	75			
Str 6	49, 116, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	326, 352	
Str 6	91, 205	
Str 7	164	
Str 8	340, 318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1308,2048	2
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

TOTAL SHOTS

ONLINE COMMENTS

Gun strings 1, 2, 4, 5 & 6 operating with gun # 3 as spare.
 Line name for shot records in Gun Controller Logs reading 32P1-159 d/t spectra reset before SOL. Log saved as GUN-G06A-2432P1-159

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2432F1-161**

Area: **Gippsland Basin, Bass Strait** Sequence: **161**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **2425-2440** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/JC/RF/AD
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	28-Jun-2006	179	10:37	20:37	121	1190	1631	10:00	
FPSP:	28-Jun-2006	179	10:37	20:37	121	1190	1631		
LPSP:	28-Jun-2006	179	12:39	22:39	1048	2117	1633		
EOL LSP:	28-Jun-2006	179	12:39	22:39	1048	2117	1633	10:20	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	3.8	-2.1
Water depth (m)	50.4	46
RMS noise @ 5 Hz LC (µB)	2.3	2.1
Weather	050°, 9m/s, 1.0m	060°, 9m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1979	1974
Stbd	1982	1976

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.2	6.9-7.1
Str 2	6.8-7.2	6.9-7.2
Str 3	6.9-7.2	6.9-7.2
Str 4	6.9-7.3	6.9-7.2
Str 5	6.9-7.3	6.8-7.4
Str 6	6.9-7.2	6.8-7.2
Str 7	6.8-7.1	6.8-7.2
Str 8	6.9-7.2	6.8-7.1

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360	134	
S2:				305 (Phase)	345		
S3:	83, 290			339 (Phase)	16		
S4:	43, 106, 110				127, 178		
S5:	75				326		
S6:	44, 49, 116, 120, 158				91, 205		
S7:	89, 100, 166, 202, 229, 285		360				
S8:							318

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2432F1-161**Seq: **161**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1631		SOT - SOL NOISE FILES
111-120	1180-1189			APPROACH SHOTS
121	1190	1631		FSP @ 10:37 UTC
121	1190	1631		FPSP @ 10:37 UTC
171	1240	1631		First pre-plot SP @ 10:43 UTC
469	1538	1631		EOT
470	1539	1632		SOT
719	1788		Bad	Delta Error: S-1: -1.2
765	1834		Bad	Delta Error: S-1: -1.1
807	1876		Bad	Delta Error: S-1: -1.1
840	1909	1632		EOT
841	1910	1633		SOT
885	1954		Bad	Delta Error: S-1: -1.2
1048	2117	1633		LPSP @ 12:39 UTC
1048	2117	1633		LSP @ 12:39 UTC
1049-1053	2118-2122			NAV PROCESSING SHOTS
1054-1063	/	1633		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2432F1-161**Seq: **161**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2432F1-161**
 Sequence: **161**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2425-2440** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	28-Jun-2006	179	10:37	20:37	121	1190	1631
FPSP:	28-Jun-2006	179	10:37	20:37	121	1190	1631
LPSP:	28-Jun-2006	179	12:39	22:39	1048	2117	1633
EOL LSP	28-Jun-2006	179	12:39	22:39	1048	2117	1633

GENERAL INFORMATION

	SOL	EOL
FA (°)	3.8	-2.1
Water depth (m)	50.4	46
RMS Noise (µB)	2.3	2.1
Weather	050°, 9m/s, 1.0m	060°, 9m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1979	1974
Stbd	1982	1976

TOTALS INFORMATION

Recorded SPs	928
Recorded km	17.400
Production time (hh:mm)	02:02
Production files	928
Production SPs	928
Production km	17.400
Production CMP km	278.400

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	4 / 0.43%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	3.1	2.1
HDOP	0.8	1.7	1.2
V1G2 PDOP	1.5	3.1	2.2
HDOP	0.9	1.8	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.5	2.4	4.63
Speed through water (m/s)	2.0	2.2	2.1	4.13
Feather angle (°)	-1.6	4.0	0.9	
Gyro (P) (°)	6.4	22.0	15.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	522.6	527.6	525.2
Str 1-2	74.4	76.4	75.5
Str 2-3	74.5	76.0	75.3
Str 3-4	72.4	75.1	73.8
Str 4-5	70.3	74.6	72.2
Str 5-6	76.7	79.9	78.4
Str 6-7	72.9	74.2	73.6
Str 7-8	75.6	77.0	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.5	39.9	35.5
Port Subarray			
Outer-Centre	7.8	8.8	8.2
Centre-Inner	7.7	9.1	8.4
Stbd Subarray			
Centre-Inner	7.1	8.4	7.8
Outer-Centre	7.1	7.8	7.5

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	43, 106, 110			
Str 5	75			
Str 6	44, 49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127, 178,	
Str 5	326, 352,	
Str 6	91, 205,	
Str 7	164,	
Str 8	340, 318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1788, 1834, 1876, 1954	4
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.00

TOTAL SHOTS

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2448P1-163**

Area: **Gippsland Basin, Bass Strait** Sequence: **163**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **2441-2456** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: **NC/RA/LT**
Log Status: **Final**

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	28-Jun-2006	179	21:08	7:08	121	1260	1638	20:35	
FPSP:	28-Jun-2006	179	21:08	7:08	121	1260	1638		
LPSP:	28-Jun-2006	179	22:55	8:55	978	2117	1640		
EOL LSP:	28-Jun-2006	179	22:55	8:55	978	2117	1640	20:55	
				UTC Offset:	10.0				

Full volume arrays at 20:55 UTC

	SOL	EOL
Feather angle (°)	6.7	-1.2
Water depth (m)	48	44
RMS noise @ 5 Hz LC (µB)	3.3	2.2
Weather	045°, 8m/s, 1.5m	015°, 6m/s, 1.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1969
Stbd	1980	1973

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.3	6.9-7.3
Str 2	6.9-7.3	6.9-7.3
Str 3	6.8-7.1	6.8-7.2
Str 4	7.0-7.3	6.9-7.2
Str 5	6.9-7.3	6.9-7.2
Str 6	6.9-7.3	6.8-7.2
Str 7	6.8-7.2	6.9-7.1
Str 8	7.0-7.5	6.8-7.1

SOL/EOL Comments

First Pre Plot SP 1334 @ 21:16 UTC

Overall Line Observations

All gun strings operating with gun # 3 as spare.

Birds bad/poll disabled: S5C19 - disabled d/t dead battery

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)			
S3:	83, 290			339 (Phase)	3, 16		
S4:	43, 106, 110				127		
S5:	75				86, 326		
S6:	44, 49, 116, 120, 158				29, 37, 91, 205, 303, 360		
S7:	89, 100, 166, 202, 229, 285		360				
S8:					280, 281, 340		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2448P1-163**Seq: **163**Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1638		SOT - SOL NOISE FILES
111-120	1250-1259			APPROACH SHOTS
121	1260	1638		FSP @ 21:08 UTC
121	1260	1638		FPSP @ 21:08 UTC
195	1334			First Pre Plot SP @ 21:16 UTC
469	1608	1638		EOT
470	1609	1639		SOT
840	1979	1639		EOT
841	1980	1640		SOT
978	2117	1640		LPSP @ 22:55 UTC
978	2117	1640		LSP @ 22:55 UTC
979-983	2118-2122			NAV PROCESSING SHOTS
984-993	/	1640		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2448P1-163**Seq: **163**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2448P1-163**
 Sequence: **163**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2441-2456** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	28-Jun-2006	179	21:08	07:08	121	1260	1638
FPSP:	28-Jun-2006	179	21:08	07:08	121	1260	1638
LPSP:	28-Jun-2006	179	22:55	08:55	978	2117	1640
EOL LSP	28-Jun-2006	179	22:55	08:55	978	2117	1640

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	6.7	-1.2
Water depth (m)	48	44
RMS Noise (µB)	3.3	2.2
Weather	045°, 8m/s, 1.5m	015°, 6m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1969
Stbd	1980	1973

TOTALS INFORMATION

Recorded SPs	858
Recorded km	16.088
Production time (hh:mm)	01:47
Production files	858
Production SPs	858
Production km	16.088
Production CMP km	257.400

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.5	2.6	2.1
HDOP	0.8	1.4	1.1
V1G2 PDOP	1.5	2.6	2.2
HDOP	0.9	1.4	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.7	2.5	4.83
Speed through water (m/s)	2.0	2.3	2.2	4.18
Feather angle (°)	-1.5	6.8	2.0	
Gyro (P) (°)	2.8	17.2	10.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	521.0	527.7	524.9
Str 1-2	74.3	76.2	75.2
Str 2-3	74.1	76.2	75.3
Str 3-4	72.6	75.7	74.4
Str 4-5	70.5	75.1	72.6
Str 5-6	75.8	78.9	77.4
Str 6-7	72.8	74.4	73.6
Str 7-8	75.4	77.2	76.3

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.8	39.7	35.9
Port Subarray			
Outer-Centre	7.8	8.8	8.4
Centre-Inner	8.3	9.3	8.8
Stbd Subarray			
Centre-Inner	6.9	8.1	7.5
Outer-Centre	7.1	7.9	7.5

Birds bad: S5C19 - disabled d/t dead battery
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	43, 106, 110			
Str 5	75			
Str 6	44, 49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	134,340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	326,352,	
Str 6	91,205,	
Str 7	164,	
Str 8	340,318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2464P1-165**
 Area: **Gippsland Basin, Bass Strait** Sequence: **165**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2457-2472** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at
SOL FSP:	29-Jun-2006	180	06:09	16:09	121	1340	1645	15:44 UTC
FPSP:	29-Jun-2006	180	06:09	16:09	121	1340	1645	
LPSP:	29-Jun-2006	180	07:54	17:54	898	2117	1647	Full volume arrays at 16:04 UTC
EOL LSP:	29-Jun-2006	180	07:54	17:54	898	2117	1647	
				UTC Offset:	10.0			

	SOL	EOL
Feather angle (°)	7.4	7.5
Water depth (m)	47.6	44.4
RMS noise @ 5 Hz LC (µB)	2	1.8
Weather	045°, 4m/s, 0.5m	070°, 8m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1970	1971
Stbd	1972	1972

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.2	6.8-7.1
Str 2	6.9-7.3	6.9-7.3
Str 3	6.8-7.2	6.8-7.2
Str 4	6.9-7.2	6.8-7.3
Str 5	6.7-7.4	6.9-7.1
Str 6	6.8-7.2	6.9-7.1
Str 7	6.6-7.2	6.9-7.2
Str 8	6.8-7.4	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.
 SP 1634 - Centre depth sensor on STBD inner gunstring disabled d/t flagging "No Signal"
 Random pressure errors when air guns recharged.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)			
S3:	83, 290			339 (Phase)	3, 16		
S4:	43, 106, 110				127		
S5:	75				86, 326		
S6:	44, 49, 116, 120, 158				29, 37, 91, 205, 360		
S7:	89, 100, 166, 202, 229, 285		360				
S8:					340		

Vessel Manager: Morgan McNelly **Observers:** 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1645		SOT - SOL NOISE FILES
111-120	1330-1339			APPROACH SHOTS
121	1340	1645		FSP @ 06:09 UTC
121	1340	1645		FPSP @ 06:09 UTC
210	1429			First Pre Plot SP @ 06:22UTC
415	1634			Centre depth sensor on STBD inner gunstring disabled d/t flagging "No Signal"
469	1688	1645		EOT
470	1689	1646		SOT
840	2059	1646		EOT
841	2060	1647		SOT
865	2084		Bad	Delta error S1-1: Gun error 1.1ms, spread error 1.2 ms
898	2117	1647		LPSP @ 07:54 UTC
898	2117	1647		LSP @ 07:54 UTC
899-903	2118-2122			NAV PROCESSING SHOTS
904-913	/	1647		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2464P1-165**Seq: **165**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2464P1-165**
 Sequence: **165**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2457-2472** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	29-Jun-2006	180	06:09	16:09	121	1340	1645
FPSP:	29-Jun-2006	180	06:09	16:09	121	1340	1645
LPSP:	29-Jun-2006	180	07:54	17:54	898	2117	1647
EOL LSP	29-Jun-2006	180	07:54	17:54	898	2117	1647

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	7.4	7.5
Water depth (m)	47.6	44.4
RMS Noise (µB)	2	1.8
Weather	045°, 4m/s, 0.5m	070°, 8m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1970	1971
Stbd	1972	1972

TOTALS INFORMATION

Recorded SPs	778
Recorded km	14.588
Production time (hh:mm)	01:45
Production files	778
Production SPs	778
Production km	14.588
Production CMP km	233.400

ERROR STATISTICS

Source errors / %	1 / 0.13%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.4	2.2	1.9
HDOP	0.8	1.1	1.0
V1G2 PDOP	1.5	2.2	1.9
HDOP	0.8	1.1	1.0

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.1	2.4	2.3	4.51
Speed through water (m/s)	2.0	2.3	2.1	4.15
Feather angle (°)	6.5	7.3	6.9	
Gyro (P) (°)	0.8	11.8	8.0	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	512.9	521.1	518.1
Str 1-2	73.5	75.8	74.9
Str 2-3	72.8	74.8	73.9
Str 3-4	71.1	74.6	72.8
Str 4-5	69.3	72.7	70.8
Str 5-6	75.5	78.1	76.9
Str 6-7	72.4	73.8	73.2
Str 7-8	74.6	76.2	75.6

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.8	37.3	34.6
Port Subarray			
Outer-Centre	7.9	8.9	8.5
Centre-Inner	7.8	9.0	8.4
Stbd Subarray			
Centre-Inner	6.7	7.9	7.3
Outer-Centre	7.2	7.9	7.6

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	43, 106, 110			
Str 5	75			
Str 6	44, 49, 116, 120, 158			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 176, 178	
Str 5	326	
Str 6	91, 205, 303	
Str 7	164	
Str 8	340, 318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:	2084	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 SP 1634 - Centre depth sensor on STBD inner gunstring disabled d/t flagging "No Signal"
 Random pressure errors when air guns recharged.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2480P1-167**

Area: **Gippsland Basin, Bass Strait** Sequence: **167**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **2473-2488** Line type: **Prime**

Type: **3D** No. CMPs: **16** Status: **Complete** Initials: NC/RA/LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	29-Jun-2006	180	15:36	1:36	121	1429	1653	15:00	
FPSP:	29-Jun-2006	180	15:36	1:36	121	1429	1653		
LPSP:	29-Jun-2006	180	17:09	3:09	809	2117	1654		
EOL LSP:	29-Jun-2006	180	17:09	3:09	809	2117	1654	15:20	
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	-4.8	0.0
Water depth (m)	47	44
RMS noise @ 5 Hz LC (µB)	3.7	2.2
Weather	345°, 10m/s, 1.0m	000°, 8m/s, 0.5m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1974	1975
Stbd	1978	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.7-7.2	6.8-7.1
Str 2	6.7-7.1	6.8-7.2
Str 3	6.6-7.4	6.7-7.2
Str 4	6.7-7.3	6.9-7.2
Str 5	6.7-7.2	6.9-7.3
Str 6	6.5-7.3	6.8-7.1
Str 7	6.6-7.4	6.9-7.2
Str 8	6.7-7.4	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.
No Seisnet QC data available until SP 1615 d/t pre SOL system crash

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:	312			305 (Phase)	345		
S3:	83, 290			339 (Phase)	3, 16		
S4:	106, 110, 148, 177				127, 223, 353		
S5:	75				86, 326		
S6:	49, 116, 120, 158, 161				29, 37, 91, 205, 360		
S7:	89, 100, 166, 202, 229, 285		360		164, 256		
S8:					318, 340		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2480P1-167**

Seq: **167**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1653		SOT - SOL NOISE FILES
111-120	1419-1428			APPROACH SHOTS
121	1429	1653		FSP @ 15:36 UTC
121	1429	1653		FPSP @ 15:36 UTC
215	1523			First Pre Plot SP @ 15:49 UTC
469	1777	1653		EOT
470	1778	1654		SOT
734	2042		Bad	Delta Error: S-1: 1.3
809	2117	1654		LPSP @ 17:09 UTC
809	2117	1654		LSP @ 17:09 UTC
810-814	2118-2122			NAV PROCESSING SHOTS
815-824	/	1654		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2480P1-167**Seq: **167**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2480P1-167**
 Area: **Gippsland Basin, Bass Strait** Sequence: **167** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2473-2488** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final

Initials: vq hh at vt

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	29-Jun-2006	180	15:36	1:36	1429	-4.8	587	345°, 10m/s, 1.0m
FPSP:	29-Jun-2006	180	15:36	1:36	1429			
LPSP:	29-Jun-2006	180	17:09	3:09	2117			
EOL LSP:	29-Jun-2006	180	17:09	3:09	2117	0	411.6	000°, 8m/s, 0.5m
	UTC offset:			10.0				

Separations (m)		SOL	EOL	Sources overall:		Port-Stbd	SOL	EOL
Streamer overall:	Str 1-8	528	527	Sub arrays:	PO-PC	36.8	38.0	
Per streamer:	Str 1-2	75	75		PC-PI	7.9	7.9	
	Str 2-3	76	76		SI-SC	8.0	8.3	
	Str 3-4	75	75		SC-SO	7.7	7.3	
	Str 4-5	74	73			7.7	7.4	
	Str 5-6	78	78					
	Str 6-7	74	73					
	Str 7-8	77	76					

P2/94 filename: G06A-2480P1-167.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_12
 Backup tape: Tape 2 Seq 4

Observations disabled etc.

Acoustics: S2A2 Intermittent
 RGPS:
 Compasses:
 Other: V1G1 out SP 1970 - 2044

SP	UTC	Local Time	Comments
1429	15:36	1:36	SOL, FSP
1429	15:36	1:36	FPSP
1523	15:49	1:49	First pre plot SP
1970			V1G1 not outputting Lat/Long - PC Lock up
2000	16:54	2:54	V1G1 lost solution
	16:57	2:57	Rebooting PC
2043	17:00	3:00	Solution back
2044			V1G1 positioning correctly
2117	17:09	3:09	LPSP
2117	17:09	3:09	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2480P1-167**
 Sequence: **167**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2473-2488** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RA**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	29-Jun-2006	180	15:36	01:36	121	1429	1653
FPSP:	29-Jun-2006	180	15:36	01:36	121	1429	1653
LPSP:	29-Jun-2006	180	17:09	03:09	809	2117	1654
EOL LSP	29-Jun-2006	180	17:09	03:09	809	2117	1654

GENERAL INFORMATION

	SOL	EOL
FA (°)	-4.8	0
Water depth (m)	47	44
RMS Noise (µB)	3.7	2.2
Weather	345°, 10m/s, 1.0m	000°, 8m/s, 0.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1974	1975
Stbd	1978	1975

TOTALS INFORMATION

Recorded SPs	689
Recorded km	12.919
Production time (hh:mm)	01:33
Production files	689
Production SPs	689
Production km	12.919
Production CMP km	206.700

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.15%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.6	3.7	1.9
HDOP	0.9	3.0	1.2
V1G2 PDOP	1.6	2.9	2.2
HDOP	1.0	1.7	1.3

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.2	2.4	2.3	4.46
Speed through water (m/s)	2.1	2.3	2.2	4.22
Feather angle (°)	-4.9	-0.3	-1.9	
Gyro (P) (°)	1.1	14.0	9.2	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	523.0	529.1	526.4
Str 1-2	74.1	76.1	75.1
Str 2-3	74.9	76.3	75.6
Str 3-4	73.5	76.3	74.9
Str 4-5	71.7	75.3	73.3
Str 5-6	75.6	79.0	77.5
Str 6-7	72.8	74.3	73.5
Str 7-8	75.6	77.0	76.4

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.6	39.6	36.8
Port-Subarray	7.8	8.6	8.2
Outer-Centre	8.0	9.1	8.5
Stbd Subarray	7.0	8.0	7.5
Centre-Inner	7.1	7.9	7.5
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	326,	
Str 6	91,205,	
Str 7	164,	
Str 8	340,318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	2042	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

TOTAL SHOTS

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.
 No Seisnet QC data available until SP 1615 d/t pre SOL system crash

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.
 V1G1 out Sp 1970 - 2044

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2480F1-169**

Area: **Gippsland Basin, Bass Strait** Sequence: **169**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **2473-2488** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/ RA/ LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	30-Jun-2006	181	00:57	10:57	121	1420	1659	0:20	
FPSP:	30-Jun-2006	181	00:57	10:57	121	1420	1659		
LPSP:	30-Jun-2006	181	02:40	12:40	818	2117	1660		
EOL LSP:	30-Jun-2006	181	02:40	12:40	818	2117	1660	0:40	
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	-5.0	-7.3
Water depth (m)	48	44
RMS noise @ 5 Hz LC (µB)	3.8	1.9
Weather	020°, 9m/s, 1.5m	020°, 8m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1973	1973
Stbd	1970	1975

Streamer Depths (m)

	SOL	EOL
Str 1	6.5-7.1	6.8-7.1
Str 2	6.8-7.3	6.9-7.3
Str 3	6.9-7.3	6.9-7.2
Str 4	6.9-7.3	6.8-7.3
Str 5	6.9-7.2	6.9-7.2
Str 6	7.1-7.3	6.8-7.2
Str 7	7.0-7.3	6.9-7.2
Str 8	6.9-7.3	6.8-7.3

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:	312			305 (Phase)	304		
S3:	83, 290			339 (Phase)	3, 16		
S4:	106, 110, 148, 177				127, 178, 353		
S5:	75				86		
S6:	49, 116, 120, 158, 161				29, 37, 91, 205		
S7:	89, 100, 166, 202, 229, 285		360				
S8:					64, 66		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2480F1-169**

Seq: **169**

Dir: **10.5°**

FILE	SP	TAPE	BAD	
99-110	/	1659		SOT - SOL NOISE FILES
111-120	1410-1419			APPROACH SHOTS
121	1420	1659		FSP @ 00:57 UTC
121	1420	1659		FPSP @ 00:57 UTC
224	1523			First Pre Plot SP @ 01:11
329	1628		Bad	Delta Error: S-1: 1.1
469	1768	1659		EOT
470	1769	1660		SOT
818	2117	1660		LPSP @ 02:40 UTC
818	2117	1660		LSP @ 02:40 UTC
819-823	2118-2122			NAV PROCESSING SHOTS
824-833	/	1660		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2480F1-169**Seq: **169**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2480F1-169**
 Sequence: **169**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2473-2488** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **AD**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	30-Jun-2006	181	00:57	10:57	121	1420	1659
FPSP:	30-Jun-2006	181	00:57	10:57	121	1420	1659
LPSP:	30-Jun-2006	181	02:40	12:40	818	2117	1660
EOL LSP	30-Jun-2006	181	02:40	12:40	818	2117	1660

GENERAL INFORMATION

	SOL	EOL
FA (°)	-5	-7.3
Water depth (m)	48	44
RMS Noise (µB)	3.8	1.9
Weather	020°, 9m/s, 1.5m	020°, 8m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1973	1973
Stbd	1970	1975

TOTALS INFORMATION

Recorded SPs	698
Recorded km	13.088
Production time (hh:mm)	01:43
Production files	698
Production SPs	698
Production km	13.088
Production CMP km	209.400

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	1 / 0.14%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.8	4.9	2.8
HDOP	1.1	2.0	1.4
V1G2 PDOP	1.8	4.9	3.0
HDOP	1.1	2.0	1.5

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	1.9	2.2	2.1	4.09
Speed through water (m/s)	2.0	2.5	2.2	4.23
Feather angle (°)	-7.7	-4.6	-6.4	
Gyro (P) (°)	6.3	25.5	15.8	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.4	527.2	523.2
Str 1-2	73.9	75.6	74.8
Str 2-3	75.2	76.6	75.8
Str 3-4	73.2	75.8	74.7
Str 4-5	68.0	74.5	71.7
Str 5-6	75.0	78.9	77.3
Str 6-7	71.7	73.8	72.9
Str 7-8	74.8	77.1	76.1

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	32.6	38.1	35.6
Port-Subarray	7.8	8.7	8.2
Outer-Centre	7.8	9.0	8.4
Stbd Subarray	7.0	8.0	7.5
Centre-Inner	7.1	7.7	7.4
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2	312			305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	89, 100, 166, 202, 229,		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340	
Str 2		
Str 3		
Str 4	127, 178	
Str 5	326	
Str 6	91, 205	
Str 7	164	
Str 8	340, 318	

SHOT / TRACE EDITS:

SPs:

Timing (delta) errors >1.0ms:	1628	1
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.13

TOTAL SHOTS

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2496P1-171**
 Area: **Gippsland Basin, Bass Strait** Sequence: **171**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2489-2504** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: GC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	30-Jun-2006	181	11:56	21:56	121	1480	1666	at	11:15
FPSP:	30-Jun-2006	181	11:56	21:56	121	1480	1666		
LPSP:	30-Jun-2006	181	13:15	23:15	757	2117	1667	Full volume arrays at	11:35
EOL LSP:	30-Jun-2006	181	13:15	23:15	757	2117	1667		UTC
			UTC Offset:	10.0					

	SOL	EOL
Feather angle (°)	5.7	1.2
Water depth (m)	46	44
RMS noise @ 5 Hz LC (µB)	2.6	2.2
Weather	320°, 13m/s, 1.5m	330°, 11m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1978	1980
Stbd	1983	1984

	Streamer Depths (m)	
	SOL	EOL
Str 1	6.6-7.3	6.8-7.2
Str 2	6.8-7.2	6.9-7.2
Str 3	6.9-7.3	6.8-7.1
Str 4	6.9-7.2	6.9-7.2
Str 5	6.8-7.3	6.9-7.3
Str 6	6.8-7.3	6.9-7.2
Str 7	6.8-7.2	6.9-7.3
Str 8	6.7-7.2	6.9-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340		
S2:				305 (Phase)			
S3:	83, 290			339 (Phase)			
S4:	106, 110, 148, 177				127		
S5:	75				86,326		
S6:	49, 116, 120, 158, 161				29,37,91,205,303		
S7:	100, 166, 202, 229, 285		360		164		
S8:							

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-2496P1-171

Seq:

171

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1666		SOT - SOL NOISE FILES
111-120	1470-1479			APPROACH SHOTS
121	1480	1666		FSP @ 11:56 UTC
121	1480	1666		FPSP @ 11:56 UTC
259	1618			First pre-plot SP @ 12:13UTC
469	1828	1666		EOT
470	1829	1667		SOT
	1990		Missed	Missed SP
757	2117	1667		LPSP @ 13:15 UTC
757	2117	1667		LSP @ 13:15 UTC
758-762	2118-2122			NAV PROCESSING SHOTS
763-772	/	1667		EOT - NOISE FILES

Abbreviations used and their meanings:

AF Gun Autofire
 CAD Cable Depths
 CDP Common Depth Point
 MSRS Multiple Streamer Recording System
 MSTP Multiple Streamer Telemetry Processor
 DNP Do Not Process
 D/T Due To
 D/E Delta Error
 M/F Misfire
 M/O Moveout
 RTNU Real Time Navigation Unit

LGSP Last Good Shotpoint
 LPSP Last Production (Chargeable) Shotpoint
 LSP Last Shotpoint
 MARS Marine Angle Ranging System
 NAV Navigation
 GCS90 Gun Controller
 RN Reel Number
 SAP Source Air Pressure
 S/I Seismic Interference
 NAVS Short Nav Header
 NCN Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2496P1-171**Seq: **171**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxiliary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms

Comments:

Hydrophone sensitivity 20 μ volts / μ bar
Recording polarity: Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning**Navigation System**

Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav

Positioning System

Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2496P1-171**
 Area: **Gippsland Basin, Bass Strait** Sequence: **171** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2489-2504** Line type: **Prime**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final
 Initials: tt, df, mm.

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	30-Jun-2006	181	11:56	21:56	1480	5.7	291	320°, 13m/s, 1.5m
FPSP:	30-Jun-2006	181	11:56	21:56	1480			
LPSP:	30-Jun-2006	181	13:15	23:15	2117			
EOL LSP:	30-Jun-2006	181	13:15	23:15	2117	1.2	364	330°, 11m/s, 1.0m
UTC offset:				10.0				

Separations (m)		SOL		EOL		Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	527	526					36.1	37.8
Per streamer:	Str 1-2	76	75			Sub arrays:	PO-PC	7.4	7.4
	Str 2-3	76	76				PC-PI	8.4	8.5
	Str 3-4	76	76				SI-SC	7.9	7.9
	Str 4-5	74	74				SC-SO	8.0	7.7
	Str 5-6	75	76						
	Str 6-7	74	73						
	Str 7-8	76	76						

P2/94 filename: G06A-2496P1-171.0.p294
 LMN: 20323_Bream.LMN
 SCN: 20323_Bream.SCN
 RTCN: viking2.RTCN
 BCN: 20323_Bream_Static.BCN
 Acoustic file: 20323_12
 Backup tape: Tape 3 Seq 3

Observations disabled etc.

Acoustics: S2A2 Intermittent
 RGPS:
 Compasses:
 Other:

SP	UTC	Local Time	Comments
1480	11:56	21:56	SOL, FSP
1480	11:56	21:56	FPSP
1618	12:13	22:13	First Preplot Shot point (started line early for coverage)
2117	13:15	23:15	LPSP
2117	13:15	23:15	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tai
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor


VERITAS
 Geophysical Integrity

 Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

 Line name: **G06A-2496P1-171**
 Sequence: **171**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2489-2504** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

 Obs Initials: **RF**
 Proc Initials: **PH**
 Report Status: **Final**
LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	30-Jun-2006	181	11:56	21:56	121	1480	1666
FPSP:	30-Jun-2006	181	11:56	21:56	121	1480	1666
LPSP:	30-Jun-2006	181	13:15	23:15	757	2117	1667
EOL LSP	30-Jun-2006	181	13:15	23:15	757	2117	1667

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

	SOL	EOL
FA (°)	5.7	1.2
Water depth (m)	46	44
RMS Noise (µB)	2.6	2.2
Weather	320°, 13m/s, 1.5m	330°, 11m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1978	1980
Stbd	1983	1984

TOTALS INFORMATION

Recorded SPs	638
Recorded km	11.963
Production time (hh:mm)	01:19
Production files	637
Production SPs	638
Production km	11.963
Production CMP km	191.400

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	1 / 0.16%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	2.8	2.0
HDOP	1.0	1.2	1.1
V1G2 PDOP	1.8	2.8	2.1
HDOP	1.1	1.6	1.2

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.5	2.6	2.5	4.89
Speed through water (m/s)	2.0	2.3	2.2	4.19
Feather angle (°)	1.5	6.0	2.8	
Gyro (P) (°)	-4.0	8.2	1.3	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	521.4	527.3	525.0
Str 1-2	74.2	75.9	75.1
Str 2-3	74.7	76.2	75.4
Str 3-4	73.7	76.8	75.5
Str 4-5	72.2	77.6	74.3
Str 5-6	73.4	76.8	75.1
Str 6-7	72.9	74.6	73.5
Str 7-8	75.2	76.8	76.0

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source Port-Stbd	34.1	38.7	36.2
Port Subarray Outer-Centre	7.0	7.8	7.5
Centre-Inner	8.0	9.4	8.6
Stbd Subarray Centre-Inner	7.3	8.2	7.7
Outer-Centre	7.3	8.6	8.0

 Birds bad:
 Birds depths:
TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	100, 166, 202, 229, 285		360	
Str 8				

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,	
Str 5	326,352,	
Str 6	91,205,	
Str 7	164,	
Str 8	318	

SHOT / TRACE EDITS: SPs:**TOTAL SHOTS**

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):	1990	1
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.

PROCESSING QC COMMENTS
 Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2496F1-173**
 Area: **Gippsland Basin, Bass Strait** Sequence: **173**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2489-2504** Line type: **Prog.Infill**
 Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/ RA/ LT
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	30-Jun-2006	181	21:51	07:51	121	1554	1672	21:15	UTC
FPSP:	30-Jun-2006	181	21:51	07:51	121	1554	1672		
LPSP:	30-Jun-2006	181	23:01	09:01	684	2117	1673		
EOL LSP:	30-Jun-2006	181	23:01	09:01	684	2117	1673	21:35	UTC
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	10.3	5.5
Water depth (m)	45	44
RMS noise @ 5 Hz LC (µB)	2.4	2.2
Weather	340°, 12m/s, 1.5m	350°, 8m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1977
Stbd	1978	1983

Streamer Depths (m)

	SOL	EOL
Str 1	6.8-7.0	6.9-7.1
Str 2	6.6-7.2	6.9-7.1
Str 3	6.8-7.2	6.9-7.1
Str 4	6.7-7.0	6.8-7.2
Str 5	6.8-7.5	6.9-7.1
Str 6	6.6-7.2	6.7-7.1
Str 7	6.8-7.1	6.9-7.1
Str 8	6.9-7.2	6.9-7.1

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	83, 290			339 (Phase)	3, 16		
S4:	106, 110, 148, 177				127, 353		
S5:	75				88, 326		
S6:	49, 116, 120, 158, 161				29, 37, 91, 205, 360		
S7:	100, 166, 202, 229, 285		360				
S8:							

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-2496F1-173

Seq:

173

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1672		SOT - SOL NOISE FILES
111-120	1544-1553			APPROACH SHOTS
121	1554	1672		FSP @ 21:51 UTC
121	1554	1672		FPSP @ 21:51 UTC
185	1618			First Pre Plot SP @ 21:59 UTC
469	1902	1672		EOT
470	1903	1673		SOT
632	2065			Gun string 4 low pressure reading d/t scan time at high WSP: 1822 psi
633	2066		Bad	Misfire: S-5
634	2067			Gun string 4 low pressure reading d/t scan time at high WSP: 1895 psi
684	2117	1673		LPSP @ 23:01 UTC
684	2117	1673		LSP @ 23:01 UTC
685-689	2118-2122			NAV PROCESSING SHOTS
690-699	/	1673		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2496F1-173**Seq: **173**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxiliary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms

Comments:

Hydrophone sensitivity 20 μ volts / μ bar
Recording polarity: Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning**Navigation System**

Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav

Positioning System

Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2496F1-173**
 Sequence: **173**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2489-2504** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **NC**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	30-Jun-2006	181	21:51	07:51	121	1554	1672
FPSP:	30-Jun-2006	181	21:51	07:51	121	1554	1672
LPSP:	30-Jun-2006	181	23:01	09:01	684	2117	1673
EOL LSP:	30-Jun-2006	181	23:01	09:01	684	2117	1673

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	10.3	5.5
Water depth (m)	45	44
RMS Noise (µB)	2.4	2.2
Weather	340°, 12m/s, 1.5m	350°, 8m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1977
Stbd	1978	1983

Recorded SPs	564
Recorded km	10.575
Production time (hh:mm)	01:10
Production files	564
Production SPs	564
Production km	10.575
Production CMP km	169.200

ERROR STATISTICS

Source errors / %	1 / 0.18%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.5	2.6	1.9
HDOP	0.8	1.4	1.0
V1G2 PDOP	1.6	2.6	2.0
HDOP	0.8	1.4	1.1

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.4	2.5	2.5	4.88
Speed through water (m/s)	1.9	2.1	2.0	3.86
Feather angle (°)	5.4	10.4	7.6	
Gyro (P) (°)	-5.1	7.9	0.5	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	516.5	523.9	519.9
Str 1-2	73.9	76.2	74.8
Str 2-3	73.6	75.4	74.4
Str 3-4	73.0	75.8	74.6
Str 4-5	70.0	73.8	71.7
Str 5-6	74.2	77.0	75.6
Str 6-7	72.4	74.1	73.3
Str 7-8	74.5	76.7	75.6

	Min	Max	Mean
Source-Source Port-Stbd	32.9	37.6	35.1
Port Subarray Outer-Centre	7.0	7.9	7.6
Centre-Inner	8.3	9.4	8.7
Stbd Subarray Centre-Inner	6.8	7.8	7.3
Outer-Centre	7.2	8.0	7.6

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	100, 166, 202, 229, 285		360	
Str 8				

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,	
Str 5	326,352,	
Str 6	91,205,	
Str 7	164,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :	2066	1
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.01

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2512P1-175**
 Area: **Gippsland Basin, Bass Strait** Sequence: **175**
 Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2505-2520** Line type: **Prime**
 Type: **3D** No. CMPs: **16** Status: **Complete** Initials: GC/RF/AD
 Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	1-Jul-2006	182	06:34	16:34	121	1648	1677	05:55	UTC
FPSP:	1-Jul-2006	182	06:34	16:34	121	1648	1677		
LPSP:	1-Jul-2006	182	07:34	17:34	590	2117	1678		
EOL LSP:	1-Jul-2006	182	07:34	17:34	590	2117	1678	06:15	UTC
				UTC Offset:	10.0				

	SOL	EOL
Feather angle (°)	6.3	7.2
Water depth (m)	45.2	43
RMS noise @ 5 Hz LC (µB)	3	2
Weather	340°, 6m/s, 1.5m 340°, 8m/s, 1.5m	
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1979	1977
Stbd	1982	1980

Streamer Depths (m)

	SOL	EOL
Str 1	6.9-7.2	6.9-7.2
Str 2	6.8-7.1	6.9-7.2
Str 3	6.9-7.3	6.9-7.1
Str 4	6.9-7.2	6.8-7.1
Str 5	6.8-7.2	6.9-7.2
Str 6	6.8-7.2	6.8-7.2
Str 7	6.9-7.2	6.9-7.2
Str 8	6.8-7.3	6.8-7.2

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	305, 321		
S3:	83, 290			339 (Phase)	3, 16		
S4:	106, 110, 148, 177				127		
S5:	75				86, 326, 333		
S6:	49, 116, 120, 158, 161				29, 37, 91, 205, 360		
S7:	100, 166, 202, 229, 285		360				
S8:							

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin



Client:

Esso Australia Pty. Ltd.

Line name:

G06A-2512P1-175

Seq:

175

Dir:

10.5°

FILE	SP	TAPE	BAD	
99-110	/	1677		SOT - SOL NOISE FILES
111-120	1638-1647			APPROACH SHOTS
121	1648	1677		FSP @ 06:34 UTC
121	1648	1677		FPSP @ 06:34 UTC
185	1712			First Pre Plot SP @ 06:42 UTC
469	1996	1677		EOT
470	1997	1678		SOT
590	2117	1678		LPSP @ 07:34 UTC
590	2117	1678		LSP @ 07:34 UTC
591-595	2118-2122			NAV PROCESSING SHOTS
596-605	/	1678		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node



Client: **Esso Australia Pty. Ltd.**

Line name: **G06A-2512P1-175**

Seq: **175**

Dir: **10.5°**

Streamers - TUS Guardian

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2512P1-175**
 Sequence: **175**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2505-2520** Line type: **Prime**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **RF**
 Proc Initials: **WC**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	1-Jul-2006	182	06:34	16:34	121	1648	1677
FPSP:	1-Jul-2006	182	06:34	16:34	121	1648	1677
LPSP:	1-Jul-2006	182	07:34	17:34	590	2117	1678
EOL LSP	1-Jul-2006	182	07:34	17:34	590	2117	1678

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

GENERAL INFORMATION

TOTALS INFORMATION

	SOL	EOL
FA (°)	6.3	7.2
Water depth (m)	45.2	43
RMS Noise (µB)	3	2
Weather	340°, 6m/s, 1.5m	340°, 8m/s, 1.5m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1979	1977
Stbd	1982	1980

Recorded SPs	470
Recorded km	8.813
Production time (hh:mm)	01:00
Production files	470
Production SPs	470
Production km	8.813
Production CMP km	141.000

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean
V1G1 PDOP	1.6	2.5	2.2
HDOP	0.8	1.8	1.2
V1G2 PDOP	1.7	2.5	2.3
HDOP	0.8	1.8	1.3

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.6	2.5	4.79
Speed through water (m/s)	2.0	2.3	2.2	4.25
Feather angle (°)	4.1	7.0	5.5	
Gyro (P) (°)	-6.6	9.4	1.6	

STREAMER SEPARATIONS

SOURCE SEPARATIONS

	Min	Max	Mean
Spread 1-8	513.8	524.8	519.4
Str 1-2	72.9	76.3	74.6
Str 2-3	73.0	75.9	74.4
Str 3-4	72.6	76.6	74.5
Str 4-5	70.1	74.6	71.9
Str 5-6	73.8	76.9	75.3
Str 6-7	72.2	74.0	73.1
Str 7-8	74.7	76.5	75.6

	Min	Max	Mean
Source-Source Port-Stbd	33.8	38.3	35.6
Port Subarray Outer-Centre	7.2	8.2	7.7
Centre-Inner	8.2	9.5	8.7
Stbd Subarray Centre-Inner	6.9	7.6	7.3
Outer-Centre	7.3	8.1	7.7

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

CHANNELS EDITED BY PROCESSING QC

	Low Capacitance	Open Channe	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			339 (Phase)
Str 4	106, 110, 148, 177			
Str 5	75			
Str 6	49, 116, 120, 158, 161			
Str 7	100, 166, 202, 229, 285		360	
Str 8				

	Noisy	Weak
Str 1	340	
Str 2	305	
Str 3		
Str 4	127, 178	
Str 5	326	
Str 6	91, 205	
Str 7	164	
Str 8	65, 318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.02

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

SR/V Veritas Viking II

Observers Line Log



Client: **Esso Australia Pty. Ltd.** Line Name: **G06A-2512F1-177**

Area: **Gippsland Basin, Bass Strait** Sequence: **177**

Prospect: **2006 Greater Bream 3D** Direction: **10.5°** Nav Def: **12**

Job ID: **20323** CMP line range: **2505-2520** Line type: **Prog.Infill**

Type: **3D** No. CMPs: **16** Status: **Complete**

Initials: NC/RA/LT
Log Status: Final

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape	Soft start commenced at	UTC
SOL FSP:	1-Jul-2006	182	14:57	00:57	121	1690	1682	14:20	
FPSP:	1-Jul-2006	182	14:57	00:57	121	1690	1682		
LPSP:	1-Jul-2006	182	15:54	01:54	548	2117	1683		
EOL LSP:	1-Jul-2006	182	15:54	01:54	548	2117	1683	14:40	
				UTC Offset:	10.0				

Full volume arrays at 14:40 UTC

	SOL	EOL
Feather angle (°)	-3.1	-1.0
Water depth (m)	45	44
RMS noise @ 5 Hz LC (µB)	3.3	1.8
Weather	000°, 8m/s, 1.0m	025°, 6m/s, 1.0m
Source vol. (cu. in.)		
Port	4450	4450
Stbd	4450	4450
Source pressure (psi)		
Port	1975	1973
Stbd	1979	1979

Streamer Depths (m)

	SOL	EOL
Str 1	6.5-7.3	6.7-7.0
Str 2	6.7-7.0	6.8-7.1
Str 3	6.8-7.1	6.8-7.1
Str 4	6.8-7.1	6.9-7.2
Str 5	6.9-7.2	6.8-7.1
Str 6	6.8-7.1	6.9-7.2
Str 7	6.8-7.1	6.8-7.1
Str 8	6.9-7.2	6.8-7.1

SOL/EOL Comments

Overall Line Observations

All gun strings operating with gun # 3 as spare.

Birds bad/poll disabled:

Birds deep/shallow:

Status of Streamer Traces:

	Traces Failing Today's Daily Test				Suspect traces seen on Shot Plots & RMS Display		
	Low Capacitance	Open Channel	Leakage	Other	Noisy	Spiking	Weak
S1:					340, 360		
S2:				305 (Phase)	304, 305		
S3:	83, 290				3, 16		
S4:	21, 106, 110, 148, 177				127, 353		
S5:	75				4, 5, 86, 326		
S6:	49, 116, 120, 158, 161				20, 29, 37, 91, 205, 360		
S7:	100, 166, 202, 229, 285		360		232		
S8:	198				257, 277		

Vessel Manager: Morgan McNelly Observers: 00:00-12:00 Neil Collinge, Larry Tan, Rashid Anwar
 Operations Supervisor: Glenn Cassim 12:00-00:00 Greg Campbell, Anthony Doyle, Richard Francisco, Jake Cowie
 Chief Observer: Andrew Perkin

Client: Line name: Seq: Dir:

FILE	SP	TAPE	BAD	
99-110	/	1682		SOT - SOL NOISE FILES
111-120	1680-1689			APPROACH SHOTS
121	1690	1682		FSP @ 14:57 UTC
121	1690	1682		FPSP @ 14:57 UTC
143	1712			First Pre Plot SP @ 15:00 UTC
469	2038	1682		EOT
470	2039	1683		SOT
548	2117	1683		LPSP @ 15:54 UTC
548	2117	1683		LSP @ 15:54 UTC
549-553	2118-2122			NAV PROCESSING SHOTS
554-562	/	1683		EOT - NOISE FILES

Abbreviations used and their meanings:

AF	Gun Autofire	LGSP	Last Good Shotpoint
CAD	Cable Depths	LPSP	Last Production (Chargeable) Shotpoint
CDP	Common Depth Point	LSP	Last Shotpoint
MSRS	Multiple Streamer Recording System	MARS	Marine Angle Ranging System
MSTP	Multiple Streamer Telemetry Processor	NAV	Navigation
DNP	Do Not Process	GCS90	Gun Controller
D/T	Due To	RN	Reel Number
D/E	Delta Error	SAP	Source Air Pressure
M/F	Misfire	S/I	Seismic Interference
M/O	Moveout	NAVS	Short Nav Header
RTNU	Real Time Navigation Unit	NCN	Navigation Calculation Node

Client: **Esso Australia Pty. Ltd.**Line name: **G06A-2512F1-177**Seq: **177**Dir: **10.5°****Streamers - TUS Guardian**

Number of streamers:	8
Number of channels per streamer:	360
Group length:	12.5 metres
Receivers / Group:	12
Receiver Type:	TS020 PZT ceramic
Number of compasses per streamer:	19 (20 on S1 & S8)
Active streamer length	4500 metres
Nominal separation between streamers:	75 metres
Near channel inline offset:	75 metres
Far channel inline offset:	4563 metres
Nominal streamer depth :	7 metres
Streamer depth fluctuation allowed :	0.5 metres
Total horizontal separation:	525 metres
Total vertical separation:	0 metres
Auxiliary channels:	12
Time break recorded on aux channel 1 from 1000 ms	
Near field data recorded on aux channels 1-12 first 2000 ms	
<i>Streamer designation:</i>	Streamers 1 - 8 = Port - Starboard
<i>Channel designation:</i>	Channel 1 at tail-end of each streamer Channel 360 at head of each streamer

Seismic Recording System - SYNTRAK 960 24-bit

Nominal fold	60
Sample interval:	2 ms
Record length:	6144 ms
Total number of channels (incl. auxiliary):	2892
Streamer 1 :	Recorded as dataset 1 channels 1 - 360
Streamer 2 :	Recorded as dataset 2 channels 1 - 360
Streamer 3 :	Recorded as dataset 3 channels 1 - 360
Streamer 4 :	Recorded as dataset 4 channels 1 - 360
Streamer 5 :	Recorded as dataset 5 channels 1 - 360
Streamer 6 :	Recorded as dataset 6 channels 1 - 360
Streamer 7 :	Recorded as dataset 7 channels 1 - 360
Auxillary:	Recorded as dataset 8 channels 1 - 12
Streamer 8 :	Recorded as dataset 9 channels 1 - 360
Low cut recording filter:	3(12) Hz(dB/oct)
High cut recording filter:	206(276) Hz(dB/oct)
Digital filter delay:	None
Notch filter:	None
QC filter	5(18) Hz(dB/oct)
Recording medium:	3590
Tape format:	SEGD
Recording format	8036
Recording time delay:	0 ms
Comments:	
<i>Hydrophone sensitivity</i>	20 µvolts / µbar
<i>Recording polarity:</i>	Increase in pressure = -ve number on tape

Source Array - Dual Tuned Bolt Airgun Array

Array separation	37.5 m
Source separation fluctuation allowed:	3.75 m
Nominal source depth:	6 m
Source depth fluctuation allowed:	0.5 m
Overall source array width:	16 m
Overall source array length:	16.5 m
Number of source arrays:	2
Number of active elements per array:	9
Number of spare elements per array:	3
Number of sub arrays per source array:	3
Sub array length:	16.5 m
Sub array separation:	8 m
Sub array separation fluctation allowed:	1.5 m
Nominal source array pressure:	2000 psi
Specified minimum array pressure:	1900 psi
Nominal operating volume per array:	4450 cu. in.
Specified minimum operating volume:	NA
Source shotpoint interval:	18.75 m
Individual source shotpoint interval:	37.5 m
Flip-flop acquisition mode, even shotpoints from stbd source, odd shotpoints from port source	

Positioning

Navigation System	
Primary:	Veripos Ultra
Secondary:	Veripos Standard
Tertiary:	C-Nav
Positioning System	
Source:	DigiCOURSE Acoustic Network Seamap STORM/ Buoylink RGPS
Streamer front/end:	DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Streamer shape:	DigiCOURSE 5011 Compass Birds DigiCOURSE Acoustic Ranging (CMX) Seamap STORM/ Buoylink RGPS
Echosounder:	Kongsberg Simrad EA500
Integrated Navigation System:	CSL Spectra v10.9.01
Datum transformation:	Data acquired in WGS84



Client: **Esso Australia Pty. Ltd.** Line name: **G06A-2512F1-177**
 Area: **Gippsland Basin, Bass Strait** Sequence: **177** Nav System: **Veripos**
 Prospect: **2006 Greater Bream 3D** Direction: **010.5°** Nav Def: **12**
 Job ID: **20323** CMP line range: **2505-2520** Line type: **Prog.Infill**
 Type: **3D** No. CMPs **16** Status: **Complete** Log Status: Final
 Initials: vq hh vt at

SOL / EOL Information

	UTC Date	UTC Jday	UTC	Local Time	SP	FA (°)	DC (m)	Weather
SOL FSP:	1-Jul-2006	182	14:57	00:57	1690	-3.1	253	000°, 8m/s, 1.0m
FPSP:	1-Jul-2006	182	14:57	00:57	1690			
LPSP:	1-Jul-2006	182	15:54	01:54	2117			
EOL LSP:	1-Jul-2006	182	15:54	01:54	2117	-1	181	025°, 6m/s, 1.0m
			UTC offset:		10.0			

Separations (m)		SOL	EOL	Sources overall: Port-Stbd		SOL	EOL
Streamer overall:	Str 1-8	524	524	Sub arrays:	PO-PC	36.2	35.5
Per streamer:	Str 1-2	75	75		PC-PI	7.7	7.4
	Str 2-3	76	76		SI-SC	8.8	9.0
	Str 3-4	74	74		SC-SO	7.3	7.4
	Str 4-5	73	72			7.9	7.5
	Str 5-6	76	77				
	Str 6-7	74	74				
	Str 7-8	76	76				

P2/94 filename: **G06A-2512F1.177.0.p294**
 LMN: **20323_Bream.LMN**
 SCN: **20323_Bream.SCN**
 RTCN: **viking2.RTCN**
 BCN: **20323_Bream_Static.BCN**
 Acoustic file: **20323_12**
 Backup tape: **Tape 4 Seq 4**

Observations disabled etc.

Acoustics: Acoustic S2A2 intermittent
 RGPS:
 Compasses:
 Other: DGPS Standard+ showing PDOP > 6m

SP	UTC	Local Time	Comments
1690	14:57	00:57	SOL, FSP
1690	14:57	00:57	FPSP
1712	15:00	01:00	First Pre Plotted SP
1896	15:25	01:25	Standard + PDOP > 6
1934	15:30	01:30	Standard + PDOP < 6
1972	15:35	01:35	Standard + PDOP > 4
2010	15:40	01:40	Standard + PDOP < 4
2117	15:54	01:54	LPSP
2117	15:54	01:54	EOL, LSP

Vessel Manager: Morgan McNelly Navigators: 00:00-12:00 Vera Quinlan/Howard Hewison/Alan Tan/ Vivian Tan
 Chief Navigator : Rick Fleming 12:00-00:00 Darryl Fletcher/Mikhael Malofeev/Thomas Tibor



Client: **Esso Australia Pty. Ltd.**
 Area: **Gippsland Basin, Bass Strait**
 Prospect: **2006 Greater Bream 3D**
 Job ID: **20323**
 Type: **3D**

Line name: **G06A-2512F1-177**
 Sequence: **177**
 Direction: **10.5°** Nav. Def: **12**
 CMP line range: **2505-2520** Line type: **Prog.Infill**
 No. CMPs: **16** Status: **Complete**

Obs Initials: **LT**
 Proc Initials: **PH**
 Report Status: **Final**

LINE INFORMATION

	UTC Date	UTC Jday	UTC	Local Time	File	SP	Tape
SOL FSP:	1-Jul-2006	182	14:57	00:57	121	1690	1682
FPSP:	1-Jul-2006	182	14:57	00:57	121	1690	1682
LPSP:	1-Jul-2006	182	15:54	01:54	548	2117	1683
EOL LSP	1-Jul-2006	182	15:54	01:54	548	2117	1683

GENERAL INFORMATION

	SOL	EOL
FA (°)	-3.1	-1
Water depth (m)	45	44
RMS Noise (µB)	3.3	1.8
Weather	000°, 8m/s, 1.0m	025°, 6m/s, 1.0m
Source volume (cu in): Port	4450	4450
Stbd	4450	4450
Source pressure (psi): Port	1975	1973
Stbd	1979	1979

TOTALS INFORMATION

Recorded SPs	428
Recorded km	8.025
Production time (hh:mm)	00:57
Production files	428
Production SPs	428
Production km	8.025
Production CMP km	128.400

RECORDING PARAMETERS

SP interval (m)	18.75
Group length (m)	12.5
Streamer length (m)	4500
Channels per streamer	360
Streamers / Sources	8 / 2
Fold	60
Nominal Offset (m)	75
Src / Strmr Depth (m)	6 / 7
Sample rate (ms)	2
Record length (ms)	6144
Format	SEGD

ERROR STATISTICS

Source errors / %	0 / 0%
Missed SPs / %	0 / 0%
Other bad SPs / %	0 / 0%

GPS

	Min	Max	Mean
V1G1 PDOP	1.7	2.9	2.0
HDOP	1.0	2.2	1.3
V1G2 PDOP	1.7	3.1	2.3
HDOP	1.0	2.4	1.6

SPEED, FEATHER ANGLE, GYRO

	Min	Max	Mean	Mean speed (knots)
Speed over ground (m/s)	2.3	2.4	2.4	4.62
Speed through water (m/s)	2.1	2.3	2.2	4.19
Feather angle (°)	-3.7	-0.2	-1.7	
Gyro (P) (°)	2.0	16.7	10.4	

STREAMER SEPARATIONS

	Min	Max	Mean
Spread 1-8	520.0	526.0	522.9
Str 1-2	74.1	75.8	75.1
Str 2-3	74.8	76.1	75.5
Str 3-4	72.2	75.7	74.3
Str 4-5	69.9	73.3	71.4
Str 5-6	75.0	78.7	76.5
Str 6-7	72.6	74.1	73.4
Str 7-8	75.5	77.2	76.5

SOURCE SEPARATIONS

	Min	Max	Mean
Source-Source	33.1	38.8	35.5
Port Subarray	7.1	8.1	7.7
Outer-Centre	8.2	9.5	8.8
Centre-Inner	7.0	7.7	7.3
Stbd Subarray	7.3	8.1	7.6
Outer-Centre			

Birds bad:
 Birds depths:

TRACES FAILING DAILY TESTS

	Low Capacitance	Open Channel	Leakage	Other
Str 1				
Str 2				305 (Phase)
Str 3	83, 290			
Str 4	21,106, 110, 148, 177			
Str 5	75			
Str 6	49,116,120,158,161			
Str 7	100,166, 202, 229, 285		360	
Str 8	198			

CHANNELS EDITED BY PROCESSING QC

	Noisy	Weak
Str 1	340,	
Str 2		
Str 3		
Str 4	127,178,	
Str 5	326,352,	
Str 6	91,205,	
Str 7	164,251,	
Str 8	318	

SHOT / TRACE EDITS:

SPs:

TOTAL SHOTS

Timing (delta) errors >1.0ms:		0
Autofires / Misfires :		0
Missed SPs (NDR):		0
Extraction errors:		0
NAVS / ITB errors:		0
Other Bad shots:		0
Other Bad Traces:		0
Streamer depth edits:	See ADS files for listing of coverage edits for streamer depths out of the range 6.5 to 7.5 m	Percentage: 0.03

ONLINE COMMENTS

All gun strings operating with gun # 3 as spare.

PROCESSING QC COMMENTS

Shots free from any discernable swell noise.
 Strum and head wave energy apparent due to good weather and clean data quality.

ARRAY LISTING

ARRAY NAME : T4450_8m
 NUMBER OF ACTIVE GUNS: 24
 TOTAL ACTIVE VOLUME : 4450 CU.IN.
 NUMBER OF SPARE GUNS : 3

GUN #	GUN TYPE	X (m)	Y (m)	Z (m)	VOLUME (cu.in)	PRESSURE (psi)	WSK	DELAY (ms)	CLUSTER NUMBER
1	13	-9.00	-8.50	6.00	220	2000	1.00	0.00	1
2	13	-9.00	-7.50	6.00	220	2000	1.00	0.00	1
3	13	-6.00	-8.50	6.00	200	2000	1.00	0.00	0
4	13	-6.00	-7.50	6.00	200	SPARE	1.00	0.00	0
5	13	-3.00	-8.00	6.00	260	2000	1.00	0.00	0
6	13	0.00	-8.00	6.00	200	2000	1.00	0.00	0
7	13	2.50	-8.00	6.00	175	2000	1.00	0.00	0
8	13	5.00	-8.00	6.00	135	2000	1.00	0.00	0
9	18	7.50	-8.00	6.00	100	2000	1.00	0.00	0
10	13	-9.00	-0.50	6.00	330	2000	1.00	0.00	2
11	13	-9.00	0.50	6.00	330	2000	1.00	0.00	2
12	13	-6.00	-0.50	6.00	330	2000	1.00	0.00	0
13	13	-6.00	0.50	6.00	330	SPARE	1.00	0.00	0
14	13	-3.00	0.00	6.00	175	2000	1.00	0.00	0
15	13	0.00	0.00	6.00	115	2000	1.00	0.00	0
16	18	2.50	0.00	6.00	105	2000	1.00	0.00	0
17	18	5.00	0.00	6.00	90	2000	1.00	0.00	0
18	18	7.50	0.00	6.00	70	2000	1.00	0.00	0
19	13	-9.00	7.50	6.00	280	2000	1.00	0.00	3
20	13	-9.00	8.50	6.00	280	2000	1.00	0.00	3
21	13	-6.00	7.50	6.00	280	2000	1.00	0.00	0
22	13	-6.00	8.50	6.00	280	SPARE	1.00	0.00	0
23	13	-3.00	8.00	6.00	175	2000	1.00	0.00	0
24	13	0.00	8.00	6.00	115	2000	1.00	0.00	0
25	18	2.50	8.00	6.00	105	2000	1.00	0.00	0
26	18	5.00	8.00	6.00	90	2000	1.00	0.00	0
27	18	7.50	8.00	6.00	70	2000	1.00	0.00	0

THE GUN TYPES ARE:

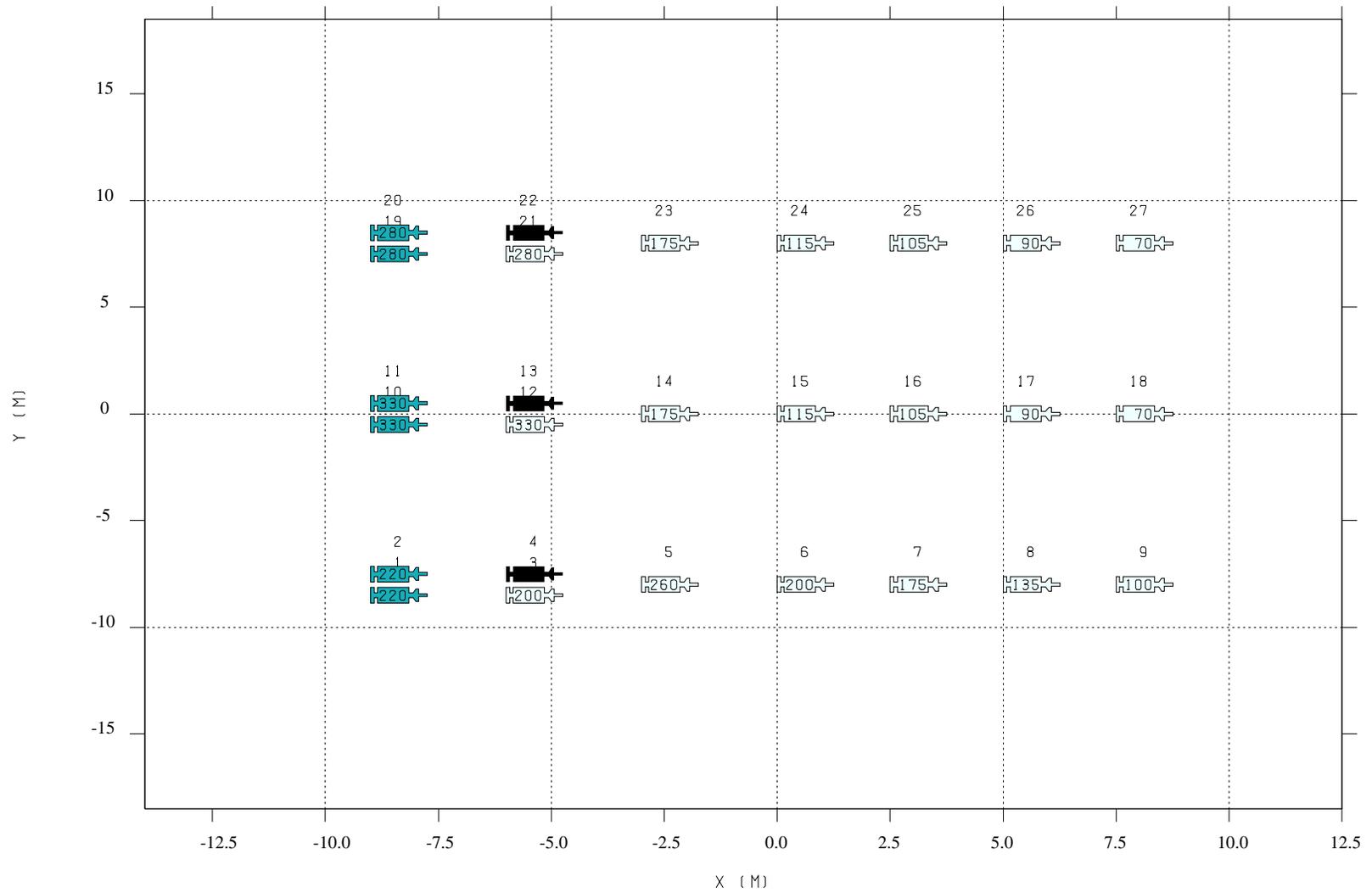
- 13: BOLT 1500 LL
- 18: BOLT 1900 LLXT

"WSK" IS THE RATIO BETWEEN THE PRIMARY VOLUME AND TOTAL CHAMBER VOLUME IN A BOLT 1500C GUN (TYPE 1) WITH WAVESHAP KIT

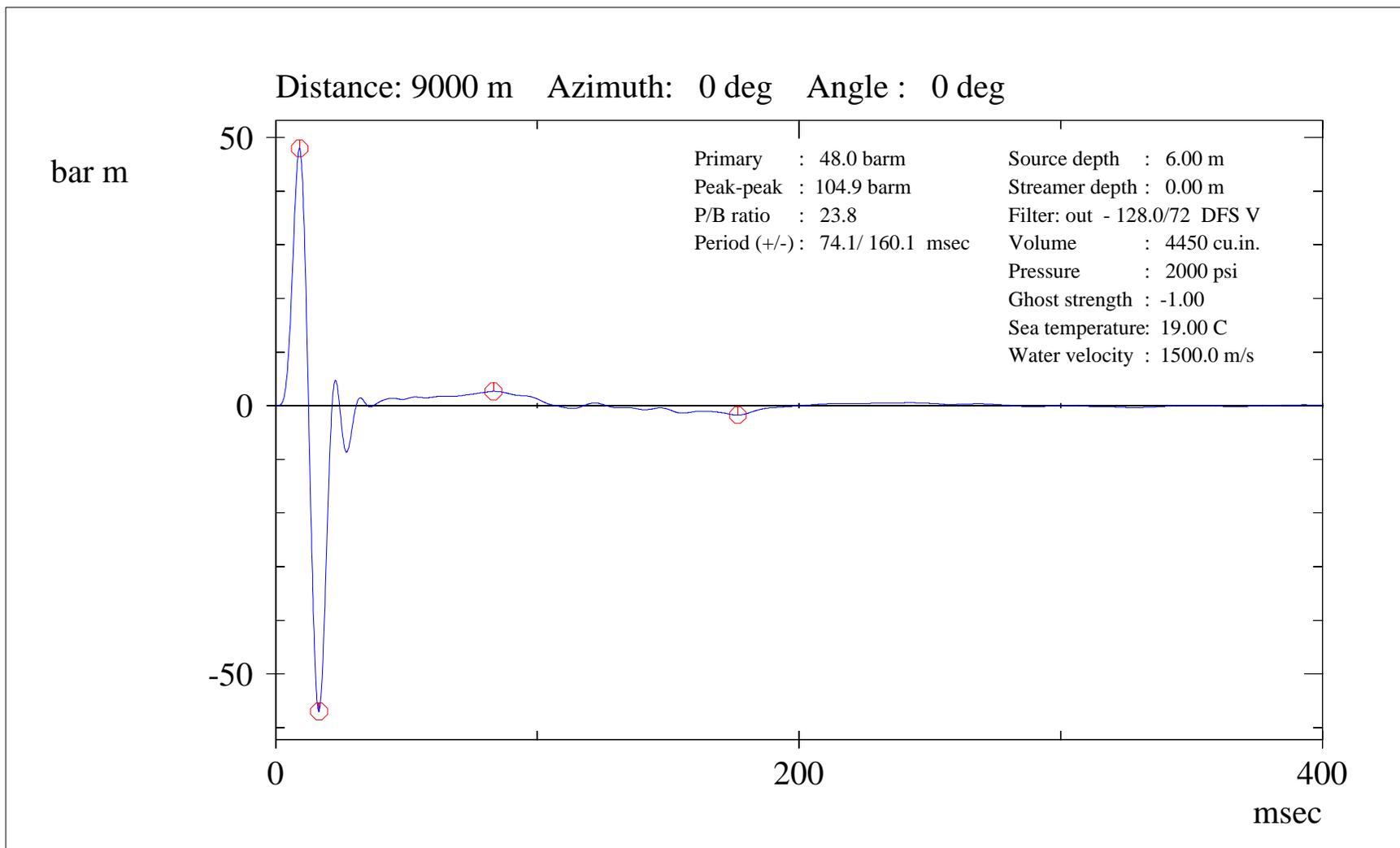
Array : T4450_8m

Total volume : 4450.0 cubic inch

-  Inactive guns
-  Single guns
-  Cluster guns

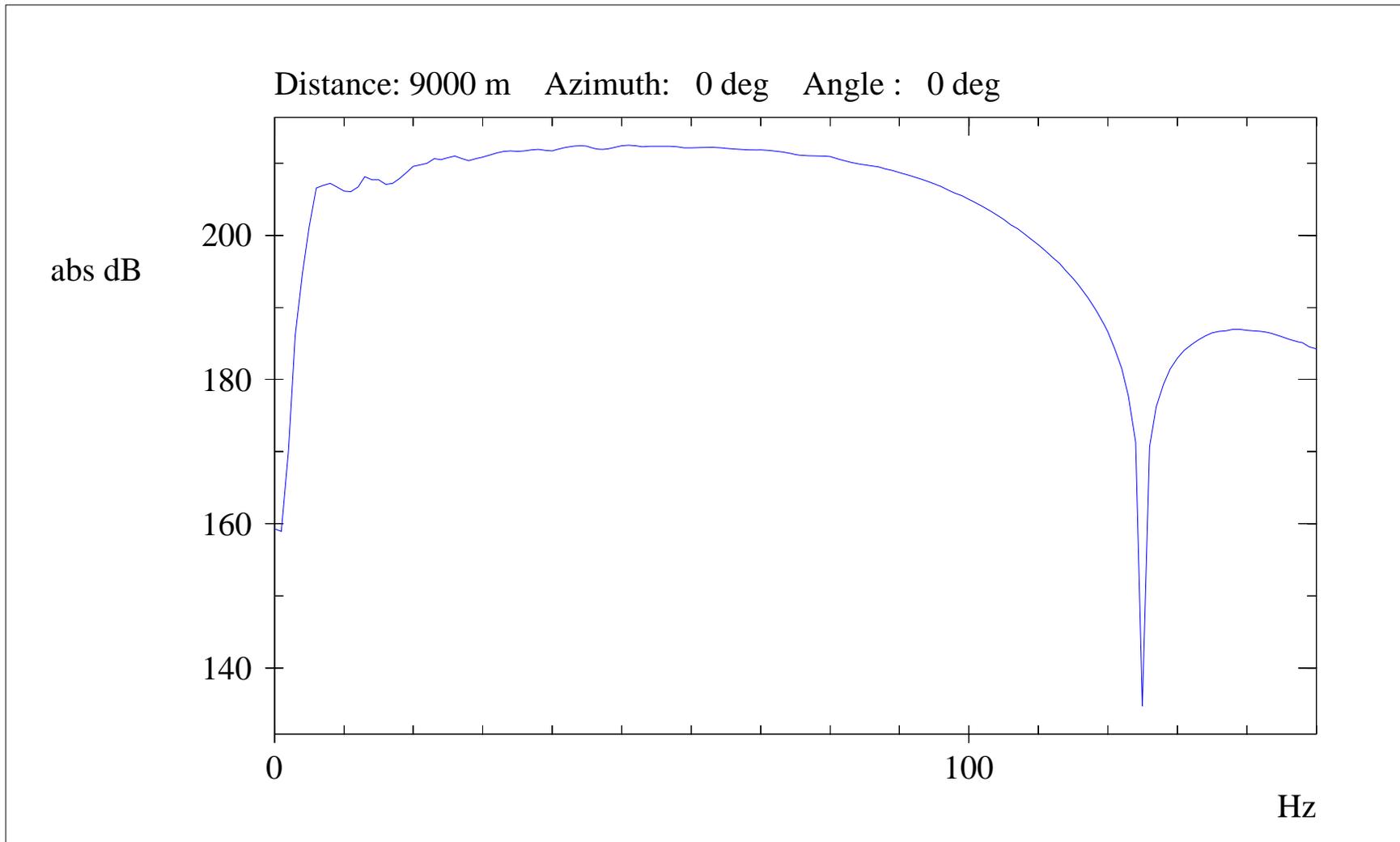


Far-field signature of array : T4450_8m



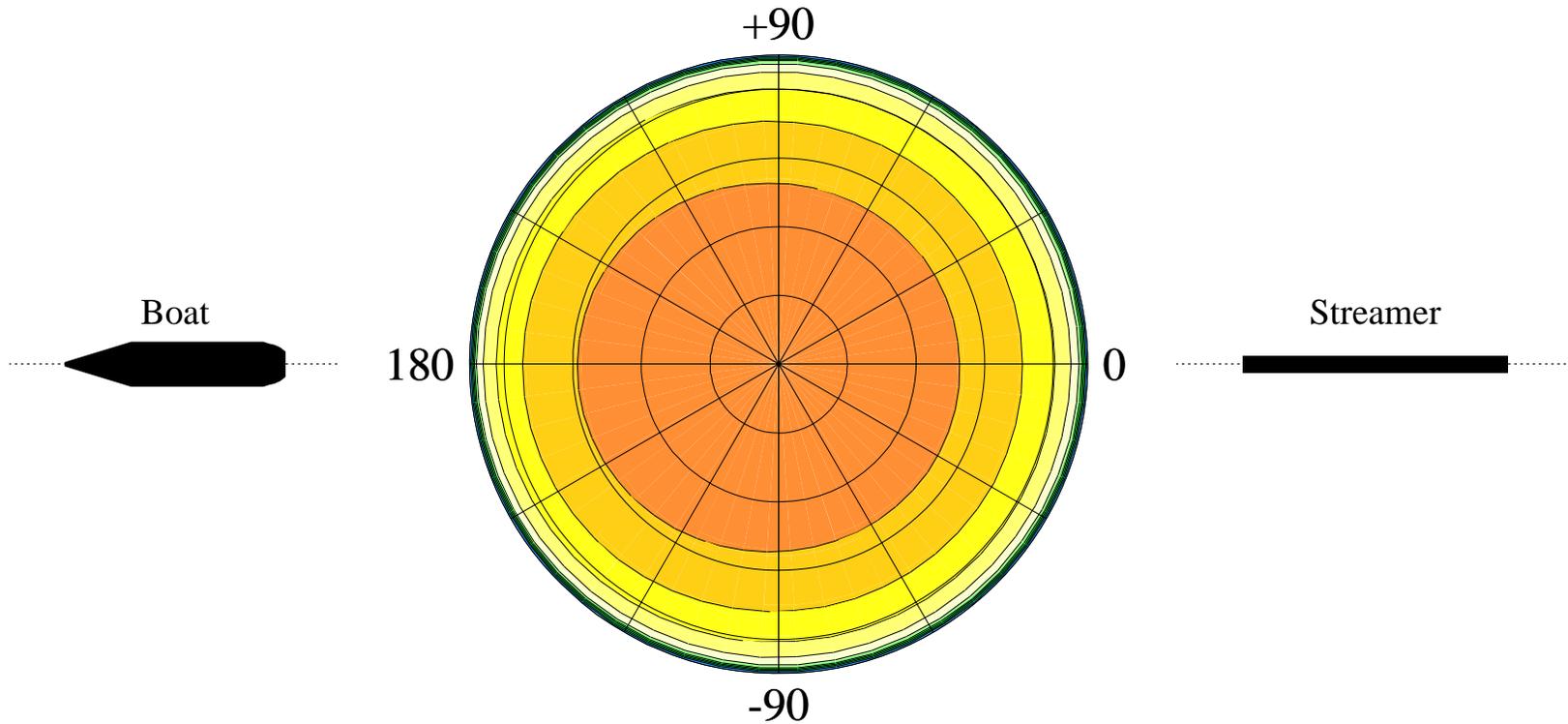
Source Depth 6m - Temperature 19c

Amplitude spectrum of far-field signature of array : T4450_8m

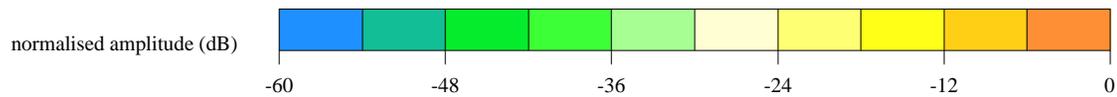


Source Depth 6m - Temperature 19c

Source Directivity Plot - frequency : 30.0 Hz. - array T4450_8m

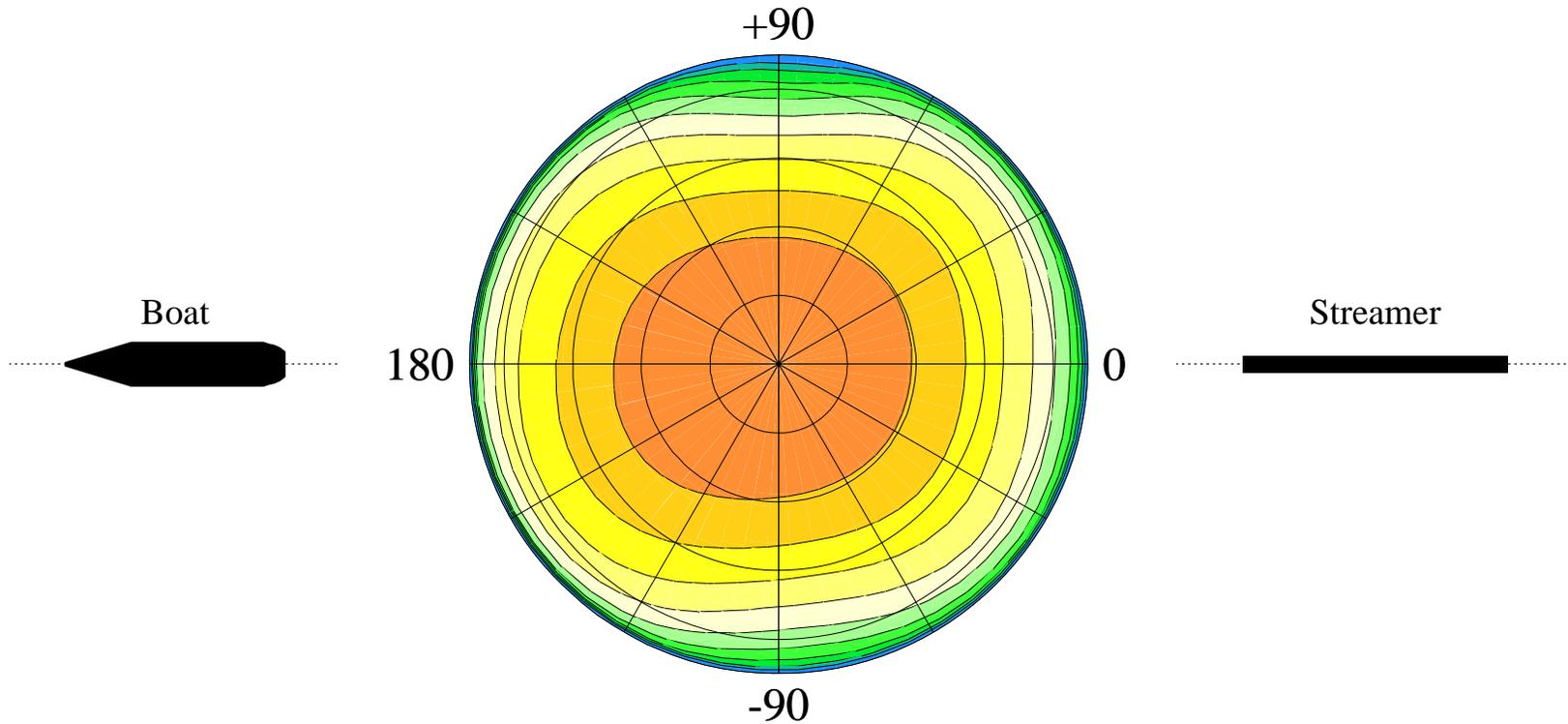


Azimuth angle marked in degrees.
Angle of vertical (0 - 90.0 degrees) plotted along radii.



Source Depth 6m - Temperature 19c

Source Directivity Plot - frequency : 60.0 Hz. - array T4450_8m

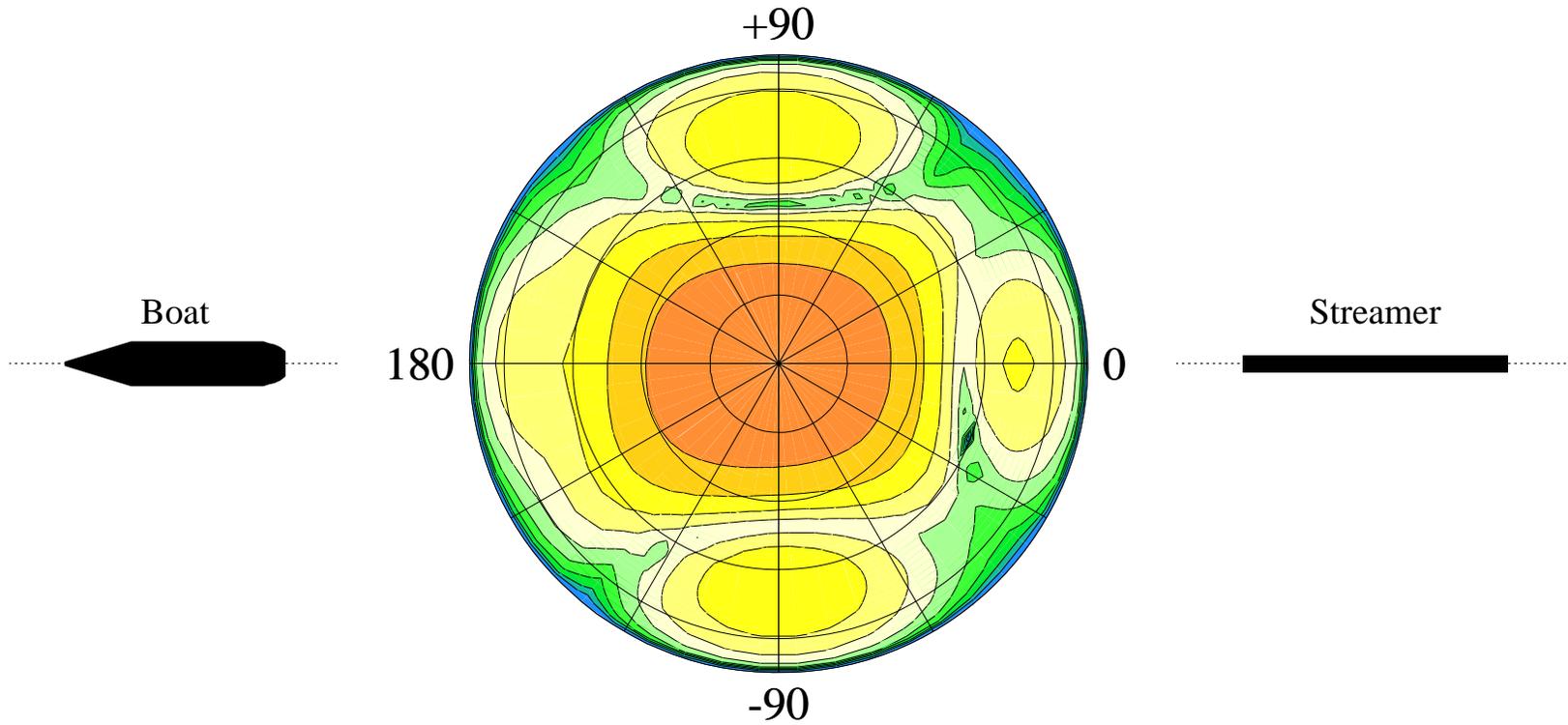


Azimuth angle marked in degrees.
Angle of vertical (0 - 90.0 degrees) plotted along radii.

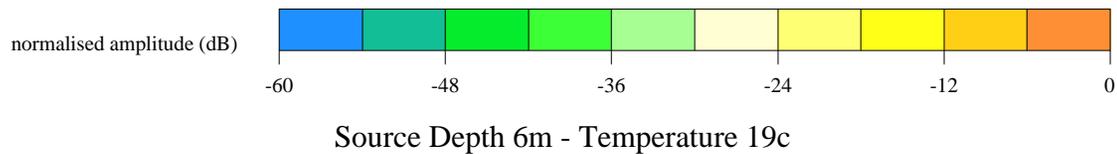


Source Depth 6m - Temperature 19c

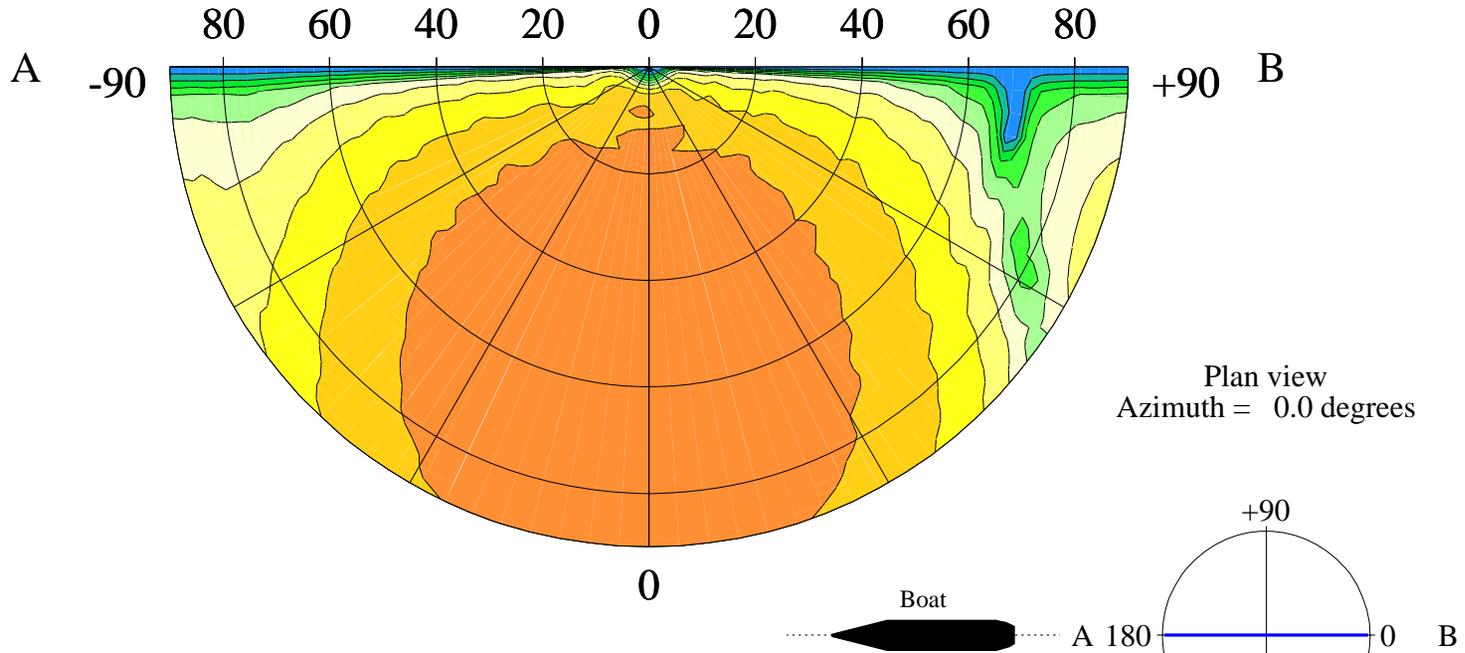
Source Directivity Plot - frequency : 90.0 Hz. - array T4450_8m



Azimuth angle marked in degrees.
Angle of vertical (0 - 90.0 degrees) plotted along radii.



Source Directivity Plot - azimuth : 0.0 degrees - array T4450_8m

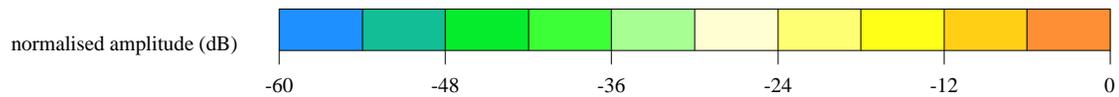
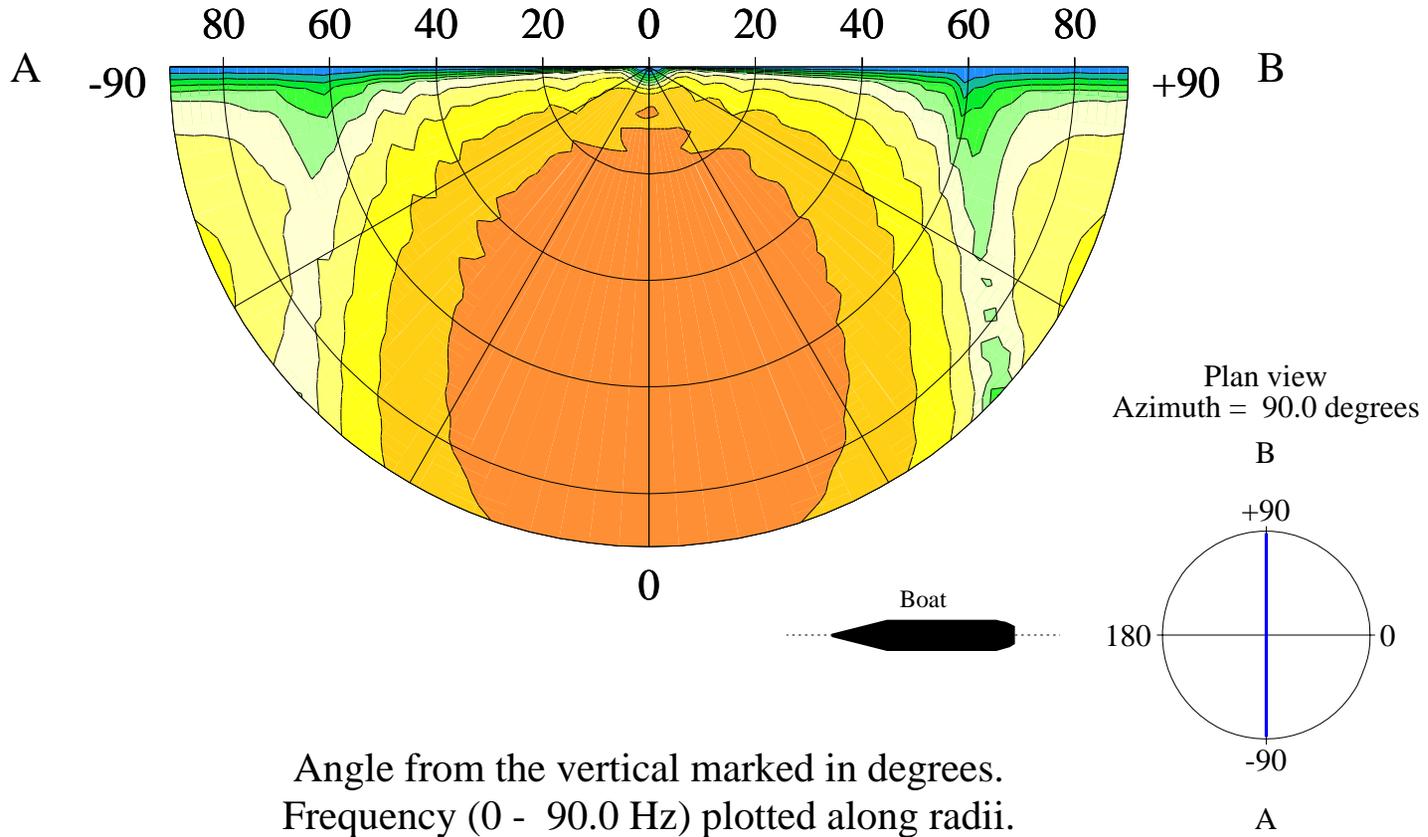


Angle from the vertical marked in degrees.
Frequency (0 - 90.0 Hz) plotted along radii.



Source Depth 6m - Temperature 19c

Source Directivity Plot - azimuth : 90.0 degrees - array T4450_8m



Source Depth 6m - Temperature 19c

ARRAY LISTING

ARRAY NAME : T4550_8m
 NUMBER OF ACTIVE GUNS: 24
 TOTAL ACTIVE VOLUME : 4550 CU.IN.
 NUMBER OF SPARE GUNS : 0

GUN #	GUN TYPE	X (m)	Y (m)	Z (m)	VOLUME (cu.in)	PRESSURE (psi)	DELAY (ms)	CLUSTER NUMBER
1	15	0.00	0.00	5.50	240	2000	0.00	1
2	15	0.00	0.00	6.50	240	2000	0.00	1
3	15	4.00	0.00	6.00	200	2000	0.00	0
4	15	8.00	0.00	6.00	260	2000	0.00	0
5	15	10.00	0.00	6.00	200	2000	0.00	0
6	15	12.00	0.00	6.00	200	2000	0.00	0
7	18	14.00	0.00	6.00	100	2000	0.00	0
8	18	16.00	0.00	6.00	80	2000	0.00	0
9	15	0.00	8.00	5.50	350	2000	0.00	2
10	15	0.00	8.00	6.50	350	2000	0.00	2
11	15	4.00	8.00	6.00	350	2000	0.00	0
12	15	8.00	8.00	6.00	200	2000	0.00	0
13	18	10.00	8.00	6.00	100	2000	0.00	0
14	18	12.00	8.00	6.00	100	2000	0.00	0
15	18	14.00	8.00	6.00	80	2000	0.00	0
16	18	16.00	8.00	6.00	60	2000	0.00	0
17	15	0.00	16.00	5.50	300	2000	0.00	3
18	15	0.00	16.00	6.50	300	2000	0.00	3
19	15	4.00	16.00	6.00	300	2000	0.00	0
20	15	8.00	16.00	6.00	200	2000	0.00	0
21	18	10.00	16.00	6.00	100	2000	0.00	0
22	18	12.00	16.00	6.00	100	2000	0.00	0
23	18	14.00	16.00	6.00	80	2000	0.00	0
24	18	16.00	16.00	6.00	60	2000	0.00	0

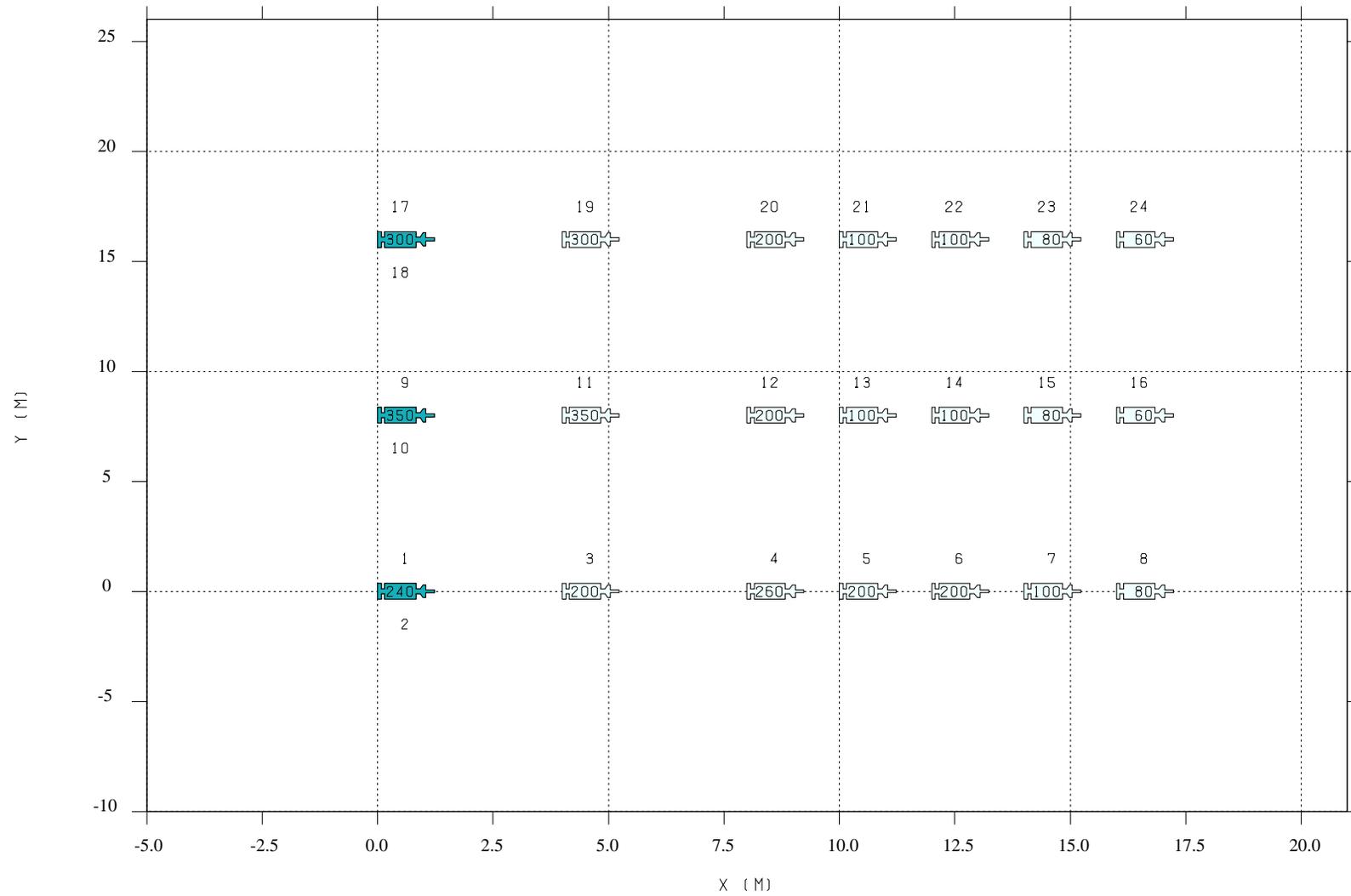
THE GUN TYPES ARE:

15: BOLT 1500 LLX
 18: BOLT 1900 LLXT

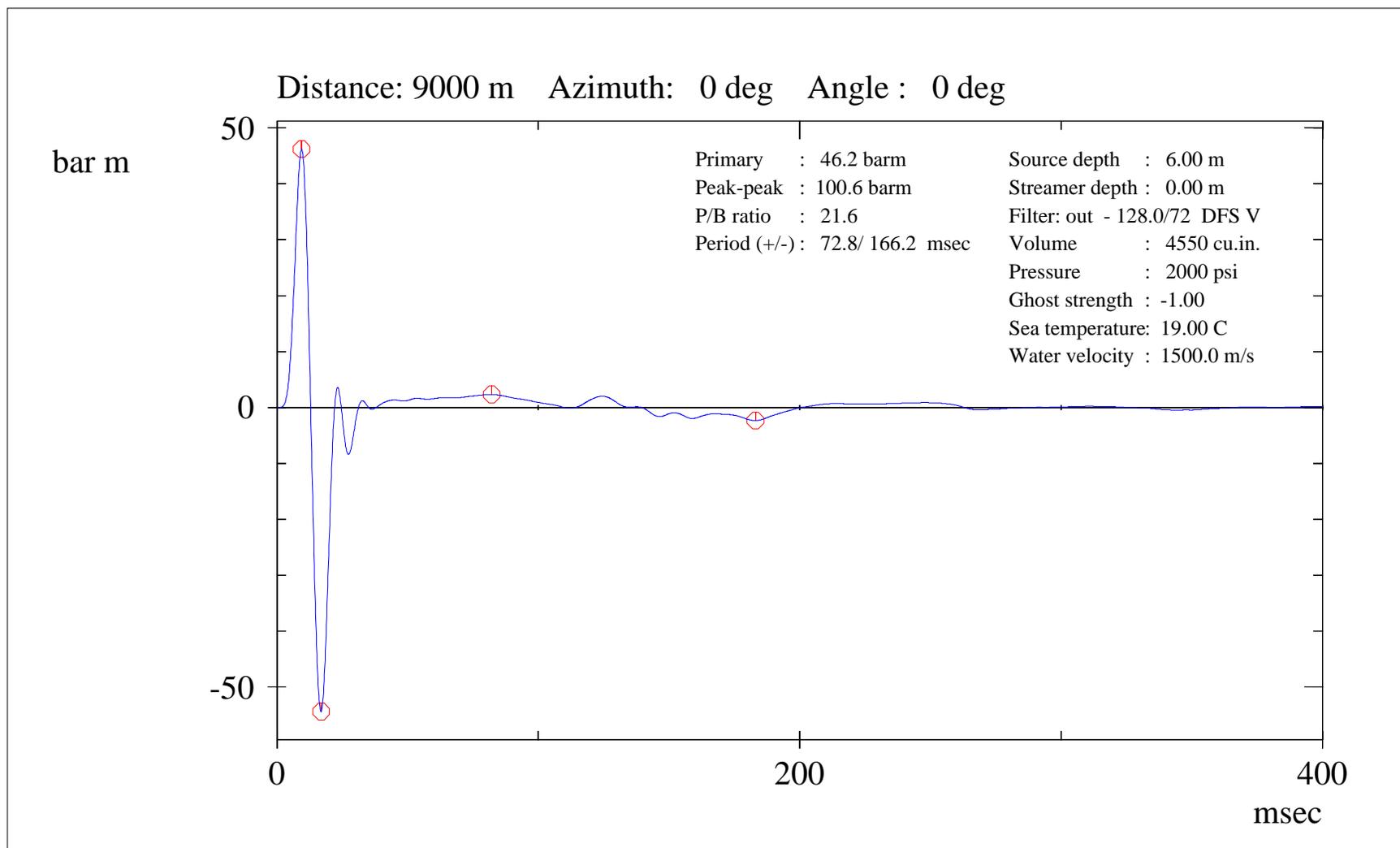
Array : T4550_8m

Total volume : 4550.0 cubic inch

- Inactive guns
- Single guns
- Cluster guns

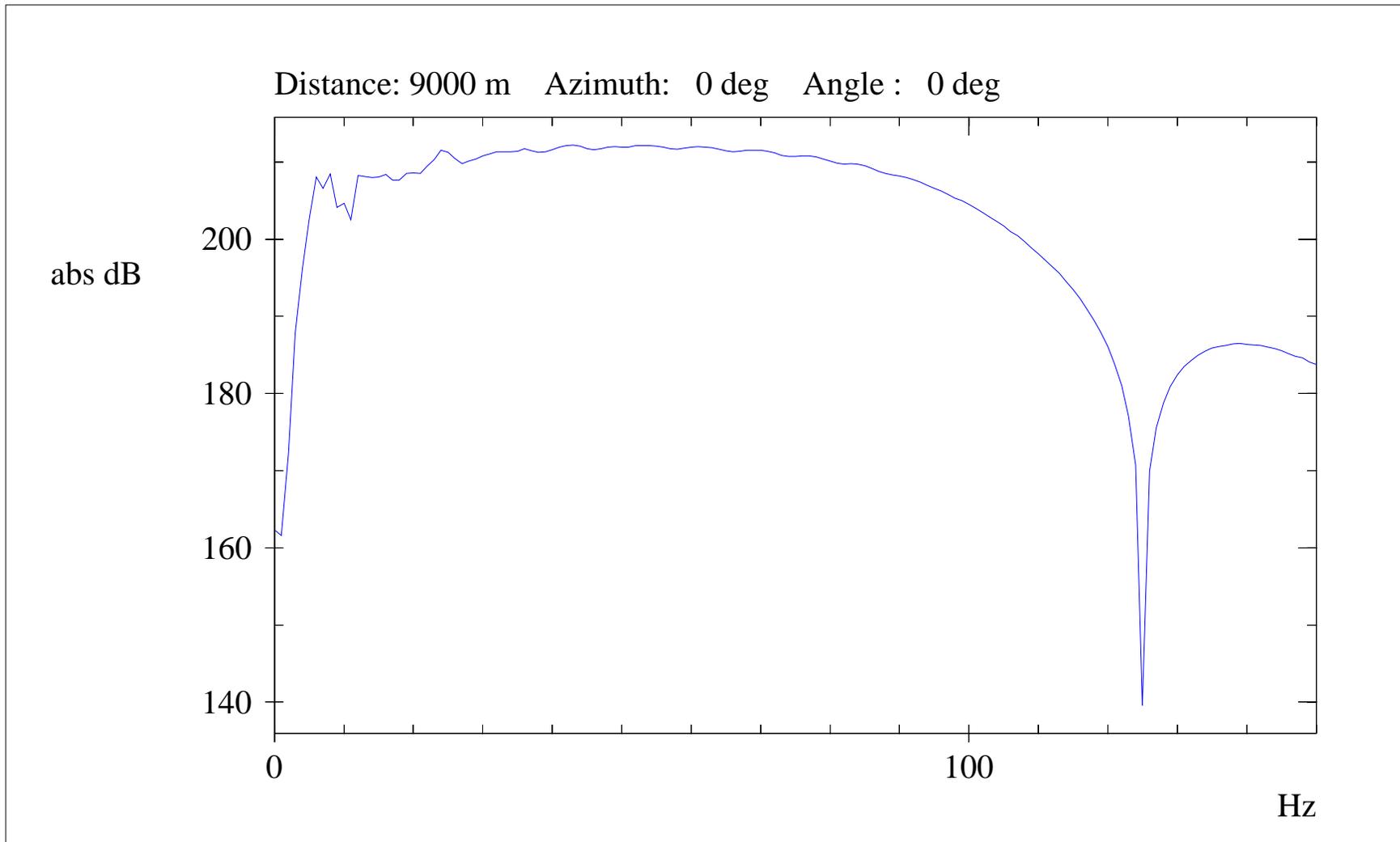


Far-field signature of array : T4550_8m



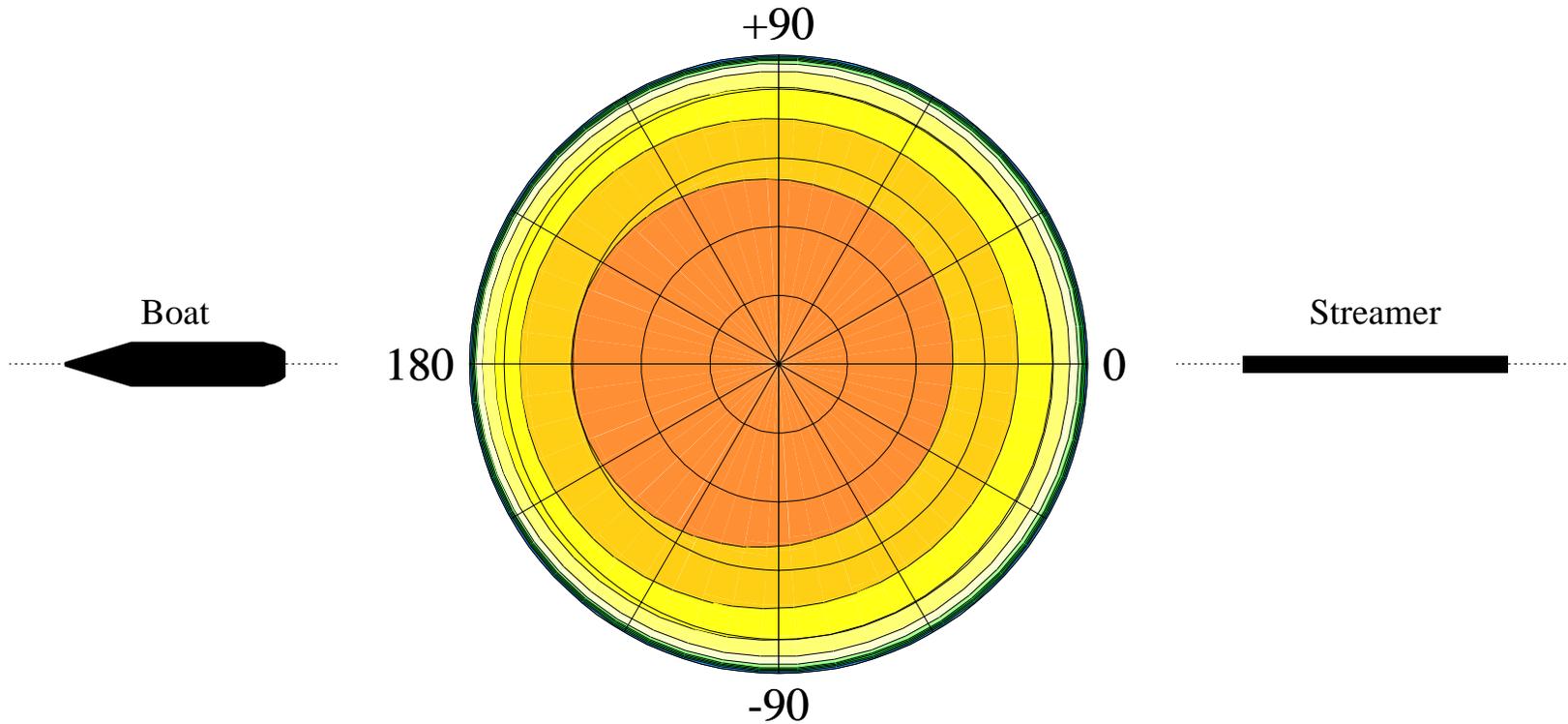
Source Depth 6m - Temperature 19C

Amplitude spectrum of far-field signature of array : T4550_8m



Source Depth 6m - Temperature 19C

Source Directivity Plot - frequency : 30.0 Hz. - array T4550_8m

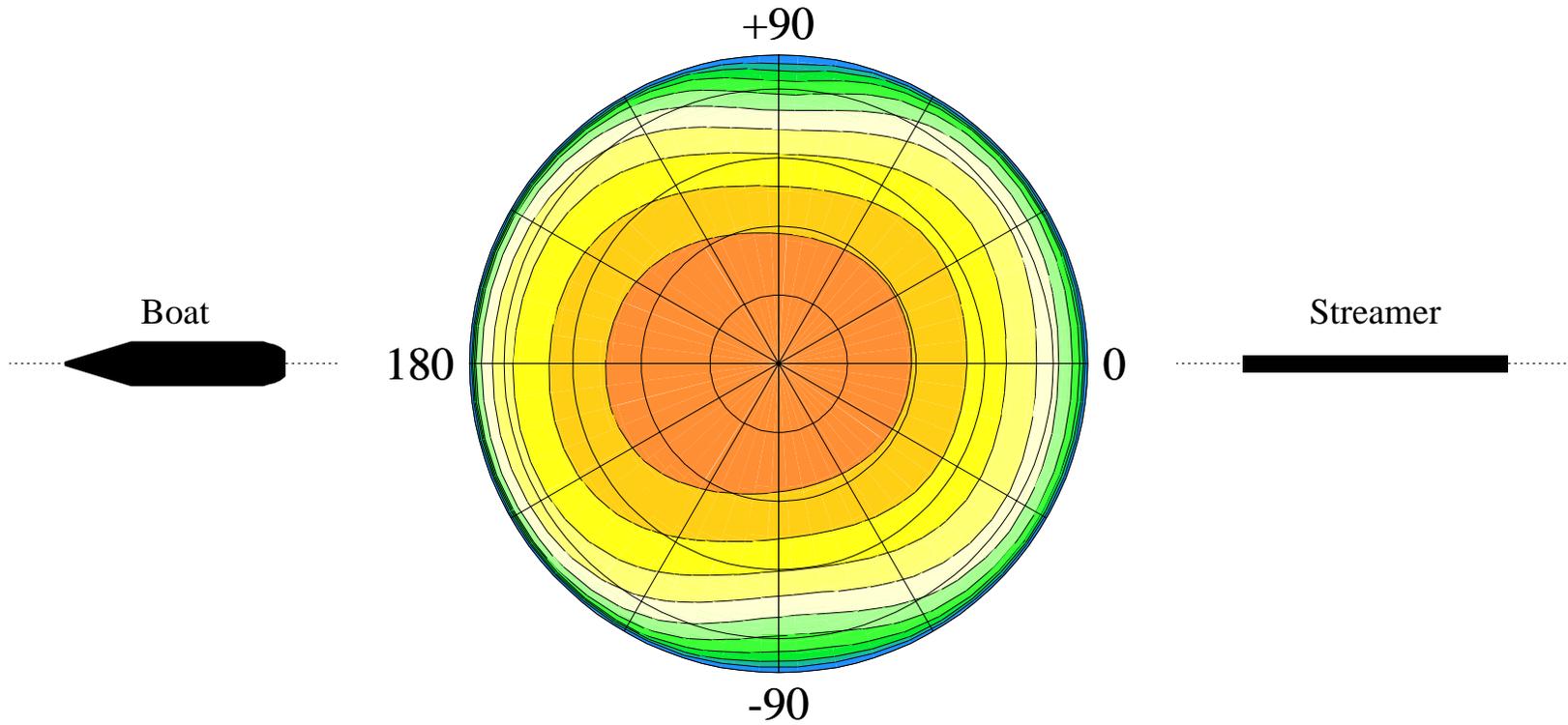


Azimuth angle marked in degrees.
Angle of vertical (0 - 90.0 degrees) plotted along radii.



Source Depth 6m - Temperature 19C

Source Directivity Plot - frequency : 60.0 Hz. - array T4550_8m

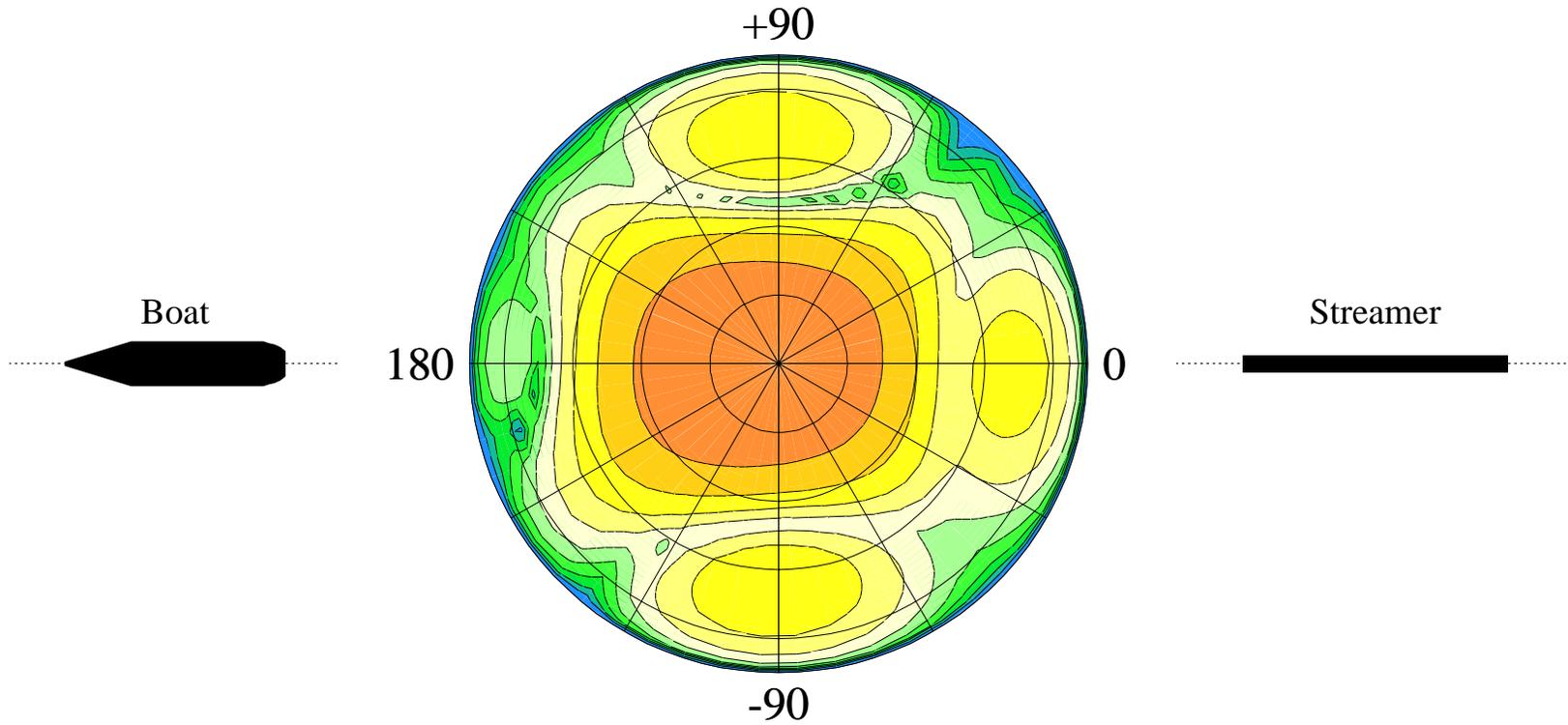


Azimuth angle marked in degrees.
Angle of vertical (0 - 90.0 degrees) plotted along radii.

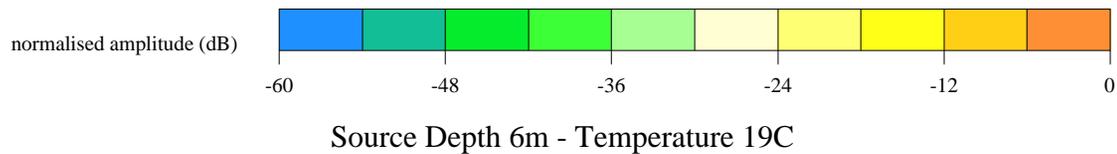


Source Depth 6m - Temperature 19C

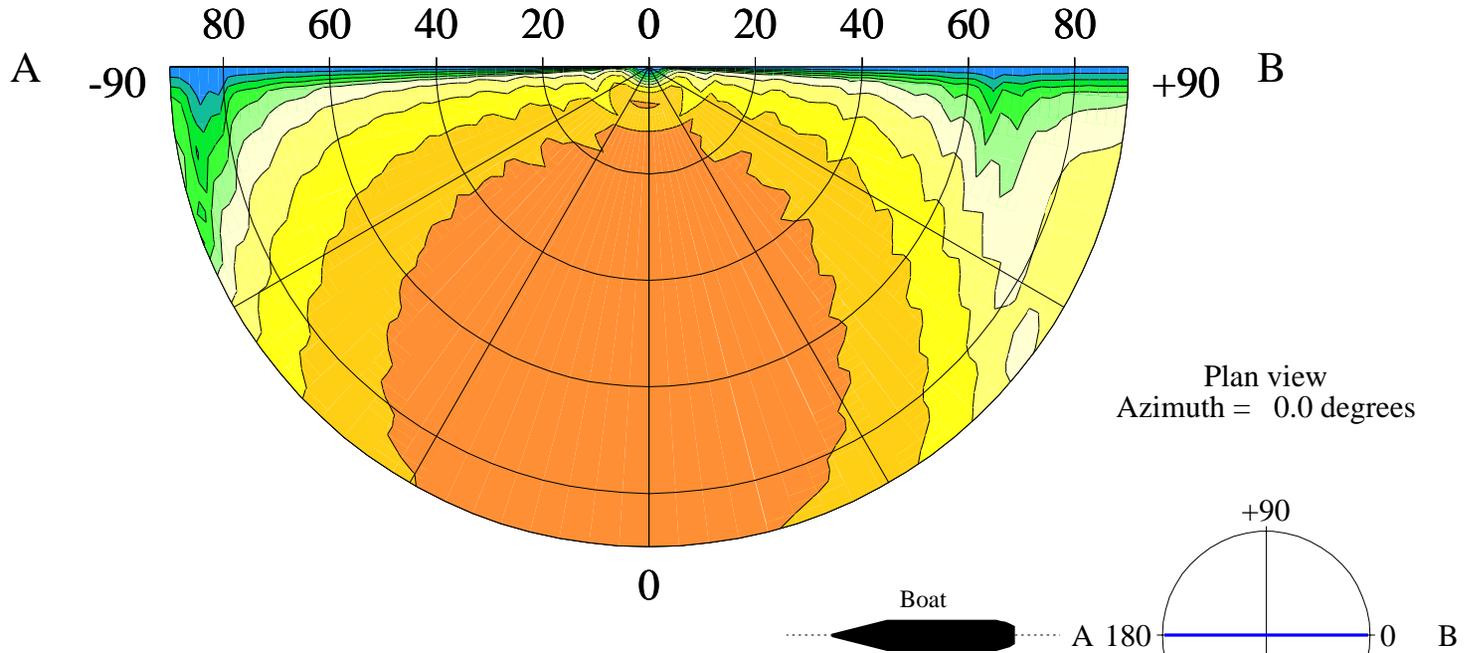
Source Directivity Plot - frequency : 90.0 Hz. - array T4550_8m



Azimuth angle marked in degrees.
Angle of vertical (0 - 90.0 degrees) plotted along radii.



Source Directivity Plot - azimuth : 0.0 degrees - array T4550_8m

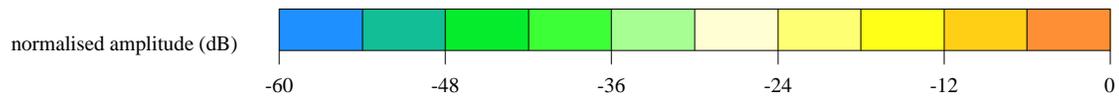
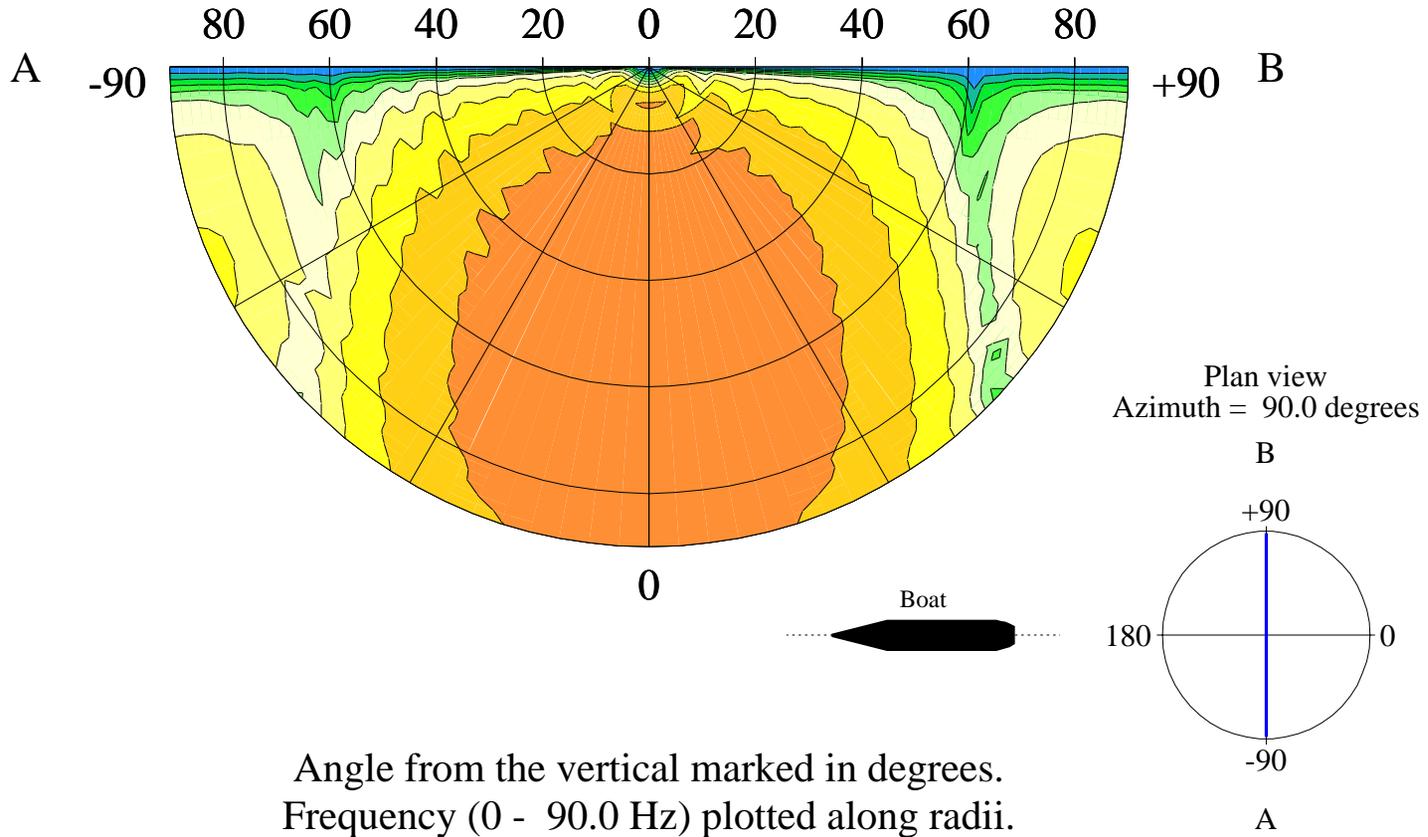


Angle from the vertical marked in degrees.
Frequency (0 - 90.0 Hz) plotted along radii.



Source Depth 6m - Temperature 19C

Source Directivity Plot - azimuth : 90.0 degrees - array T4550_8m



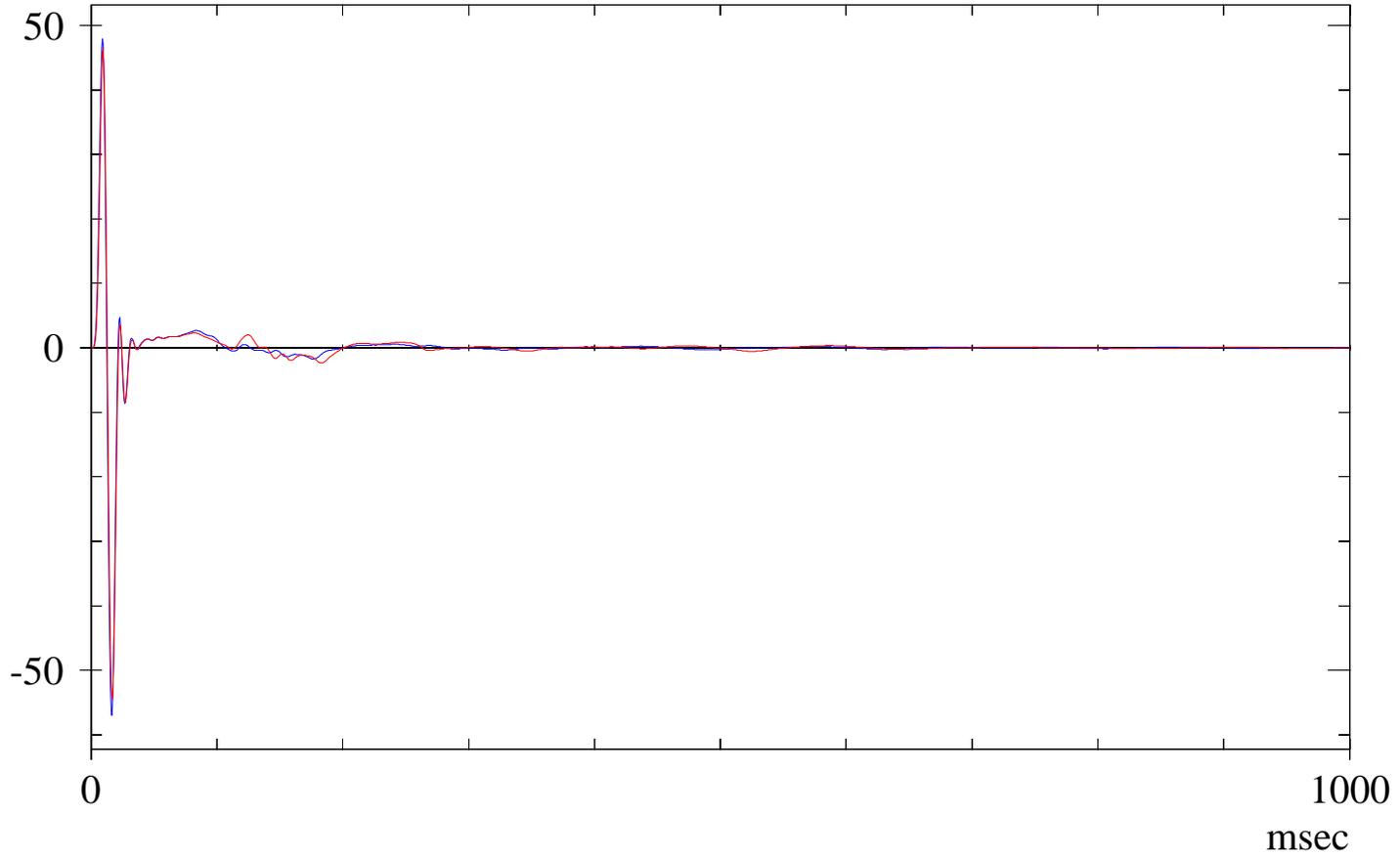
Source Depth 6m - Temperature 19C

T4450_8m (9000/0/0)

T4550_8m (9000/0/0)

superimposed signatures

bar m



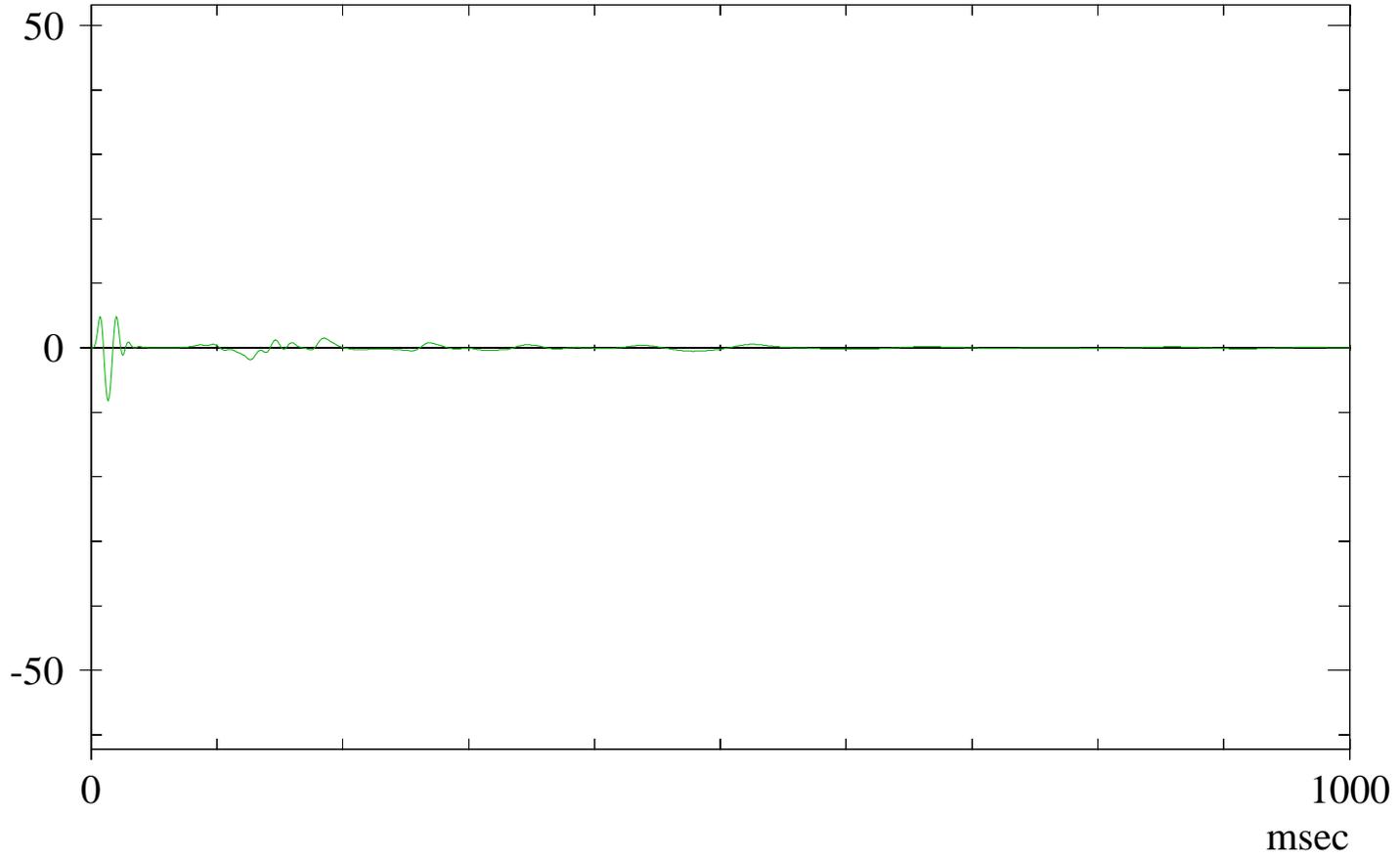
Source Depth 6m - Temperature 19C

T4450_8m (9000/0/0)

T4550_8m (9000/0/0)

signature difference

bar m

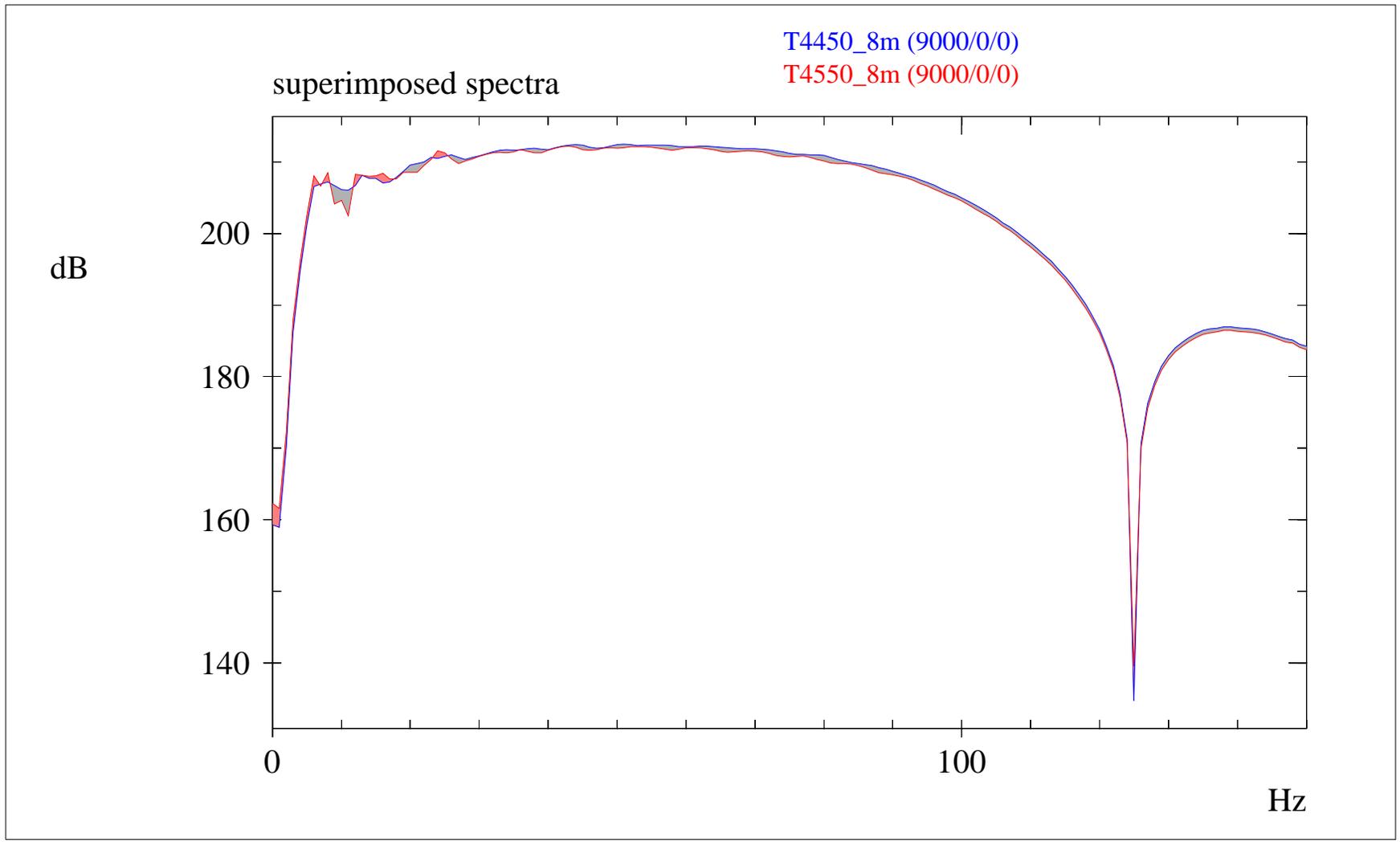


Source Depth 6m - Temperature 19C

T4450_8m (9000/0/0)

T4550_8m (9000/0/0)

superimposed spectra



Source Depth 6m - Temperature 19C

T4450_8m (9000/0/0)

T4550_8m (9000/0/0)

spectral difference

dB

60

40

20

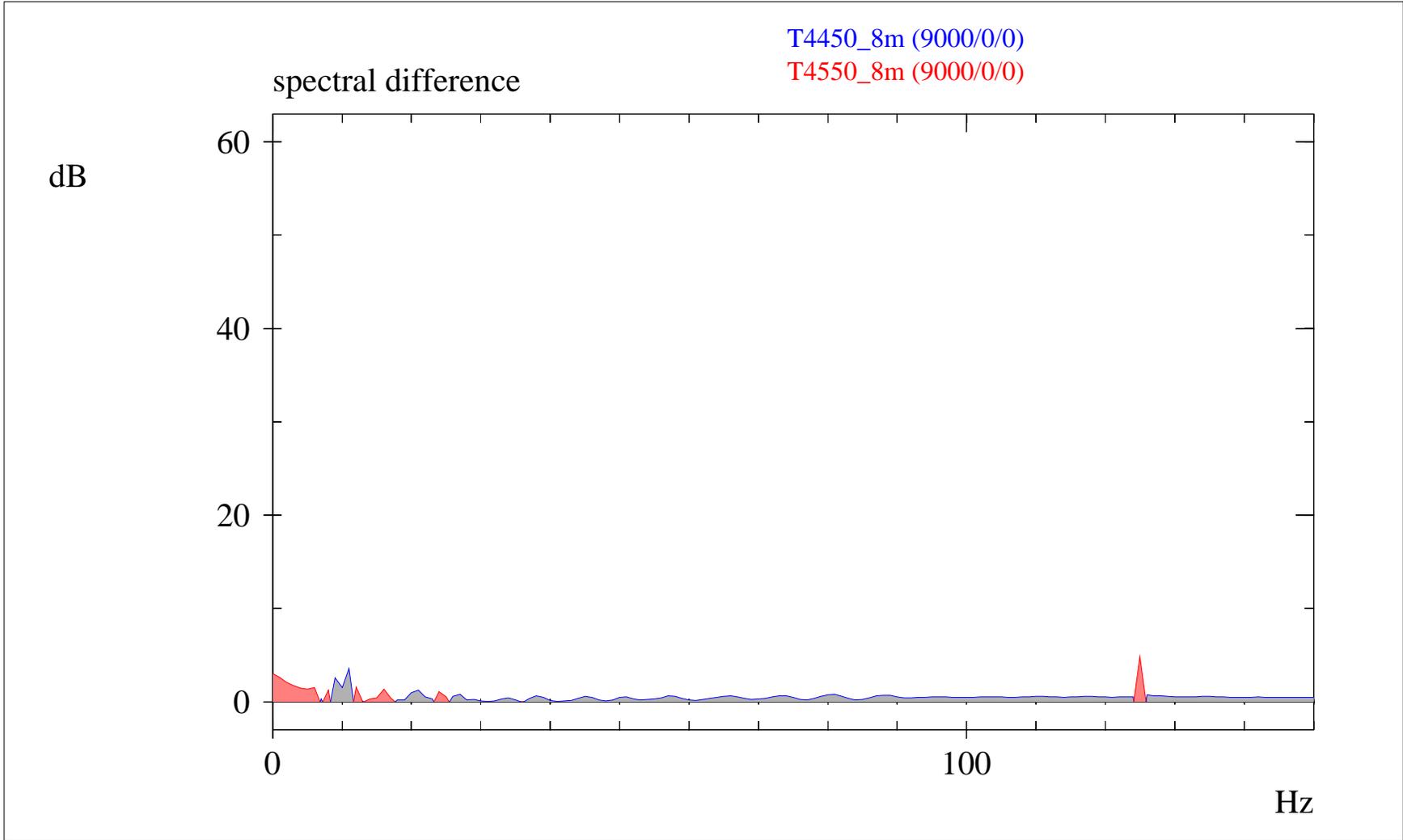
0

0

100

Hz

Source Depth 6m - Temperature 19C



Dropout and Spare Substitution Modeling



Criteria for Drop-outs:

Allowable loss in peak amplitude: <11%

Allowable change in p/b ratio : <15%

Allowable correlation coefficient: >0.998

Resulting Drop-out Rules:

Any single gun can be dropped **except:**

280 cu in gun in a cluster or

330 cu in gun in a cluster.

Any direct substitution (280 for 280 or 330 for 330) to mitigate the respective rule above is acceptable.

Any 2 gun drops are acceptable **except:**

- (1) any combination involving the illegal single gun drops listed above
- (2) 260 cu in gun and a non-clustered 330 cu in gun,
- (3) 260 cu in gun and a non-clustered 280 cu in gun,
- (4) 220 cu in gun and a non-clustered 330 cu in gun,
- (5) 220 cu in gun and 260 cu in gun,
- (6) 105 cu in gun and 135 cu in gun,
- (7) 105 cu in gun and 115 cu in gun, or
- (8) both 105 cu in guns.

Any direct substitution to mitigate the respective 2 gun drop rule above is acceptable. (1),(2),(3),(4)

For rule (5), activating the spare 200 cu in gun and spare 330 cu in gun is acceptable.

No acceptable mitigation measure available for rules (6), (7), and (8).

Additional gun drops following a substitution are **illegal** unless confirmed by modeling and approved by onboard client rep.

All 3-gun combinations are **illegal** unless confirmed by modeling and approved by onboard client rep.

Bream 3D Marine Source Modeling – Pacific Sword



Criteria for Drop-outs:

Allowable loss in peak amplitude: <11%

Allowable change in p/b ratio : <15%

Allowable correlation coefficient: >0.998

Resulting Drop-out Rules:

Any single gun can be dropped **except**:

350 cu in gun in a cluster or

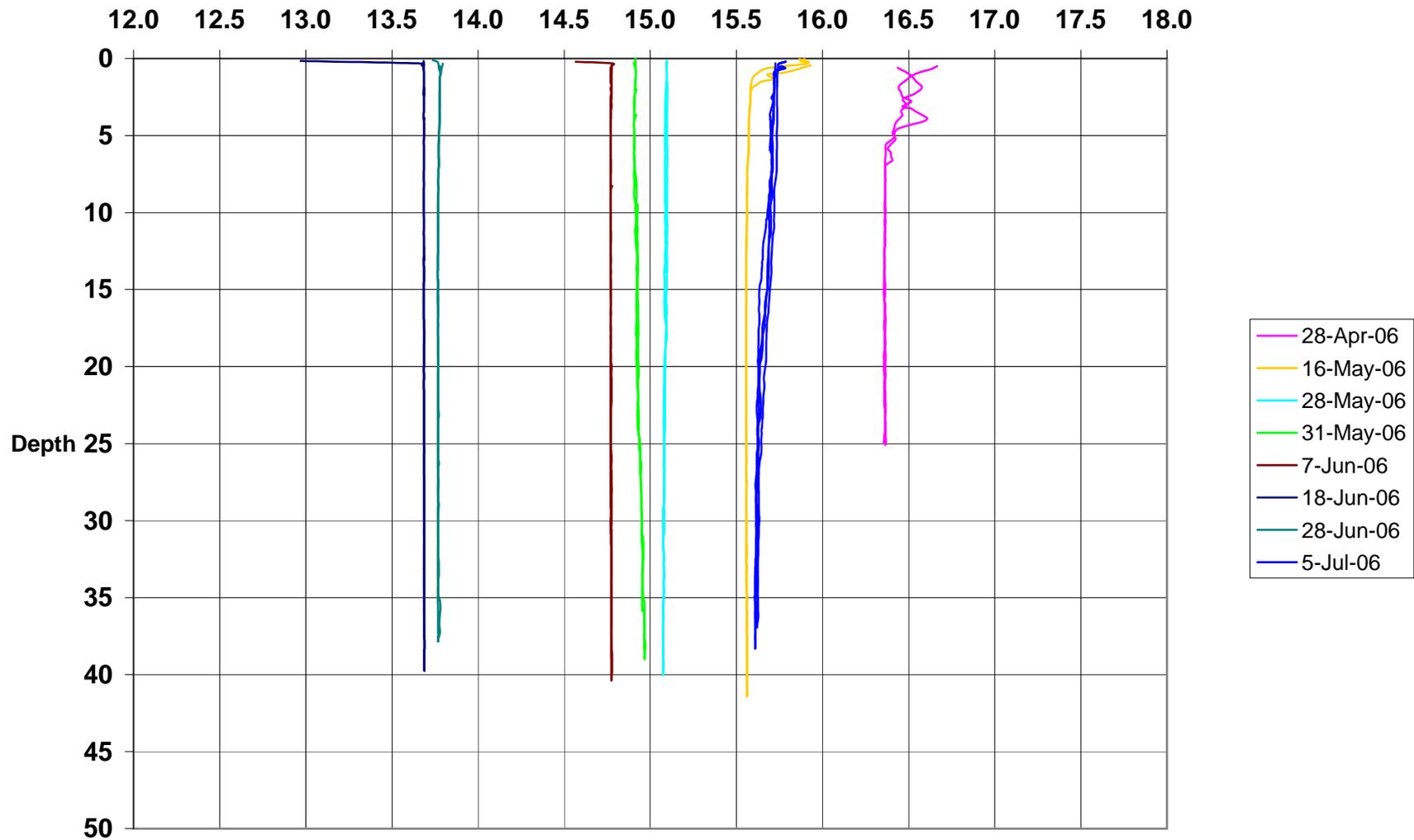
300 cu in gun in a cluster.

Any 2 gun drops are acceptable **except**:

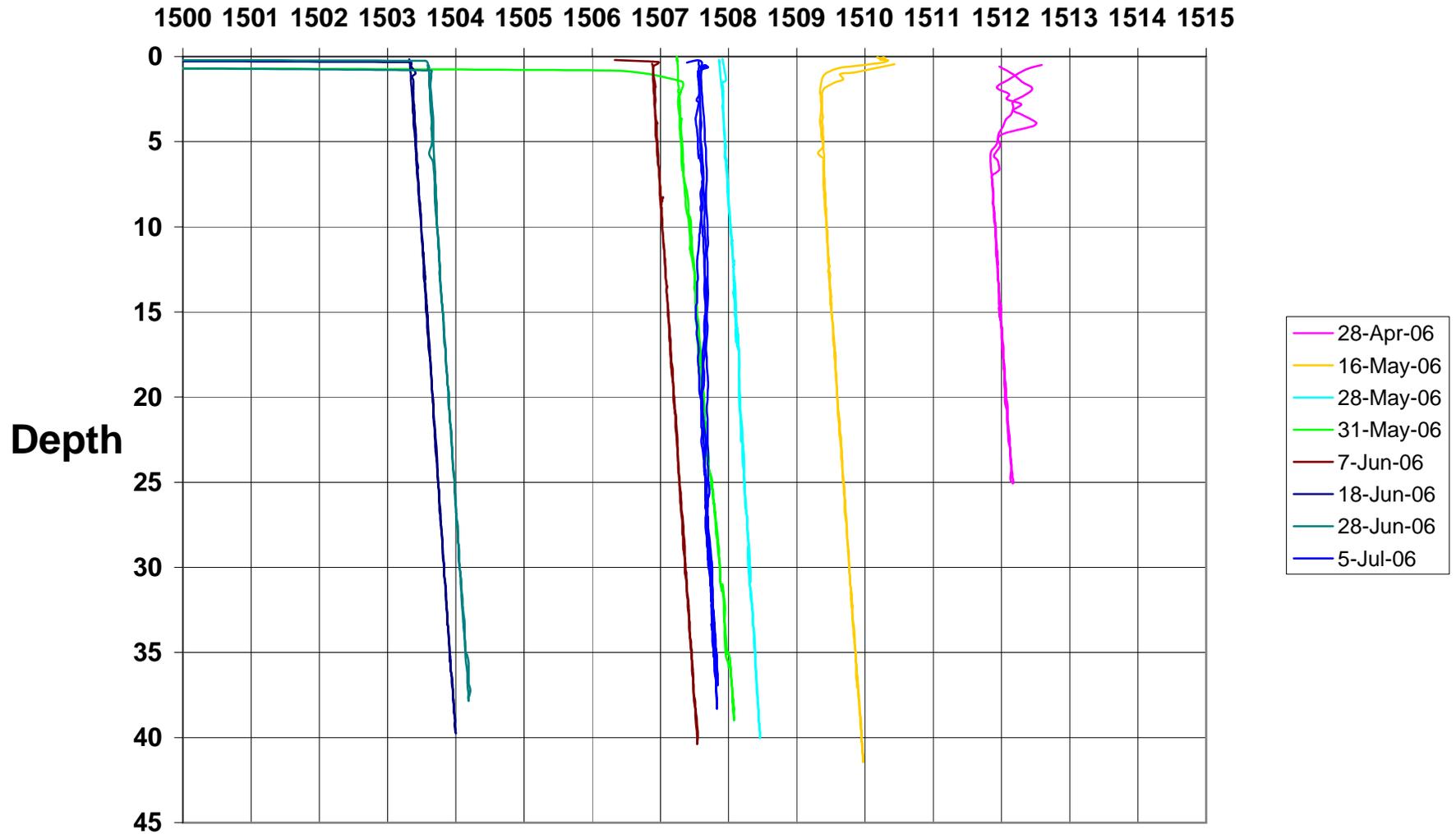
- 1) any combination involving the illegal single gun drops listed above
- 2) Gun #11 (350 cu.in.) and any other gun
- 3) Gun #4 (260 cu.in.) and any other gun
- 4) Gun #22 (100 cu.in.) and either Gun #6 (200 cu.in.), Gun #13 (100 cu.in.), Gun #14 (100 cu.in.), Gun #15 (80 cu.in.), or Gun #20 (200 cu.in.)
- 5) Gun #14 (100 cu.in.) and either Gun #6 (200 cu.in.), Gun #12 (200 cu.in.), or Gun #13 (100 cu.in.), or Gun #21 (100 cu.in.)

All 3-gun combinations are **illegal** unless confirmed by modeling and approved by onboard client rep.

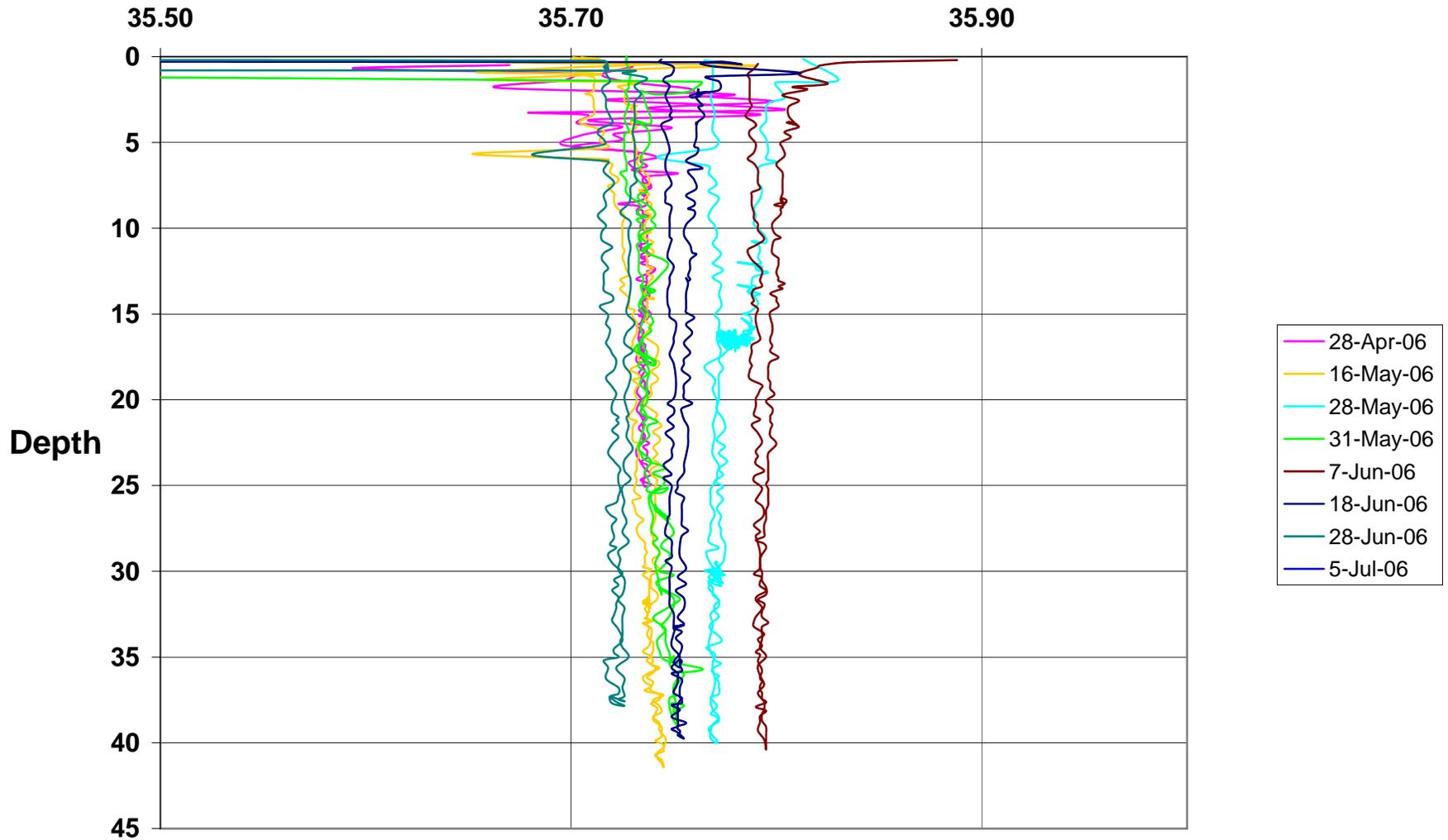
TS Dip - Water Temperature (°C)



TS Dip - Speed of Sound in Seawater (°C)



TS Dip - Salinity (°C)



TS DIP RESULTS

TS Dip Sn 715 calibrated 20-3-06

Date 28-Apr-06
Position 39 23 3 S 147 06 8 E (out of prospect)
Measurements made from Viking 2 stbd embarkation door

Maximum depth (m)	25.06
Maximum Velocity (m/s)	1512.6
Minimum Velocity (m/s)	1511.8
Average velocity (m/s)	1512.0 (from 0m to max depth)
Average velocity	1511.9 (over target depth)

Maximum Temp (°C)	16.67
Minimum Temp (°C)	16.36
Average Temp (°C)	16.38
Average Salinity	35.73362

TS DIP RESULTS

TS Dip Sn 715 calibrated 20-3-06

Date 16-May-06
Position 38 33.987 S 147 45.245 E
Measurements made from Viking 2 work boat

Maximum depth (m)	41.43
Maximum Velocity (m/s)	1510.4
Minimum Velocity (m/s)	1509.3
Average velocity (m/s)	1509.7 (from 0m to max depth)
Average velocity	1509.4 (over target depth)

Maximum Temp (°C)	15.93
Minimum Temp (°C)	15.56
Average Temp (°C)	15.57
Average Salinity	35.736

TS DIP RESULTS

TS Dip Sn 715 calibrated 20-3-06

Date 28-May-06
Position 38 36.210 S 147 45.925 E
Measurements made from Viking 2 work boat

Maximum depth (m)	40.02
Maximum Velocity (m/s)	1508.5
Minimum Velocity (m/s)	1507.9
Average velocity (m/s)	1508.2 (from 0m to max depth)
Average velocity	1508.0 (over target depth)

Maximum Temp (°C)	15.10
Minimum Temp (°C)	15.08
Average Temp (°C)	15.09

TS DIP RESULTS

TS Dip Sn 715 calibrated 20-3-06

Date 31-May-06
Position 38° 26' 58"S 147° 55' 13"E
Measurements made from Viking 2 work boat

Maximum depth (m)	38.98
Maximum Velocity (m/s)	1508.1
Minimum Velocity (m/s)	1506.3
Average velocity (m/s)	1507.5 (from 0m to max depth)
Average velocity	1507.4 (over target depth)
Maximum Temp (°C)	14.97
Minimum Temp (°C)	14.90
Average Temp (°C)	14.93

TS DIP RESULTS

TS Dip Sn 715 calibrated 20-3-06

Date 7-Jun-06
Position 38° 23' 35.8" 147° 50' 10"
Measurements made from Viking 2 work boat

Maximum depth (m)	40.37
Maximum Velocity (m/s)	1507.6
Minimum Velocity (m/s)	1506.9
Average velocity (m/s)	1507.2 (from 0m to max depth)
Average velocity	1507.0 (over target depth)
Maximum Temp (°C)	14.79
Minimum Temp (°C)	14.57
Average Temp (°C)	14.77

TS DIP RESULTS

TS Dip Sn 715 calibrated 20-3-06

Date 18-Jun-06

Position

Measurements made from Viking 2 work boat

Maximum depth (m) 39.75

Maximum Velocity (m/s) 1504.0

Minimum Velocity (m/s) 1503.3

Average velocity (m/s) 1503.6 (from 0m to max depth)

Average velocity 1503.4 (over target depth)

Maximum Temp (°C) 13.69

Minimum Temp (°C) 12.97

Average Temp (°C) 13.68

TS DIP RESULTS

TS Dip Sn 715 calibrated 20-3-06

Date 28-Jun-06
Position 38° 30'01S 147° 39'51E
Measurements made from Viking 2 work boat

Maximum depth (m)	37.85
Maximum Velocity (m/s)	1504.2
Minimum Velocity (m/s)	1461.6
Average velocity (m/s)	1503.4 (from 0m to max depth)
Average velocity	1503.7 (over target depth)
Maximum Temp (°C)	13.80
Minimum Temp (°C)	13.74
Average Temp (°C)	13.77

TS DIP RESULTS

TS Dip Sn 715 calibrated 20-3-06

Date 5-Jul-06
Position 038° 33' 52.3"S 147° 45' 47.8"E
Measurements made from Viking 2 work boat

Maximum depth (m)	38.29
Maximum Velocity (m/s)	1507.8
Minimum Velocity (m/s)	1507.5
Average velocity (m/s)	1507.7 (from 0m to max depth)
Average velocity	1507.6 (over target depth)
Maximum Temp (°C)	15.79
Minimum Temp (°C)	15.61
Average Temp (°C)	15.65

SRV Veritas Viking 2 Data Cartridge Log



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: May 11, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1001							
1002	G06A-1728P1-001	130	99	469	1002	1649	SOL.
1003	G06A-1728P1-001	130	470	840	1648	1278	
1004	G06A-1728P1-001	130	841	1211	1277	907	
1005	G06A-1728P1-001	130	1212	1252	906	876	EOL. Complete
1006	Nearfield Test	130	1	271	N/A	N/A	Stbd Array Nearfield test
1007	G06A-1440P1-002	130	99	469	991	1349	SOL.
1008	G06A-1440P1-002	130	470	840	1350	1720	
1009	G06A-1440P1-002	130	841	1211	1721	2091	
1010	G06A-1440P1-002	130	1212	1252	2092	2117	EOL. Incomplete
1011	Nearfield Test	130	1	271	N/A	N/A	Port Array Nearfield test
1012	G06A-1728P2-003	130	91	461	2229	1656	
1013	G06A-1728P2-003	131	462	832	1655	1285	
1014	G06A-1728P2-003	131	833	1203	1284	914	
1015	G06A-1728P2-003	131	1204	1251	913	876	EOL. Complete
1016	G06A-1440P2-004	131	99	469	991	1349	SOL
1017	G06A-1440P2-004	131	470	840	1350	1720	
1018	G06A-1440P2-004	131	841	1211	1721	2091	
1019	G06A-1440P2-004	131	1212	1252	2092	2122	EOL. Complete
1020	G06A-1744P1-005	131	99	469	2007	1649	SOL
1021	G06A-1744P1-005	131	470	840	1648	1278	
1022	G06A-1744P1-005	131	841	1211	1277	907	
1023	G06A-1744P1-005	131	1212	1252	906	876	EOL. Complete
1024	Daily Test	131	1	10	N/A	N/A	Daily Test
1025	G06A-1456P1-006	131	99	469	991	1351	SOL
1026	G06A-1456P1-006	131	470	840	1352	1722	
1027	G06A-1456P1-006	131	841	1211	1723	2093	
1028	G06A-1456P1-006	131	1212	1250	2094	2122	EOL. Complete
1029	G06A-1760P1-007	131	99	469	2007	1647	SOL
1030	G06A-1760P1-007	131	470	840	1646	1276	

Box # 1

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: May 14, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1031	G06A-1760P1-007	132	841	1211	1275	905	
1032	G06A-1760P1-007	132	1212	1250	904	876	EOL. Complete
1033	G06A-1472P1-008	132	79	449	894	1329	SOL
1034	G06A-1472P1-008	132	450	820	1330	1700	
1035	G06A-1472P1-008	132	821	1191	1701	2071	
1036	G06A-1472P1-008	132	1192	1252	2072	2122	EOL. Complete
1037	G06A-1776P1-009	132	99	469	2007	1649	SOL
1038	G06A-1776P1-009	132	470	840	1648	1278	
1039	G06A-1776P1-009	132	841	1211	1277	907	
1040	G06A-1776P1-009	132	1212	1252	906	876	EOL. Complete
1041	Daily Test	132	1	10	N/A	N/A	Daily Test
1042	G06A-1488P1-010	132	99	469	1011	1351	SOL
1043	G06A-1488P1-010	132	470	840	1351	1722	
1044	G06A-1488P1-010	132	841	1211	1723	2093	
1045	G06A-1488P1-010	132	1212	1251	2094	2121	EOL. Complete
1046	G06A-1776F1-011	132	99	469	2007	1649	SOL
1047	G06A-1776F1-011	132	470	840	1648	1278	
1048	G06A-1776F1-011	132	841	1211	1277	907	
1049	G06A-1776F1-011	132	1212	1252	906	876	EOL. Complete
1050	Daily Test	133	1	10	N/A	N/A	Daily Test
1051	G06A-1744P2-012	133	99	310	1409	1223	SOL-EOL, Line Complete
1052	Daily Test	133	1	10	N/A	N/A	Daily Test
1053	G06A-1488F1-013	134	99	469	991	1349	SOL
1054	G06A-1488F1-013	134	470	840	1350	1720	
1055	G06A-1488F1-013	134	841	1211	1721	2091	
1056	G06A-1488F1-013	134	1212	1252	2092	2122	EOL. Complete
1057	G06A-1776F2-014	134	99	469	2007	1649	SOL
1058	G06A-1776F2-014	134	470	840	1648	1278	
1059	G06A-1776F2-014	134	841	1211	1277	907	
1060	G06A-1776F2-014	134	1212	1252	906	886	EOL. Complete

Box # 2

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: May 16, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1061	G06A-1504P1-015	134	99	469	991	1349	SOL
1062	G06A-1504P1-015	134	470	840	1350	1720	
1063	G06A-1504P1-015	134	841	1211	1721	2091	
1064	G06A-1504P1-015	134	1212	1252	2092	2122	EOL. Complete
1065	G06A-1792P1-016	134	99	469	2007	1649	SOL
1066	G06A-1792P1-016	134	470	840	1648	1278	
1067	G06A-1792P1-016	134	841	1211	1277	907	
1068	G06A-1792P1-016	134	1212	1252	906	876	EOL. Complete
1069	G06A-1520P1-017	135	99	469	991	1349	SOL
1070	G06A-1520P1-017	135	470	840	1350	1720	
1071	G06A-1520P1-017	135	841	1211	1721	2091	
1072	G06A-1520P1-017	135	1212	1252	2092	2122	EOL. Complete
1073	G06A-1808P1-018	135	99	469	2007	1649	SOL
1074	G06A-1808P1-018	136	470	840	1648	1278	
1075	G06A-1808P1-018	136	841	1211	1277	907	
1076	G06A-1808P1-018	136	1212	1252	906	876	EOL. Complete
1077	Daily Test	136	1	10	N/A	N/A	Daily Test
1078	G06A-1520F1-019	136	99	469	991	1349	SOL
1079	G06A-1520F1-019	136	470	840	1350	1720	
1080	G06A-1520F1-019	136	841	1211	1721	2091	
1081	G06A-1520F1-019	136	1212	1252	2092	2123	EOL. Complete
1082	G06A-1824P1-020	136	99	469	2006	1649	SOL
1083	G06A-1824P1-020	136	470	840	1648	1278	
1084	G06A-1824P1-020	136	841	1211	1277	907	
1085	G06A-1824P1-020	136	1212	1252	906	886	EOL. Complete
1086	G06A-1536P1-021	136	99	469	991	1349	SOL
1087	G06A-1536P1-021	136	470	840	1350	1720	
1088	G06A-1536P1-021	136	841	1211	1721	2091	
1089	G06A-1536P1-021	136	1212	1252	2092	2122	EOL. Complete
1090	G06A-1824F1-022	136	99	469	2005	1647	SOL

Box # 3

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: May 18, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1091	G06A-1824F1-022	136	470	840	1646	1276	
1092	G06A-1824F1-022	136	841	1211	1275	905	
1093	G06A-1824F1-022	136	1212	1250	904	876	EOL. Complete
1094	G06A-1824F1-Arra	136	99	412	731	420	SOL, EOL - 3 Gun Source test
1095	Daily Test	137	1	12	N/A	N/A	Daily Test
1096	G06A-1552P1-023	137	99	469	991	1349	SOL
1097	G06A-1552P1-023	137	470	840	1350	1720	
1098	G06A-1552P1-023	137	841	1211	1721	2091	
1099	G06A-1552P1-023	137	1212	1252	2092	2122	EOL. Complete
1100	G06A-1840P1-024	137	99	469	2007	1649	SOL
1101	G06A-1840P1-024	137	470	840	1648	1278	
1102	G06A-1840P1-024	137	841	1211	1277	907	
1103	G06A-1840P1-024	137	1212	1252	906	876	EOL. Complete
1104	G06A-1568P1-025	137	99	469	991	1349	SOL
1105	G06A-1568P1-025	137	470	840	1350	1720	
1106	G06A-1568P1-025	137	841	1211	1721	2091	
1107	G06A-1568P1-025	137	1212	1252	2092	2122	EOL. Complete
1108	G06A-1856P1-026	137	99	469	2007	1649	SOL
1109	G06A-1856P1-026	137	470	840	1648	1278	
1110	G06A-1856P1-026	137	841	1211	1277	907	
1111	G06A-1856P1-026	137	1212	1252	906	876	EOL. Complete
1112	G06A-1584P1-027	137	99	469	991	1349	SOL
1113	G06A-1584P1-027	138	470	840	1350	1720	
1114	G06A-1584P1-027	138	841	1211	1721	2091	
1115	G06A-1584P1-027	138	1212	1252	2092	2122	EOL. Complete
1116	G06A-1856F1-028	138	99	469	2006	1649	SOL
1117	G06A-1856F1-028	138	470	840	1648	1278	
1118	G06A-1856F1-028	138	841	1211	1277	907	
1119	G06A-1856F1-028	138	1212	1252	906	876	EOL. Complete
1120	Daily Tests	138	0	0	N/A	N/A	Daily Tests

Box # 4

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: May 21, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1121	G06A-1584F1-029	138	99	254	991	1132	DNP
1122	G06A-1856F2-030	138	99	469	2007	1649	SOL
1123	G06A-1856F2-030	138	470	840	1648	1278	
1124	G06A-1856F2-030	138	841	1211	1277	907	
1125	G06A-1856F2-030	138	1212	1251	906	876	EOL. Complete
1126	G06A-1872P1-031	138	99	469	2007	1649	SOL
1127	G06A-1872P1-031	139	470	840	1648	1278	
1128	G06A-1872P1-031	139	841	1211	1277	907	
1129	G06A-1872P1-031	139	1212	1252	906	876	EOL. Complete
1130	G06A-1520U1-032	139	121	491	1103	1841	SOL
1131	G06A-1520U1-032	139	492	542	1843	1921	DNP
1132	G06A-1824U1-033	139	117	175	1571	1455	DNP
1133	Daily Tests	139	1	10	N/A	N/A	Daily Tests
1134	G06A-1520U2-034	139	99	469	981	1697	SOL
1135	G06A-1520U2-034	139	470	580	1699	1899	EOL. Complete
1136	G06A-1872U1-035	140	99	469	1572	872	SOL
1137	G06A-1872U1-035	140	470	476	0	0	EOL. Complete
1138	G06A-1504U1-036	140	106	469	982	1698	SOL
1139	G06A-1504U1-036	140	470	592	1700	1920	EOL. Complete
1140	Daily Tests	140	1	10	N/A	N/A	Daily Tests
1141	G06A-1840U1-037	140	99	469	1592	0	SOL
1142	G06A-1840U1-037	140	470	480	0	0	EOL. Complete
1143	G06A-1520U3-038	140	99	469	982	1698	SOL
1144	G06A-1520U3-038	140	470	593	1700	1924	EOL. Complete
1145	G06A-1840U2-039	140	99	400	1533	975	SOL - EOL, Line incomplete
1146	Daily Tests	141	1	10	N/A	N/A	Daily Tests
1147	G06A-1872U2-040	141	99	453	1533	869	SOL - EOL. Line Complete
1148	G06A-1872U3-041	141	99	422	1532	930	SOL - EOL, Line complete
1149	G06A-1504U2-042	141	99	469	981	1697	SOL
1150	G06A-1504U2-042	141	470	543	1699	1823	EOL. Incomplete

Box # 5

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: May 27, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1151	Daily Tests	142	1	10	N/A	N/A	Daily Tests
1152	Daily Tests	143	1	10	N/A	N/A	Daily Tests
1153	G06A-1520U4-043	143	99	224	981	1207	DNP
1154	Daily Tests	145	1	10	N/A	N/A	Daily Tests
1155	G06A-1504U3-044	146	99	469	982	1698	SOL DNP
1156	G06A-1504U3-044	146	470	489	1700	1718	EOL. DNP
1157	G06A-1872U4-045	146	99	469	1593	877	SOL DNP
1158	G06A-1872U4-045	146	470	482	875	871	EOL. DNP
1159	Daily Tests	146	1	10	N/A	N/A	Daily Tests
1160	G06A-1504U4-046	146	99	469	982	1698	SOL
1161	G06A-1504U4-046	146	470	483	1700	1706	EOL. Complete
1162	G06A-1824U2-047	146	99	431	1532	914	SOL - EOL, Line complete
1163	G06A-1520U5-048	146	99	353	981	1445	DNP
1164	G06A-1824U3-049	147	99	346	1533	1085	SOL - EOL. Line Incomplete
1165	G06A-1584F2-050	147	79	449	945	1310	SOL
1166	G06A-1584F2-050	147	450	820	1311	1681	
1167	G06A-1584F2-050	147	821	1191	1682	2052	
1168	G06A-1584F2-050	147	1192	1271	2053	2122	EOL. Complete
1169	Daily Tests	147	1	10	N/A	N/A	Daily Tests
1170	G06A-1888P1-051	147	99	469	2007	1649	SOL
1171	G06A-1888P1-051	147	470	840	1648	1278	
1172	G06A-1888P1-051	147	841	1211	1277	907	
1173	G06A-1888P1-051	147	1212	1253	906	876	EOL. Complete
1174	G06A-1600P1-052	147	99	469	991	1349	SOL
1175	G06A-1600P1-052	147	470	840	1350	1720	
1176	G06A-1600P1-052	147	841	1211	1721	2091	
1177	G06A-1600P1-052	147	1212	1252	2092	2122	EOL. Complete
1178	G06A-1904P1-053	147	99	469	2007	1649	SOL
1179	G06A-1904P1-053	147	470	840	1648	1278	
1180	G06A-1904P1-053	147	841	1211	1277	907	

Box # 6

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: May 31, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1181	G06A-1904P1-053	148	1212	1252	906	876	EOL. Complete
1182	G06A-1616P1-054	148	99	469	991	1349	SOL
1183	G06A-1616P1-054	148	470	840	1350	1720	
1184	G06A-1616P1-054	148	841	1211	1721	2091	
1185	G06A-1616P1-054	148	1212	1252	2092	2122	EOL. Complete
1186	G06A-1840U3-055	148	99	469	1592	876	SOL
1187	G06A-1840U3-055	148	470	483	874	872	EOL. Complete
1188	Daily Tests	148	1	10	N/A	N/A	Daily Tests
1189	G06A-1520U6-056	149	99	469	981	1697	SOL
1190	G06A-1520U6-056	149	470	486	1699	1711	EOL. Complete
1191	Daily Tests	149	1	10	N/A	N/A	Daily Tests
1192	Daily Tests	150	1	10	N/A	N/A	Daily Tests
1193	G06A-1520U7-057	150	99	467	982	1666	SOL / EOL. Line Complete
1194	G06A-1168P1-058	150	99	469	2007	1649	SOL
1195	G06A-1168P1-058	150	470	840	1648	1278	
1196	G06A-1168P1-058	150	841	1211	1277	907	
1197	G06A-1168P1-058	150	1212	1253	906	876	EOL. Complete
1198	G06A-1616F1-059	150	99	469	991	1349	SOL
1199	G06A-1616F1-059	150	470	840	1350	1720	
1200	G06A-1616F1-059	150	841	1211	1721	2091	
1201	G06A-1616F1-059	150	1212	1251	2092	2122	EOL. Complete
1202	G06A-1184P1-060	150	99	469	2007	1649	SOL
1203	G06A-1184P1-060	150	470	840	1648	1277	
1204	G06A-1184P1-060	151	841	1211	1276	905	
1205	G06A-1184P1-060	151	1212	1250	904	876	EOL. Complete
1206	G06A-1632P1-061	151	99	469	991	1349	SOL
1207	G06A-1632P1-061	151	470	840	1350	1720	
1208	G06A-1632P1-061	151	841	1211	1721	2091	
1209	G06A-1632P1-061	151	1212	1252	2092	2122	EOL. Complete
1210	Daily Tests	151	1	10	N/a	N/a	Daily Tests

Box # 7

SRV Veritas Viking 2 Data Cartridge Log



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 1, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1211	G06A-1200P1-062	151	99	469	2007	1649	SOL
1212	G06A-1200P1-062	151	470	840	1648	1278	
1213	G06A-1200P1-062	151	841	1211	1277	907	
1214	G06A-1200P1-062	151	1212	1253	906	876	EOL. Complete
1215	G06A-1632F1-063	151	99	469	991	1349	SOL
1216	G06A-1632F1-063	151	470	840	1350	1720	
1217	G06A-1632F1-063	151	841	1211	1721	2091	
1218	G06A-1632F1-063	151	1212	1253	2092	2122	EOL. Complete
1219	G06A-1216P1-064	151	99	469	2007	1649	SOL
1220	G06A-1216P1-064	151	470	840	1648	1278	
1221	G06A-1216P1-064	151	841	1211	1277	907	
1222	G06A-1216P1-064	151	1212	1252	906	876	EOL. Complete
1223	G06A-1648P1-065	152	99	469	991	1349	SOL
1224	G06A-1648P1-065	152	470	840	1350	1720	
1225	G06A-1648P1-065	152	841	1211	1721	2091	
1226	G06A-1648P1-065	152	1212	1252	2092	2122	EOL. Complete
1227	Daily Tests	152	1	10	N/A	N/A	Daily Tests
1228	G06A-1232P1-066	152	79	449	2007	1676	SOL
1229	G06A-1232P1-066	152	450	820	1675	1305	
1230	G06A-1232P1-066	152	821	1191	1304	934	
1231	G06A-1232P1-066	152	1192	1260	933	876	EOL. Complete
1232	G06A-1664P1-067	152	99	469	991	1349	SOL
1233	G06A-1664P1-067	152	470	840	1350	1720	
1234	G06A-1664P1-067	152	841	1211	1721	2091	
1235	G06A-1664P1-067	152	1212	1253	2092	2122	EOL. Complete
1236	G06A-1248P1-068	152	99	469	2007	1648	SOL
1237	G06A-1248P1-068	152	470	840	1647	1277	
1238	G06A-1248P1-068	152	841	1211	1276	906	
1239	G06A-1248P1-068	152	1212	1251	905	876	EOL. Complete
1240	G06A-1680P1-069	152	99	469	991	1349	SOL

Box # 8

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 5, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1241	G06A-1680P1-069	152	470	840	1350	1720	
1242	G06A-1680P1-069	152	841	1211	1721	2091	
1243	G06A-1680P1-069	153	1212	1252	2092	2122	EOL. Complete
1244	DAILY TESTS	153	1	10	N/A	N/A	Daily Tests
1245	G06A-1680F1-070	155	99	469	991	1361	SOL. DNP
1246	G06A-1680F1-070	155	470	840	1362	1732	DNP
1247	G06A-1680F1-070	155	841	1211	1733	2103	DNP
1248	G06A-1680F1-070	155	1212	1241	2104	2122	EOL. Line DNP d/t swell noise
1249	Dailys	155	1	10	N/A	N/A	Daily Tests
1250	G06A-1680F2-071	155	99	469	991	1349	SOL. DNP
1251	G06A-1680F2-071	155	470	840	1350	1720	DNP
1252	G06A-1680F2-071	155	841	1211	1721	2091	DNP
1253	G06A-1680F2-071	155	1212	1252	2092	2122	EOL. DNP d/t swell noise
1254	G06A-1248F1-072	155	59	429	2007	1690	SOL
1255	G06A-1248F1-072	155	430	800	1689	1319	
1256	G06A-1248F1-072	155	801	1171	1318	948	
1257	G06A-1248F1-072	155	1172	1253	947	876	EOL. Complete
1258	G06A-1680F3-073	155	99	469	991	1349	SOL
1259	G06A-1680F3-073	155	470	840	1350	1720	
1260	G06A-1680F3-073	155	841	1211	1721	2091	
1261	G06A-1680F3-073	155	1212	1252	2092	2122	EOL. Complete
1262	Dailys	156	1	10	N/A	N/A	Daily Tests
1263	G06A-1680F4-074	156	99	469	991	1349	SOL
1264	G06A-1680F4-074	156	470	840	1350	1720	
1265	G06A-1680F4-074	156	841	1211	1721	2091	
1266	G06A-1680F4-074	156	1212	1252	2092	2122	EOL. Complete
1267	G06A-1264P1-075	156	79	449	2007	1669	SOL
1268	G06A-1264P1-075	156	450	820	1668	1298	
1269	G06A-1264P1-075	156	821	1191	1297	927	
1270	G06A-1264P1-075	156	1192	1252	926	878	EOL. Complete

Box # 9

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 7, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1271	G06A-1696P1-076	156	79	449	991	1329	SOL
1272	G06A-1696P1-076	157	450	820	1330	1700	LGSP 1643. FGSP 1677
1273	G06A-1696P1-076	157	821	1191	1701	2071	
1274	G06A-1696P1-076	157	1192	1253	2072	2122	EOL. Incomplete d/t airleak
1275	G06A-1280P1-077	157	99	469	2007	1649	SOL
1276	G06A-1280P1-077	157	470	840	1648	1278	
1277	G06A-1280P1-077	157	841	1211	1277	907	
1278	G06A-1280P1-077	157	1212	1252	906	876	EOL. Complete
1279	GunTest	157	1	250	1005	1167	Gun Tests
1280	G06A-1712P1-078	157	99	469	1021	1391	SOL. FGSP 1021
1281	G06A-1712P1-078	157	470	840	1392	1762	
1282	G06A-1712P1-078	157	841	1210	1763	2122	EOL. Incomplete d/t syntrak loc
1283	Dailys	157	1	10	N/A	N/A	Daily Tests
1284	G06A-1296P1-079	157	99	469	2007	1649	SOL
1285	G06A-1296P1-079	157	470	840	1648	1278	
1286	G06A-1296P1-079	157	841	1211	1277	907	
1287	G06A-1296P1-079	157	1212	1252	906	876	EOL. Complete
1288	G06A-1728P3-080	157	99	469	991	1349	SOL
1289	G06A-1728P3-080	157	470	840	1350	1720	
1290	G06A-1728P3-080	157	841	1211	1721	2091	
1291	G06A-1728P3-080	158	1212	1252	2092	2122	EOL. Complete
1292	G06A-1296F1-081	158	99	469	2007	1649	SOL
1293	G06A-1296F1-081	158	470	840	1648	1278	
1294	G06A-1296F1-081	158	841	1211	1277	906	
1295	G06A-1296F1-081	158	1212	1251	905	876	EOL. Complete
1296	DAILY S	158	1	10	N/A	N/A	Dailys
1297	G06A-1728F1-082	158	99	469	991	1349	SOL
1298	G06A-1728F1-082	158	470	840	1350	1720	
1299	G06A-1728F1-082	158	841	1211	1721	2091	
1300	G06A-1728F1-082	158	1212	1252	2092	2122	EOL. Complete

Box # 10

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 8, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1301	G06A-1152P1-083	158	99	469	2007	1649	SOL
1302	G06A-1152P1-083	158	470	840	1648	1278	
1303	G06A-1152P1-083	158	841	1211	1277	907	
1304	G06A-1152P1-083	158	1212	1252	906	876	EOL. Complete
1305	G06A-1728F2-084	158	99	469	991	1349	SOL
1306	G06A-1728F2-084	158	470	840	1350	1720	
1307	G06A-1728F2-084	158	841	1211	1721	2091	
1308	G06A-1728F2-084	158	1212	1246	2092	2122	EOL. Complete
1309	G06A-1152F1-085	158	99	469	2007	1649	SOL
1310	G06A-1152F1-085	159	470	840	1648	1278	
1311	G06A-1152F1-085	159	841	1211	1277	907	
1312	G06A-1152F1-085	159	1212	1252	906	876	EOL. Complete
1313	Gun Test2	159	1	100	N/a	N/a	GunTest2
1314	G06A-1424P1-086	159	99	469	991	1349	SOL
1315	G06A-1424P1-086	159	470	840	1350	1720	
1316	G06A-1424P1-086	159	841	1211	1721	2091	
1317	G06A-1424P1-086	159	1212	1252	2092	2122	EOL. Complete
1318	G06A-1136P1-087	159	99	469	2007	1649	SOL
1319	G06A-1136P1-087	159	470	840	1648	1278	
1320	G06A-1136P1-087	159	841	1211	1277	907	
1321	G06A-1136P1-087	159	1212	1252	906	876	EOL. Complete
1322	Gun Test3	159	1	101	N/A	N/A	Gun Test 3 & 4
1323	G06A-1408P1-088	159	99	469	991	1349	SOL
1324	G06A-1408P1-088	159	470	840	1350	1720	
1325	G06A-1408P1-088	159	841	1211	1721	2091	
1326	G06A-1408P1-088	159	1212	1252	2092	2122	EOL. Complete
1327	Daily Test	159	1	10	N/A	N/A	Daily Test
1328	G06A-1120P1-089	159	99	469	2007	1649	SOL
1329	G06A-1120P1-089	159	470	840	1648	1278	
1330	G06A-1120P1-089	159	841	1211	1277	907	

Box # 11

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 10, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1331	G06A-1120P1-089	159	1212	1252	906	876	EOL. Complete
1332	GUNTEST5	159	1	101	N/A	N/A	Gun Strings 3 & 6
1333	G06A-1392P1-090	160	99	469	991	1349	SOL
1334	G06A-1392P1-090	160	470	840	1350	1720	
1335	G06A-1392P1-090	160	841	1211	1721	2092	
1336	G06A-1392P1-090	160	1212	1251	2093	2122	EOL. Complete
1337	GUNTEST7	160	1	50	N/A	N/A	Strings 1 & 4
1338	GUNTEST7	160	51	100	N/A	N/A	Strings 1 & 4
1339	G06A-1104P1-091	160	99	469	2007	1649	SOL
1340	G06A-1104P1-091	160	470	840	1648	1278	
1341	G06A-1104P1-091	160	841	1211	1277	907	
1342	G06A-1104P1-091	160	1212	1252	906	876	EOL. Complete
1343	G06A-1376P1-092	160	99	469	991	1349	SOL
1344	G06A-1376P1-092	160	470	840	1350	1720	
1345	G06A-1376P1-092	160	841	1211	1721	2091	
1346	G06A-1376P1-092	160	1212	1252	2092	2122	EOL. Complete
1347	Daily Test	160	1	10	N/A	N/A	Daily Tests
1348	G06A-1104F1-093	160	79	449	2007	1669	SOL
1349	G06A-1104F1-093	160	450	820	1668	1298	
1350	G06A-1104F1-093	160	821	1191	1297	927	
1351	G06A-1104F1-093	160	1192	1252	926	876	EOL. Complete
1352	GUNTEST 8 & 9	160	1	100	N/A	N/A	Strings 1 and 4 only
1353	G06A-1360P1-094	160	99	469	991	1349	SOL
1354	G06A-1360P1-094	160	470	840	1350	1720	
1355	G06A-1360P1-094	160	841	1211	1721	2091	
1356	G06A-1360P1-094	160	1212	1252	2092	2122	EOL. Complete
1357	GUNTEST095	161	1	100	1957	1840	GUNTEST095
1358	G06A-1088P1-095	161	99	469	2007	1649	SOL
1359	G06A-1088P1-095	161	470	840	1648	1278	
1360	G06A-1088P1-095	161	841	1211	1277	907	

Box # 12

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 13, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1361	G06A-1088P1-095	161	1212	1252	906	876	EOL. Complete
1362	Daily Test	161	1	10	N/A	N/A	Daily Tests
1363	GUNTEST096	161	2	80	1011	1100	Gun signature tests
1364	G06A-1344P1-096	161	99	469	991	1349	SOL
1365	G06A-1344P1-096	161	470	840	1350	1720	
1366	G06A-1344P1-096	161	841	1211	1721	2092	
1367	G06A-1344P1-096	161	1212	1251	2093	2122	EOL. Complete
1368	GUNTEST097	161	1	70	1989	1920	Gun signature tests
1369	G06A-1088F1-097	161	99	469	2007	1649	SOL
1370	G06A-1088F1-097	161	470	840	1648	1278	
1371	G06A-1088F1-097	161	841	1211	1277	907	
1372	G06A-1088F1-097	161	1212	1252	906	876	EOL. Complete
1373	Daily Test	162	1	10	N/A	N/A	Daily Tests
1374	Daily Test	163	1	10	N/A	N/A	Daily Test
1375	G06A-1072P1-098	163	99	469	2007	1650	SOL
1376	G06A-1072P1-098	163	470	840	1649	1279	
1377	G06A-1072P1-098	163	841	1211	1278	908	
1378	G06A-1072P1-098	163	1212	1253	907	876	EOL. Complete
1379	G06A-1344F1-099	163	99	469	991	1349	SOL
1380	G06A-1344F1-099	164	470	840	1350	1720	
1381	G06A-1344F1-099	164	841	1211	1721	2091	
1382	G06A-1344F1-099	164	1212	1252	2092	2122	EOL. Complete
1383	G06A-1056P1-100	164	99	469	2007	1649	SOL. DNP
1384	G06A-1056P1-100	164	470	840	1648	1278	DNP
1385	G06A-1056P1-100	164	841	1211	1277	907	DNP
1386	G06A-1056P1-100	164	1212	1252	906	876	EOL. DNP d/t excessive swell n
1387	G06A-1328P1-101	164	99	469	991	1350	SOL
1388	G06A-1328P1-101	164	470	840	1351	1721	
1389	G06A-1328P1-101	164	841	1211	1722	2092	
1390	G06A-1328P1-101	164	1212	1251	2093	2122	EOL. Complete

Box # 13

**SRV Veritas Viking 2
Data Cartridge Log**



VERITAS
Geophysical Integrity

Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 16, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1391	G06A-1056P2-102	164	99	126	2007	1992	DNP d/t gun separations
1392	Daily Tests	164	1	10	N/A	N/A	Daily Tests
1393	G06A-1328F1-103	164	99	469	991	1349	SOL
1394	G06A-1328F1-103	164	470	840	1350	1720	
1395	G06A-1328F1-103	165	841	1211	1721	2091	
1396	G06A-1328F1-103	165	1212	1252	2092	2122	EOL. Complete
1397	G06A-1056P3-104	165	99	469	2007	1649	SOL
1398	G06A-1056P3-104	165	470	840	1648	1278	
1399	G06A-1056P3-104	165	841	1211	1277	907	
1400	G06A-1056P3-104	165	1212	1252	906	876	EOL. Complete
1401	G06A-1312P1-105	165	99	469	991	1351	SOL
1402	G06A-1312P1-105	165	470	840	1352	1722	
1403	G06A-1312P1-105	165	841	1211	1723	2093	
1404	G06A-1312P1-105	165	1212	1250	2094	2122	EOL. Complete
1405	Daily Test	165	1	10	N/A	N/A	Daily Tests
1406	G06A-1056F1-106	165	99	469	2007	1649	SOL
1407	G06A-1056F1-106	165	470	840	1648	1278	
1408	G06A-1056F1-106	165	841	1211	1277	907	
1409	G06A-1056F1-106	165	1212	1252	906	876	EOL. Complete
1410	G06A-1312F1-107	165	59	429	991	1308	SOL
1411	G06A-1312F1-107	165	430	800	1309	1679	
1412	G06A-1312F1-107	165	801	1171	1680	2050	
1413	G06A-1312F1-107	165	1172	1252	2051	2122	EOL. Complete
1414	G06A-1040P1-108	166	99	469	2007	1649	DNP
1415	G06A-1040P1-108	166	470	840	1648	1278	DNP
1416	G06A-1040P1-108	166	841	984	1277	1134	DNP d/t excessive swell noise
1417	Daily Tests	166	1	10	N/A	N/A	Daily Tests
1418	Daily Tests	167	1	10	N/A	N/A	Daily Tests
1419	G06A-1040P2-109	167	99	469	2007	1649	SOL
1420	G06A-1040P2-109	167	470	840	1648	1278	

Box # 14

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 18, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1421	G06A-1040P2-109	167	841	1211	1277	907	
1422	G06A-1040P2-109	167	1212	1252	906	876	EOL. Complete
1423	G06A-1312F2-110	168	99	469	991	1349	SOL
1424	G06A-1312F2-110	168	470	840	1350	1720	
1425	G06A-1312F2-110	168	841	1211	1721	2091	
1426	G06A-1312F2-110	168	1212	1252	2092	2122	EOL. Complete
1427	Daily Test	168	1	10	N/A	N/A	Daily Tests
1428	G06A-1024P1-111	168	99	469	2007	1649	SOL
1429	G06A-1024P1-111	168	470	840	1648	1278	
1430	G06A-1024P1-111	168	841	1211	1277	907	
1431	G06A-1024P1-111	168	1212	1252	906	876	EOL. Complete
1432	G06A-1312F3-112	168	99	469	991	1350	SOL
1433	G06A-1312F3-112	168	470	840	1351	1721	
1434	G06A-1312F3-112	168	841	1211	1722	2092	
1435	G06A-1312F3-112	168	1212	1251	2093	2122	EOL. Complete
1436	G06A-1008P1-113	168	99	469	2007	1649	SOL
1437	G06A-1008P1-113	168	470	840	1648	1278	
1438	G06A-1008P1-113	168	841	1211	1277	907	
1439	G06A-1008P1-113	168	1212	1252	906	876	EOL. Complete
1440	G06A-1312F4-114	168	99	469	991	1349	SOL
1441	G06A-1312F4-114	168	470	840	1350	1720	
1442	G06A-1312F4-114	168	841	1211	1721	2091	
1443	G06A-1312F4-114	168	1212	1252	2092	2122	EOL. Complete
1444	G06A-1008F1-115	169	99	469	2007	1649	SOL
1445	G06A-1008F1-115	169	470	840	1648	1278	
1446	G06A-1008F1-115	169	841	1211	1277	907	
1447	G06A-1008F1-115	169	1212	1252	906	876	EOL. Complete
1448	Daily Tests	169	1	10	N/A	N/A	Daily Tests
1449	G06A-1312F5-116	169	99	469	991	1349	SOL
1450	G06A-1312F5-116	169	470	840	1350	1720	

Box # 15

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 19, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1451	G06A-1312F5-116	169	841	926	1721	1797	EOL. Complete
1452	G06A-1904F1-117	169	99	469	2007	1649	SOL
1453	G06A-1904F1-117	169	470	840	1648	1278	
1454	G06A-1904F1-117	169	841	1211	1277	907	
1455	G06A-1904F1-117	169	1212	1252	906	876	EOL. Complete
1456	G06A-2224P1-118	169	99	469	991	1349	SOL
1457	G06A-2224P1-118	169	470	840	1350	1720	
1458	G06A-2224P1-118	169	841	1211	1721	2091	
1459	G06A-2224P1-118	169	1212	1252	2092	2122	EOL. Complete
1460	G06A-1920P1-119	169	99	469	2007	1649	SOL
1461	G06A-1920P1-119	169	470	840	1648	1278	
1462	G06A-1920P1-119	169	841	1211	1277	907	
1463	G06A-1920P1-119	170	1212	1252	906	876	EOL. Complete
1464	G06A-2240P1-120	170	99	469	991	1349	SOL
1465	G06A-2240P1-120	170	470	840	1350	1720	
1466	G06A-2240P1-120	170	841	1211	1721	2091	
1467	G06A-2240P1-120	170	1212	1252	2092	2122	EOL. Complete
1468	Daily Test	170	1	10	N/A	N/A	Daily Test
1469	G06A-1936P1-121	170	99	469	2007	1649	SOL
1470	G06A-1936P1-121	170	470	840	1648	1278	
1471	G06A-1936P1-121	170	841	1211	1277	907	
1472	G06A-1936P1-121	170	1212	1252	906	876	EOL. Complete
1473	G06A-2256P1-122	170	99	469	991	1349	SOL
1474	G06A-2256P1-122	170	470	840	1350	1720	
1475	G06A-2256P1-122	170	841	1211	1721	2091	
1476	G06A-2256P1-122	170	1212	1252	2092	2122	EOL. Complete
1477	G06A-1952P1-123	170	99	469	2007	1649	SOL
1478	G06A-1952P1-123	170	470	840	1648	1278	
1479	G06A-1952P1-123	170	841	1211	1277	907	
1480	G06A-1952P1-123	170	1212	1252	906	876	EOL. Complete

Box # 16

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 22, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1481	G06A-2272P1-124	170	99	469	991	1349	SOL
1482	G06A-2272P1-124	171	470	840	1350	1720	
1483	G06A-2272P1-124	171	841	1211	1721	2091	
1484	G06A-2272P1-124	171	1212	1255	2092	2122	EOL. Complete
1485	Daily Tests	171	1	10	N/A	N/A	Daily Tests
1486	G06A-1952F1-125	171	99	469	2007	1649	SOL
1487	G06A-1952F1-125	171	470	840	1648	1278	
1488	G06A-1952F1-125	171	841	1211	1277	907	
1489	G06A-1952F1-125	171	1212	1252	906	876	EOL. Complete
1490	G06A-2272F1-126	171	99	469	991	1349	SOL
1491	G06A-2272F1-126	171	470	840	1350	1720	
1492	G06A-2272F1-126	171	841	1211	1721	2091	
1493	G06A-2272F1-126	171	1212	1252	2092	2122	EOL. Complete
1494	G06A-1968P1-127	171	99	469	2007	1649	SOL
1495	G06A-1968P1-127	171	470	840	1648	1278	
1496	G06A-1968P1-127	171	841	1211	1277	907	
1497	G06A-1968P1-127	171	1212	1252	906	876	EOL. Complete
1498	G06A-2288P1-128	171	99	469	991	1349	SOL
1499	G06A-2288P1-128	171	470	840	1350	1720	
1500	G06A-2288P1-128	171	841	957	1721	1827	EOL. Incomplete
1501	Daily Test	172	1	10	N/A	N/A	Daily Test
1502	G06A-2288P2-129	172	99	442	1821	2122	SOL - EOL. DNP
1503	G06A-1984P1-130	172	99	469	2007	1649	SOL
1504	G06A-1984P1-130	172	470	840	1648	1278	
1505	G06A-1984P1-130	172	841	1211	1277	903	
1506	G06A-1984P1-130	172	1212	1248	902	876	EOL. Complete
1507	G06A-2304P1-131	172	99	469	991	1349	SOL
1508	G06A-2304P1-131	173	470	840	1350	1720	
1509	G06A-2304P1-131	173	841	1211	1721	2091	
1510	G06A-2304P1-131	173	1212	1252	2092	2122	EOL. Complete

Box # 17

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 23, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1511	G06A-2000P1-132	173	99	469	2007	1649	SOL
1512	G06A-2000P1-132	173	470	840	1648	1278	
1513	G06A-2000P1-132	173	841	1211	1277	907	
1514	G06A-2000P1-132	173	1212	1252	906	876	EOL. Complete
1515	G06A-2304F1-133	173	99	469	991	1349	SOL
1516	G06A-2304F1-133	173	715	840	1595	1720	
1517	G06A-2304F1-133	173	841	1211	1721	2091	
1518	G06A-2304F1-133	173	1212	1336	2092	2194	EOL. Complete
1519	G06A-2000F1-134	173	99	469	2007	1649	SOL
1520	G06A-2000F1-134	173	470	840	1648	1278	
1521	G06A-2000F1-134	173	841	1211	1277	907	
1522	G06A-2000F1-134	173	1212	1252	906	876	EOL. Incomplete
1523	Daily Test	173	1	10	0	0	Daily Test
1524	G06A-2320P1-135	173	99	469	991	1349	SOL
1525	G06A-2320P1-135	173	470	840	1350	1720	
1526	G06A-2320P1-135	173	841	1211	1721	2091	
1527	G06A-2320P1-135	173	1212	1252	2092	2122	EOL. Complete
1528	G06A-2016P1-136	174	99	469	2007	1649	SOL
1529	G06A-2016P1-136	174	470	840	1648	1278	
1530	G06A-2016P1-136	174	841	1211	1277	907	
1531	G06A-2016P1-136	174	1212	1252	906	876	EOL. Complete
1532	G06A-2336P1-137	174	99	469	991	1349	SOL
1533	G06A-2336P1-137	174	470	840	1350	1720	
1534	G06A-2336P1-137	174	841	1211	1721	2091	
1535	G06A-2336P1-137	174	1212	1272	2092	2122	EOL. Complete
1536	Daily Test	174	1	11	N/A	N/A	Daily Test
1537	G06A-2016F1-138	174	99	469	2007	1649	SOL
1538	G06A-2016F1-138	174	470	840	1648	1278	
1539	G06A-2016F1-138	174	841	1211	1277	907	
1540	G06A-2016F1-138	174	1212	1253	906	876	EOL. Complete

Box # 18

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 25, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1541	G06A-2336F1-139	174	99	469	991	1349	SOL
1542	G06A-2336F1-139	174	470	840	1350	1720	
1543	G06A-2336F1-139	174	841	1211	1721	2091	
1544	G06A-2336F1-139	174	1212	1252	2092	2122	EOL. Complete
1545	G06A-2032P1-140	174	99	469	2007	1649	SOL
1546	G06A-2032P1-140	174	470	840	1648	1278	
1547	G06A-2032P1-140	174	841	1211	1277	907	
1548	G06A-2032P1-140	175	1212	1255	906	876	EOL. Complete
1549	G06A-2352P1-141	175	99	469	991	1349	SOL
1550	G06A-2352P1-141	175	470	840	1350	1720	
1551	G06A-2352P1-141	175	841	1211	1721	2091	
1552	G06A-2352P1-141	175	1212	1252	2092	2122	EOL. Complete
1553	Daily Test	175	1	10	N/A	N/A	Daily Test
1554	G06A-2032F1-142	175	99	469	2007	1649	SOL
1555	G06A-2032F1-142	175	470	840	1648	1278	
1556	G06A-2032F1-142	175	841	1211	1277	907	
1557	G06A-2032F1-142	175	1212	1252	906	876	EOL. Complete
1558	G06A-2368P1-143	175	99	469	991	1349	SOL
1559	G06A-2368P1-143	175	470	840	1350	1720	
1560	G06A-2368P1-143	175	841	1211	1721	2091	
1561	G06A-2368P1-143	175	1212	1252	2092	2122	EOL. Complete
1562	G06A-2048P1-144	175	89	459	2007	1659	DNP
1563	G06A-2048P1-144	175	460	830	1658	1288	DNP
1564	G06A-2048P1-144	175	831	1201	1287	917	DNP
1565	G06A-2048P1-144	175	1202	1252	916	876	DNP
1566	G06A-2384P1-145	176	99	469	991	1349	SOL
1567	G06A-2384P1-145	176	470	840	1350	1720	
1568	G06A-2384P1-145	176	841	1211	1721	2091	
1569	G06A-2384P1-145	176	1212	1252	2092	2122	EOL. Complete
1570	G06A-2048P2-146	176	99	469	2007	1649	SOL

Box # 19

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 26, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1571	G06A-2048P2-146	176	470	840	1648	1278	
1572	G06A-2048P2-146	176	841	1211	1277	907	
1573	G06A-2048P2-146	176	1212	1252	906	876	EOL. Complete
1574	Daily Test	176	1	10	N/A	N/A	Daily Test
1575	G06A-2384F1-147	176	99	469	991	1349	SOL
1576	G06A-2384F1-147	176	470	840	1350	1720	
1577	G06A-2384F1-147	176	841	1211	1721	2091	
1578	G06A-2384F1-147	176	1212	1252	2092	2122	EOL. Complete
1579	G06A-2048F1-148	176	99	469	2007	1649	SOL
1580	G06A-2048F1-148	176	470	840	1648	1278	
1581	G06A-2048F1-148	176	841	1211	1277	907	
1582	G06A-2048F1-148	176	1212	1252	906	876	EOL. Complete
1583	G06A-2384F2-149	176	99	469	991	1349	SOL
1584	G06A-2384F2-149	176	470	840	1350	1720	
1585	G06A-2384F2-149	176	841	1211	1721	2091	
1586	G06A-2384F2-149	177	1212	1253	2092	2122	EOL. Complete
1587	G06A-2064P1-150	177	99	469	2007	1649	SOL
1588	G06A-2064P1-150	177	470	840	1648	1278	
1589	G06A-2064P1-150	177	841	1211	1277	907	
1590	G06A-2064P1-150	177	1212	1252	906	876	EOL. Complete
1591	G06A-2384F3-151	177	99	469	991	1349	SOL
1592	G06A-2384F3-151	177	470	840	1350	1720	
1593	G06A-2384F3-151	177	841	1211	1721	2091	
1594	G06A-2384F3-151	177	1212	1252	2092	2122	EOL. Complete
1595	Daily Test	176	1	10	N/A	N/A	Daily Test
1596	G06A-2080P1-152	177	99	469	2007	1649	SOL
1597	G06A-2080P1-152	177	470	840	1648	1278	
1598	G06A-2080P1-152	177	841	1211	1277	907	
1599	G06A-2080P1-152	177	1212	1252	906	876	EOL. Complete
1600	G06A-2384F4-153	177	99	469	991	1349	SOL

Box # 20

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 28, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1601	G06A-2384F4-153	177	470	840	1350	1720	
1602	G06A-2384F4-153	177	841	1211	1721	2091	
1603	G06A-2384F4-153	177	1212	1252	2092	2122	EOL. Complete
1604	G06A-2080F1-154	177	99	469	2007	1649	SOL
1605	G06A-2080F1-154	178	470	840	1648	1278	
1606	G06A-2080F1-154	178	841	1211	1277	907	
1607	G06A-2080F1-154	178	1212	1252	906	876	EOL. Complete
1608	G06A-2400P1-155	178	99	469	1041	1399	SOL
1609	G06A-2400P1-155	178	470	840	1400	1770	
1610	G06A-2400P1-155	178	841	1202	1771	2122	EOL. Complete
1611	Daily Test	178	1	10	N/A	N/A	Daily Test
1612	G06A-2096P1-156	178	99	469	2007	1649	SOL
1613	G06A-2096P1-156	178	470	840	1648	1278	
1614	G06A-2096P1-156	178	841	1211	1277	907	
1615	G06A-2096P1-156	178	1212	1252	906	876	EOL. Complete
1616	G06A-2416P1-157	178	99	469	1135	1493	SOL
1617	G06A-2416P1-157	178	470	840	1494	1864	
1618	G06A-2416P1-157	178	841	1108	1865	2122	EOL. Complete
1619	G06A-2112P1-158	178	99	469	2007	1649	SOL
1620	G06A-2112P1-158	178	470	840	1648	1278	
1621	G06A-2112P1-158	178	841	1211	1277	907	
1622	G06A-2112P1-158	178	1212	1253	906	876	EOL. Complete
1623	G06A-2432P1-159	178	99	469	1135	1493	SOL
1624	G06A-2432P1-159	179	470	840	1494	1864	
1625	G06A-2432P1-159	179	841	1108	1865	2122	EOL. Complete
1626	G06A-2112F1-160	179	99	469	2007	1649	SOL
1627	G06A-2112F1-160	179	470	840	1648	1278	
1628	G06A-2112F1-160	179	841	1211	1277	907	
1629	G06A-2112F1-160	179	1212	1252	906	876	EOL. Complete
1630	Daily Test	179	1	10	N/A	N/A	Daily Test

Box # 21

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: June 30, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1631	G06A-2432F1-161	179	99	469	1180	1538	SOL
1632	G06A-2432F1-161	179	470	840	1539	1909	
1633	G06A-2432F1-161	179	841	1063	1910	2122	EOL. Complete
1634	G06A-2128P1-162	179	99	469	2007	1649	SOL
1635	G06A-2128P1-162	179	470	840	1648	1278	
1636	G06A-2128P1-162	179	841	1211	1277	907	
1637	G06A-2128P1-162	179	1212	1252	906	876	EOL. Complete
1638	G06A-2448P1-163	179	99	469	1250	1608	SOL
1639	G06A-2448P1-163	179	470	840	1609	1979	
1640	G06A-2448P1-163	179	841	994	1980	2122	EOL. Complete
1641	G06A-2128F1-164	180	99	469	2007	1651	SOL
1642	G06A-2128F1-164	180	470	840	1650	1280	
1643	G06A-2128F1-164	180	841	1211	1279	909	
1644	G06A-2128F1-164	180	1212	1254	908	876	EOL. Complete
1645	G06A-2464P1-165	180	99	469	1330	1688	SOL
1646	G06A-2464P1-165	180	470	840	1689	2059	
1647	G06A-2464P1-165	180	841	913	2060	2122	EOL. Complete
1648	Daily Test	180	1	10	N/A	N/A	Daily Test
1649	G06A-2144P1-166	180	99	469	2007	1649	SOL
1650	G06A-2144P1-166	180	470	840	1648	1278	
1651	G06A-2144P1-166	180	841	1211	1277	907	
1652	G06A-2144P1-166	180	1212	1252	906	876	EOL. Complete
1653	G06A-2480P1-167	180	99	469	1419	1777	SOL
1654	G06A-2480P1-167	180	470	824	1778	2122	EOL. Complete
1655	G06A-2144F1-168	180	99	469	2007	1649	SOL
1656	G06A-2144F1-168	180	470	840	1648	1278	
1657	G06A-2144F1-168	180	841	1211	1277	907	
1658	G06A-2144F1-168	180	1212	1252	906	876	EOL. Complete
1659	G06A-2480F1-169	181	99	469	1410	1768	SOL
1660	G06A-2480F1-169	181	470	833	1769	2122	EOL. Complete

Box # 22

SRV Veritas Viking 2 Data Cartridge Log



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: July 2, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1661	Daily Test	181	1	10	N/A	N/A	Daily Test
1662	G06A-2160P1-170	181	99	469	2007	1649	SOL
1663	G06A-2160P1-170	181	470	840	1648	1278	
1664	G06A-2160P1-170	181	841	1211	1277	907	
1665	G06A-2160P1-170	181	1212	1252	906	876	EOL. Complete
1666	G06A-2496P1-171	181	99	469	1470	1828	SOL
1667	G06A-2496P1-171	181	470	772	1829	2122	EOL. Complete
1668	G06A-2160F1-172	181	99	469	2007	1649	SOL
1669	G06A-2160F1-172	181	470	840	1648	1278	
1670	G06A-2160F1-172	181	841	1211	1277	907	
1671	G06A-2160F1-172	181	1212	1252	906	876	EOL. Complete
1672	G06A-2496F1-173	181	99	469	1544	1902	SOL
1673	G06A-2496F1-173	181	470	699	1903	2122	EOL. Complete
1674	G06A-2176P1-174	182	99	469	2007	1649	SOL
1675	G06A-2176P1-174	182	470	840	1648	1278	
1676	G06A-2176P1-174	182	841	906	1277	1212	EOL. Incomplete. LPSP 1215
1677	G06A-2512P1-175	182	99	469	1638	1996	SOL
1678	G06A-2512P1-175	182	470	605	1997	2122	EOL. Complete
1679	Daily Test	182	1	12	N/A	N/A	Daily Test
1680	G06A-2176P2-176	182	99	469	1234	876	SOL
1681	G06A-2176P2-176	182	470	479	0	0	EOL. Complete - Noise files onl
1682	G06A-2512F1-177	182	99	469	1680	2038	SOL
1683	G06A-2512F1-177	182	470	562	2039	2122	EOL. Complete
1684	G06A-2192P1-178	182	99	469	2007	1649	SOL
1685	G06A-2192P1-178	182	470	840	1648	1278	
1686	G06A-2192P1-178	182	841	1211	1277	907	
1687	G06A-2192P1-178	182	1212	1252	906	876	EOL. Complete
1688	G06A-2208P1-179	183	99	469	991	1349	SOL
1689	G06A-2208P1-179	183	470	840	1350	1720	
1690	G06A-2208P1-179	183	841	1211	1721	2091	

Box # 23

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: July 4, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1691	G06A-2208P1-179	183	1212	1252	2092	2122	EOL. Complete
1692	G06A-2192F1-180	183	99	469	2007	1649	SOL
1693	G06A-2192F1-180	183	470	840	1648	1278	
1694	G06A-2192F1-180	183	841	1211	1277	907	
1695	G06A-2192F1-180	183	1212	1252	906	876	EOL. Complete
1696	Daily Test	183	1	10	N/A	N/A	Daily Test
1697	G06A-2208F1-181	183	99	469	991	1349	SOL
1698	G06A-2208F1-181	183	470	840	1350	1720	
1699	G06A-2208F1-181	183	841	1211	1721	2091	
1700	G06A-2208F1-181	183	1212	1252	2092	2122	EOL. Complete
1701	G06A-2192F2-182	183	99	469	2007	1649	SOL
1702	G06A-2192F2-182	183	470	840	1648	1278	
1703	G06A-2192F2-182	183	841	1211	1277	907	
1704	G06A-2192F2-182	183	1212	1252	906	876	EOL. Complete
1705	G06A-2208F2-183	184	99	469	991	1349	SOL
1706	G06A-2208F2-183	184	470	840	1350	1720	
1707	G06A-2208F2-183	184	841	1211	1721	2091	
1708	G06A-2208F2-183	184	1212	1252	2092	2122	EOL. Complete
1709	Daily Test	184	1	10	N/A	N/A	Daily Test
1710	G06A-1952F2-184	184	99	432	2007	1696	SOL - EOL. Complete
1711	G06A-2288P3-185	184	99	442	1801	2122	SOL - EOL Complete
1712	G06A-2000F2-186	184	99	393	2007	1725	SOL - EOL Complete
1713	G06A-1696P2-187	184	99	403	1624	1906	SOL - EOL. Complete
1714	G06A-2032F2-188	184	99	403	2007	1730	SOL - EOL. Complete
1715	G06A-1728F3-189	184	99	469	991	1349	SOL
1716	G06A-1728F3-189	185	470	840	1350	1720	
1717	G06A-1728F3-189	185	841	860	1721	1730	EOL. Complete
1718	G06A-001-190	185	99	469	2177	1819	SOL
1719	G06A-001-190	185	470	840	1818	1448	
1720	G06A-001-190	185	841	1211	1447	1077	

Box # 24

**SRV Veritas Viking 2
Data Cartridge Log**



Record Length: 6144 ms
Sample Rate: 2.0 ms
Shotpoint Interval: 18.75 m

Client: Esso Australia Pty
Area: Gippsland Basin, Bass Strait
Survey: Bream 3D
Ship ID: V2
Job No: 20323
Date: July 5, 2005

REEL NO.	LINE NUMBER	JULIAN DAY	FIRST FILE	LAST FILE	FIRST SP	LAST SP	COMMENTS
1721	G06A-001-190	185	1212	1422	1076	876	EOL. Complete
1722	Daily Test	185	1	10	N/A	N/A	Daily Test
1723	G06A-003-191	185	99	469	991	1349	SOL
1724	G06A-003-191	185	470	840	1350	1720	
1725	G06A-003-191	185	841	1211	1721	2091	
1726	G06A-003-191	185	1212	1276	2092	2146	EOL. Complete
1727	G06A-002-192	185	89	459	991	1339	SOL
1728	G06A-002-192	185	460	830	1340	1710	
1729	G06A-002-192	185	831	1201	1711	2081	
1730	G06A-002-192	185	1202	1218	2082	2088	EOL. Complete
1731	G06A-1440P3-193	185	99	403	1840	2122	SOL - EOL. Complete
1732	G06A-1792F1-194	186	89	459	2007	1659	SOL
1733	G06A-1792F1-194	186	460	830	1658	1288	
1734	G06A-1792F1-194	186	831	1201	1287	917	
1735	G06A-1792F1-194	186	1202	1252	916	876	EOL. Complete
1736	Daily Test	186	1	14	N/A	N/A	Daily Test
1737	G06A-1344F2-195	186	99	451	1011	1321	SOL - EOL. Complete, LPSP 1306
1738	G06A-2192F3-196	186	99	469	1310	952	SOL
1739	G06A-2192F3-196	186	470	510	951	920	EOL. Complete
1740	G06A-1328F2-197	186	99	386	1290	1555	SOL - EOL. Complete
1741	G06A-1104F2-198	186	99	469	1710	1352	SOL
1742	G06A-1104F2-198	186	470	840	1351	981	
1743	G06A-1104F2-198	186	841	956	980	876	EOL. Complete. End Of Survey
1744							
1745							
1746							
1747							
1748							
1749							
1750							

Box # 25

Data Shipment Transmittal Submitted

Reference Number: VV2-DX-1581

Draft Number: VV2-GV-3109

Vessel: Veritas Viking2 Job Number: 20323	Date Created: 07/10/2006 Date Submitted: Author: GS Veritas-Viking2 Notification List:
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Brief Description: 20323 Bream Survey Documentation

Country of Manufacture: USA

Origin: Veritas Viking2	Destination: Damien Hite, Veritas DGC 10300 Town Park Rd. Houston, TX 77072
Shipped Via: NT Shipping Darwin East Arm Wharf Berrimah Road Berrimah Northern Territory 0828 Attn: Robbie Robertson +(61-8) 8981 2541 +(61-417) 819 593	Shipped Via 2:

	Qty	Packing #	Description	Unit Cost (\$)	Extended Cost (\$)	Weight kg
1	1	box	5 DVDs containing project archives for 3D Bream 1 x Seisnet 2 x QCN data 1 x Line Documentation 1 x Bathymetry data	10.00	10.00	2
Total Cost:					10.00	
Total Weight						2

Supporting Documentation:

Form Completed By: GS Veritas-Viking2

Date Completed: 07/10/2006

Data Shipment Transmittal Submitted

Reference Number: VV2-DX-1576

Draft Number: VV2-TV-3118

Vessel: Veritas Viking2 Job Number: 20323	Date Created: 07/12/2006 Date Submitted: Author: Tango Veritas-Viking2 Notification List:
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Brief Description: 55 Boxes of data from ExxonMobil -Greater Bream 3D MSS, Field tape copies # 1-25, SEGY # 1 - 22, TANGO format # 1- 8

Country of Manufacture : USA

Origin: Veritas Viking2	Destination: VERITAS DGC ASIA PACIFIC Ltd Union Industrial Building #06-01 37 Jalan Pemimpin Singapore 577177 ATTN: Harry Tan Tel: +65 68341807
Shipped Via: NT Shipping Darwin East Arm Wharf Berrimah Road Berrimah Northern Territory 0828 Attn: Robbie Robertson +(61-8) 8981 2541 +(61-417) 819 593	Shipped Via 2: LGF LOGISTICS Perth Cargo Center Sugar Bird Lady Road Perth International Airport Western Australia 6104 Contact: Aurelio Mollica / Dick Watson Tel: 61 8 9477 0977

	Qty	Packing #	Description	Unit Cost (\$)	Extended Cost (\$)	Weight kg
1	25	boxes	25 Boxes field tape copies ExxonMobil - Greater Bream 3D MSS Box # 1-25 Tape # 1001 - 1743 Seq # 001-198 Plus 2 tapes contain Navigation P190 and P294 data 1 x DVD containg survey documentation	50.00	1250.00	200
2	22	boxes	22 boxes of SEGY format tapes 653 tapes of nav- seis merge data, tapes 1001 - 1653, complete survey 3 tapes containing Near trace cubes, tapes 1654 - 1656, complete survey	50.00	1100.00	175
3	8	boxes	8 boxes of Tango format data 231 tapes of reformatted SEG D data seq 141 - 198, tapes A20583 - A20816, 1 tape containing TAR of /tpa/3dbream and /tdb/3dbream 2 tapes containing 3dbream final stack (unscaled)	50.00	400.00	64
Total Cost:					2750.00	
Total Weight						439

Supporting Documentation :

Form Completed By: Tango Veritas-Viking2
Date Completed: 07/12/2006

Data Shipment Transmittal Submitted

Reference Number: VV2-DX-1572

Draft Number: VV2-SV-3110

-A

Vessel: Veritas Viking2 Job Number: 20323	Date Created: 07/10/2006 Date Submitted: Author: Sprint Veritas-Viking2 Notification List:
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Brief Description: 1 Box of Raw Spectra and Sprint processed navigation data

Country of Manufacture: USA

Origin: Veritas Viking2	Destination: Damien Hite, Veritas DGC 10300 Town Park Rd. Houston, TX 77072
Shipped Via: NT Shipping Darwin East Arm Wharf Berrimah Road Berrimah Northern Territory 0828 Attn: Robbie Robertson +(61-8) 8981 2541 +(61-417) 819 593	Shipped Via 2: LGF LOGISTICS Perth Cargo Center Sugar Bird Lady Road Perth International Airport Western Australia 6104 Contact: Aurelio Mollica / Dick Watson Tel: 61 8 9477 0977

Qty	Packing #	Description	Unit Cost (\$)	Extended Cost (\$)	Weight kg
1	1	Box 1 of 1 1 x DLT Tape P294 raw Spectra Data, Job 20323, Seq # 001 - 198 1 x DLT Tape P190 WGS84 Sprint Data, Job 20323, Seq # 001 - 198	10.00	10.00	2
Total Cost:			10.00		
Total Weight					2

Supporting Documentation:

Form Completed By: Sprint Veritas-Viking2

Date Completed: 07/10/2006

Data Shipment Transmittal Submitted

Reference Number: VV2-DX-1570

Draft Number: VV2-CV-3108

Vessel: Veritas Viking2 Job Number: 20323	Date Created: 07/10/2006 Date Submitted: Author: Chobs Veritas-Viking2 Notification List:
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Brief Description: 25 Boxes SEGd Field Tape Originals, ExxonMobil -Greater Bream 3D MSS, Box # 1-25

Country of Manufacture: USA

Origin: Veritas Viking2	Destination: ExxonMobil Australia Pty Ltd Information Centre, Level 3, 12 Riverside Quay, Southbank Melbourne Victoria 3006 Attn: Susan Russ Tel: 61 3 9270 3830
Shipped Via: NT Shipping Darwin East Arm Wharf Berrimah Road Berrimah Northern Territory 0828 Attn: Robbie Robertson +(61-8) 8981 2541 +(61-417) 819 593	Shipped Via 2:

Qty	Packing #	Description	Unit Cost (\$)	Extended Cost (\$)	Weight kg
1	25	Boxes	150.00	3750.00	165
1 Pallet Containing 25 Boxes field tape originals. ExxonMobil - Greater Bream 3D MSS Box # 1-25 Tape # 1001 - 1743 Seq # 001-198					
Total Cost:				3750.00	
Total Weight					165

Supporting Documentation:

Form Completed By: Chobs Veritas-Viking2

Date Completed: 07/10/2006

Data Shipment Transmittal Submitted

Reference Number: VV2-DX-1560

Draft Number: VV2-TV-3098

Vessel: Veritas Viking2 Job Number: 20323	Date Created: 06/25/2006 Date Submitted: Author: Tango Veritas-Viking2 Notification List:
Brief Description: Bream 3D - NAS discs SPRNASD & Q	

Country of Manufacture : USA

Origin: Veritas Viking2	Destination: VERITAS DGC ASIA PACIFIC Ltd Union Industrial Building #06-01 37 Jalan Pemimpin Singapore 577177 ATTN: Harry Tan Tel: +65 68341807
Shipped Via: Helicopter	Shipped Via 2: NT Shipping Darwin East Arm Wharf Berrimah Road Berrimah Northern Territory 0828 Attn: Robbie Robertson +(61-8) 8981 2541 +(61-417) 819 593

Qty	Packing #	Description	Unit Cost (\$)	Extended Cost (\$)	Weight kg
1	1	pelican case 8 hard drives SPRNASD contains TANGO j1ip datasets , seq's 079 - 110 inclusive, not DNP lines P190 processed navigation for seq's 113 - 137 excluding 129 & 131 SPRNASQ contains TANGO j1ip datasets , seq's 111 - 140 inclusive, not DNP lines P190 processed navigation for seq's 131, 138 - 146 P294 navigation for sequences 001 - 146	300.00	300.00	8
Total Cost:				300.00	
Total Weight					8

Supporting Documentation :

Form Completed By: Tango Veritas-Viking2
Date Completed: 06/25/2006

Data Shipment Transmittal Submitted

Reference Number: VV2-DX-1559

Draft Number: VV2-TV-3086

Vessel: Veritas Viking2 Job Number: 20323	Date Created: 06/15/2006 Date Submitted: Author: Tango Veritas-Viking2 Notification List:
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Brief Description: Bream 3D - NAS discs SPRNASF & L

Country of Manufacture: USA

Origin: Veritas Viking2	Destination: VERITAS DGC ASIA PACIFIC Ltd Union Industrial Building #06-01 37 Jalan Pemimpin Singapore 577177 ATTN: Harry Tan Tel: +65 68341807
Shipped Via: Helicopter	Shipped Via 2: NT Shipping Darwin East Arm Wharf Berrimah Road Berrimah Northern Territory 0828 Attn: Robbie Robertson +(61-8) 8981 2541 +(61-417) 819 593

Qty	Packing #	Description	Unit Cost (\$)	Extended Cost (\$)	Weight kg
1	1	box	300.00	300.00	8
2 sets of 4 discs. SPRNASF contains j1ip datasets (reformatted SEGd), seq's 004 to 034 SPRNASL contains j1ip datasets seq's 035 to 078 P190 processed navigation for seq's 004 to 112					
Total Cost:				300.00	
					Total Weight 8

Supporting Documentation:

Form Completed By: Tango Veritas-Viking2
Date Completed: 06/15/2006

Data Shipment Transmittal Submitted

Reference Number: VV2-DX-1558

Draft Number: VV2-TV-3087

Vessel: Veritas Viking2 Job Number: 20323	Date Created: 06/15/2006 Date Submitted: Author: Tango Veritas-Viking2 Notification List:
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Brief Description: Bream 3D - SEG Y Seq. 070 & 073 Exxon Noise Eval.

Country of Manufacture: USA

Origin: Veritas Viking2	Destination: ExxonMobil Exploration Company 233 Benmar Houston, TX 77060 USA Attn: Tom Steinhilber Tel: US 281-654-7813
Shipped Via: Helicopter	Shipped Via 2: NT Shipping Darwin East Arm Wharf Berrimah Road Berrimah Northern Territory 0828 Attn: Robbie Robertson +(61-8) 8981 2541 +(61-417) 819 593

Qty	Packing #	Description	Unit Cost (\$)	Extended Cost (\$)	Weight kg
1	1	box 8 x 3590 data cartridges containing SEG Y navseis merge data for Bream 3D survey, sequences 070 & 073. Seq 070 reside on tapes A20583 to A20586 Seq 073 reside on tapes A20587 to A20590	40.00	40.00	3
Total Cost:				40.00	
Total Weight					3

Supporting Documentation:

Form Completed By: Tango Veritas-Viking2
Date Completed: 06/15/2006

ACOUSTIC POD	SERIAL #	OFFSET FROM CNG	FROM
S1A1	9410	-4608	9 May 06
S1A2	8833 8991	-4488	9 May 06 18-May-06
S1A3	10416	-2340	9 May 06
S1A4	10775 10560	-2140	9 May 06 16 May 06
S1A5	7626	-192	9 May 06
S1A6	10559	-5	9 May 06
S2A1	7219 10604	-4606	9 May 06 16 May 06
S2A2	10071	-4488	9 May 06
S2A3	8991 7219	-2340	9 May 06 27 May 06
S2A4	10565	-2140	9 May 06
S2A5	10093	-192	9 May 06
S2A6	14406	-5	9 May 06
S2A7	9957	80	9 May 06
S3A1	10601	-4606	9 May 06
S3A2	7401	-4488	9 May 06
S3A3	8993 10775	-2340	9 May 06 28 JUN 06
S3A4	8944	-2140	9 May 06
S3A5	10060 14424 10191	-342	9 May 06 10 June 06 18-June-06
S3A6	9842 10071	-192	9 May 06 28 JUN 06
S3A7	9880	-5	9 May 06
S3A8	9327	80	9 May 06
S4A1	10598	-4608	9 May 06
S4A2	10309	-4488	9 May 06
S4A3	10067 14404	-2340	9 May 06 16 May 06
S4A4	10223	-2140	9 May 06
S4A5	8953	-342	9 May 06
S4A6	10737	-192	9 May 06
S4A7	10758	-5	
S5A1	8572 10060	4606	9 May 06 18-May-06
S5A2	7625	-4488	9 May 06
S5A3	10191 10745	-2340	9 May 06 27 June 06
S5A4	9275	-2140	9 May 06
S5A5	10592	-342	9 May 06

ACOUSTIC POD	SERIAL #	OFFSET FROM CNG	FROM
S5A6	7407	-192	9 May 06
S5A7	10620	-5	9 May 06
S6A1	10760 7216	-4606	9 May 06 09 June 06
S6A2	9844	-4488	9 May 06
S6A3	10745 14418	-2340	9 May 06 16 June 06
S6A4	10185	-2140	9 May 06
S6A5	7153	-342	9 May 06
S6A6	14407	-192	9 May 06
S6A7	10731	-5	9 May 06
S6A8	8554	80	9 May 06
S7A1	10733 8468	-4606	9 May 06 31 My 06
S7A2	10618	-4488	9 May 06
S7A3	10762	-2340	9 May 06
S7A4	7216 10067	-2140	9 May 06 27 May 06
S7A5	9856	-192	9 May 06
S7A6	10617	-5	9 May 06
S7A7	10202	80	9 May 06
S8A1	10593	-4606	9 May 06
S8A2	9832	-4488	9 May 06
S8A3	7628	-2340	9 May 06
S8A4	8586	-2140	9 May 06
S8A5	10199	-192	9 May 06
S8A6	10720	-5	9 May 06
G1A1	10755	Gun Unit	9 May 06
G1A2	10837	Gun Unit	9 May 06
G1A3	10835	Gun Unit	9 May 06
G2A1	10847	Gun Unit	9 May 06
G2A2	10844	Gun Unit	9 May 06
G2A3	10240	Gun Unit	9 May 06

Compass Location

Survey Name: Greater Bream 3D

Dates: 5/10/2006 to 7/5/2006

This report details the compass serial number and the location of the compass within the spread for the duration of the survey.



	Compass Location	Serial Number	Date On	Date Off	Sequences
Streamer 1					
	1	29443	5/10/2006	7/5/2006	001 - 198
	2	21107	5/10/2006	7/5/2006	001 - 198
	3	21574	5/10/2006	7/5/2006	001 - 198
	4	29653	5/10/2006	7/5/2006	001 - 198
	5	22184	5/10/2006	7/5/2006	001 - 198
	6	17009	5/10/2006	7/5/2006	001 - 198
	7	22019	5/10/2006	7/5/2006	001 - 198
	8	29146	5/10/2006	7/5/2006	001 - 198
	9	26253	5/10/2006	7/5/2006	001 - 198
	10	25000	5/10/2006	7/5/2006	001 - 198
	11	22011	5/10/2006	7/5/2006	001 - 198
	12	26470	5/10/2006	7/5/2006	001 - 198
	13	20694	5/10/2006	7/5/2006	001 - 198
	14	29638	5/10/2006	7/5/2006	001 - 198
	15	26557	5/10/2006	7/5/2006	001 - 198
	16	29603	5/10/2006	7/5/2006	001 - 198
	17	29710	5/10/2006	7/5/2006	001 - 198
	18	25221	5/10/2006	7/5/2006	001 - 198
	19	27489	5/10/2006	5/27/2006	001 - 050
	19	29568	5/31/2006	7/5/2006	061 - 198
	20	26249	5/10/2006	7/5/2006	001 - 198

	Compass Location	Serial Number	Date On	Date Off	Sequences
Streamer 2					
	1	15105	5/10/2006	7/5/2006	001 - 198
	2	30261	5/10/2006	7/5/2006	001 - 198
	3	29588	5/10/2006	7/5/2006	001 - 198
	4	26585	5/10/2006	7/5/2006	001 - 198
	5	13310	5/10/2006	7/5/2006	001 - 198
	6	26535	5/10/2006	7/5/2006	001 - 198
	7	29423	5/10/2006	7/5/2006	001 - 198
	8	27088	5/10/2006	7/5/2006	001 - 198
	9	21672	5/10/2006	7/5/2006	001 - 198
	10	13351	5/10/2006	7/5/2006	001 - 198
	11	16732	5/10/2006	5/30/2006	001 - 060
	11	29705	5/31/2006	7/5/2006	061 - 198
	12	22299	5/10/2006	7/5/2006	001 - 198
	13	21048	5/10/2006	7/5/2006	001 - 198
	14	25609	5/10/2006	7/5/2006	001 - 198
	15	29677	5/10/2006	7/5/2006	001 - 198
	16	29475	5/10/2006	7/5/2006	001 - 198
	17	29517	5/10/2006	7/5/2006	001 - 198
	18	22424	5/10/2006	7/5/2006	001 - 198
	19	10913	5/10/2006	5/26/2006	001 - 047
	19	13910	5/27/2006	7/5/2006	049 - 198

	Compass Location	Serial Number	Date On	Date Off	Sequences
Streamer 3					
	1	29704	5/10/2006	7/5/2006	001 - 198
	2	17093	5/10/2006	7/5/2006	001 - 198
	3	29532	5/10/2006	7/5/2006	001 - 198
	4	21176	5/10/2006	7/5/2006	001 - 198
	4	16299	5/18/2006	5/30/2006	028 - 057
	5	21142	5/10/2006	7/5/2006	001 - 198
	6	27303	5/10/2006	7/5/2006	001 - 198
	7	29125	5/10/2006	7/5/2006	001 - 198
	8	25109	5/10/2006	7/5/2006	001 - 198
	9	27283	5/10/2006	5/30/2006	001 - 060
	9	26489	5/31/2006	7/5/2006	061 - 198
	10	26518	5/10/2006	7/5/2006	001 - 198
	11	29469	5/10/2006	7/5/2006	001 - 198
	12	29640	5/10/2006	7/5/2006	001 - 198
	13	20095	5/10/2006	7/5/2006	001 - 198
	14	31176	5/10/2006	7/5/2006	001 - 198
	15	29656	5/10/2006	7/5/2006	001 - 198
	16	22166	5/10/2006	7/5/2006	001 - 198
	17	29555	5/10/2006	7/5/2006	001 - 198
	18	29403	5/10/2006	7/5/2006	001 - 198
	19	16478	5/10/2006	7/5/2006	001 - 198

	Compass Location	Serial Number	Date On	Date Off	Sequences
Streamer 4					
	1	27253	5/10/2006	7/5/2006	001 - 198
	2	29639	5/10/2006	7/5/2006	001 - 198
	3	17214	5/10/2006	7/5/2006	001 - 198
	4	21232	5/10/2006	7/5/2006	001 - 198
	5	29580	5/10/2006	7/5/2006	001 - 198
	6	26121	5/10/2006	7/5/2006	001 - 198
	7	29593	5/10/2006	7/5/2006	001 - 198
	8	26523	5/10/2006	7/5/2006	001 - 198
	9	19184	5/10/2006	7/5/2006	001 - 198
	10	29914	5/10/2006	7/5/2006	001 - 198
	11	29550	5/10/2006	7/5/2006	001 - 198
	12	17191	5/10/2006	7/5/2006	001 - 198
	13	12805	5/10/2006	7/5/2006	001 - 198
	14	29460	5/10/2006	7/5/2006	001 - 198
	15	29715	5/10/2006	7/5/2006	001 - 198
	16	22039	5/10/2006	7/5/2006	001 - 198
	17	29333	5/10/2006	7/5/2006	001 - 198
	18	26658	5/10/2006	6/13/2006	001 - 101
	18	27284	6/13/2006	7/5/2006	103 - 198
	19	25262	5/10/2006	6/13/2006	001 - 101
	19	26205	6/13/2006	7/5/2006	103 - 198

	Compass Location	Serial Number	Date On	Date Off	Sequences
Streamer 5					
	1	29439	5/10/2006	7/5/2006	001 - 198
	2	29654	5/10/2006	7/5/2006	001 - 198
	3	29548	5/10/2006	7/5/2006	001 - 198
	4	29331	5/10/2006	5/30/2006	001 - 059
	4	21176	5/31/2006	6/1/2006	061 - 069
	4	16324	6/4/2006	7/5/2006	070 - 198
	5	26511	5/10/2006	7/5/2006	001 - 198
	6	25138	5/10/2006	7/5/2006	001 - 198
	7	20852	5/10/2006	5/12/2006	001 - 011
	7	29644	5/16/2006	7/5/2006	019 - 198
	8	16324	5/10/2006	6/1/2006	001 - 069
	8	27129	6/4/2006	7/5/2006	070 - 198
	9	27257	5/10/2006	7/5/2006	001 - 198
	10	25836	5/10/2006	7/5/2006	001 - 198
	11	29702	5/10/2006	7/5/2006	001 - 198
	12	22216	5/10/2006	7/5/2006	001 - 198
	13	12792	5/10/2006	7/5/2006	001 - 198
	14	29473	5/10/2006	6/1/2006	001 - 069
	14	21593	6/5/2006	6/7/2006	074 - 082
	14	27283	6/7/2006	7/5/2006	083 - 198
	15	29509	5/10/2006	7/5/2006	001 - 198
	16	21852	5/10/2006	7/5/2006	001 - 198
	17	29298	5/10/2006	7/5/2006	001 - 198
	18	29531	5/10/2006	7/5/2006	001 - 198
	19	29568	5/10/2006	5/26/2006	001 - 047
	19	26101	5/27/2006	6/29/2006	049 - 164
	19	26639	6/29/2006	7/5/2006	165 - 198

	Compass Location	Serial Number	Date On	Date Off	Sequences
Streamer 6					
	1	25213	5/10/2006	6/9/2006	001 - 091
	1	7216	6/9/2006	7/5/2006	092 - 198
	2	27232	5/10/2006	7/5/2006	001 - 198
	2	29657	5/18/2006	5/30/2006	028 - 057
	3	19116	5/10/2006	7/5/2006	001 - 198
	4	26613	5/10/2006	7/5/2006	001 - 198
	5	29435	5/10/2006	7/5/2006	001 - 198
	6	26448	5/10/2006	7/5/2006	001 - 198
	7	29556	5/10/2006	7/5/2006	001 - 198
	8	29520	5/10/2006	7/5/2006	001 - 198
	9	21629	5/10/2006	5/30/2006	001 - 060
	9	16264	5/31/2006	7/5/2006	061 - 198
	10	25029	5/10/2006	7/5/2006	001 - 198
	11	25224	5/10/2006	7/5/2006	001 - 198
	12	29606	5/10/2006	7/5/2006	001 - 198
	13	21375	5/10/2006	7/5/2006	001 - 198
	14	29564	5/10/2006	7/5/2006	001 - 198
	15	29551	5/10/2006	7/5/2006	001 - 198
	16	29441	5/10/2006	7/5/2006	001 - 198
	17	31317	5/10/2006	7/5/2006	001 - 198
	18	27134	5/10/2006	7/5/2006	001 - 198
	19	13127	5/10/2006	7/5/2006	001 - 198

	Compass Location	Serial Number	Date On	Date Off	Sequences
Streamer 7					
	1	22218	5/10/2006	5/30/2006	001 - 060
	1	27323	5/26/2006	5/27/2006	044 - 049
	1	27232	5/28/2006	5/30/2006	055 - 057
	1	8468	5/31/2006	7/5/2006	061 - 198
	2	26071	5/10/2006	7/5/2006	001 - 198
	3	29187	5/10/2006	7/5/2006	001 - 198
	4	29579	5/10/2006	7/5/2006	001 - 198
	5	8094	5/10/2006	7/5/2006	001 - 198
	6	29636	5/10/2006	7/5/2006	001 - 198
	7	21405	5/10/2006	7/5/2006	001 - 198
	8	20515	5/10/2006	7/5/2006	001 - 198
	9	11727	5/10/2006	7/5/2006	001 - 198
	10	26205	5/10/2006	5/12/2006	001 - 011
	10	29440	5/16/2006	7/5/2006	019 - 198
	11	29625	5/10/2006	7/5/2006	001 - 198
	12	29249	5/10/2006	7/5/2006	001 - 198
	13	17181	5/10/2006	7/5/2006	001 - 198
	14	27058	5/10/2006	7/5/2006	001 - 198
	15	29247	5/10/2006	7/5/2006	001 - 198
	16	13809	5/10/2006	7/5/2006	001 - 198
	17	26472	5/10/2006	7/5/2006	001 - 198
	18	22229	5/10/2006	7/5/2006	001 - 198
	19	18223	5/10/2006	7/5/2006	001 - 198

	Compass Location	Serial Number	Date On	Date Off	Sequences
Streamer 8					
	1	17096	5/10/2006	7/5/2006	001 - 198
	2	29707	5/10/2006	7/5/2006	001 - 198
	3	29098	5/10/2006	7/5/2006	001 - 198
	4	21868	5/10/2006	7/5/2006	001 - 198
	5	27224	5/10/2006	7/5/2006	001 - 198
	6	29546	5/10/2006	7/5/2006	001 - 198
	7	29712	5/10/2006	7/5/2006	001 - 198
	8	27154	5/10/2006	7/5/2006	001 - 198
	9	18183	5/10/2006	7/5/2006	001 - 198
	10	26615	5/10/2006	7/5/2006	001 - 198
	11	29589	5/10/2006	7/5/2006	001 - 198
	12	32179	5/10/2006	7/5/2006	001 - 198
	13	13958	5/10/2006	7/5/2006	001 - 198
	14	22417	5/10/2006	7/5/2006	001 - 198
	15	29644	5/10/2006	5/16/2006	001 - 019
	15	16303	5/16/2006	7/5/2006	020 - 198
	16	16299	5/10/2006	5/16/2006	001 - 019
	16	18846	5/16/2006	5/21/2006	020 - 042
	16	19286	5/27/2006	7/5/2006	049 - 198
	17	29713	5/10/2006	7/5/2006	001 - 198
	18	29539	5/10/2006	7/5/2006	001 - 198
	19	27235	5/10/2006	7/5/2006	001 - 198
	20	19992	5/10/2006	5/19/2006	001 - 034
	20	13408	5/27/2006	7/5/2006	049 - 198

Date:	07/13/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Boon, Marc Lodewijk Ari (Geophysical Supervisor)	Weeks, Roger Brian (Captain)
Endersby, Russell (Operations Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Bradshaw, Craig J (Navigator Sr)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Li, Melissa Xiaowei (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Nonis, P (N/A)
Tan, Vivian Ping Khun (Trainee Navigator)	Darlington, Mark (Electrician)
Jianjun, Pan (Navigator)	Andersen, Odd Helge (Electrician)
Perkin, Andrew John (Chief Observer)	Shelley, Noel (I/R Engineer)
Collinge, Neil Franklin (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Hales, David Shane (Senior Observer)	Graham, Peter (Chief Cook)
Cowie, John (Chief Observer)	Best, James (Steward)
Francisco, Richard Conce (Observer)	Savetta, Matthew (2nd Cook)
Ollada, Emmanuel Fabro (Observer)	Mcgregor, Murray Rowland (Steward)
De Young, David (Observer)	Lee, Robert (Bosun)
Haarmans, Johan Michael (Chief Mechanic)	May, Errol (I/R Engineer)
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Hufano, Ricardo Obong (Source Technician)	
Caisido, Remegio Caisido (Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Goddard, Graham (Sr Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Ellis, Kristian John Curwen (Field Geophysicist)	
Flower, Richard William (Field Geophysicist)	
Barratt, David Brian (Navigation Analyst)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	

Third Party	Client
Mendoza Jr, Constante (Medic)	Peu Duvalon, Raphael (Client Representative)

Totals						52			
Veritas	30	Contractor	18	Third Party	3	Client	1	Other	2

Date:	07/12/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Mcnelly, Richard Morgan (Party Mgr 1)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Fleming, Rick Ray (Navigator Ch 2A)
 Quinlan, Vera (Senior Navigator)
 Tibor, Thomas James (Navigator)
 Fletcher, Darryl Michael (Navigator)
 Tan, Alan Eng Liang (Trainee Navigator)
 Tan, Vivian Ping Khun (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Perkin, Andrew John (Senior Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Collinge, Neil Franklin (Senior Observer)
 Cowie, John (Chief Observer)
 Francisco, Richard Conce (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Haarmans, Johan Michael (Chief Mechanic)
 Certeza, Levi Basas (Source Technician)
 Naylor, David (Sr Source Technician)
 Ross, Stephen A (Senior Compressor Technician)
 Hieb, Galen Guy (Compressor Technician)
 Hawkins, Peter (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Harrison, Jeffrey William (Chief Technician)
 Ramos, Romeo P (Cable Repair Technician)

Contractor

Saevik, Helmik (Captain)
 Weeks, Roger Brian (Captain)
 Ramchandran, Rishiraj (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Kjerrgard, Kare (1st Eng)
 Heath, Robert (1st Engineer)
 Grimwood, Bruce (1st Engineer)
 Nonis, P (N/A)
 Darlington, Mark (Electrician)
 Hovland, Bjorn Tore Gaard (Electrician)
 Shelley, Noel (I/R Engineer)
 Draper, Dudley Drew (Chief Steward)
 Graham, Peter (Chief Cook)
 Best, James (Steward)
 Savetta, Matthew (2nd Cook)
 Mcgregor, Murray Rowland (Steward)
 Lee, Robert (Bosun)
 May, Errol (I/R Engineer)

Third Party

Mendoza Jr, Constante (Medic)
 Macknight, Fiona (Marine Biologist)
 Jackett, Nigel Alexander (Marine Biologist)
 Ashworth, Ryan (Marine Biologist)

Client

Hutchings, Colin Reginald (Client Representative)
 Barrow, Herbert (Client Representative)
 Kennard, James Montrose (Client Representative)

Totals

54

Veritas	29	Contractor	18	Third Party	4	Client	3	Other	
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Date:	07/11/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Mcnelly, Richard Morgan (Party Mgr 1)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Fleming, Rick Ray (Navigator Ch 2A)
 Quinlan, Vera (Senior Navigator)
 Tibor, Thomas James (Navigator)
 Fletcher, Darryl Michael (Navigator)
 Tan, Alan Eng Liang (Trainee Navigator)
 Tan, Vivian Ping Khun (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Perkin, Andrew John (Senior Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Collinge, Neil Franklin (Senior Observer)
 Cowie, John (Chief Observer)
 Francisco, Richard Conce (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Haarmans, Johan Michael (Chief Mechanic)
 Certeza, Levi Basas (Source Technician)
 Naylor, David (Sr Source Technician)
 Ross, Stephen A (Senior Compressor Technician)
 Hieb, Galen Guy (Compressor Technician)
 Hawkins, Peter (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Harrison, Jeffrey William (Chief Technician)
 Ramos, Romeo P (Cable Repair Technician)

Contractor

Saevik, Helmik (Captain)
 Weeks, Roger Brian (Captain)
 Ramchandran, Rishiraj (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Kjerrgard, Kare (1st Eng)
 Heath, Robert (1st Engineer)
 Grimwood, Bruce (1st Engineer)
 Nonis, P (N/A)
 Darlington, Mark (Electrician)
 Hovland, Bjorn Tore Gaard (Electrician)
 Shelley, Noel (I/R Engineer)
 Draper, Dudley Drew (Chief Steward)
 Graham, Peter (Chief Cook)
 Best, James (Steward)
 Savetta, Matthew (2nd Cook)
 Mcgregor, Murray Rowland (Steward)
 Lee, Robert (Bosun)
 May, Errol (I/R Engineer)

Third Party

Mendoza Jr, Constante (Medic)
 Macknight, Fiona (Marine Biologist)
 Jackett, Nigel Alexander (Marine Biologist)
 Ashworth, Ryan (Marine Biologist)

Client

Hutchings, Colin Reginald (Client Representative)
 Barrow, Herbert (Client Representative)
 Kennard, James Montrose (Client Representative)

Totals

54

Veritas	29	Contractor	18	Third Party	4	Client	3	Other	
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Date:	07/10/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Mcnelly, Richard Morgan (Party Mgr 1)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Fleming, Rick Ray (Navigator Ch 2A)
 Quinlan, Vera (Senior Navigator)
 Tibor, Thomas James (Navigator)
 Fletcher, Darryl Michael (Navigator)
 Tan, Alan Eng Liang (Trainee Navigator)
 Tan, Vivian Ping Khun (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Perkin, Andrew John (Senior Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Collinge, Neil Franklin (Senior Observer)
 Cowie, John (Chief Observer)
 Francisco, Richard Conce (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Haarmans, Johan Michael (Chief Mechanic)
 Certeza, Levi Basas (Source Technician)
 Naylor, David (Sr Source Technician)
 Ross, Stephen A (Senior Compressor Technician)
 Hieb, Galen Guy (Compressor Technician)
 Hawkins, Peter (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Harrison, Jeffrey William (Chief Technician)
 Ramos, Romeo P (Cable Repair Technician)

Contractor

Saevik, Helmik (Captain)
 Weeks, Roger Brian (Captain)
 Ramchandran, Rishiraj (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Kjerrgard, Kare (1st Eng)
 Heath, Robert (1st Engineer)
 Grimwood, Bruce (1st Engineer)
 Nonis, P (N/A)
 Darlington, Mark (Electrician)
 Hovland, Bjorn Tore Gaard (Electrician)
 Shelley, Noel (I/R Engineer)
 Draper, Dudley Drew (Chief Steward)
 Graham, Peter (Chief Cook)
 Best, James (Steward)
 Savetta, Matthew (2nd Cook)
 Mcgregor, Murray Rowland (Steward)
 Lee, Robert (Bosun)
 May, Errol (I/R Engineer)

Third Party

Mendoza Jr, Constante (Medic)
 Macknight, Fiona (Marine Biologist)
 Jackett, Nigel Alexander (Marine Biologist)
 Ashworth, Ryan (Marine Biologist)

Client

Hutchings, Colin Reginald (Client Representative)
 Barrow, Herbert (Client Representative)
 Kennard, James Montrose (Client Representative)

Totals

54

Veritas	29	Contractor	18	Third Party	4	Client	3	Other	
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Date:	07/09/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Weeks, Roger Brian (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Fletcher, Darryl Michael (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Nonis, P (N/A)
Tan, Vivian Ping Khun (Trainee Navigator)	Darlington, Mark (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Shelley, Noel (I/R Engineer)
Perkin, Andrew John (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Campbell, Gregory Gerard (Observer Sr)	Graham, Peter (Chief Cook)
Collinge, Neil Franklin (Senior Observer)	Best, James (Steward)
Cowie, John (Chief Observer)	Savetta, Matthew (2nd Cook)
Francisco, Richard Conce (Observer)	Mcgregor, Murray Rowland (Steward)
Anwar, Abdul Rashid B (Observer)	Lee, Robert (Bosun)
Doyle, Anthony Denis James (Trainee Observer)	May, Errol (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Kennard, James Montrose (Client Representative)
Ashworth, Ryan (Marine Biologist)	

Totals

54

Veritas	29	Contractor	18	Third Party	4	Client	3	Other
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Date:	07/08/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Weeks, Roger Brian (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Fletcher, Darryl Michael (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Nonis, P (N/A)
Tan, Vivian Ping Khun (Trainee Navigator)	Darlington, Mark (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Shelley, Noel (I/R Engineer)
Perkin, Andrew John (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Campbell, Gregory Gerard (Observer Sr)	Graham, Peter (Chief Cook)
Collinge, Neil Franklin (Senior Observer)	Best, James (Steward)
Cowie, John (Chief Observer)	Savetta, Matthew (2nd Cook)
Francisco, Richard Conce (Observer)	Mcgregor, Murray Rowland (Steward)
Anwar, Abdul Rashid B (Observer)	Lee, Robert (Bosun)
Doyle, Anthony Denis James (Trainee Observer)	May, Errol (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Kennard, James Montrose (Client Representative)
Ashworth, Ryan (Marine Biologist)	

Totals

54

Veritas	29	Contractor	18	Third Party	4	Client	3	Other
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Date:	07/07/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Mcnelly, Richard Morgan (Party Mgr 1)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Fleming, Rick Ray (Navigator Ch 2A)
 Quinlan, Vera (Senior Navigator)
 Tibor, Thomas James (Navigator)
 Fletcher, Darryl Michael (Navigator)
 Tan, Alan Eng Liang (Trainee Navigator)
 Tan, Vivian Ping Khun (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Perkin, Andrew John (Senior Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Collinge, Neil Franklin (Senior Observer)
 Cowie, John (Chief Observer)
 Francisco, Richard Conce (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Haarmans, Johan Michael (Chief Mechanic)
 Certeza, Levi Basas (Source Technician)
 Naylor, David (Sr Source Technician)
 Ross, Stephen A (Senior Compressor Technician)
 Hieb, Galen Guy (Compressor Technician)
 Hawkins, Peter (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Harrison, Jeffrey William (Chief Technician)
 Ramos, Romeo P (Cable Repair Technician)

Contractor

Saevik, Helmik (Captain)
 Weeks, Roger Brian (Captain)
 Ramchandran, Rishiraj (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Kjerrgard, Kare (1st Eng)
 Heath, Robert (1st Engineer)
 Grimwood, Bruce (1st Engineer)
 Nonis, P (N/A)
 Darlington, Mark (Electrician)
 Hovland, Bjorn Tore Gaard (Electrician)
 Shelley, Noel (I/R Engineer)
 Draper, Dudley Drew (Chief Steward)
 Graham, Peter (Chief Cook)
 Best, James (Steward)
 Savetta, Matthew (2nd Cook)
 Mcgregor, Murray Rowland (Steward)
 Lee, Robert (Bosun)
 May, Errol (I/R Engineer)

Third Party

Mendoza Jr, Constante (Medic)
 Macknight, Fiona (Marine Biologist)
 Jackett, Nigel Alexander (Marine Biologist)
 Ashworth, Ryan (Marine Biologist)

Client

Hutchings, Colin Reginald (Client Representative)
 Barrow, Herbert (Client Representative)
 Kennard, James Montrose (Client Representative)

Totals

54

Veritas	29	Contractor	18	Third Party	4	Client	3	Other	
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Date:	07/06/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Weeks, Roger Brian (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Fletcher, Darryl Michael (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Nonis, P (N/A)
Tan, Vivian Ping Khun (Trainee Navigator)	Darlington, Mark (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Shelley, Noel (I/R Engineer)
Perkin, Andrew John (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Campbell, Gregory Gerard (Observer Sr)	Graham, Peter (Chief Cook)
Collinge, Neil Franklin (Senior Observer)	Best, James (Steward)
Cowie, John (Chief Observer)	Savetta, Matthew (2nd Cook)
Francisco, Richard Conce (Observer)	Mcgregor, Murray Rowland (Steward)
Anwar, Abdul Rashid B (Observer)	Lee, Robert (Bosun)
Doyle, Anthony Denis James (Trainee Observer)	May, Errol (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Kennard, James Montrose (Client Representative)
Ashworth, Ryan (Marine Biologist)	

Totals

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Veritas	29	Contractor	18	Third Party	7	Client	3	Other	3
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Date:	07/05/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Weeks, Roger Brian (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Fletcher, Darryl Michael (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Nonis, P (N/A)
Tan, Vivian Ping Khun (Trainee Navigator)	Darlington, Mark (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Shelley, Noel (I/R Engineer)
Perkin, Andrew John (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Campbell, Gregory Gerard (Observer Sr)	Graham, Peter (Chief Cook)
Collinge, Neil Franklin (Senior Observer)	Best, James (Steward)
Cowie, John (Chief Observer)	Savetta, Matthew (2nd Cook)
Francisco, Richard Conce (Observer)	Mcgregor, Murray Rowland (Steward)
Anwar, Abdul Rashid B (Observer)	Lee, Robert (Bosun)
Doyle, Anthony Denis James (Trainee Observer)	May, Errol (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Kennard, James Montrose (Client Representative)
Ashworth, Ryan (Marine Biologist)	

Totals						57
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Veritas	29	Contractor	18	Third Party	7	Client	3	Other	3
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Date:	07/04/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Weeks, Roger Brian (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Fletcher, Darryl Michael (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Nonis, P (N/A)
Tan, Vivian Ping Khun (Trainee Navigator)	Darlington, Mark (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Shelley, Noel (I/R Engineer)
Perkin, Andrew John (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Campbell, Gregory Gerard (Observer Sr)	Graham, Peter (Chief Cook)
Collinge, Neil Franklin (Senior Observer)	Best, James (Steward)
Cowie, John (Chief Observer)	Savetta, Matthew (2nd Cook)
Francisco, Richard Conce (Observer)	Mcgregor, Murray Rowland (Steward)
Anwar, Abdul Rashid B (Observer)	Lee, Robert (Bosun)
Doyle, Anthony Denis James (Trainee Observer)	May, Errol (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Kennard, James Montrose (Client Representative)
Ashworth, Ryan (Marine Biologist)	

Totals						57			
Veritas	29	Contractor	18	Third Party	7	Client	3	Other	3

Date:	07/03/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Weeks, Roger Brian (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Fletcher, Darryl Michael (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Nonis, P (2nd Eng.)
Tan, Vivian Ping Khun (Trainee Navigator)	Darlington, Mark (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Shelley, Noel (I/R Engineer)
Perkin, Andrew John (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Campbell, Gregory Gerard (Observer Sr)	Graham, Peter (Chief Cook)
Collinge, Neil Franklin (Senior Observer)	Best, James (Steward)
Cowie, John (Chief Observer)	Savetta, Matthew (2nd Cook)
Francisco, Richard Conce (Observer)	Mcgregor, Murray Rowland (Steward)
Anwar, Abdul Rashid B (Observer)	Lee, Robert (Bosun)
Doyle, Anthony Denis James (Trainee Observer)	May, Errol (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Higgins, Brett Andrew (Mechanic)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Kennard, James Montrose (Client Representative)
Ashworth, Ryan (Marine Biologist)	
Totals	58
Veritas 30	Contractor 18
Third Party 7	Client 3
Other 3	

Date:	07/02/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Mcnelly, Richard Morgan (Party Mgr 1)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Fleming, Rick Ray (Navigator Ch 2A)
 Quinlan, Vera (Senior Navigator)
 Tibor, Thomas James (Navigator)
 Fletcher, Darryl Michael (Navigator)
 Tan, Alan Eng Liang (Trainee Navigator)
 Tan, Vivian Ping Khun (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Perkin, Andrew John (Senior Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Collinge, Neil Franklin (Senior Observer)
 Cowie, John (Chief Observer)
 Francisco, Richard Conce (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Haarmans, Johan Michael (Chief Mechanic)
 Certeza, Levi Basas (Source Technician)
 Naylor, David (Sr Source Technician)
 Higgins, Brett Andrew (Mechanic)
 Ross, Stephen A (Senior Compressor Technician)
 Hieb, Galen Guy (Compressor Technician)
 Hawkins, Peter (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Harrison, Jeffrey William (Chief Technician)
 Ramos, Romeo P (Cable Repair Technician)

Contractor

Saevik, Helmik (Captain)
 Weeks, Roger Brian (Captain)
 Ramchandran, Rishiraj (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Kjerrgard, Kare (1st Eng)
 Heath, Robert (1st Engineer)
 Grimwood, Bruce (1st Engineer)
 Nonis, P (2nd Eng.)
 Darlington, Mark (Electrician)
 Hovland, Bjorn Tore Gaard (Electrician)
 Shelley, Noel (I/R Engineer)
 Draper, Dudley Drew (Chief Steward)
 Graham, Peter (Chief Cook)
 Best, James (Steward)
 Savetta, Matthew (2nd Cook)
 Mcgregor, Murray Rowland (Steward)
 Lee, Robert (Bosun)
 May, Errol (I/R Engineer)

Third Party

Mendoza Jr, Constante (Medic)
 Macknight, Fiona (Marine Biologist)
 Jackett, Nigel Alexander (Marine Biologist)
 Ashworth, Ryan (Marine Biologist)

Client

Hutchings, Colin Reginald (Client Representative)
 Barrow, Herbert (Client Representative)
 Kennard, James Montrose (Client Representative)

Totals

58

Veritas	30	Contractor	18	Third Party	7	Client	3	Other	3
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Date:	07/01/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Weeks, Roger Brian (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Fletcher, Darryl Michael (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Nonis, P (2nd Eng.)
Tan, Vivian Ping Khun (Trainee Navigator)	Darlington, Mark (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Shelley, Noel (I/R Engineer)
Perkin, Andrew John (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Campbell, Gregory Gerard (Observer Sr)	Graham, Peter (Chief Cook)
Collinge, Neil Franklin (Senior Observer)	Best, James (Steward)
Cowie, John (Chief Observer)	Savetta, Matthew (2nd Cook)
Francisco, Richard Conce (Observer)	Mcgregor, Murray Rowland (Steward)
Anwar, Abdul Rashid B (Observer)	Lee, Robert (Bosun)
Doyle, Anthony Denis James (Trainee Observer)	May, Errol (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Higgins, Brett Andrew (Mechanic)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Kennard, James Montrose (Client Representative)
Ashworth, Ryan (Marine Biologist)	
Totals	58
Veritas 30	Contractor 18
Third Party 7	Client 3
	Other 3

Date:	06/30/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Weeks, Roger Brian (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Fletcher, Darryl Michael (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Nonis, P (2nd Eng.)
Tan, Vivian Ping Khun (Trainee Navigator)	Darlington, Mark (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Shelley, Noel (I/R Engineer)
Perkin, Andrew John (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Campbell, Gregory Gerard (Observer Sr)	Graham, Peter (Chief Cook)
Collinge, Neil Franklin (Senior Observer)	Best, James (Steward)
Cowie, John (Chief Observer)	Savetta, Matthew (2nd Cook)
Francisco, Richard Conce (Observer)	Mcgregor, Murray Rowland (Steward)
Anwar, Abdul Rashid B (Observer)	Lee, Robert (Bosun)
Doyle, Anthony Denis James (Trainee Observer)	May, Errol (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Higgins, Brett Andrew (Mechanic)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Kennard, James Montrose (Client Representative)
Ashworth, Ryan (Marine Biologist)	
Totals	58
Veritas 30	Contractor 18
Third Party 7	Client 3
	Other 3

Date:	06/29/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Weeks, Roger Brian (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Fletcher, Darryl Michael (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Nonis, P (2nd Eng.)
Tan, Vivian Ping Khun (Trainee Navigator)	Darlington, Mark (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Shelley, Noel (I/R Engineer)
Perkin, Andrew John (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Campbell, Gregory Gerard (Observer Sr)	Graham, Peter (Chief Cook)
Collinge, Neil Franklin (Senior Observer)	Best, James (Steward)
Cowie, John (Chief Observer)	Savetta, Matthew (2nd Cook)
Francisco, Richard Conce (Observer)	Mcgregor, Murray Rowland (Steward)
Anwar, Abdul Rashid B (Observer)	Lee, Robert (Bosun)
Doyle, Anthony Denis James (Trainee Observer)	May, Errol (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Higgins, Brett Andrew (Mechanic)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Kennard, James Montrose (Client Representative)
Ashworth, Ryan (Marine Biologist)	
Totals	58
Veritas 30	Contractor 18
Third Party 7	Client 3
	Other 3

Date:	06/28/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Weeks, Roger Brian (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Fletcher, Darryl Michael (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Nonis, P (2nd Eng.)
Tan, Vivian Ping Khun (Trainee Navigator)	Darlington, Mark (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Shelley, Noel (I/R Engineer)
Perkin, Andrew John (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Campbell, Gregory Gerard (Observer Sr)	Graham, Peter (Chief Cook)
Collinge, Neil Franklin (Senior Observer)	Best, James (Steward)
Cowie, John (Chief Observer)	Savetta, Matthew (2nd Cook)
Francisco, Richard Conce (Observer)	Mcgregor, Murray Rowland (Steward)
Anwar, Abdul Rashid B (Observer)	Lee, Robert (Bosun)
Doyle, Anthony Denis James (Trainee Observer)	May, Errol (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Higgins, Brett Andrew (Mechanic)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Kennard, James Montrose (Client Representative)
Ashworth, Ryan (Marine Biologist)	
Totals	58
Veritas 30	Contractor 18
Third Party 7	Client 3
	Other 3

Date:	06/27/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Mcnelly, Richard Morgan (Party Mgr 1)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Fleming, Rick Ray (Navigator Ch 2A)
 Quinlan, Vera (Senior Navigator)
 Tibor, Thomas James (Navigator)
 Fletcher, Darryl Michael (Navigator)
 Tan, Alan Eng Liang (Trainee Navigator)
 Tan, Vivian Ping Khun (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Perkin, Andrew John (Senior Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Collinge, Neil Franklin (Senior Observer)
 Cowie, John (Chief Observer)
 Francisco, Richard Conce (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Haarmans, Johan Michael (Chief Mechanic)
 Certeza, Levi Basas (Source Technician)
 Naylor, David (Sr Source Technician)
 Higgins, Brett Andrew (Mechanic)
 Ross, Stephen A (Senior Compressor Technician)
 Hieb, Galen Guy (Compressor Technician)
 Hawkins, Peter (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Harrison, Jeffrey William (Chief Technician)
 Ramos, Romeo P (Cable Repair Technician)

Contractor

Saevik, Helmik (Captain)
 Weeks, Roger Brian (Captain)
 Ramchandran, Rishiraj (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Kjerrgard, Kare (1st Eng)
 Heath, Robert (1st Engineer)
 Grimwood, Bruce (1st Engineer)
 Nonis, P (2nd Eng.)
 Darlington, Mark (Electrician)
 Hovland, Bjorn Tore Gaard (Electrician)
 Shelley, Noel (I/R Engineer)
 Draper, Dudley Drew (Chief Steward)
 Graham, Peter (Chief Cook)
 Best, James (Steward)
 Savetta, Matthew (2nd Cook)
 Mcgregor, Murray Rowland (Steward)
 Lee, Robert (Bosun)
 May, Errol (I/R Engineer)

Third Party

Mendoza Jr, Constante (Medic)
 Macknight, Fiona (Marine Biologist)
 Jackett, Nigel Alexander (Marine Biologist)
 Ashworth, Ryan (Marine Biologist)

Client

Hutchings, Colin Reginald (Client Representative)
 Barrow, Herbert (Client Representative)
 Kennard, James Montrose (Client Representative)

Totals

58

Veritas	30	Contractor	18	Third Party	7	Client	3	Other	3
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Date:	06/26/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Weeks, Roger Brian (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Fletcher, Darryl Michael (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Nonis, P (2nd Eng.)
Tan, Vivian Ping Khun (Trainee Navigator)	Darlington, Mark (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Shelley, Noel (I/R Engineer)
Perkin, Andrew John (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Campbell, Gregory Gerard (Observer Sr)	Graham, Peter (Chief Cook)
Collinge, Neil Franklin (Senior Observer)	Best, James (Steward)
Cowie, John (Chief Observer)	Savetta, Matthew (2nd Cook)
Francisco, Richard Conce (Observer)	Mcgregor, Murray Rowland (Steward)
Anwar, Abdul Rashid B (Observer)	Lee, Robert (Bosun)
Doyle, Anthony Denis James (Trainee Observer)	May, Errol (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Higgins, Brett Andrew (Mechanic)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Kennard, James Montrose (Client Representative)
Ashworth, Ryan (Marine Biologist)	
Totals	58
Veritas 30	Contractor 18
Third Party 7	Client 3
	Other 3

Date:	06/25/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Hardy, Paul (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Honiss, Gerhard (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Farley, Edward Roy (Chief Engineer)
Fletcher, Darryl Michael (Navigator)	Appel, Tomiln (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Leach, Peter Thomas (2nd Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hockley, Keith Robert (Electrician)
Hewison, Howard (Trainee Navigator)	Duffy, Robert Andrew (Chief Cook)
Perkin, Andrew John (Senior Observer)	Williams, Paul Robert (2nd Cook)
Campbell, Gregory Gerard (Observer Sr)	Cavanagh, Ronald (Chief Steward)
Collinge, Neil Franklin (Senior Observer)	Fairbrother, Cyra Louise (Stewardess)
Cowie, John (Chief Observer)	Gobel, Brian William Keith (Steward)
Francisco, Richard Conce (Observer)	Cooper, Peter Terrence (I/R Engineer)
Anwar, Abdul Rashid B (Observer)	Diggle, Mark Leslie (I/R Engineer)
Doyle, Anthony Denis James (Trainee Observer)	Cooks, Andrew (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	Miller, Paul Anthony (I/R Engineer)
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Higgins, Brett Andrew (Mechanic)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Waugh, Nathan Francis (Marine Biologist)	Kennard, James Montrose (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Chandler, Emma Soili (Client)
	Dousset, Jaimee (Client)

Totals					61
Veritas	30	Contractor	19	Third Party	7
				Client	5
				Other	3

Date:	06/24/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Hardy, Paul (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Honiss, Gerhard (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Farley, Edward Roy (Chief Engineer)
Fletcher, Darryl Michael (Navigator)	Appel, Tomiln (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Leach, Peter Thomas (2nd Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hockley, Keith Robert (Electrician)
Hewison, Howard (Trainee Navigator)	Duffy, Robert Andrew (Chief Cook)
Perkin, Andrew John (Senior Observer)	Williams, Paul Robert (2nd Cook)
Campbell, Gregory Gerard (Observer Sr)	Cavanagh, Ronald (Chief Steward)
Collinge, Neil Franklin (Senior Observer)	Fairbrother, Cyra Louise (Stewardess)
Cowie, John (Chief Observer)	Gobel, Brian William Keith (Steward)
Francisco, Richard Conce (Observer)	Cooper, Peter Terrence (I/R Engineer)
Anwar, Abdul Rashid B (Observer)	Diggle, Mark Leslie (I/R Engineer)
Doyle, Anthony Denis James (Trainee Observer)	Cooks, Andrew (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	Miller, Paul Anthony (I/R Engineer)
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Higgins, Brett Andrew (Mechanic)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Waugh, Nathan Francis (Marine Biologist)	Kennard, James Montrose (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Chandler, Emma Soili (Client)
	Dousset, Jaimee (Client)

Totals					61
Veritas	30	Contractor	19	Third Party	7
				Client	5
				Other	3

Date:	06/23/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Mcnelly, Richard Morgan (Party Mgr 1)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Fleming, Rick Ray (Navigator Ch 2A)
 Quinlan, Vera (Senior Navigator)
 Tibor, Thomas James (Navigator)
 Fletcher, Darryl Michael (Navigator)
 Tan, Alan Eng Liang (Trainee Navigator)
 Tan, Vivian Ping Khun (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Perkin, Andrew John (Senior Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Collinge, Neil Franklin (Senior Observer)
 Cowie, John (Chief Observer)
 Francisco, Richard Conce (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Haarmans, Johan Michael (Chief Mechanic)
 Certeza, Levi Basas (Source Technician)
 Naylor, David (Sr Source Technician)
 Higgins, Brett Andrew (Mechanic)
 Ross, Stephen A (Senior Compressor Technician)
 Hieb, Galen Guy (Compressor Technician)
 Hawkins, Peter (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Harrison, Jeffrey William (Chief Technician)
 Ramos, Romeo P (Cable Repair Technician)

Contractor

Saevik, Helmik (Captain)
 Hardy, Paul (Captain)
 Honiss, Gerhard (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Kjerrgard, Kare (1st Eng)
 Farley, Edward Roy (Chief Engineer)
 Appel, Tomiln (1st Engineer)
 Leach, Peter Thomas (2nd Engineer)
 Hovland, Bjorn Tore Gaard (Electrician)
 Hockley, Keith Robert (Electrician)
 Duffy, Robert Andrew (Chief Cook)
 Williams, Paul Robert (2nd Cook)
 Cavanagh, Ronald (Chief Steward)
 Fairbrother, Cyra Louise (Stewardess)
 Gobel, Brian William Keith (Steward)
 Cooper, Peter Terrence (I/R Engineer)
 Diggle, Mark Leslie (I/R Engineer)
 Cooks, Andrew (I/R Engineer)
 Miller, Paul Anthony (I/R Engineer)

Third Party

Mendoza Jr, Constante (Medic)
 Macknight, Fiona (Marine Biologist)
 Waugh, Nathan Francis (Marine Biologist)
 Jakkett, Nigel Alexander (Marine Biologist)

Client

Hutchings, Colin Reginald (Client Representative)
 Barrow, Herbert (Client Representative)
 Kennard, James Montrose (Client Representative)
 Chandler, Emma Soili (Client)
 Dousset, Jaimee (Client)

Totals

61

Veritas	30	Contractor	19	Third Party	7	Client	5	Other	3
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Date:	06/22/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Hardy, Paul (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Honiss, Gerhard (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Farley, Edward Roy (Chief Engineer)
Fletcher, Darryl Michael (Navigator)	Appel, Tomiln (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Leach, Peter Thomas (2nd Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hockley, Keith Robert (Electrician)
Hewison, Howard (Trainee Navigator)	Duffy, Robert Andrew (Chief Cook)
Perkin, Andrew John (Senior Observer)	Williams, Paul Robert (2nd Cook)
Campbell, Gregory Gerard (Observer Sr)	Cavanagh, Ronald (Chief Steward)
Collinge, Neil Franklin (Senior Observer)	Fairbrother, Cyra Louise (Stewardess)
Cowie, John (Chief Observer)	Gobel, Brian William Keith (Steward)
Francisco, Richard Conce (Observer)	Cooper, Peter Terrence (I/R Engineer)
Anwar, Abdul Rashid B (Observer)	Diggle, Mark Leslie (I/R Engineer)
Doyle, Anthony Denis James (Trainee Observer)	Cooks, Andrew (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	Miller, Paul Anthony (I/R Engineer)
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Higgins, Brett Andrew (Mechanic)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Waugh, Nathan Francis (Marine Biologist)	Kennard, James Montrose (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Chandler, Emma Soili (Client)
	Dousset, Jaimee (Client)

Totals					61
Veritas	30	Contractor	19	Third Party	7
				Client	5
				Other	3

Date:	06/21/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Mcnelly, Richard Morgan (Party Mgr 1)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Fleming, Rick Ray (Navigator Ch 2A)
 Quinlan, Vera (Senior Navigator)
 Tibor, Thomas James (Navigator)
 Fletcher, Darryl Michael (Navigator)
 Tan, Alan Eng Liang (Trainee Navigator)
 Tan, Vivian Ping Khun (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Perkin, Andrew John (Senior Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Collinge, Neil Franklin (Senior Observer)
 Cowie, John (Chief Observer)
 Francisco, Richard Conce (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Haarmans, Johan Michael (Chief Mechanic)
 Certeza, Levi Basas (Source Technician)
 Naylor, David (Sr Source Technician)
 Higgins, Brett Andrew (Mechanic)
 Ross, Stephen A (Senior Compressor Technician)
 Hieb, Galen Guy (Compressor Technician)
 Hawkins, Peter (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Harrison, Jeffrey William (Chief Technician)
 Ramos, Romeo P (Cable Repair Technician)

Contractor

Saevik, Helmik (Captain)
 Hardy, Paul (Captain)
 Honiss, Gerhard (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Kjerrgard, Kare (1st Eng)
 Farley, Edward Roy (Chief Engineer)
 Appel, Tomiln (1st Engineer)
 Leach, Peter Thomas (2nd Engineer)
 Hovland, Bjorn Tore Gaard (Electrician)
 Hockley, Keith Robert (Electrician)
 Duffy, Robert Andrew (Chief Cook)
 Williams, Paul Robert (2nd Cook)
 Cavanagh, Ronald (Chief Steward)
 Fairbrother, Cyra Louise (Stewardess)
 Gobel, Brian William Keith (Steward)
 Cooper, Peter Terrence (I/R Engineer)
 Diggle, Mark Leslie (I/R Engineer)
 Cooks, Andrew (I/R Engineer)
 Miller, Paul Anthony (I/R Engineer)

Third Party

Mendoza Jr, Constante (Medic)
 Macknight, Fiona (Marine Biologist)
 Waugh, Nathan Francis (Marine Biologist)
 Jakkett, Nigel Alexander (Marine Biologist)

Client

Hutchings, Colin Reginald (Client Representative)
 Barrow, Herbert (Client Representative)
 Kennard, James Montrose (Client Representative)
 Chandler, Emma Soili (Client)
 Dousset, Jaimee (Client)

Totals

72

Veritas	30	Contractor	19	Third Party	18	Client	5	Other	14
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Date:	06/20/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Hardy, Paul (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Honiss, Gerhard (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Farley, Edward Roy (Chief Engineer)
Fletcher, Darryl Michael (Navigator)	Appel, Tomiln (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Leach, Peter Thomas (2nd Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hockley, Keith Robert (Electrician)
Hewison, Howard (Trainee Navigator)	Duffy, Robert Andrew (Chief Cook)
Perkin, Andrew John (Senior Observer)	Williams, Paul Robert (2nd Cook)
Campbell, Gregory Gerard (Observer Sr)	Cavanagh, Ronald (Chief Steward)
Collinge, Neil Franklin (Senior Observer)	Fairbrother, Cyra Louise (Stewardess)
Cowie, John (Chief Observer)	Gobel, Brian William Keith (Steward)
Francisco, Richard Conce (Observer)	Cooper, Peter Terrence (I/R Engineer)
Anwar, Abdul Rashid B (Observer)	Diggle, Mark Leslie (I/R Engineer)
Doyle, Anthony Denis James (Trainee Observer)	Cooks, Andrew (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	Miller, Paul Anthony (I/R Engineer)
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Higgins, Brett Andrew (Mechanic)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Waugh, Nathan Francis (Marine Biologist)	Kennard, James Montrose (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Chandler, Emma Soili (Client)
	Dousset, Jaimee (Client)

Totals

72

Veritas	30	Contractor	19	Third Party	18	Client	5	Other	14
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Date:	06/19/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Hardy, Paul (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Honiss, Gerhard (Chief Mate)
Fleming, Rick Ray (Navigator Ch 2A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Kjerrgard, Kare (1st Eng)
Tibor, Thomas James (Navigator)	Farley, Edward Roy (Chief Engineer)
Fletcher, Darryl Michael (Navigator)	Appel, Tomiln (1st Engineer)
Tan, Alan Eng Liang (Trainee Navigator)	Leach, Peter Thomas (2nd Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Malofeev, Mikhail (Trainee Navigator)	Hockley, Keith Robert (Electrician)
Hewison, Howard (Trainee Navigator)	Duffy, Robert Andrew (Chief Cook)
Perkin, Andrew John (Senior Observer)	Williams, Paul Robert (2nd Cook)
Campbell, Gregory Gerard (Observer Sr)	Cavanagh, Ronald (Chief Steward)
Collinge, Neil Franklin (Senior Observer)	Fairbrother, Cyra Louise (Stewardess)
Cowie, John (Chief Observer)	Gobel, Brian William Keith (Steward)
Francisco, Richard Conce (Observer)	Cooper, Peter Terrence (I/R Engineer)
Anwar, Abdul Rashid B (Observer)	Diggle, Mark Leslie (I/R Engineer)
Doyle, Anthony Denis James (Trainee Observer)	Cooks, Andrew (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	Miller, Paul Anthony (I/R Engineer)
Haarmans, Johan Michael (Chief Mechanic)	
Certeza, Levi Basas (Source Technician)	
Naylor, David (Sr Source Technician)	
Higgins, Brett Andrew (Mechanic)	
Ross, Stephen A (Senior Compressor Technician)	
Hieb, Galen Guy (Compressor Technician)	
Hawkins, Peter (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Waugh, Nathan Francis (Marine Biologist)	Kennard, James Montrose (Client Representative)
Jackett, Nigel Alexander (Marine Biologist)	Chandler, Emma Soili (Client)
	Dousset, Jaimee (Client)

Totals					61
Veritas	30	Contractor	19	Third Party	7
				Client	5
				Other	3

Date:	06/18/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas		Contractor	
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)		Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)	
Third Party		Client	
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)		Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)	
Totals			
Veritas	28	Contractor	19
		Third Party	7
		Client	3
		Other	3

Date:	06/17/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor			
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)	Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)			
Third Party	Client			
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)	Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)			
Totals				
Veritas 28	Contractor 19	Third Party 7	Client 3	Other 3

Date:	06/16/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)	Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)	Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)

Totals

57

Veritas	28	Contractor	19	Third Party	7	Client	3	Other	3
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Date:	06/15/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)	Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)	Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)

Totals

57

Veritas	28	Contractor	19	Third Party	7	Client	3	Other	3
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Date:	06/14/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor								
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)	Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)								
Third Party	Client								
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)	Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)								
Totals									
Veritas	28	Contractor	19	Third Party	7	Client	3	Other	3

Date:	06/13/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)	Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)	Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)

Totals

57

Veritas	28	Contractor	19	Third Party	7	Client	3	Other	3
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Date:	06/12/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)	Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)	Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)

Totals

57

Veritas	28	Contractor	19	Third Party	7	Client	3	Other	3
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Date:	06/11/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas		Contractor							
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)		Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)							
Third Party		Client							
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)		Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)							
Totals									
Veritas	28	Contractor	19	Third Party	7	Client	3	Other	3

Date:	06/10/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas		Contractor							
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)		Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)							
Third Party		Client							
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)		Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)							
Totals									
Veritas	28	Contractor	19	Third Party	7	Client	3	Other	3

Date:	06/09/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor								
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)	Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)								
Third Party	Client								
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)	Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)								
Totals									
Veritas	28	Contractor	19	Third Party	7	Client	3	Other	3

Date:	06/08/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor								
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)	Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)								
Third Party	Client								
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)	Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)								
Totals									
Veritas	28	Contractor	19	Third Party	7	Client	3	Other	3

Date:	06/07/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas		Contractor	
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)		Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)	
Third Party		Client	
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)		Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)	
Totals			
Veritas	28	Contractor	19
		Third Party	7
		Client	3
		Other	3

Date:	06/06/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Cassim, Glenn Gordon (Operations Supervisor) Bell, Michael Angus William (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Quinlan, Vera (Senior Navigator) Harman, Noel Edward (Navigator) Griffiths, Sam Marc (Navigator) Fletcher, Darryl Michael (Trainee Navigator) Malofeev, Mikhail (Trainee Navigator) Hewison, Howard (Trainee Navigator) Hayden, Leslie William (Senior Observer) Shelley, Neil Brad (Observer) Campbell, Gregory Gerard (Observer Sr) Wells, Mike John (Observer) Anwar, Abdul Rashid B (Observer) Doyle, Anthony Denis James (Trainee Observer) Tan, Larry Hock Chye (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Higgins, Brett Andrew (Mechanic) Tambi, Deris Ak (Source Technician) Strickland, Anthony Wayne (Mechanic Ch) Hieb, Galen Guy (Compressor Technician) Jones, Paul William (Snr Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Lofts, Alan (Navigator) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)	Knutsen, Knut (Captain) Hardy, Paul (Captain) Honiss, Gerhard (Chief Mate) Ballantine, Kenneth Gordon (2nd Officer) Trengereid, Birger Kare (Chief Engineer) Farley, Edward Roy (Chief Engineer) Appel, Tomiln (1st Engineer) Leach, Peter Thomas (2nd Engineer) Hovland, Bjorn Tore Gaard (Electrician) Hockley, Keith Robert (Electrician) Duffy, Robert Andrew (Chief Cook) Williams, Paul Robert (2nd Cook) Cavanagh, Ronald (Chief Steward) Fairbrother, Cyra Louise (Stewardess) Gobel, Brian William Keith (Steward) Cooper, Peter Terrence (I/R Engineer) Diggle, Mark Leslie (I/R Engineer) Cooks, Andrew (I/R Engineer) Miller, Paul Anthony (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Macknight, Fiona (Marine Biologist) Waugh, Nathan Francis (Marine Biologist) Allen, Simon James (Marine Biologist)	Hutchings, Colin Reginald (Client Representative) Barrow, Herbert (Client Representative) Kennard, James Montrose (Client Representative)

Totals

57

Veritas	28	Contractor	19	Third Party	7	Client	3	Other	3
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Date:	06/05/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Grizaard, Howard Peter (Party Chief/Manager)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Collins, Jeremy N (Navigator Ch 1A)
 Quinlan, Vera (Senior Navigator)
 Harman, Noel Edward (Navigator)
 Griffiths, Sam Marc (Navigator)
 Fletcher, Darryl Michael (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Hayden, Leslie William (Senior Observer)
 Shelley, Neil Brad (Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Wells, Mike John (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Dyer, Stephen (Source Techn Sr)
 Tankard, Leonard Arthur (Sr Source Technician)
 Higgins, Brett Andrew (Mechanic)
 Tambi, Deris Ak (Source Technician)
 Strickland, Anthony Wayne (Mechanic Ch)
 Hieb, Galen Guy (Compressor Technician)
 Jones, Paul William (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Huseyn-Zada, Urfan Turqud (Senior Technician)
 Papio, Rommel Samson (Cable Repair Technician)

Contractor

Knutsen, Knut (Captain)
 Hardy, Paul (Captain)
 Honiss, Gerhard (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Trengereid, Birger Kare (Chief Engineer)
 Farley, Edward Roy (Chief Engineer)
 Appel, Tomiln (1st Engineer)
 Leach, Peter Thomas (2nd Engineer)
 Hovland, Bjorn Tore Gaard (Electrician)
 Hockley, Keith Robert (Electrician)
 Duffy, Robert Andrew (Chief Cook)
 Williams, Paul Robert (2nd Cook)
 Cavanagh, Ronald (Chief Steward)
 Fairbrother, Cyra Louise (Stewardess)
 Gobel, Brian William Keith (Steward)
 Cooper, Peter Terrence (I/R Engineer)
 Diggle, Mark Leslie (I/R Engineer)
 Cooks, Andrew (I/R Engineer)
 Miller, Paul Anthony (I/R Engineer)

Third Party

Manalang, Fedelino (Medic)
 Macknight, Fiona (Marine Biologist)
 Waugh, Nathan Francis (Marine Biologist)
 Allen, Simon James (Marine Biologist)

Client

Hutchings, Colin Reginald (Client Representative)
 Barrow, Herbert (Client Representative)
 Kennard, James Montrose (Client Representative)
 Tarin, Jean-Guy (Client Representative)
 Galloway, Anna (Client Representative)
 Danyluk, David Michael (Client Representative)

Totals

60

Veritas	28	Contractor	19	Third Party	7	Client	6	Other	3
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Date:	06/04/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Grizaard, Howard Peter (Party Chief/Manager)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Collins, Jeremy N (Navigator Ch 1A)
 Quinlan, Vera (Senior Navigator)
 Harman, Noel Edward (Navigator)
 Griffiths, Sam Marc (Navigator)
 Fletcher, Darryl Michael (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Hayden, Leslie William (Senior Observer)
 Shelley, Neil Brad (Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Wells, Mike John (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Dyer, Stephen (Source Techn Sr)
 Tankard, Leonard Arthur (Sr Source Technician)
 Higgins, Brett Andrew (Mechanic)
 Tambi, Deris Ak (Source Technician)
 Strickland, Anthony Wayne (Mechanic Ch)
 Hieb, Galen Guy (Compressor Technician)
 Jones, Paul William (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Huseyn-Zada, Urfan Turqud (Senior Technician)
 Papio, Rommel Samson (Cable Repair Technician)

Contractor

Knutsen, Knut (Captain)
 Hardy, Paul (Captain)
 Honiss, Gerhard (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Trengereid, Birger Kare (Chief Engineer)
 Farley, Edward Roy (Chief Engineer)
 Appel, Tomiln (1st Engineer)
 Leach, Peter Thomas (2nd Engineer)
 Hovland, Bjorn Tore Gaard (Electrician)
 Hockley, Keith Robert (Electrician)
 Duffy, Robert Andrew (Chief Cook)
 Williams, Paul Robert (2nd Cook)
 Cavanagh, Ronald (Chief Steward)
 Fairbrother, Cyra Louise (Stewardess)
 Gobel, Brian William Keith (Steward)
 Cooper, Peter Terrence (I/R Engineer)
 Diggle, Mark Leslie (I/R Engineer)
 Cooks, Andrew (I/R Engineer)
 Miller, Paul Anthony (I/R Engineer)

Third Party

Manalang, Fedelino (Medic)
 Macknight, Fiona (Marine Biologist)
 Waugh, Nathan Francis (Marine Biologist)
 Allen, Simon James (Marine Biologist)

Client

Hutchings, Colin Reginald (Client Representative)
 Barrow, Herbert (Client Representative)
 Kennard, James Montrose (Client Representative)
 Tarin, Jean-Guy (Client Representative)
 Galloway, Anna (Client Representative)
 Danyluk, David Michael (Client Representative)

Totals

60

Veritas	28	Contractor	19	Third Party	7	Client	6	Other	3
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Date:	06/03/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Grizaard, Howard Peter (Party Chief/Manager)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Collins, Jeremy N (Navigator Ch 1A)
 Quinlan, Vera (Senior Navigator)
 Harman, Noel Edward (Navigator)
 Griffiths, Sam Marc (Navigator)
 Fletcher, Darryl Michael (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Hayden, Leslie William (Senior Observer)
 Shelley, Neil Brad (Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Wells, Mike John (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Dyer, Stephen (Source Techn Sr)
 Tankard, Leonard Arthur (Sr Source Technician)
 Higgins, Brett Andrew (Mechanic)
 Tambi, Deris Ak (Source Technician)
 Strickland, Anthony Wayne (Mechanic Ch)
 Hieb, Galen Guy (Compressor Technician)
 Jones, Paul William (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Huseyn-Zada, Urfan Turqud (Senior Technician)
 Papio, Rommel Samson (Cable Repair Technician)

Contractor

Knutsen, Knut (Captain)
 Hardy, Paul (Captain)
 Honiss, Gerhard (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Trengereid, Birger Kare (Chief Engineer)
 Farley, Edward Roy (Chief Engineer)
 Appel, Tomiln (1st Engineer)
 Leach, Peter Thomas (2nd Engineer)
 Hovland, Bjorn Tore Gaard (Electrician)
 Hockley, Keith Robert (Electrician)
 Duffy, Robert Andrew (Chief Cook)
 Williams, Paul Robert (2nd Cook)
 Cavanagh, Ronald (Chief Steward)
 Fairbrother, Cyra Louise (Stewardess)
 Gobel, Brian William Keith (Steward)
 Cooper, Peter Terrence (I/R Engineer)
 Diggle, Mark Leslie (I/R Engineer)
 Cooks, Andrew (I/R Engineer)
 Miller, Paul Anthony (I/R Engineer)

Third Party

Manalang, Fedelino (Medic)
 Macknight, Fiona (Marine Biologist)
 Waugh, Nathan Francis (Marine Biologist)
 Allen, Simon James (Marine Biologist)

Client

Hutchings, Colin Reginald (Client Representative)
 Barrow, Herbert (Client Representative)
 Kennard, James Montrose (Client Representative)
 Tarin, Jean-Guy (Client Representative)
 Galloway, Anna (Client Representative)
 Danyluk, David Michael (Client Representative)

Totals

60

Veritas	28	Contractor	19	Third Party	7	Client	6	Other	3
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Date:	06/02/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager)	Knutsen, Knut (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Hardy, Paul (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Honiss, Gerhard (Chief Mate)
Collins, Jeremy N (Navigator Ch 1A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Trengereid, Birger Kare (Chief Engineer)
Harman, Noel Edward (Navigator)	Farley, Edward Roy (Chief Engineer)
Griffiths, Sam Marc (Navigator)	Appel, Tomiln (1st Engineer)
Fletcher, Darryl Michael (Trainee Navigator)	Leach, Peter Thomas (2nd Engineer)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Hockley, Keith Robert (Electrician)
Hayden, Leslie William (Senior Observer)	Duffy, Robert Andrew (Chief Cook)
Shelley, Neil Brad (Observer)	Williams, Paul Robert (2nd Cook)
Campbell, Gregory Gerard (Observer Sr)	Cavanagh, Ronald (Chief Steward)
Wells, Mike John (Observer)	Fairbrother, Cyra Louise (Stewardess)
Anwar, Abdul Rashid B (Observer)	Gobel, Brian William Keith (Steward)
Doyle, Anthony Denis James (Trainee Observer)	Cooper, Peter Terrence (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	Diggle, Mark Leslie (I/R Engineer)
Dyer, Stephen (Source Techn Sr)	Cooks, Andrew (I/R Engineer)
Tankard, Leonard Arthur (Sr Source Technician)	Miller, Paul Anthony (I/R Engineer)
Higgins, Brett Andrew (Mechanic)	
Tambi, Deris Ak (Source Technician)	
Strickland, Anthony Wayne (Mechanic Ch)	
Hieb, Galen Guy (Compressor Technician)	
Jones, Paul William (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Huseyn-Zada, Urfan Turqud (Senior Technician)	
Papio, Rommel Samson (Cable Repair Technician)	

Third Party	Client
Manalang, Fedelino (Medic)	Hutchings, Colin Reginald (Client Representative)
Macknight, Fiona (Marine Biologist)	Barrow, Herbert (Client Representative)
Waugh, Nathan Francis (Marine Biologist)	Kennard, James Montrose (Client Representative)
Allen, Simon James (Marine Biologist)	Tarin, Jean-Guy (Client Representative)
	Galloway, Anna (Client Representative)
	Danyluk, David Michael (Client Representative)

Totals						60			
Veritas	28	Contractor	19	Third Party	7	Client	6	Other	3

Date:	06/01/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Grizaard, Howard Peter (Party Chief/Manager)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Collins, Jeremy N (Navigator Ch 1A)
 Quinlan, Vera (Senior Navigator)
 Harman, Noel Edward (Navigator)
 Griffiths, Sam Marc (Navigator)
 Fletcher, Darryl Michael (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Hayden, Leslie William (Senior Observer)
 Shelley, Neil Brad (Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Wells, Mike John (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Dyer, Stephen (Source Techn Sr)
 Tankard, Leonard Arthur (Sr Source Technician)
 Higgins, Brett Andrew (Mechanic)
 Tambi, Deris Ak (Source Technician)
 Strickland, Anthony Wayne (Mechanic Ch)
 Hieb, Galen Guy (Compressor Technician)
 Jones, Paul William (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Huseyn-Zada, Urfan Turqud (Senior Technician)
 Papio, Rommel Samson (Cable Repair Technician)

Contractor

Knutsen, Knut (Captain)
 Hardy, Paul (Captain)
 Honiss, Gerhard (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Trengereid, Birger Kare (Chief Engineer)
 Farley, Edward Roy (Chief Engineer)
 Appel, Tomiln (1st Engineer)
 Leach, Peter Thomas (2nd Engineer)
 Hovland, Bjorn Tore Gaard (Electrician)
 Hockley, Keith Robert (Electrician)
 Duffy, Robert Andrew (Chief Cook)
 Williams, Paul Robert (2nd Cook)
 Cavanagh, Ronald (Chief Steward)
 Fairbrother, Cyra Louise (Stewardess)
 Gobel, Brian William Keith (Steward)
 Cooper, Peter Terrence (I/R Engineer)
 Diggle, Mark Leslie (I/R Engineer)
 Cooks, Andrew (I/R Engineer)
 Miller, Paul Anthony (I/R Engineer)

Third Party

Manalang, Fedelino (Medic)
 Macknight, Fiona (Marine Biologist)
 Waugh, Nathan Francis (Marine Biologist)
 Allen, Simon James (Marine Biologist)

Client

Hutchings, Colin Reginald (Client Representative)
 Barrow, Herbert (Client Representative)
 Kennard, James Montrose (Client Representative)
 Tarin, Jean-Guy (Client Representative)
 Galloway, Anna (Client Representative)
 Danyluk, David Michael (Client Representative)

Totals

60

Veritas	28	Contractor	19	Third Party	7	Client	6	Other	3
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Date:	05/31/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager)	Knutsen, Knut (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Hardy, Paul (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Honiss, Gerhard (Chief Mate)
Collins, Jeremy N (Navigator Ch 1A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Trengereid, Birger Kare (Chief Engineer)
Harman, Noel Edward (Navigator)	Farley, Edward Roy (Chief Engineer)
Griffiths, Sam Marc (Navigator)	Appel, Tomiln (1st Engineer)
Fletcher, Darryl Michael (Trainee Navigator)	Leach, Peter Thomas (2nd Engineer)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Hockley, Keith Robert (Electrician)
Hayden, Leslie William (Senior Observer)	Duffy, Robert Andrew (Chief Cook)
Shelley, Neil Brad (Observer)	Williams, Paul Robert (2nd Cook)
Campbell, Gregory Gerard (Observer Sr)	Cavanagh, Ronald (Chief Steward)
Wells, Mike John (Observer)	Fairbrother, Cyra Louise (Stewardess)
Anwar, Abdul Rashid B (Observer)	Gobel, Brian William Keith (Steward)
Doyle, Anthony Denis James (Trainee Observer)	Cooper, Peter Terrence (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	Diggle, Mark Leslie (I/R Engineer)
Dyer, Stephen (Source Techn Sr)	Cooks, Andrew (I/R Engineer)
Tankard, Leonard Arthur (Sr Source Technician)	Miller, Paul Anthony (I/R Engineer)
Higgins, Brett Andrew (Mechanic)	
Tambi, Deris Ak (Source Technician)	
Strickland, Anthony Wayne (Mechanic Ch)	
Hieb, Galen Guy (Compressor Technician)	
Jones, Paul William (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Huseyn-Zada, Urfan Turqud (Senior Technician)	
Papio, Rommel Samson (Cable Repair Technician)	
Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	

Third Party	Client
Manalang, Fedelino (Medic)	Danyluk, David Michael (Client)
Macknight, Fiona (Marine Biologist)	Lambert, Christopher Robert (Client)
Waugh, Nathan Francis (Marine Biologist)	Li, Michael Robert (Client)
Allen, Simon James (Marine Biologist)	Hutchings, Colin Reginald (Client Representative)
	Kennard, James Montrose (Client Representative)
	Thrupp, Ben (Client Representative)

Totals						60			
Veritas	29	Contractor	19	Third Party	6	Client	6	Other	2

Date:	05/30/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Grizaard, Howard Peter (Party Chief/Manager)
 Cassim, Glenn Gordon (Operations Supervisor)
 Bell, Michael Angus William (Geophysical Supervisor)
 Collins, Jeremy N (Navigator Ch 1A)
 Quinlan, Vera (Senior Navigator)
 Harman, Noel Edward (Navigator)
 Griffiths, Sam Marc (Navigator)
 Fletcher, Darryl Michael (Trainee Navigator)
 Malofeev, Mikhail (Trainee Navigator)
 Hewison, Howard (Trainee Navigator)
 Hayden, Leslie William (Senior Observer)
 Shelley, Neil Brad (Observer)
 Campbell, Gregory Gerard (Observer Sr)
 Wells, Mike John (Observer)
 Anwar, Abdul Rashid B (Observer)
 Doyle, Anthony Denis James (Trainee Observer)
 Tan, Larry Hock Chye (Trainee Observer)
 Dyer, Stephen (Source Techn Sr)
 Tankard, Leonard Arthur (Sr Source Technician)
 Higgins, Brett Andrew (Mechanic)
 Tambi, Deris Ak (Source Technician)
 Strickland, Anthony Wayne (Mechanic Ch)
 Hieb, Galen Guy (Compressor Technician)
 Jones, Paul William (Snr Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Lofts, Alan (Navigator)
 Huseyn-Zada, Urfan Turqud (Senior Technician)
 Papio, Rommel Samson (Cable Repair Technician)
 Shirley, Michael Clark (Supvr/navig Ops Acq Tech)

Contractor

Knutsen, Knut (Captain)
 Hardy, Paul (Captain)
 Honiss, Gerhard (Chief Mate)
 Ballantine, Kenneth Gordon (2nd Officer)
 Trengereid, Birger Kare (Chief Engineer)
 Farley, Edward Roy (Chief Engineer)
 Appel, Tomiln (1st Engineer)
 Leach, Peter Thomas (2nd Engineer)
 Hovland, Bjorn Tore Gaard (Electrician)
 Hockley, Keith Robert (Electrician)
 Duffy, Robert Andrew (Chief Cook)
 Williams, Paul Robert (2nd Cook)
 Cavanagh, Ronald (Chief Steward)
 Fairbrother, Cyra Louise (Stewardess)
 Gobel, Brian William Keith (Steward)
 Cooper, Peter Terrence (I/R Engineer)
 Diggle, Mark Leslie (I/R Engineer)
 Cooks, Andrew (I/R Engineer)
 Miller, Paul Anthony (I/R Engineer)

Third Party

Manalang, Fedelino (Medic)
 Macknight, Fiona (Marine Biologist)
 Waugh, Nathan Francis (Marine Biologist)
 Allen, Simon James (Marine Biologist)

Client

Danyluk, David Michael (Client)
 Lambert, Christopher Robert (Client)
 Li, Michael Robert (Client)
 Hutchings, Colin Reginald (Client Representative)
 Kennard, James Montrose (Client Representative)
 Thrupp, Ben (Client Representative)

Totals

61

Veritas	29	Contractor	19	Third Party	7	Client	6	Other	3
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Date:	05/29/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager)	Knutsen, Knut (Captain)
Cassim, Glenn Gordon (Operations Supervisor)	Hardy, Paul (Captain)
Bell, Michael Angus William (Geophysical Supervisor)	Honiss, Gerhard (Chief Mate)
Collins, Jeremy N (Navigator Ch 1A)	Ballantine, Kenneth Gordon (2nd Officer)
Quinlan, Vera (Senior Navigator)	Trengereid, Birger Kare (Chief Engineer)
Harman, Noel Edward (Navigator)	Farley, Edward Roy (Chief Engineer)
Griffiths, Sam Marc (Navigator)	Appel, Tomiln (1st Engineer)
Fletcher, Darryl Michael (Trainee Navigator)	Leach, Peter Thomas (2nd Engineer)
Malofeev, Mikhail (Trainee Navigator)	Hovland, Bjorn Tore Gaard (Electrician)
Hewison, Howard (Trainee Navigator)	Hockley, Keith Robert (Electrician)
Hayden, Leslie William (Senior Observer)	Duffy, Robert Andrew (Chief Cook)
Shelley, Neil Brad (Observer)	Williams, Paul Robert (2nd Cook)
Campbell, Gregory Gerard (Observer Sr)	Cavanagh, Ronald (Chief Steward)
Wells, Mike John (Observer)	Fairbrother, Cyra Louise (Stewardess)
Anwar, Abdul Rashid B (Observer)	Gobel, Brian William Keith (Steward)
Doyle, Anthony Denis James (Trainee Observer)	Cooper, Peter Terrence (I/R Engineer)
Tan, Larry Hock Chye (Trainee Observer)	Diggle, Mark Leslie (I/R Engineer)
Dyer, Stephen (Source Techn Sr)	Cooks, Andrew (I/R Engineer)
Tankard, Leonard Arthur (Sr Source Technician)	Miller, Paul Anthony (I/R Engineer)
Higgins, Brett Andrew (Mechanic)	
Tambi, Deris Ak (Source Technician)	
Strickland, Anthony Wayne (Mechanic Ch)	
Hieb, Galen Guy (Compressor Technician)	
Jones, Paul William (Snr Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Lofts, Alan (Navigator)	
Huseyn-Zada, Urfan Turqud (Senior Technician)	
Papio, Rommel Samson (Cable Repair Technician)	
Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	

Third Party	Client
Manalang, Fedelino (Medic)	Danyluk, David Michael (Client)
Macknight, Fiona (Marine Biologist)	Lambert, Christopher Robert (Client)
Waugh, Nathan Francis (Marine Biologist)	Li, Michael Robert (Client)
Allen, Simon James (Marine Biologist)	Hutchings, Colin Reginald (Client Representative)
	Kennard, James Montrose (Client Representative)
	Thrupp, Ben (Client Representative)

Totals						61			
Veritas	29	Contractor	19	Third Party	7	Client	6	Other	3

Date:	05/28/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)

Totals					56				
Veritas	27	Contractor	19	Third Party	7	Client	3	Other	3

Date:	05/27/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)

Totals					56				
Veritas	27	Contractor	19	Third Party	7	Client	3	Other	3

Date:	05/26/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)

Totals					56
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Veritas	27	Contractor	19	Third Party	7	Client	3	Other	3
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Date:	05/25/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)

Totals					56
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Veritas	27	Contractor	19	Third Party	7	Client	3	Other	3
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Date:	05/24/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)
Totals	
Veritas 27	Contractor 19
Third Party 7	Client 3
Other 3	56

Date:	05/23/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor			
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)			
Third Party	Client			
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)			
Totals 56				
Veritas 27	Contractor 19	Third Party 7	Client 3	Other 3

Date:	05/22/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)

Totals						62			
Veritas	27	Contractor	19	Third Party	13	Client	3	Other	9

Date:	05/21/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)

Totals						62
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Veritas	27	Contractor	19	Third Party	13	Client	3	Other	9
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Date:	05/20/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)

Totals						62			
Veritas	27	Contractor	19	Third Party	13	Client	3	Other	9

Date:	05/19/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)
Totals	
Veritas 27	Contractor 19
Third Party 13	Client 3
Other 9	62

Date:	05/18/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)
Totals	
Veritas 27 Contractor 19 Third Party 13 Client 3 Other 9	62

Date:	05/17/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)
Totals	
Veritas 27	Contractor 19
Third Party 13	Client 3
Other 9	62

Date:	05/16/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager)	Knutsen, Knut (Captain)
Turpin, Paul (Operations Supervisor)	Weeks, Roger Brian (Captain)
Boon, Marc Lodewijk Ari (Geophysical Supervisor)	Ramchandran, Rishiraj (Chief Mate)
Collins, Jeremy N (Navigator Ch 1A)	Pinto, Joe (2nd Mate)
Bradshaw, Craig J (Navigator Sr)	Aga, Einar (Ch. Engineer)
Harman, Noel Edward (Navigator)	Heath, Robert (1st Engineer)
Li, Melissa Xiaowei (Navigator)	Grimwood, Bruce (1st Engineer)
Griffiths, Sam Marc (Trainee Navigator)	Wark, David (2nd Engineer)
Hayden, Leslie William (Senior Observer)	Andersen, Odd Helge (Electrician)
Hales, David Shane (Senior Observer)	Darlington, Mark (Electrician)
Wells, Mike John (Observer)	Graham, Peter (Chief Cook)
Ollada, Emmanuel Fabro (Observer)	Savetta, Matthew (2nd Cook)
De Young, David (Trainee Observer)	Draper, Dudley Drew (Chief Steward)
Dyer, Stephen (Source Techn Sr)	Best, James (Steward)
Tankard, Leonard Arthur (Sr Source Technician)	Mcgregor, Murray Rowland (Steward)
Tambi, Deris Ak (Source Technician)	Lee, Robert (Bosun)
Hufano, Ricardo Obong (Source Technician)	Miller, Paul Anthony (I/R Engineer)
Caisido, Remegio Caisido (Source Technician)	Laurence, John (I/R Engineer)
Goddard, Graham (Sr Compressor Technician)	May, Errol (I/R Engineer)
Strickland, Anthony Wayne (Mechanic Ch)	
Jones, Paul William (Snr Field Geophysicist)	
Ellis, Kristian John Curwen (Field Geophysicist)	
Flower, Richard William (Field Geophysicist)	
Barratt, David Brian (Navigation Analyst)	
Huseyn-Zada, Urfan Turqud (Senior Technician)	
Papio, Rommel Samson (Cable Repair Technician)	
Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	
Third Party	Client
Manalang, Fedelino (Medic)	Danyluk, David Michael (Client)
Jarret, Bret Malcolm (Marine Biologist)	Lambert, Christopher Robert (Client)
Donolly, Dave (Marine Biologist)	Li, Michael Robert (Client)
Howard, Adrian (Marine Biologist)	

Totals						62
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Veritas	27	Contractor	19	Third Party	13	Client	3	Other	9
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Date:	05/15/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)

Totals						62
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Veritas	27	Contractor	19	Third Party	13	Client	3	Other	9
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Date:	05/14/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician) Shirley, Michael Clark (Supvr/navig Ops Acq Tech) La Bouve, Murphy Joseph (Training Coordinator)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)
Third Party	Client
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist) Morris, Colin (Technical adviser)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)

Totals

64

Veritas	28	Contractor	19	Third Party	14	Client	3	Other	9
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Date:	05/13/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas		Contractor							
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)		Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)							
Third Party		Client							
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)		Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)							
Totals				60					
Veritas	26	Contractor	19	Third Party	12	Client	3	Other	8

Date:	05/12/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas		Contractor							
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)		Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)							
Third Party		Client							
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)		Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)							
Totals				60					
Veritas	26	Contractor	19	Third Party	12	Client	3	Other	8

Date:	05/11/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor			
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)			
Third Party	Client			
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)			
Totals 60				
Veritas 26	Contractor 19	Third Party 12	Client 3	Other 8

Date:	05/10/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor			
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)	Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)			
Third Party	Client			
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)			
Totals 60				
Veritas 26	Contractor 19	Third Party 12	Client 3	Other 8

Date:	05/09/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas		Contractor							
Grizaard, Howard Peter (Party Chief/Manager) Turpin, Paul (Operations Supervisor) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Collins, Jeremy N (Navigator Ch 1A) Bradshaw, Craig J (Navigator Sr) Harman, Noel Edward (Navigator) Li, Melissa Xiaowei (Navigator) Griffiths, Sam Marc (Trainee Navigator) Hayden, Leslie William (Senior Observer) Hales, David Shane (Senior Observer) Wells, Mike John (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Dyer, Stephen (Source Techn Sr) Tankard, Leonard Arthur (Sr Source Technician) Tambi, Deris Ak (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Goddard, Graham (Sr Compressor Technician) Strickland, Anthony Wayne (Mechanic Ch) Jones, Paul William (Snr Field Geophysicist) Ellis, Kristian John Curwen (Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Huseyn-Zada, Urfan Turqud (Senior Technician) Papio, Rommel Samson (Cable Repair Technician)		Knutsen, Knut (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Aga, Einar (Ch. Engineer) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Wark, David (2nd Engineer) Andersen, Odd Helge (Electrician) Darlington, Mark (Electrician) Graham, Peter (Chief Cook) Savetta, Matthew (2nd Cook) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Mcgregor, Murray Rowland (Steward) Lee, Robert (Bosun) Miller, Paul Anthony (I/R Engineer) Laurence, John (I/R Engineer) May, Errol (I/R Engineer)							
Third Party		Client							
Manalang, Fedelino (Medic) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)		Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)							
Totals				60					
Veritas	26	Contractor	19	Third Party	12	Client	3	Other	8

Date:	05/08/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas		Contractor	
Grizaard, Howard Peter (Party Chief/Manager)		Knutsen, Knut (Captain)	
Turpin, Paul (Operations Supervisor)		Weeks, Roger Brian (Captain)	
Boon, Marc Lodewijk Ari (Geophysical Supervisor)		Ramchandran, Rishiraj (Chief Mate)	
Collins, Jeremy N (Navigator Ch 1A)		Pinto, Joe (2nd Mate)	
Bradshaw, Craig J (Navigator Sr)		Aga, Einar (Ch. Engineer)	
Harman, Noel Edward (Navigator)		Heath, Robert (1st Engineer)	
Li, Melissa Xiaowei (Navigator)		Grimwood, Bruce (1st Engineer)	
Griffiths, Sam Marc (Trainee Navigator)		Wark, David (2nd Engineer)	
Hayden, Leslie William (Senior Observer)		Andersen, Odd Helge (Electrician)	
Hales, David Shane (Senior Observer)		Darlington, Mark (Electrician)	
Wells, Mike John (Observer)		Graham, Peter (Chief Cook)	
Ollada, Emmanuel Fabro (Observer)		Savetta, Matthew (2nd Cook)	
De Young, David (Trainee Observer)		Draper, Dudley Drew (Chief Steward)	
Dyer, Stephen (Source Techn Sr)		Best, James (Steward)	
Tankard, Leonard Arthur (Sr Source Technician)		Mcgregor, Murray Rowland (Steward)	
Tambi, Deris Ak (Source Technician)		Lee, Robert (Bosun)	
Hufano, Ricardo Obong (Source Technician)		Miller, Paul Anthony (I/R Engineer)	
Caisido, Remegio Caisido (Source Technician)		Laurence, John (I/R Engineer)	
Goddard, Graham (Sr Compressor Technician)		May, Errol (I/R Engineer)	
Strickland, Anthony Wayne (Mechanic Ch)			
Jones, Paul William (Snr Field Geophysicist)			
Ellis, Kristian John Curwen (Field Geophysicist)			
Flower, Richard William (Field Geophysicist)			
Barratt, David Brian (Navigation Analyst)			
Huseyn-Zada, Urfan Turqud (Senior Technician)			
Papio, Rommel Samson (Cable Repair Technician)			
Third Party		Client	
Manalang, Fedelino (Medic)		Danyluk, David Michael (Client)	
Jarret, Bret Malcolm (Marine Biologist)		Lambert, Christopher Robert (Client)	
Donolly, Dave (Marine Biologist)		Li, Michael Robert (Client)	
Howard, Adrian (Marine Biologist)			
Totals		60	
Veritas	26	Contractor	19
Third Party	12	Client	3
Other	8		

Date:	05/07/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Fleming, Rick Ray (Navigator Ch 2A) Bradshaw, Craig J (Navigator Sr) Tibor, Thomas James (Navigator) Li, Melissa Xiaowei (Navigator) Tan, Vivian Ping Khun (Trainee Navigator) Perkin, Andrew John (Senior Observer) Collinge, Neil Franklin (Senior Observer) Hales, David Shane (Senior Observer) Francisco, Richard Conce (Observer) Dugdale, Clive Bernard (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Haarmans, Johan Michael (Chief Mechanic) Naylor, David (Sr Source Technician) Tankard, Leonard Arthur (Sr Source Technician) Certeza, Levi Basas (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Ross, Stephen A (Senior Compressor Technician) Goddard, Graham (Sr Compressor Technician) Ellis, Kristian John Curwen (Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Harrison, Jeffrey William (Chief Technician) Ramos, Romeo P (Cable Repair Technician)	Saevik, Helmik (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Kjerrgard, Kare (1st Eng) Appel, Tomiln (1st Engineer) Andersen, Odd Helge (Electrician) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Graham, Peter (Chief Cook) Laurence, John (I/R Engineer) May, Errol (I/R Engineer) Lee, Robert (Bosun) Savetta, Matthew (2nd Cook) Mccregor, Murray Rowland (Steward) Darlington, Mark (Electrician)
Third Party	Client
Mendoza Jr, Constante (Medic) Morris, Colin (Technical adviser) Jarret, Bret Malcolm (Marine Biologist) Donolly, Dave (Marine Biologist) Howard, Adrian (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client)

Totals

62

Veritas	28	Contractor	18	Third Party	13	Client	3	Other	8
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Date:	05/06/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor									
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)									
Boon, Marc Lodewijk Ari (Geophysical Supervisor)	Weeks, Roger Brian (Captain)									
Fleming, Rick Ray (Navigator Ch 2A)	Ramchandran, Rishiraj (Chief Mate)									
Bradshaw, Craig J (Navigator Sr)	Pinto, Joe (2nd Mate)									
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)									
Li, Melissa Xiaowei (Navigator)	Grimwood, Bruce (1st Engineer)									
Tan, Vivian Ping Khun (Trainee Navigator)	Kjerrgard, Kare (1st Eng)									
Perkin, Andrew John (Senior Observer)	Appel, Tomiln (1st Engineer)									
Collinge, Neil Franklin (Senior Observer)	Andersen, Odd Helge (Electrician)									
Hales, David Shane (Senior Observer)	Draper, Dudley Drew (Chief Steward)									
Francisco, Richard Conce (Observer)	Best, James (Steward)									
Dugdale, Clive Bernard (Observer)	Graham, Peter (Chief Cook)									
Ollada, Emmanuel Fabro (Observer)	Laurence, John (I/R Engineer)									
De Young, David (Trainee Observer)	May, Errol (I/R Engineer)									
Haarmans, Johan Michael (Chief Mechanic)	Lee, Robert (Bosun)									
Naylor, David (Sr Source Technician)	Savetta, Matthew (2nd Cook)									
Tankard, Leonard Arthur (Sr Source Technician)	Mcgregor, Murray Rowland (Steward)									
Certeza, Levi Basas (Source Technician)	Darlington, Mark (Electrician)									
Hufano, Ricardo Obong (Source Technician)										
Caisido, Remegio Caisido (Source Technician)										
Ross, Stephen A (Senior Compressor Technician)										
Goddard, Graham (Sr Compressor Technician)										
Ellis, Kristian John Curwen (Field Geophysicist)										
Chong, Wee Chen (Senior Field Geophysicist)										
Flower, Richard William (Field Geophysicist)										
Barratt, David Brian (Navigation Analyst)										
Harrison, Jeffrey William (Chief Technician)										
Ramos, Romeo P (Cable Repair Technician)										
Third Party	Client									
Mendoza Jr, Constante (Medic)	Danyluk, David Michael (Client)									
Morris, Colin (Technical adviser)	Lambert, Christopher Robert (Client)									
Jarret, Bret Malcolm (Marine Biologist)	Li, Michael Robert (Client)									
Donolly, Dave (Marine Biologist)										
Howard, Adrian (Marine Biologist)										
Totals										
Veritas	28	Contractor	18	Third Party	16	Client	3	Other	11	65

Date:	05/05/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Boon, Marc Lodewijk Ari (Geophysical Supervisor)	Weeks, Roger Brian (Captain)
Fleming, Rick Ray (Navigator Ch 2A)	Ramchandran, Rishiraj (Chief Mate)
Bradshaw, Craig J (Navigator Sr)	Pinto, Joe (2nd Mate)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Li, Melissa Xiaowei (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Kjerrgard, Kare (1st Eng)
Perkin, Andrew John (Senior Observer)	Appel, Tomiln (1st Engineer)
Collinge, Neil Franklin (Senior Observer)	Andersen, Odd Helge (Electrician)
Hales, David Shane (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Francisco, Richard Conce (Observer)	Best, James (Steward)
Dugdale, Clive Bernard (Observer)	Graham, Peter (Chief Cook)
Ollada, Emmanuel Fabro (Observer)	Laurence, John (I/R Engineer)
De Young, David (Trainee Observer)	May, Errol (I/R Engineer)
Haarmans, Johan Michael (Chief Mechanic)	Lee, Robert (Bosun)
Naylor, David (Sr Source Technician)	Savetta, Matthew (2nd Cook)
Tankard, Leonard Arthur (Sr Source Technician)	Mcgregor, Murray Rowland (Steward)
Certeza, Levi Basas (Source Technician)	Darlington, Mark (Electrician)
Hufano, Ricardo Obong (Source Technician)	
Caisido, Remegio Caisido (Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Goddard, Graham (Sr Compressor Technician)	
Ellis, Kristian John Curwen (Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Flower, Richard William (Field Geophysicist)	
Barratt, David Brian (Navigation Analyst)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Danyluk, David Michael (Client)
Morris, Colin (Technical adviser)	Lambert, Christopher Robert (Client)
Jarret, Bret Malcolm (Marine Biologist)	Li, Michael Robert (Client)
Donolly, Dave (Marine Biologist)	
Howard, Adrian (Marine Biologist)	

Totals

65

Veritas	28	Contractor	18	Third Party	16	Client	3	Other	11
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Date:	05/04/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Fleming, Rick Ray (Navigator Ch 2A) Bradshaw, Craig J (Navigator Sr) Tibor, Thomas James (Navigator) Li, Melissa Xiaowei (Navigator) Tan, Vivian Ping Khun (Trainee Navigator) Perkin, Andrew John (Senior Observer) Collinge, Neil Franklin (Senior Observer) Hales, David Shane (Senior Observer) Francisco, Richard Conce (Observer) Dugdale, Clive Bernard (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Haarmans, Johan Michael (Chief Mechanic) Naylor, David (Sr Source Technician) Tankard, Leonard Arthur (Sr Source Technician) Certeza, Levi Basas (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Ross, Stephen A (Senior Compressor Technician) Goddard, Graham (Sr Compressor Technician) Ellis, Kristian John Curwen (Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Harrison, Jeffrey William (Chief Technician) Ramos, Romeo P (Cable Repair Technician)	Saevik, Helmik (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Kjerrgard, Kare (1st Eng) Appel, Tomiln (1st Engineer) Andersen, Odd Helge (Electrician) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Graham, Peter (Chief Cook) Laurence, John (I/R Engineer) May, Errol (I/R Engineer) Lee, Robert (Bosun) Savetta, Matthew (2nd Cook) Mccregor, Murray Rowland (Steward) Darlington, Mark (Electrician)
Third Party	Client
Mendoza Jr, Constante (Medic) Morris, Colin (Technical adviser) Jarret, Bret Malcolm (Marine Biologist) Waugh, Nathan Francis (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client) Clark, Theodore Stanley (Client Representative)

Totals						62
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Veritas	28	Contractor	18	Third Party	12	Client	4	Other	8
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Date:	05/03/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Boon, Marc Lodewijk Ari (Geophysical Supervisor)	Weeks, Roger Brian (Captain)
Fleming, Rick Ray (Navigator Ch 2A)	Ramchandran, Rishiraj (Chief Mate)
Bradshaw, Craig J (Navigator Sr)	Pinto, Joe (2nd Mate)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Li, Melissa Xiaowei (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Kjerrgard, Kare (1st Eng)
Perkin, Andrew John (Senior Observer)	Appel, Tomiln (1st Engineer)
Collinge, Neil Franklin (Senior Observer)	Andersen, Odd Helge (Electrician)
Hales, David Shane (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Francisco, Richard Conce (Observer)	Best, James (Steward)
Dugdale, Clive Bernard (Observer)	Graham, Peter (Chief Cook)
Ollada, Emmanuel Fabro (Observer)	Laurence, John (I/R Engineer)
De Young, David (Trainee Observer)	May, Errol (I/R Engineer)
Haarmans, Johan Michael (Chief Mechanic)	Lee, Robert (Bosun)
Naylor, David (Sr Source Technician)	Savetta, Matthew (2nd Cook)
Tankard, Leonard Arthur (Sr Source Technician)	Mcgregor, Murray Rowland (Steward)
Certeza, Levi Basas (Source Technician)	Darlington, Mark (Electrician)
Hufano, Ricardo Obong (Source Technician)	
Caisido, Remegio Caisido (Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Goddard, Graham (Sr Compressor Technician)	
Ellis, Kristian John Curwen (Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Flower, Richard William (Field Geophysicist)	
Barratt, David Brian (Navigation Analyst)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Danyluk, David Michael (Client)
Morris, Colin (Technical adviser)	Lambert, Christopher Robert (Client)
Jarret, Bret Malcolm (Marine Biologist)	Li, Michael Robert (Client)
Waugh, Nathan Francis (Marine Biologist)	Clark, Theodore Stanley (Client Representative)

Totals						62
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Veritas	28	Contractor	18	Third Party	12	Client	4	Other	8
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Date:	05/02/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas		Contractor	
Mcnelly, Richard Morgan (Party Mgr 1) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Fleming, Rick Ray (Navigator Ch 2A) Bradshaw, Craig J (Navigator Sr) Tibor, Thomas James (Navigator) Li, Melissa Xiaowei (Navigator) Tan, Vivian Ping Khun (Trainee Navigator) Perkin, Andrew John (Senior Observer) Collinge, Neil Franklin (Senior Observer) Hales, David Shane (Senior Observer) Francisco, Richard Conce (Observer) Dugdale, Clive Bernard (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Haarmans, Johan Michael (Chief Mechanic) Naylor, David (Sr Source Technician) Tankard, Leonard Arthur (Sr Source Technician) Certeza, Levi Basas (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Ross, Stephen A (Senior Compressor Technician) Goddard, Graham (Sr Compressor Technician) Ellis, Kristian John Curwen (Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Harrison, Jeffrey William (Chief Technician) Ramos, Romeo P (Cable Repair Technician)		Saevik, Helmik (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Kjerrgard, Kare (1st Eng) Appel, Tomiln (1st Engineer) Andersen, Odd Helge (Electrician) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Graham, Peter (Chief Cook) Laurence, John (I/R Engineer) May, Errol (I/R Engineer) Lee, Robert (Bosun) Savetta, Matthew (2nd Cook) Mccregor, Murray Rowland (Steward) Darlington, Mark (Electrician)	
Third Party		Client	
Mendoza Jr, Constante (Medic) Morris, Colin (Technical adviser) Jarret, Bret Malcolm (Marine Biologist) Waugh, Nathan Francis (Marine Biologist)		Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client) Clark, Theodore Stanley (Client Representative)	
Totals			
Veritas	28	Contractor	18
		Third Party	12
		Client	4
		Other	8
			62

Date:	05/01/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Boon, Marc Lodewijk Ari (Geophysical Supervisor)	Weeks, Roger Brian (Captain)
Fleming, Rick Ray (Navigator Ch 2A)	Ramchandran, Rishiraj (Chief Mate)
Bradshaw, Craig J (Navigator Sr)	Pinto, Joe (2nd Mate)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Li, Melissa Xiaowei (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Kjerrgard, Kare (1st Eng)
Perkin, Andrew John (Senior Observer)	Appel, Tomiln (1st Engineer)
Collinge, Neil Franklin (Senior Observer)	Andersen, Odd Helge (Electrician)
Hales, David Shane (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Francisco, Richard Conce (Observer)	Best, James (Steward)
Dugdale, Clive Bernard (Observer)	Graham, Peter (Chief Cook)
Ollada, Emmanuel Fabro (Observer)	Laurence, John (I/R Engineer)
De Young, David (Trainee Observer)	May, Errol (I/R Engineer)
Haarmans, Johan Michael (Chief Mechanic)	Lee, Robert (Bosun)
Naylor, David (Sr Source Technician)	Savetta, Matthew (2nd Cook)
Tankard, Leonard Arthur (Sr Source Technician)	Mcgregor, Murray Rowland (Steward)
Certeza, Levi Basas (Source Technician)	Darlington, Mark (Electrician)
Hufano, Ricardo Obong (Source Technician)	
Caisido, Remegio Caisido (Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Goddard, Graham (Sr Compressor Technician)	
Ellis, Kristian John Curwen (Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Flower, Richard William (Field Geophysicist)	
Barratt, David Brian (Navigation Analyst)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Danyluk, David Michael (Client)
Morris, Colin (Technical adviser)	Lambert, Christopher Robert (Client)
Jarret, Bret Malcolm (Marine Biologist)	Li, Michael Robert (Client)
Waugh, Nathan Francis (Marine Biologist)	Clark, Theodore Stanley (Client Representative)

Totals

62

Veritas	28	Contractor	18	Third Party	12	Client	4	Other	8
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Date:	04/30/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Boon, Marc Lodewijk Ari (Geophysical Supervisor)	Weeks, Roger Brian (Captain)
Fleming, Rick Ray (Navigator Ch 2A)	Ramchandran, Rishiraj (Chief Mate)
Bradshaw, Craig J (Navigator Sr)	Pinto, Joe (2nd Mate)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Li, Melissa Xiaowei (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Kjerrgard, Kare (1st Eng)
Perkin, Andrew John (Senior Observer)	Appel, Tomiln (1st Engineer)
Collinge, Neil Franklin (Senior Observer)	Andersen, Odd Helge (Electrician)
Hales, David Shane (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Francisco, Richard Conce (Observer)	Best, James (Steward)
Dugdale, Clive Bernard (Observer)	Graham, Peter (Chief Cook)
Ollada, Emmanuel Fabro (Observer)	Laurence, John (I/R Engineer)
De Young, David (Trainee Observer)	May, Errol (I/R Engineer)
Haarmans, Johan Michael (Chief Mechanic)	Lee, Robert (Bosun)
Naylor, David (Sr Source Technician)	Savetta, Matthew (2nd Cook)
Tankard, Leonard Arthur (Sr Source Technician)	Mcgregor, Murray Rowland (Steward)
Certeza, Levi Basas (Source Technician)	Darlington, Mark (Electrician)
Hufano, Ricardo Obong (Source Technician)	
Caisido, Remegio Caisido (Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Goddard, Graham (Sr Compressor Technician)	
Ellis, Kristian John Curwen (Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Flower, Richard William (Field Geophysicist)	
Barratt, David Brian (Navigation Analyst)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Danyluk, David Michael (Client)
Morris, Colin (Technical adviser)	Lambert, Christopher Robert (Client)
Jarret, Bret Malcolm (Marine Biologist)	Li, Michael Robert (Client)
Waugh, Nathan Francis (Marine Biologist)	Clark, Theodore Stanley (Client Representative)

Totals						62
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Veritas	28	Contractor	18	Third Party	12	Client	4	Other	8
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Date:	04/29/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1) Boon, Marc Lodewijk Ari (Geophysical Supervisor) Fleming, Rick Ray (Navigator Ch 2A) Bradshaw, Craig J (Navigator Sr) Tibor, Thomas James (Navigator) Li, Melissa Xiaowei (Navigator) Tan, Vivian Ping Khun (Trainee Navigator) Perkin, Andrew John (Senior Observer) Collinge, Neil Franklin (Senior Observer) Hales, David Shane (Senior Observer) Francisco, Richard Conce (Observer) Dugdale, Clive Bernard (Observer) Ollada, Emmanuel Fabro (Observer) De Young, David (Trainee Observer) Haarmans, Johan Michael (Chief Mechanic) Naylor, David (Sr Source Technician) Tankard, Leonard Arthur (Sr Source Technician) Certeza, Levi Basas (Source Technician) Hufano, Ricardo Obong (Source Technician) Caisido, Remegio Caisido (Source Technician) Ross, Stephen A (Senior Compressor Technician) Goddard, Graham (Sr Compressor Technician) Ellis, Kristian John Curwen (Field Geophysicist) Chong, Wee Chen (Senior Field Geophysicist) Flower, Richard William (Field Geophysicist) Barratt, David Brian (Navigation Analyst) Harrison, Jeffrey William (Chief Technician) Ramos, Romeo P (Cable Repair Technician)	Saevik, Helmik (Captain) Weeks, Roger Brian (Captain) Ramchandran, Rishiraj (Chief Mate) Pinto, Joe (2nd Mate) Heath, Robert (1st Engineer) Grimwood, Bruce (1st Engineer) Kjerrgard, Kare (1st Eng) Appel, Tomiln (1st Engineer) Andersen, Odd Helge (Electrician) Draper, Dudley Drew (Chief Steward) Best, James (Steward) Graham, Peter (Chief Cook) Laurence, John (I/R Engineer) May, Errol (I/R Engineer) Lee, Robert (Bosun) Savetta, Matthew (2nd Cook) Mccregor, Murray Rowland (Steward) Darlington, Mark (Electrician)
Third Party	Client
Mendoza Jr, Constante (Medic) Morris, Colin (Technical adviser) Jarret, Bret Malcolm (Marine Biologist) Waugh, Nathan Francis (Marine Biologist)	Danyluk, David Michael (Client) Lambert, Christopher Robert (Client) Li, Michael Robert (Client) Clark, Theodore Stanley (Client Representative)

Totals

62

Veritas	28	Contractor	18	Third Party	12	Client	4	Other	8
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Date:	04/28/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Boon, Marc Lodewijk Ari (Geophysical Supervisor)	Weeks, Roger Brian (Captain)
Fleming, Rick Ray (Navigator Ch 2A)	Ramchandran, Rishiraj (Chief Mate)
Bradshaw, Craig J (Navigator Sr)	Pinto, Joe (2nd Mate)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Li, Melissa Xiaowei (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Kjerrgard, Kare (1st Eng)
Liang, Alan Tan Eng (Trainee Navigator)	Appel, Tomiln (1st Engineer)
Perkin, Andrew John (Senior Observer)	Andersen, Odd Helge (Electrician)
Collinge, Neil Franklin (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Hales, David Shane (Senior Observer)	Best, James (Steward)
Francisco, Richard Conce (Observer)	Graham, Peter (Chief Cook)
Dugdale, Clive Bernard (Observer)	Laurence, John (I/R Engineer)
Ollada, Emmanuel Fabro (Observer)	May, Errol (I/R Engineer)
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Haarmans, Johan Michael (Chief Mechanic)	Savetta, Matthew (2nd Cook)
Naylor, David (Sr Source Technician)	Mcgregor, Murray Rowland (Steward)
Tankard, Leonard Arthur (Sr Source Technician)	Darlington, Mark (Electrician)
Certeza, Levi Basas (Source Technician)	
Hufano, Ricardo Obong (Source Technician)	
Caisido, Remegio Caisido (Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Goddard, Graham (Sr Compressor Technician)	
Ellis, Kristian John Curwen (Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Flower, Richard William (Field Geophysicist)	
Barratt, David Brian (Navigation Analyst)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Danyluk, David Michael (Client)
Morris, Colin (Technical adviser)	Lambert, Christopher Robert (Client)
Mustoe, Simon (Marine Biologist)	Li, Michael Robert (Client)
Jarret, Bret Malcolm (Marine Biologist)	Forrest, Wayne Peter (HSE Supervisor)
Waugh, Nathan Francis (Marine Biologist)	Clark, Theodore Stanley (Client Representative)

Totals

65

Veritas	29	Contractor	18	Third Party	13	Client	5	Other	8
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Date:	04/27/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Mcnelly, Richard Morgan (Party Mgr 1)
 Boon, Marc Lodewijk Ari (Geophysical Supervisor)
 Fleming, Rick Ray (Navigator Ch 2A)
 Bradshaw, Craig J (Navigator Sr)
 Tibor, Thomas James (Navigator)
 Li, Melissa Xiaowei (Navigator)
 Tan, Vivian Ping Khun (Trainee Navigator)
 Liang, Alan Tan Eng (Trainee Navigator)
 Perkin, Andrew John (Senior Observer)
 Collinge, Neil Franklin (Senior Observer)
 Hales, David Shane (Senior Observer)
 Francisco, Richard Conce (Observer)
 Dugdale, Clive Bernard (Observer)
 Ollada, Emmanuel Fabro (Observer)
 De Young, David (Trainee Observer)
 Haarmans, Johan Michael (Chief Mechanic)
 Naylor, David (Sr Source Technician)
 Tankard, Leonard Arthur (Sr Source Technician)
 Certeza, Levi Basas (Source Technician)
 Hufano, Ricardo Obong (Source Technician)
 Caisido, Remegio Caisido (Source Technician)
 Ross, Stephen A (Senior Compressor Technician)
 Goddard, Graham (Sr Compressor Technician)
 Ellis, Kristian John Curwen (Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Flower, Richard William (Field Geophysicist)
 Barratt, David Brian (Navigation Analyst)
 Harrison, Jeffrey William (Chief Technician)
 Ramos, Romeo P (Cable Repair Technician)

Contractor

Saevik, Helmik (Captain)
 Weeks, Roger Brian (Captain)
 Ramchandran, Rishiraj (Chief Mate)
 Pinto, Joe (2nd Mate)
 Heath, Robert (1st Engineer)
 Grimwood, Bruce (1st Engineer)
 Kjerrgard, Kare (1st Eng)
 Appel, Tomiln (1st Engineer)
 Andersen, Odd Helge (Electrician)
 Draper, Dudley Drew (Chief Steward)
 Best, James (Steward)
 Graham, Peter (Chief Cook)
 Laurence, John (I/R Engineer)
 May, Errol (I/R Engineer)
 Lee, Robert (Bosun)
 Savetta, Matthew (2nd Cook)
 Mcgregor, Murray Rowland (Steward)
 Darlington, Mark (Electrician)

Third Party

Mendoza Jr, Constante (Medic)
 Morris, Colin (Technical adviser)
 Mustoe, Simon (Marine Biologist)
 Jarret, Bret Malcolm (Marine Biologist)
 Waugh, Nathan Francis (Marine Biologist)

Client

Danyluk, David Michael (Client)
 Lambert, Christopher Robert (Client)
 Li, Michael Robert (Client)
 Forrest, Wayne Peter (HSE Supervisor)
 Clark, Theodore Stanley (Client Representative)

Totals

65

Veritas	29	Contractor	18	Third Party	13	Client	5	Other	8
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Date:	04/26/2006
Job Number:	20323
Prospect:	Greater Bream 3D 2006

Veritas

Mcnelly, Richard Morgan (Party Mgr 1)
 Boon, Marc Lodewijk Ari (Geophysical Supervisor)
 Fleming, Rick Ray (Navigator Ch 2A)
 Bradshaw, Craig J (Navigator Sr)
 Tibor, Thomas James (Navigator)
 Li, Melissa Xiaowei (Navigator)
 Tan, Vivian Ping Khun (Trainee Navigator)
 Liang, Alan Tan Eng (Trainee Navigator)
 Perkin, Andrew John (Senior Observer)
 Collinge, Neil Franklin (Senior Observer)
 Hales, David Shane (Senior Observer)
 Francisco, Richard Conce (Observer)
 Dugdale, Clive Bernard (Observer)
 Ollada, Emmanuel Fabro (Observer)
 De Young, David (Trainee Observer)
 Haarmans, Johan Michael (Chief Mechanic)
 Naylor, David (Sr Source Technician)
 Tankard, Leonard Arthur (Sr Source Technician)
 Certeza, Levi Basas (Source Technician)
 Hufano, Ricardo Obong (Source Technician)
 Caisido, Remegio Caisido (Source Technician)
 Ross, Stephen A (Senior Compressor Technician)
 Goddard, Graham (Sr Compressor Technician)
 Ellis, Kristian John Curwen (Field Geophysicist)
 Chong, Wee Chen (Senior Field Geophysicist)
 Flower, Richard William (Field Geophysicist)
 Barratt, David Brian (Navigation Analyst)
 Harrison, Jeffrey William (Chief Technician)
 Ramos, Romeo P (Cable Repair Technician)

Contractor

Saevik, Helmik (Captain)
 Weeks, Roger Brian (Captain)
 Ramchandran, Rishiraj (Chief Mate)
 Pinto, Joe (2nd Mate)
 Heath, Robert (1st Engineer)
 Grimwood, Bruce (1st Engineer)
 Kjerrgard, Kare (1st Eng)
 Appel, Tomiln (1st Engineer)
 Andersen, Odd Helge (Electrician)
 Draper, Dudley Drew (Chief Steward)
 Best, James (Steward)
 Graham, Peter (Chief Cook)
 Laurence, John (I/R Engineer)
 May, Errol (I/R Engineer)
 Lee, Robert (Bosun)
 Savetta, Matthew (2nd Cook)
 Mcgregor, Murray Rowland (Steward)
 Darlington, Mark (Electrician)

Third Party

Mendoza Jr, Constante (Medic)
 Morris, Colin (Technical adviser)
 Mustoe, Simon (Marine Biologist)
 Jarret, Bret Malcolm (Marine Biologist)
 Waugh, Nathan Francis (Marine Biologist)

Client

Danyluk, David Michael (Client)
 Lambert, Christopher Robert (Client)
 Li, Michael Robert (Client)
 Forrest, Wayne Peter (HSE Supervisor)
 Clark, Theodore Stanley (Client Representative)

Totals

65

Veritas	29	Contractor	18	Third Party	13	Client	5	Other	8
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Date:	04/25/2006
Job Number:	20323
Prospect:	Bream 3D

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Boon, Marc Lodewijk Ari (Geophysical Supervisor)	Weeks, Roger Brian (Captain)
Fleming, Rick Ray (Navigator Ch 2A)	Ramchandran, Rishiraj (Chief Mate)
Bradshaw, Craig J (Navigator Sr)	Pinto, Joe (2nd Mate)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Li, Melissa Xiaowei (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Kjerrgard, Kare (1st Eng)
Liang, Alan Tan Eng (Trainee Navigator)	Appel, Tomiln (1st Engineer)
Perkin, Andrew John (Senior Observer)	Andersen, Odd Helge (Electrician)
Collinge, Neil Franklin (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Hales, David Shane (Senior Observer)	Best, James (Steward)
Francisco, Richard Conce (Observer)	Graham, Peter (Chief Cook)
Dugdale, Clive Bernard (Observer)	Laurence, John (I/R Engineer)
Ollada, Emmanuel Fabro (Observer)	May, Errol (I/R Engineer)
De Young, David (Trainee Observer)	Lee, Robert (Bosun)
Haarmans, Johan Michael (Chief Mechanic)	Savetta, Matthew (2nd Cook)
Naylor, David (Sr Source Technician)	Mcgregor, Murray Rowland (Steward)
Tankard, Leonard Arthur (Sr Source Technician)	Darlington, Mark (Electrician)
Certeza, Levi Basas (Source Technician)	
Hufano, Ricardo Obong (Source Technician)	
Caisido, Remegio Caisido (Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Goddard, Graham (Sr Compressor Technician)	
Ellis, Kristian John Curwen (Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Flower, Richard William (Field Geophysicist)	
Barratt, David Brian (Navigation Analyst)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Danyluk, David Michael (Client)
Morris, Colin (Technical adviser)	Lambert, Christopher Robert (Client)
Mustoe, Simon (Marine Biologist)	Li, Michael Robert (Client)
Jarret, Bret Malcolm (Marine Biologist)	Forrest, Wayne Peter (HSE Supervisor)
Waugh, Nathan Francis (Marine Biologist)	Clark, Theodore Stanley (Client Representative)

Totals						65			
Veritas	29	Contractor	18	Third Party	13	Client	5	Other	8

Date:	04/24/2006
Job Number:	20323
Prospect:	Bream 3D

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Boon, Marc Lodewijk Ari (Geophysical Supervisor)	Weeks, Roger Brian (Captain)
Fleming, Rick Ray (Navigator Ch 2A)	Ramchandran, Rishiraj (Chief Mate)
Bradshaw, Craig J (Navigator Sr)	Pinto, Joe (2nd Mate)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Li, Melissa Xiaowei (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Kjerrgard, Kare (1st Eng)
Liang, Alan Tan Eng (Trainee Navigator)	Appel, Tomiln (1st Engineer)
Perkin, Andrew John (Senior Observer)	Andersen, Odd Helge (Electrician)
Collinge, Neil Franklin (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Hales, David Shane (Senior Observer)	Best, James (Steward)
Francisco, Richard Conce (Observer)	Graham, Peter (Chief Cook)
Dugdale, Clive Bernard (Observer)	Laurence, John (I/R Engineer)
Ollada, Emmanuel Fabro (Observer)	May, Errol (I/R Engineer)
De Young, David (Trainee Observer)	Lee, Robert (Bosun)
Haarmans, Johan Michael (Chief Mechanic)	Savetta, Matthew (2nd Cook)
Naylor, David (Sr Source Technician)	Mcgregor, Murray Rowland (Steward)
Tankard, Leonard Arthur (Sr Source Technician)	Darlington, Mark (Electrician)
Certeza, Levi Basas (Source Technician)	
Hufano, Ricardo Obong (Source Technician)	
Caisido, Remegio Caisido (Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Goddard, Graham (Sr Compressor Technician)	
Ellis, Kristian John Curwen (Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Flower, Richard William (Field Geophysicist)	
Barratt, David Brian (Navigation Analyst)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Danyluk, David Michael (Client)
Morris, Colin (Technical adviser)	Lambert, Christopher Robert (Client)
Mustoe, Simon (Marine Biologist)	Li, Michael Robert (Client)
Jarret, Bret Malcolm (Marine Biologist)	Forrest, Wayne Peter (HSE Supervisor)
Waugh, Nathan Francis (Marine Biologist)	Clark, Theodore Stanley (Client Representative)

Totals						65			
Veritas	29	Contractor	18	Third Party	13	Client	5	Other	8

Date:	04/23/2006
Job Number:	20323
Prospect:	Bream 3D

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Boon, Marc Lodewijk Ari (Geophysical Supervisor)	Weeks, Roger Brian (Captain)
Fleming, Rick Ray (Navigator Ch 2A)	Ramchandran, Rishiraj (Chief Mate)
Bradshaw, Craig J (Navigator Sr)	Pinto, Joe (2nd Mate)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Li, Melissa Xiaowei (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Kjerrgard, Kare (1st Eng)
Liang, Alan Tan Eng (Trainee Navigator)	Appel, Tomiln (1st Engineer)
Perkin, Andrew John (Senior Observer)	Andersen, Odd Helge (Electrician)
Collinge, Neil Franklin (Senior Observer)	Draper, Dudley Drew (Chief Steward)
Hales, David Shane (Senior Observer)	Best, James (Steward)
Francisco, Richard Conce (Observer)	Graham, Peter (Chief Cook)
Dugdale, Clive Bernard (Observer)	Laurence, John (I/R Engineer)
Ollada, Emmanuel Fabro (Observer)	May, Errol (I/R Engineer)
De Young, David (Trainee Observer)	Lee, Robert (Bosun)
Haarmans, Johan Michael (Chief Mechanic)	Savetta, Matthew (2nd Cook)
Naylor, David (Sr Source Technician)	Mcgregor, Murray Rowland (Steward)
Tankard, Leonard Arthur (Sr Source Technician)	Darlington, Mark (Electrician)
Certeza, Levi Basas (Source Technician)	
Hufano, Ricardo Obong (Source Technician)	
Caisido, Remegio Caisido (Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Goddard, Graham (Sr Compressor Technician)	
Ellis, Kristian John Curwen (Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Flower, Richard William (Field Geophysicist)	
Barratt, David Brian (Navigation Analyst)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	

Third Party	Client
Mendoza Jr, Constante (Medic)	Danyluk, David Michael (Client)
Morris, Colin (Technical adviser)	Lambert, Christopher Robert (Client)
Mustoe, Simon (Marine Biologist)	Li, Michael Robert (Client)
Jarret, Bret Malcolm (Marine Biologist)	Forrest, Wayne Peter (HSE Supervisor)
Waugh, Nathan Francis (Marine Biologist)	Clark, Theodore Stanley (Client Representative)

Totals						65			
Veritas	29	Contractor	18	Third Party	13	Client	5	Other	8

Date:	04/22/2006
Job Number:	20323
Prospect:	Bream 3D

Veritas	Contractor
Mcnelly, Richard Morgan (Party Mgr 1)	Saevik, Helmik (Captain)
Boon, Marc Lodewijk Ari (Geophysical Supervisor)	Weeks, Roger Brian (Captain)
Fleming, Rick Ray (Navigator Ch 2A)	Ramchandran, Rishiraj (Chief Mate)
Bradshaw, Craig J (Navigator Sr)	Pinto, Joe (2nd Mate)
Tibor, Thomas James (Navigator)	Heath, Robert (1st Engineer)
Li, Melissa Xiaowei (Navigator)	Grimwood, Bruce (1st Engineer)
Tan, Vivian Ping Khun (Trainee Navigator)	Kjerrgard, Kare (1st Eng)
Liang, Alan Tan Eng (Trainee Navigator)	Appel, Tomiln (1st Engineer)
Perkin, Andrew John (Senior Observer)	Andersen, Odd Helge (Electrician)
Collinge, Neil Franklin (Senior Observer)	Darlington, Mark (Electrician)
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Ollada, Emmanuel Fabro (Observer)	Laurence, John (I/R Engineer)
De Young, David (Trainee Observer)	May, Errol (I/R Engineer)
Haarmans, Johan Michael (Chief Mechanic)	Lee, Robert (Bosun)
Naylor, David (Sr Source Technician)	Savetta, Matthew (2nd Cook)
Tankard, Leonard Arthur (Sr Source Technician)	Mcgregor, Murray Rowland (Steward)
Certeza, Levi Basas (Source Technician)	
Hufano, Ricardo Obong (Source Technician)	
Caisido, Remegio Caisido (Source Technician)	
Ross, Stephen A (Senior Compressor Technician)	
Goddard, Graham (Sr Compressor Technician)	
Ellis, Kristian John Curwen (Field Geophysicist)	
Chong, Wee Chen (Senior Field Geophysicist)	
Flower, Richard William (Field Geophysicist)	
Barratt, David Brian (Navigation Analyst)	
Harrison, Jeffrey William (Chief Technician)	
Ramos, Romeo P (Cable Repair Technician)	
Third Party	Client
Mendoza Jr, Constante (Medic)	Danyluk, David Michael (Client)
Morris, Colin (Technical adviser)	Clark, Theodore Stanley (Client Representative)
Jarret, Bret Malcolm (Marine Biologist)	Lambert, Christopher Robert (Client)
Mustoe, Simon (Marine Biologist)	Li, Michael Robert (Client)
Waugh, Nathan Francis (Marine Biologist)	Forrest, Wayne Peter (HSE Supervisor)

Totals

57

Veritas	29	Contractor	18	Third Party	5	Client	5	Other	
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Echosounder Verification

Date: 23 APR 06
Location: Fremantle, WA, Australia
29° 30.12 S 115° 45.05 E
Vessel: Veritas Viking 2

General

A verification of the Simrad EA500 Echosounder installed on the SR/V Veritas Viking2 was performed at dockside, Fremantle, WA on 23 APR 06 from 0452 UTC - 05:15 UTC. Rick Fleming and Thomas Tibor of Veritas DGC carried out the verification.

Procedure

To carry out this procedure, data from the Echosounder were compared with water depth under the Echosounder calculated from measured total water depths and ships draft. All sounding were done twice and the average value used.

Measured total water depth:

The position of the transducer was located on the exterior of the ship's hull. This position is marked by the symbol E/S. A plumb line was then dropped from the Port side of the vessel in line with the transducer in order to minimise any deviations in the bottom contour. The first measurement was made from the top of the railing on the vessel's side to the Water Surface. The second measurement was taken from the railing to the sea floor. The difference in these two measurements was then calculated to find the actual water depth on the stbd side. The same procedure was then used on the port side. The water depth at the Echosounder was then calculated based on the port and stbd soundings. This assumes a linear or flat bottom. The actual seabed contours could not be accounted for. The vessel at the time was portside to the dock.

Calculated Ship's Draft:

Readings of the ship's draft at the bow and stern and port and starboard sides were taken. With these observations and knowing the locations of the draft marks a weighted average was computed for the actual draft at the location of the Echosounder. The draft marks on the port and starboard bow were assumed to be a point, since their location is only 2 metres apart and the readings were identical. Figure 2 shows draft mark and Echosounder locations.

C-O Calculation:

The calculated ship's draft at the Echosounder was then subtracted from the calculated total water depth at its location, yielding the calculated water depth underneath the Echosounder.

Diagrams and Calculations

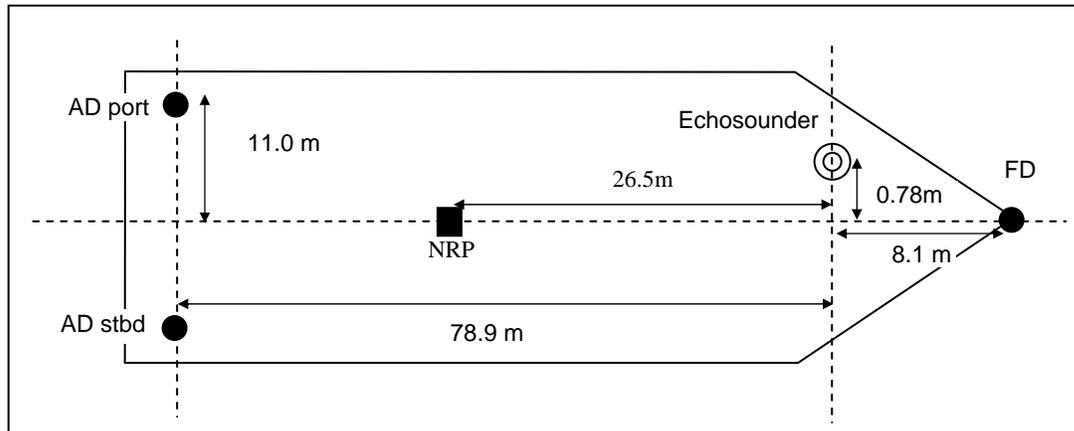


Figure 1: Schematic of draft mark and Echosounder positions, Veritas Viking 2.

OBSERVATION	VALUE (METERS)
Fwd Draft Mark	6.0
Aft Stbd Draft Mark	6.0
Aft Port Draft Mark	6.0
Depth of ES Head Below Hull	0
Calculated Draft at Echosounder	6.0
Stbd Rail to Seabed	24.62
Stbd Rail to SWL	12.04
Stbd Water Depth	12.58
Port Rail to Seabed	23.08
Port Rail to SWL	11.97
Port Water Depth	11.11
Calculated Water Depth at Echosounder	11.78
Calculated Water Depth under Keel	5.8
Calculated Echosounder Reading (Depth under Keel)	5.8
Observed 200 kHz Echosounder Reading (Average)	6.45
C-O of Echosounder in shallow water (m)	-0.65

Table 1: Results of the Simrad EA500 verification

Conclusion

The verification procedure showed a calculated – observed offset in the Echosounder of -0.65 m, which is within specification for the Echosounder in shallow water. There was also a measurable downward grade in the seabed causing a difference in depth of 1.47m between the port and stbd side. We took the average between the two readings that would have introduced some error into the calculated water depth.

Produced By: Rick Fleming/Thomas Tibor

Checked By:

LOGGED ECHOSOUNDER DATA

	@RAW@V2_V_VERIPOS_1		@RAW@V2_GY_NMEA_GYROP@RAW@V2_EC_EA
	Latitude	Longitude	DEPTH 1
04:52:07	-32.040010 115.75083	28.35200	6.4
04:52:11	-32.040000 115.75082	29.99200	6.4
04:52:15	-32.040008 115.75082	28.88600	6.4
04:52:19	-32.040013 115.75081	25.91600	6.8
04:52:23	-32.040010 115.75082	33.01300	6.4
04:52:27	-32.040010 115.75082	32.84300	6.4
04:52:30	-32.040011 115.75082	32.67900	6.4
04:52:34	-32.040018 115.75082	30.38800	6.4
04:52:38	-32.040017 115.75082	30.66000	6.4
04:52:42	-32.040016 115.75082	30.89000	6.4
04:52:46	-32.040016 115.75082	31.01500	6.4
04:52:50	-32.040015 115.75082	30.98100	6.4
04:52:54	-32.040016 115.75082	30.97200	6.4
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05:13:22	-32.040022 115.75082	29.18800	6
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05:13:30	-32.040022 115.75082	29.15600	6.8
05:13:33	-32.040022 115.75082	29.16100	6.8
05:13:37	-32.040022 115.75082	29.15000	6.4
05:13:41	-32.040021 115.75082	29.16000	6.8
05:13:45	-32.040021 115.75082	29.16200	6.4
05:13:50	-32.040022 115.75082	29.09700	6.8
05:13:54	-32.040022 115.75082	29.09100	6.8
05:13:58	-32.040022 115.75082	29.11200	6.8
05:14:02	-32.040022 115.75082	29.11300	6.4
05:14:05	-32.040021 115.75082	29.12900	6
05:14:09	-32.040022 115.75082	29.13400	6
05:14:13	-32.040022 115.75082	29.13700	6.8
05:14:17	-32.040022 115.75082	29.13700	6.4
05:14:21	-32.040022 115.75082	29.12400	6.8
05:14:25	-32.040023 115.75082	29.11700	6.4
05:14:29	-32.040023 115.75082	29.10200	6.8
05:14:33	-32.040023 115.75082	29.10500	6.4

05:14:36	-32.040022 115.75082	29.11100	6.4
05:14:40	-32.040022 115.75082	29.12200	6.4
05:14:44	-32.040022 115.75082	29.10800	6.4
05:14:48	-32.040022 115.75082	29.12600	6.4
05:14:52	-32.040022 115.75082	29.11400	6.4
05:14:56	-32.040022 115.75082	29.12300	6.8
05:14:59	-32.040022 115.75082	29.11300	6.4
05:15:03	-32.040022 115.75082	29.11700	6.8

Mean: 6.45552

Vessel Specifications

The Veritas Viking II is a purpose built, multi element seismic research vessel, rigged to acquire multiple lines of 3-D marine seismic data. The vessel is owned by Eidesvik & Co. AS and on long-term charter to Veritas DGC, and crewed by marine personnel in the employ of the vessel owners.

The vessel is equipped with advanced integrated geophysical and navigation data acquisition systems, full quality assurance capabilities and onboard navigation and seismic data processing.

General Information

Name	SRV Veritas Viking II
Owner	Eidesvik & Co A/S
Port of Registry	Haugesund - Norway
Date Built	1999
Official Number	9189512
Call Sig	LJQK3

Classifications

Flag	Norwegian International Flag (NIS)
Classifications	DNV + A1, SF, EO, HELDK.DK+, SBM

Dimensions

Length	93.35 meters
Beam	22.0 meters
Draft	6.5 meters
Gross Tonnage	8000 tons
Light Displacement	6200 tons

Machinery

Propulsion	2 MaK 9m 32, 4320 kW (5832 BHP) each
Bow Thruster	1 x Kamewa Group Aquamaster 1200 kW azimuth thruster
	1 x Brunvoll FU-80-LTC-1200Kw
Stern Thruster	1 x Brunvoll FU-63-LTC-1750Kw Tunnel Thruster
Generators	2 x AVK - DSG 114KI-6W – Rating: 2 x 2950KVA, 3 phase x 440V, 60Hz,
	Auxiliary - 1 Mitsubishi S6R-MPTA- 525Kw
	Emergency – 1 Mitsubishi S6B3-MPTK 360Kw.
Maximum Speed	16.8 knots
Cruising Speed	15.5 knots

Compressor

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Manufacturer	3 x Arial
Supply rate	1540 scfm
Nominal operating pressure	2000 psi +/- 50 psi
Minimum refilling time	7 seconds for 4450 cu in 5 seconds for 3255 cu in

Capacities	
Average Fuel Consumption	28 m ³ /day
Endurance	110 days approximately
Range at Cruising Speed	43,000 nautical miles
Fresh Water Capacity	1,261 m ³ and 25 m ³ /day
Lubricating Oil Capacity	20 m ³
Streamer Oil Capacity	2 X 10 m ³ liters
Fuel Oil Capacity	2043 m ³
Slops	12 m ³
Sewage	20 m ³

Electronics	
Bridge Equipment - Robertson Multi-Purpose Pilot (RMP) System, comprising:	2 x AP9 Mk II Autopilot
	1 x Robtrack Integrated Maneuvering System with Joystick controls
	1 x RDN 50 Disc Navigation System
	1 x ECDIS Remote Display in instrument room
	1 x Robdiff GPS Navigator
	2 x RGC-11 Gyro Compasses and RGC 10/11 Distribution Unit
	2 x ARPA Radar

Communications Equipment	
VHF Radios	
Manufacturer	Sailor
Type	RT 2047 and RM 2042
Quantity	Two of each (four total)
Frequencies	Synthesized
HF Radio	
Manufacturer	Sailor
Type	H2192
Quantity	One
Frequencies	Synthesized
Inmarsat	
Type	Inmarsat B
Manufacturer	EB Nera
Model	Bmarine
Frequencies	Bmarine

Doppler Log	
Manufacturer	JRC
Type	JLN-203
Weather Fax	
Manufacturer	Raytheon
Type	Rayfax-500
Quantity	One

Health, Safety and the Environment (HSE)

Conforms to all Det Norske Veritas, Solas, IAGC and E&P forum requirements.

Berths	60
M.O.B. Boats	2 Norsafe – Magnum 750 – 10 persons each
Workboats	1 x Norpower 22
Life Boats	1 x Schat Harding MCB28 – 60 persons
Life Rafts	8 x Surviva, 20 persons each
Survival Suits	70

Fire Fighting Systems	
Engine Room	Carbon Dioxide
Compressor Room	Carbon Dioxide
Instrument Room	Carbon Dioxide
Streamer Storage	Aero Foam
Helideck	Aero Foam
Main Fire Pumps	35,663 US Gal/hr
Auxiliary Fire Pumps	35,663 US Gal/hr

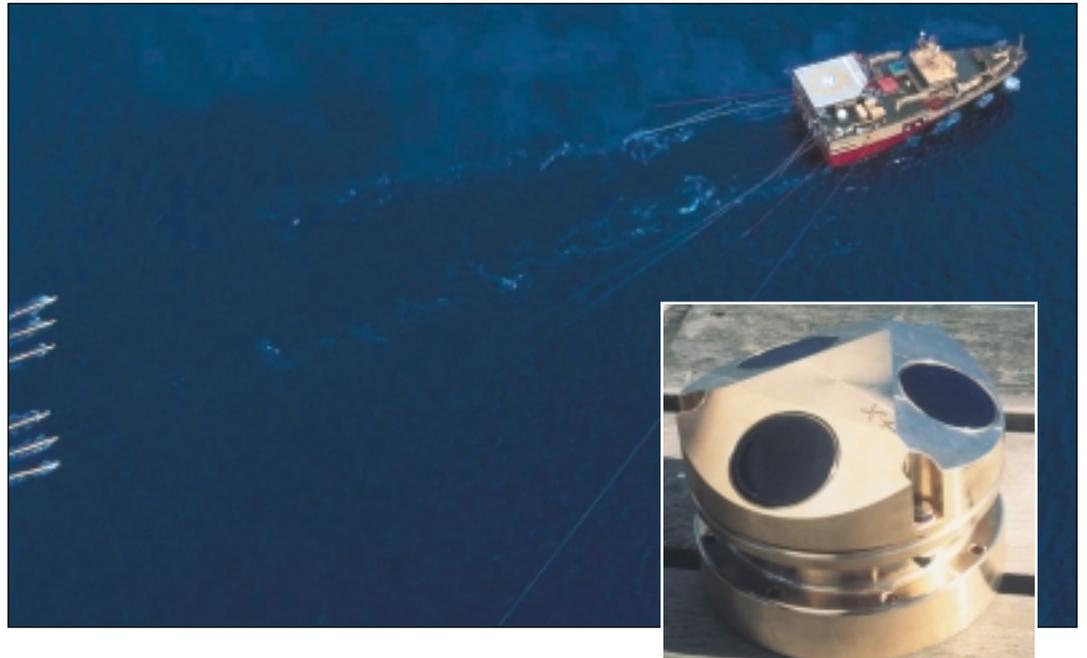
Aircraft Facilities	
Helicopter Deck Rating	Up to and including Sikorsky S-62N
Non-Directional Beacon	
Manufacturer	Skanti
Type	TV8-250B
Frequencies	410 kHz

Ship-Air Communications	
Manufacturer	ICOM
Type	ICA-200
Frequencies	Synthesized

Hand Portable	
Manufacturer	Walter Dittel
Type	FSG-05
Frequencies	Synthesized

Vessel-Mounted Current Profiler

A new level of simplicity, accuracy and performance



Nortek's Vessel-Mounted Current Profiler (VM-Profiler) is designed for permanent mounting on professional survey, offshore, and fishery vessels.

It measures the ocean current profile while moving and it does it with quality, accuracy, and a great price-performance ratio.

With the Nortek VM-Profiler, your marine operations will go faster and you will make operational decisions with better confidence than before.

The VM-Profiler works by measuring the Doppler shifted echo from the water below the hull. This Doppler shift is proportional to the water speed relative to the ship. The vessel motion is determined using the ship's navigation systems, including the required gyro and DGPS. In the software, the vessel motion is removed from the output data, leaving the user with the true ocean currents in ship coordinates or earth coordinates.

The VM-Profiler does not depend on "bottom track" as the primary means to measure the vessel motion. As a result, the currents in the near-

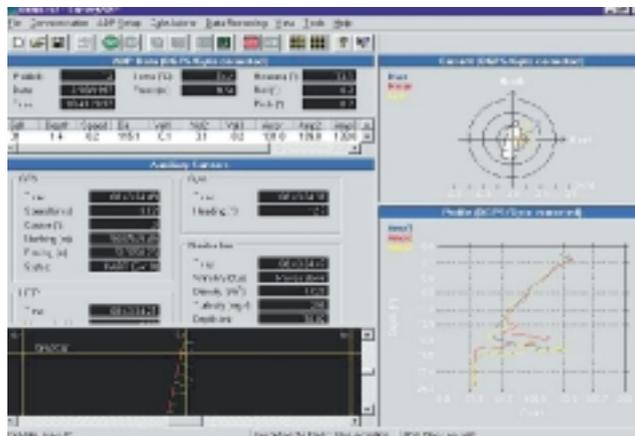
surface region can be determined regardless of the water depth or the water quality.

Further, calibration has never been easier. Make two 5-minute runs and press a software button. The VM-Profiler software does all the rest for you.

Features

The combination of robust design, quality data and user-friendly software gives the VM-Profiler several advantages:

- ✓ It shows you real time surface patterns where you survey
- ✓ High resolution near surface currents can be measured even in deep water
- ✓ Simple integration to navigation systems
- ✓ Simple calibration procedure
- ✓ Can be used as high-quality speed log
- ✓ Works at any water depth and is insensitive to bottom conditions



Software

The VM-Profiler software runs under any WIN32 operating system, and collects data from the Profiler, the DGPS receiver, and the ship's gyro. Real-time data are shown as polar plots, as vertical profiles of speed and direction, and as stick plots that are overlaid a track plot. Binary and ASCII output strings are available in a multitude of formats for easy integration into other on-line computer systems. Data can be analyzed in the time domain using Explore post processing software from Nortek.

www.nortek-as.com



System

Acoustic frequency	500 KHz, 1.5 MHz
Acoustic beams	3, slanted at 25°
Maximum ship speed	20 knots

Current profile

	500 KHz	1.5 MHz
Maximum range	70-100m	15-25m
Depth cell size	1-12m	0.4-4m
Minimum distance to first cell	2m	0.8m
Maximum output rate	0.5 Hz	0.5 Hz
Internal sampling rate	2Hz	10Hz
Number of cells	Typical 20-40, max. 128	

Velocity measurements

Velocity range	±10m/s horizontal, ±5m/s along beam (inquire for higher ranges)
Accuracy	1% of measured value ±5cm/s
Resolution	0.1cm/s

Physical

Transducer material	Bronze
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Power

AC Input	110/220 VAC, 50/60 Hz
DC Input	12-24 V
Operating power consumption	3-4 W

Cable & Connectors

Bulkhead	Impulse MBH - 16 - FS
Cable	Impulse MIL - 16 - MP
Cable length	10, 30 or 60m (30m is standard)

Environmental

	Transducer	Processing unit
Operating temperature	0-40°C	±5-45°C
Storage temperature	±10-50°C	±20-60°C

Computer

Type	19" rack-mounted industrial Pentium type PC with 17" monitor and keyboard.
Data storage	2GB HDD, CD-ROM
Interface	Intelligent 8-port serial RS-232 or RS-422)

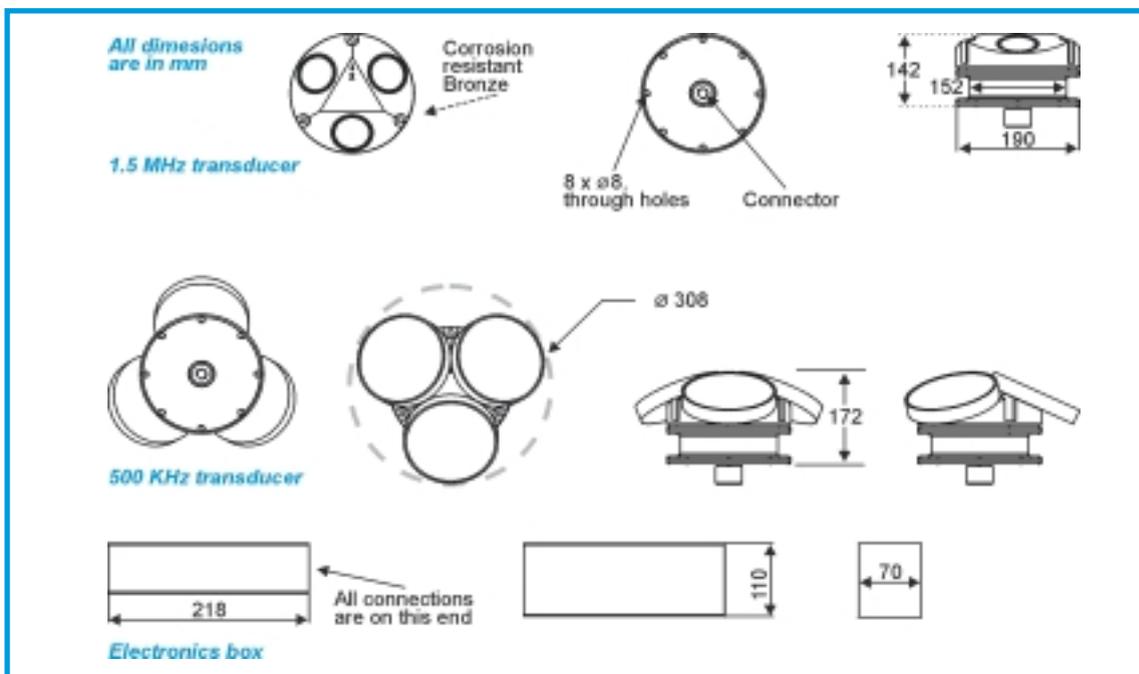
Interfaces

GPS	Sercel NR 203 NMEA 0183 (GP) Trimble 4000 position (ASCII) NMEA 0183 GLL/VTG NMEA 0183 GGA/VTG NMEA 0183 RMC Geco NYMEA 0183 PRTNS
Gyro	NMEA0183 HDT NMEA0183 HDM
Heave, pitch, roll	TSS 320B Scatpath 200 NMEA0183 PRDID
Anemometer	NMEA183 MWW Gill ASCII Mode 2
Custom	Navitracker
Serial output	NortekADP standard binary NortekADP ASCII NortekADP ASCII with STX/ETX char. NortekADP extended ASCII w. STX/ETX char* NMEA0183 VDVHW (speed log)

* Spectra navigations systems include a driver to read the Nortek Profiler extended ASCII serial output. Nortek will write custom interfaces for your devices. For simple ASCII data formats such as NMEA, Nortek will normally do this without extra charge.

Software

Operating system	WIN95/98, NT 4.0, WIN 2000
Online operation	Online configuration data recording to harddisk, online graphical data display, auto-calibration, data output to external devices.



www.nortek-as.com

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Binning and Attribute Analysis for Seismic and Navigation Data



REFLEX

Comprehensive Binning and Attribute Analysis for Seismic and Navigation Data

Reflex Binning & Attribute Analysis

Reflex provides comprehensive binning and attribute analysis of seismic and navigation data in the marine, transition zone and land environments. The development of Reflex was largely influenced by the technical collaboration with the oil industry, which is an inherent feature of the majority of Concept's ongoing research and development activity.

Reflex is fast, flexible and easy to use, and delivers the high throughput of data necessary to ensure the best decisions can be made at the appropriate times. It offers a generous suite of facilities for qualitative and quantitative assessment of seismic coverage, together with detailed analysis of seismic and navigation attributes. The system is UNIX-based, and this enables it to take advantage of the ever increasing workstation capabilities.

Combined with Concept worldwide support and training facilities Reflex provides customers with the capability to improve the overall survey quality, and reduce costs. Reflex is used in a variety of survey environments, and can be integrated with other applications from Concept to ensure the operation is conducted in the most cost efficient manner.

High Data Throughput

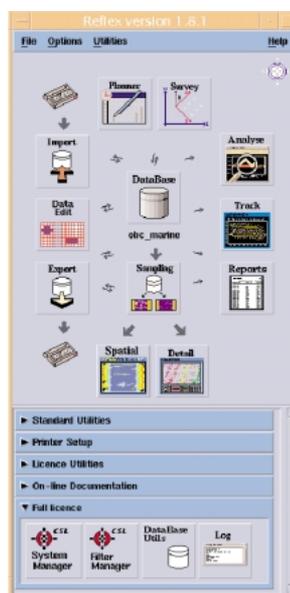
The Reflex data design provides high throughput of data, from UKOOA P1/90 or SPS to display. Lines are imported and sampled in a matter of minutes and are then ready for immediate display, either in isolation or, in a multi-line swathe or within the entire data set. In addition, all offset zones (eg near, mid, far) can be analysed at the same time. Sections of data can then be instantly examined for offset distribution or attributes or both.

Reflex's unique design then allows lines of coverage or attributes to be removed from or added to an existing display. This permits users to rapidly assess, for example, the contribution of infill.

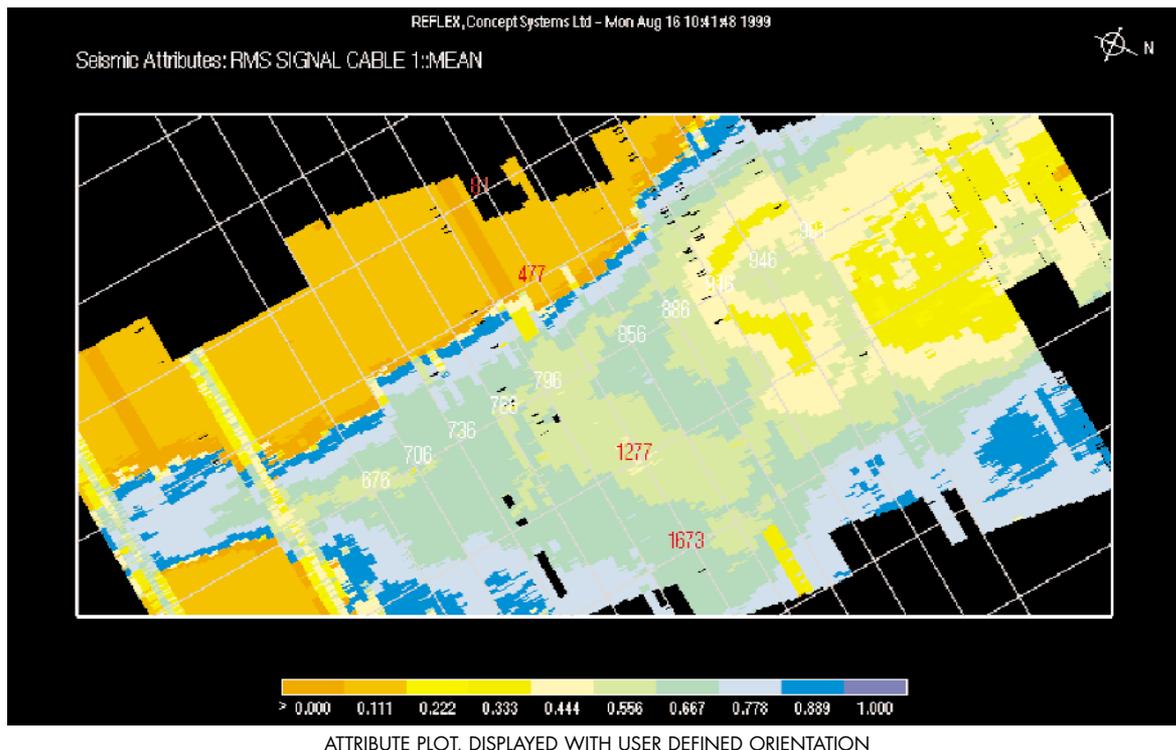
New data groups can also be easily incorporated as the survey progresses, eliminating the need for detailed pre-survey database planning.

Binning Techniques

Reflex can handle many bin expansion techniques such as linear and non-linear tapers. Its generic approach means that even the most complicated of specifications can be catered for. The use of source receiver offset based binning ensures true compatibility with seismic processing, for which Reflex can export a wide variety of data sets.



REFLEX MAIN MENU



It is possible to filter data before any processing by use of an attribute criteria statement. This can be composed of any logical combination of attributes, for example, to prevent noisy traces being binned. It can also be used to flag the "best" data for seismic processing.

A DMO capability is also included. As a result users can define a simple dip model and quickly generate a weighted DMO fold plot. The DMO analysis is extended so that the weighting can be examined on a per offset range basis.

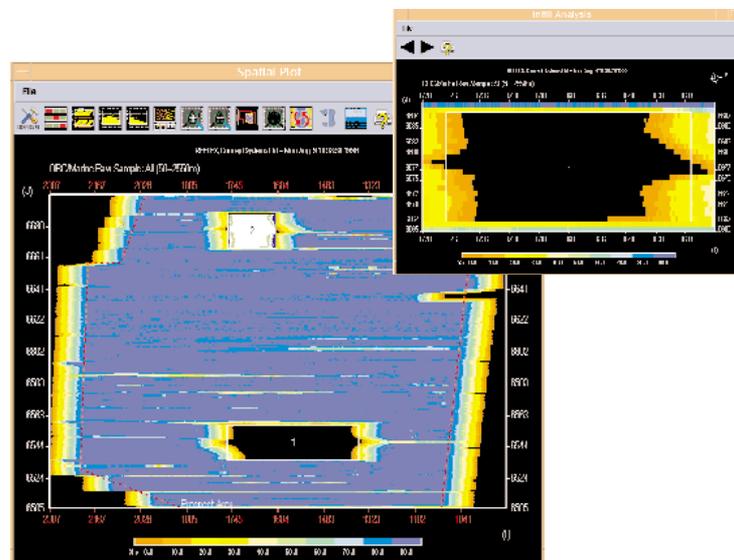
Reflex allows the user to perform converted wave binning. With the increase in importance of 4C surveys, this allows the analysis of CCP (Common Conversion Points) as well as CMP (Common Mid Points).

QC Facilities

Comprehensive QC facilities are provided throughout Reflex. Full SPS data format QC is available, allowing full QC of the shot, relation and receiver files. This eases the decision making process and allows the right decisions to be made as quickly as possible. A background audit trail records all significant activities for subsequent review.

Reflex's analysis of navigation and, more importantly, seismic attributes on a global basis allows identification of potential problems which may lead to difficulties during seismic processing. The data design lends itself to archiving such data sets for use in planning subsequent surveys.

Automatic detection of areas requiring infill allows fast and repeatable decisions to be made in the selection of infill.

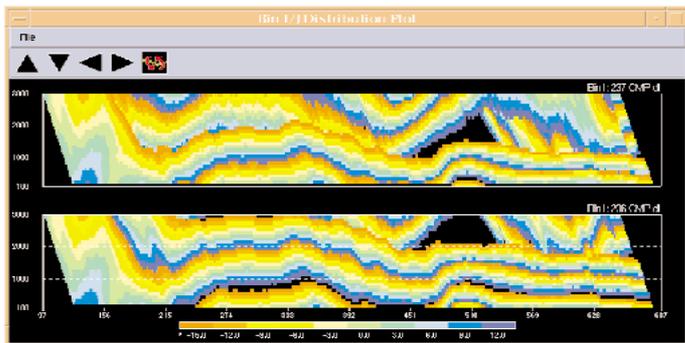


COVERAGE PLOT WITH INFILL DETECTION AND VIEWER INSET

Displays and Reports

A wide range of displays and reports is available, including:

- Track plot of any X, Y overlaid on bin grid.
- Spatial plot of coverage zones or attributes.
- Coverage filtered by user-defined spec (eg nears<80%)
- Offset distribution of any bin line.
- Overlaid offset distribution plot (using any attribute)
- Difference display as fold plot.
- Histograms of, eg coverage achieved to date.
- Detail plot showing individual CMP data
- A suite of general Postscript/HTML/Text reports.



OFFSET DISTRIBUTION PLOT WITH ATTRIBUTE OVERLAY

Reflex's bin detail plot interacts with the main Coverage/Attribute analysis display to show this information down to individual CMP level. In this way the reasons for any poor coverage are instantly identifiable, and appropriate steps may be taken to correct these. Difference plots are available between any two displays. Such difference plots may be analysed using Reflex's full detailed analysis functionality. In this way the net effect of infill or flex can be quantified simply in terms of actual offsets added. All displays are available as full resolution colour Postscript plots, in any size.



BIN DETAIL PLOT WITH MERGED MARINE/OBC DATA

Remote Analyser

The Reflex Remote Analyser makes it possible for a remote user to interact with the data, rather than just view previously generated plots. The data from the day's production for example can be sampled and compressed by the main system and sent via email or over a high-speed data link. The remote user can then access all the analytical capabilities of the main system.

Data Merge

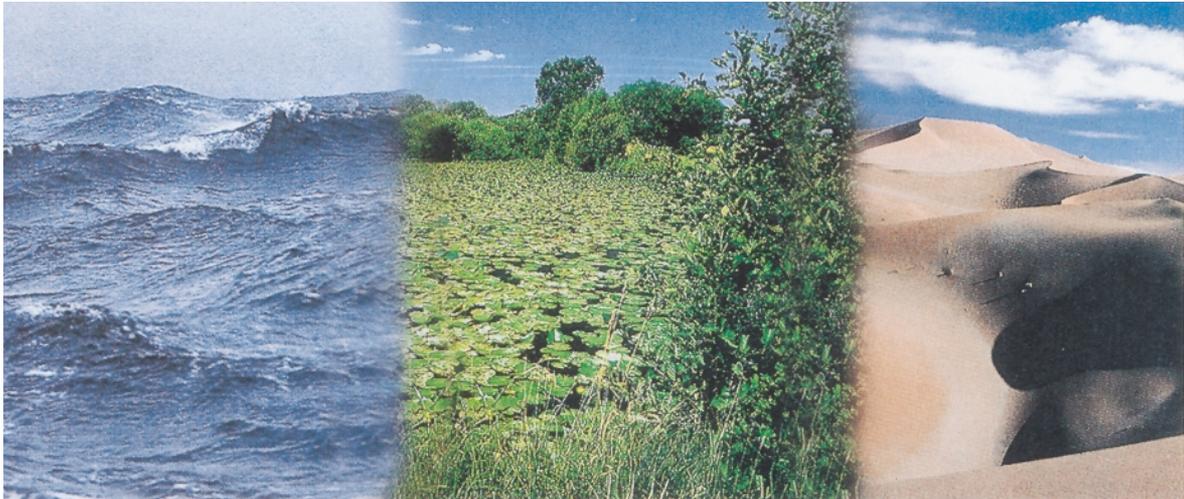
With many surveys today now involving the combination of streamer, bottom cable and land work, the ability to merge data from each environment is a major concern. Reflex handles such a scenario with ease, by enabling users to generate co-ordinate database(s) for each area and then sampling the data through a common definition. Users can see their entire prospect in one system and generate scaled maps for multi-client operations.

In addition, as ongoing surveys become extended in the field, requiring increased disk capacity, the merge capability can be used to analyse coverage from the extended area. This avoids any lengthy system reconfiguration/rebuilding.

Features

- Accepts industry standard data formats (UKOOA P1/90 and P2/91, SPS, Sprint, ProMax(TM))
- Rapid data access and manipulation
- Extensive bin expansion capabilities
- Filtering of data based on attribute criteria
- Attribute database archive for future use
- Analysis of offset and azimuth distribution at bin level
- QC and reporting facilities throughout
- Automatic Infill Detection
- Converted Wave Binning
- DMO modelling capability
- Output to seismic processing
- Built in audit trail
- On-line help
- Powerful remote analyser for off-site interpretation
- Available on multiple platforms including:
 - Sun (Sun OS, Solaris) • IBM (AIX)
 - HP (HP UX) • SGI





The Reflex Advantage

Reflex was designed with the full co-operation of oil companies and contractors to meet specific needs in the process of acquiring marine seismic and navigation data. Reflex was developed as a follow-up to the successful Sprint 3D project. Oil majors, BP Exploration, Mobil North Sea, Total Oil Marine and Phillips Petroleum UK, again collaborated in the project along with the UK Offshore Supplies Office, by providing technical and financial assistance. Throughout the design stage Concept Systems consulted closely with the seismic industry to ensure that user needs were wholly satisfied.

First introduced to the market early in 1995, Reflex has established a reputation with a number of contractors and QC operators for ease of use, speed and state of the art functionality. Concept Systems' continuing commitment to ongoing product development, responsive to customer feed-back, means that Reflex is sure to maintain its status as the leading product in the marketplace.

Benefits

- Infill decisions made quickly and correctly.
- Single system for integrating data from land, marine and OBC/TZ surveys.
- Attributes imported, analysed and archived for future use.
- Data management facilities assist with multi-client surveys.
- Guaranteed product longevity.
- Direct access to Concept Systems' expert worldwide support.



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THE QUEEN'S AWARD FOR EXPORT ACHIEVEMENT
1997



Model 5011 Compass Bird



The Series 5000 Concept

The Series 5000 is the third generation of seismic streamer system components developed by Input/Output. The 5000 provides a platform on which various cable control products are based. Its modular construction allows common mechanical and electronic subassemblies to provide different cable control functions.

- Modular construction
- Non-corrosive outer body
- Supports a larger repertoire of features
- Dual-battery pack
- Multiple-processor architecture
- Communications to support 6000-m and longer streamers
- Multiple, watertight seals provide greater reliability
- 122-m (400-ft) depth measurement

Model 5011 DigiBIRD™

The Model 5011 is the DigiBIRD member of the 5000 family. It is an advanced, microprocessor-based device that is mounted externally on a marine seismic streamer cable. The DigiBIRD has a variety of functions and features, including:

- Compass heading information
- Heading data corrected for A, B, and C terms
- Internal filtering of heading data
- Depth measurement
- Depth control
- Adjustable, depth control, algorithm parameters
- Provides information to assist in ballasting streamers
- Non-magnetic outer body

Specifications

INPUT/OUTPUT, INC.

Physical Characteristics

Length	1.2 m (48.2 in)
Weight (in air)	8.32 kg (18.3 lb)
Weight (in sea water) with batteries	2.78 kg (6.1 lb)
Mounting	Industry-standard collars on 0.57-m (22.5-in) centers

Communications

Type	Serial, FSK
Frequency	26 kHz or 28 kHz
Data rate	2400 bit/s

Depth Measurement

Operating range	0 m to 122 m (0 ft to 400 ft)
Resolution	0.15 m (0.5 ft)

Heading Measurement

Accuracy	+/-0.5°
Resolution	12 bits

Diving Plane

Lift	15.9 kg (35 lb) @ 5 knots and 15° wing angle
Airfoil	NACA 651-012 Airfoil Section
Wing span	48.3 cm (19 in)

Battery

Cells	SLB 150 battery pack <i>standard</i> or 4, D-cell, lithium batteries <i>optional</i>
Life	150 days _{typ} for SLB 150 battery pack (<i>standard</i>) 60 days _{typ} for D-cell batteries (<i>optional</i>)

Limited Warranty Period

1 year

Ordering Information

Model 5011 Compass Bird

26 kHz	P/N 9000-5011/01
28 kHz	P/N 9000-5011/03

SLB 150 Battery Pack

P/N 4000-074

Non-magnetic, Lithium, D-cell Battery

P/N 4000-009

United States – Stafford, TX
Input/Output, Inc.
Fax: 281.879.3500
Phone: 281.933.3339
E-mail: info@i-o.com

England
I/O Marine Systems Limited
Fax: 44.1483.277655
Phone: 44.1483.277644

Web Site
www.i-o.com



Model 452 Compass Interface

- Provides interface for 321 Compass when used in a seismic streamer
- Averaging time and sampling interval selectable
- Stores 'A' offset correction factor
- Communication with the DigiSCAN™ System and System 3™
- Monitors node voltage and signal-to-noise ratio



The Model 452 Compass Interface consists of a DigiSCAN modem and data acquisition circuitry which receives heading data from a single Model 321 optical compass, performs programmable data storage and manipulation, and transmits the conditioned data on request to the Model 272 or System 3 modem. The data is transmitted over a twisted pair transmission line. Power (provided by the Line Power Unit) is converted into voltages necessary for internal use in the 452 and the 321 optical compass.

**Operator Controllable
Parameters**

'A' offset correction
 Sample interval
 Averaging time

Environmental characteristics

Pressure rating 6,895 kPa (1,000 psi)
 Operating temperature -5°C to +35°C (+23°F to +95°F)
 Storage temperature -30°C to +65°C (-22°F to +149°F)

Physical characteristics

Weight 496.1 g (17.5 oz)
 Length 164.59 mm (6.48 in)
 Diameter 38.10 mm (1.50 in)
 Housing Stainless Steel
 Transmission line connection 2-wire feed through labeled "T"
 Connection 2-wire feed through labeled "C"

Electrical Characteristics

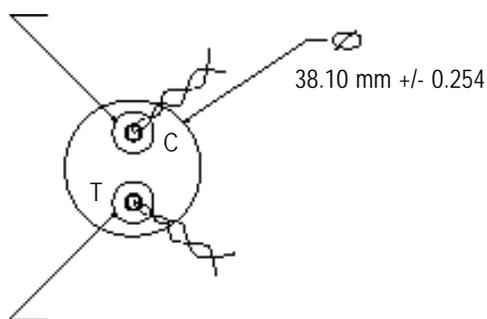
Diagnostics Node strength and signal to noise ratio
 Circuit protection Reverse polarity and overvoltage conditions
 Power consumption 120 mW typical
 Maximum number* of 452
 units per streamer 35 for 22 awg twisted pair
 25 for 24 awg twisted pair
 20 for 26 awg twisted pair

* Assumes 200 meters of lead in cable, and one 452 sensor per 100 meters, powered by I/O DigiCOURSE Sensor Interface Unit. Input/Output recommends using a dedicated twisted pair for the 452 units in the streamer.

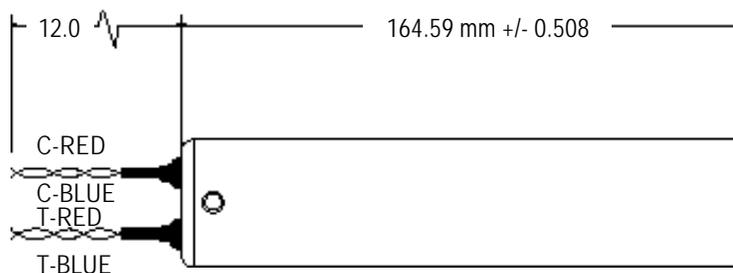
Data interface

DigiSCAN™ protocol 2400 baud FSK

Two-wire pass-through
(compass)



Two-wire pass-through
(transmission line)



- C-RED: 321 COMPASS +
- C-BLUE: 321 COMPASS -
- T-RED: TRANSMISSION LINE 1- DUAL FUNCTION, SIGNAL AND POWER
- T-BLUE: TRANSMISSION LINE 1- DUAL FUNCTION, SIGNAL AND POWER

NOTE: Each 452 unit should be installed in the streamer at least three feet from the nearest compass to prevent any possible magnetic distortion of heading readings.

Ordering Information

Model 452 Compass Interface	P/N 9000-452/01
Model 321 Heading Sensor	P/N 9000-321/02
Model 272 Modem Interface	
Single Channel	P/N 9000-272/01
Dual Channel	P/N 9000-272/02
Line Power Unit	P/N 9000-503

United States – Stafford, TX
Input/Output, Inc.
Fax 281.879.3500
Phone 281.933.3339

England
I/O Marine Systems Limited
Fax 44.1483.277655
Phone 44.1483.277644

Web Site
www.i-o.com



Model 321 Heading Sensor

- 1.75-inch diameter
- 10,000-psi pressure rating
- 0.35° resolution
- 360° roll
- 47.5° pitch

The 321 is a precision instrument, providing accurate and reliable measurement under a variety of operating conditions of roll and pitch as well as those environmental conditions experienced in underwater towed array and seismic streamer applications.



The 1.75-inch diameter and 360-degree roll capability of the Model 321 enable it to meet nearly all seismic streamer applications while its 0.35-degree resolution supports today's accuracy requirements. With a maximum operation pressure of up to 10,000 psi, this sensor can be used in military towed arrays.

A ten-bit digital number, indicative of orientation relative to magnetic North, is latched and shifted serially in a 10-bit binary-gray word format. The two-wire interface provides both power and data, minimizing cable-wiring requirements.

Specifications

Performance Characteristics

Resolution °	0.35
Roll	360° <i>continuous</i>
Pitch	47.5°

Environmental Characteristics

Pressure rating	68,948 kPa _{max} (10,000 psi) _{max}
Operating temperature	-20°C to +55°C (□4°F to +13°F)

Electrical Characteristics

Output data frequency	1 kHz _{nom}
Power consumption	96 mW @ 20-Hz sample rate 9.6 mW @ 2-Hz sample rate
Output format	PWM, 10-bit, binary gray word

Physical Characteristics

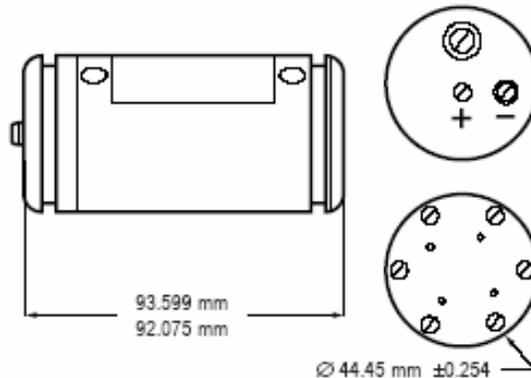
Length	92.84 mm (3.655 in)
Diameter	44.45 mm (1.75 in)
Weight	341 g (12 oz)
Housing	Anodized aluminum (tied electrically to COMMON return connection)

Ordering Information

INPUT/OUTPUT, INC.

Model 321 Heading Sensor

P/N 9000-321/02



United States – Stafford, TX
 Input/Output, Inc.
 Fax: 281.879.3500
 Phone: 281.933.3339

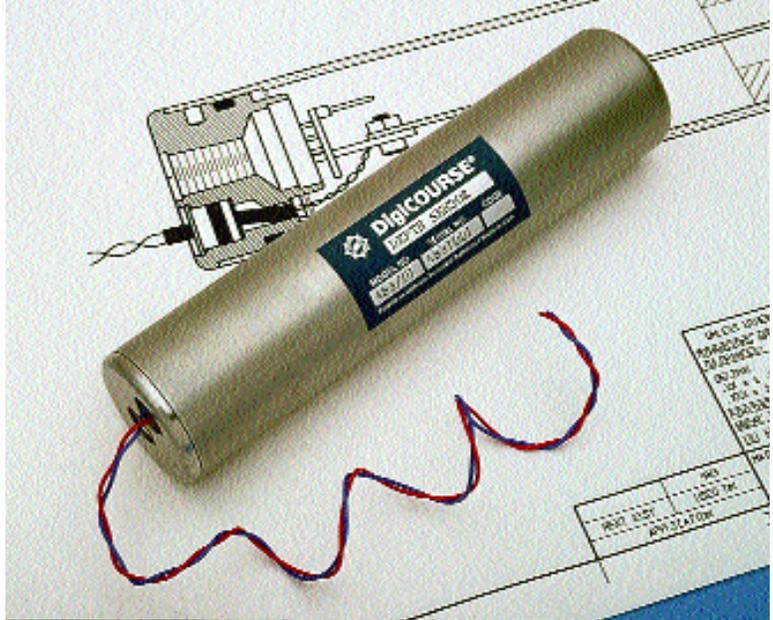
England
 I/O Marine Systems Limited
 Fax: 44.1483.277655
 Phone: 44.1483.277644

Web Site
www.i-o.com



Model 483 Depth Sensor

- Operating range of 200 feet
- Depth accuracy $\pm 1.0\%$ of full scale
- Temperature accuracy $\pm 1.0^{\circ}\text{C}$
- Communication with DigiSCAN™ system



The model 483 is a precision instrument, providing depth and temperature measurements. The two-wire interface provides both power and data transfer, minimizing cable wiring requirements.

Specifications

INPUT/OUTPUT, INC.

Performance Characteristics

Depth resolution	11-bit
Depth accuracy	± 1% of full scale
Temperature accuracy	± 1°C (± 1.8°F)

Depth Operating Range

200 ft

Environmental Characteristics

Operating pressure rating	122 m (400 ft)
Survival pressure rating	6,895 kPa (1,000psi)
Operating temperature	-5°C to +35°C (+23°F to +95°F)
Storage temperature	-30°C to +65°C (-22°F to +149°F)

Physical Characteristics

Weight	510.3 g (18 oz)
Length	164.59 mm (6.48 in)
Diameter	38.10 mm (1.50 in)
Housing	Stainless steel
Electrical connection	Two-wire pass through
Pressure Interface	1/8 inch NPT female

Electrical Characteristics

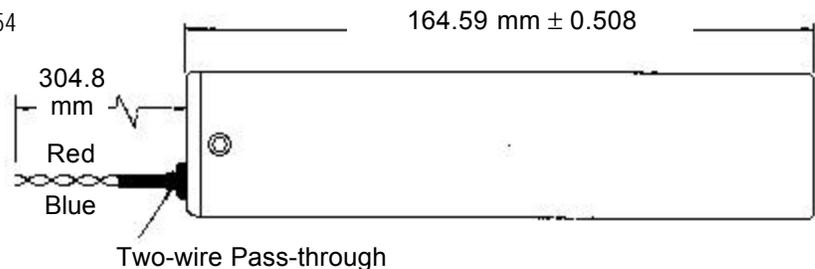
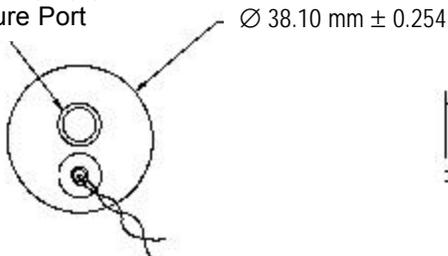
Circuit protection	Reverse polarity and overvoltage conditions
Power consumption	75 mW typical
Data interface	DigiSCAN™ protocol 2400 baud FSK
Maximum number per streamer*	50 for 22 awg twisted pair 40 for 24 awg twisted pair 30 for 26 awg twisted pair

(*) Assumes 200 meters of lead-in cable and one Model 483 sensor per 100 meters, powered by a serial interface unit. A dedicated twisted pair, in the streamer for Model 483 sensors, is recommended.

Ordering Information

200-ft full scale unit	P/N 9000-483/01
Model 483 users manual	P/N 4200-014
1/8-inch NPT male fitting for use with 3/16-in ID hose	P/N 2800-518

1/8-NPT Female
Pressure Port



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Input/Output, Inc.
Fax 281.879.3500
Phone 281.933.3339

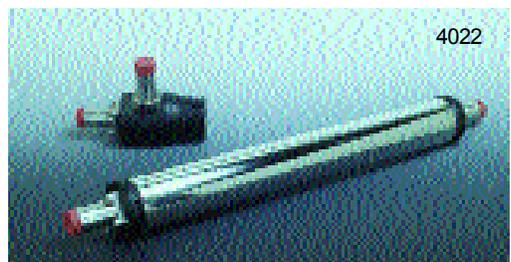
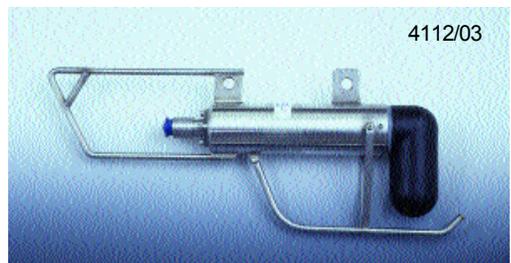
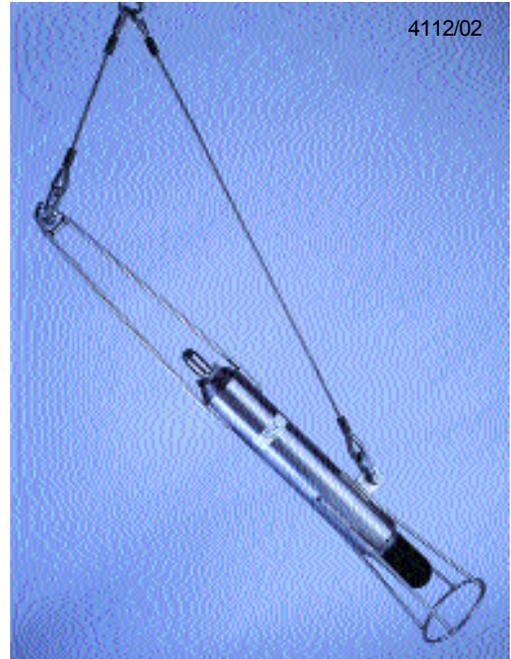
England
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Web Site
www.i-o.com



DigiRANGE™ Acoustic Ranging System Buoy/Source/Hull Mount (CTX)

- DSP based architecture provides an advanced signal set and detection method
- Designed for demanding seismic environments
- Advanced reflection detection and rejection algorithms
- Maximum range 1200 m
- Common Windows-based shipboard system supports depth control, acoustic and heading sensor measurements
- Efficient range creation capability
- Retry capability to improve completion rates
- Up to 600 two-way range measurements per shot interval
- Supported with Input/Output worldwide sales and service
- Modular package
- Multi power options



The DigiRANGE acoustic system provides observations of acoustic transit times between specific locations (nodes) on marine seismic streamers, tail buoys, energy sources, nav buoys and hull mounts. The system determines time measurements between nodes of the network with a resolution of 0.05 ms. Multiple streamer configurations and multiple vessel configurations are supported.

System		INPUT/OUTPUT, INC.	
Number of nodes	180 acoustic devices per system		
Instrument accuracy	0.1 ms		
Range resolution	0.05 ms		
Number of ranges per network	600 ranges per system (protocol limited)		
Host interface protocol	The ethernet host protocols provide for multiple, variable-length packets with support for up to 600 ranges with status information. Input/Output also supports the DigiCOURSE® standard and extended binary protocol in addition to other customer-defined protocols.		
Specifications			
CTX Electronics		Power Options	
Number of channels	5		Client supplied 9–36 V DC Battery Module
Acoustic band	50 kHz – 100 kHz		Line Power Unit (LPU)
Ranges per node	8		
CTX Battery Module		Buoy Mounted CTX Electronics Module	
Weight in air	11.6 kg (25.5 lb)	Weight in air	5 kg (11 lb)
Length	104 cm (41 in)	Length	83.8 cm (33 in)
Diameter	8.3 cm (3.25 in)	Diameter	8.3 cm (3.25 in)
Remote Transducer Flanged		Remote Transducer Towed	
Length	30.5 cm (12.0 in)	Length	98.4 cm (38.75 in)
Diameter	10.7 cm (4.2 in)	Diameter	15.2 cm (6 in)
Weight in water	4.1 kg (9 lb)	Weight in water	25.9 kg (57 lb)
Remote Transducer Right Angle		Remote Transducer Threaded	
Length	73.6 cm (29 in)	Length	18.4 cm (7.25 in)
Diameter	8.9 cm (3.5 in)	Diameter	6.0 cm (2.38 in)
Weight in water	9.5 kg (21 lb)	Weight in water	2.5 kg (5 lb)
Ordering Information			
CTX Electronics Module			
26 kHz FSK	P/N 9000-4022/11		
28 kHz FSK	P/N 9000-4022/13		
Radio	P/N 9000-4022/10		
Clamp-On Transducer Guard	P/N 2500-K636		
CTX Battery Module	P/N 9000-4023		
Remote Transducer Flanged	P/N 9000-4112/01		
Remote Transducer Towed	P/N 9000-4112/02		
Remote Transducer Right Angle	P/N 9000-4112/03		
Remote Transducer Threaded	P/N 9000-4112/04		
Alkaline Battery Pack	P/N 4000-052		
Lithium Battery Pack	P/N 4000-076		

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DigiRANGE II Acoustic Ranging System Streamer Mount (CMX)



4000 Series Design Concept

DigiCOURSE's business philosophy is to continually improve our products and create new innovated solutions for the seismic industry.

DigiRANGE II is the latest enhancement of the 4000 series platform. The modular design construction of the 4000 series systems allows for accurate, repeatable streamer positioning and control.

Model 4012/11/13 Acoustic Ranging System

The 4012 acoustic module is compatible with DigiRANGE acoustic technology thus improving positional accuracy, reducing in water range acquisition time and increased network density.

- Latest enhancement to DigiRANGE platform. Field upgrade kit available.
- New Advanced Digital Signal Processing algorithms
- Selectable automatic or manual threshold settings for optimized signal detection
- Intelligent device communication scheme allows for collection of 2800 ranges and communication up to 1200 devices within 6 second total cycle time
- Communicates to centralized Windows-based shipboard control and diagnostic system for depth control, acoustic positioning, heading, speed of sound and speed through water measurements
- Max range of 1200 meters
- Supports up to 20 streamers (mutli-vessel support)
- New light weight and rugged housing
 - Non-corrosive outer body
 - Low maintenance design
- Compatible with AcousticBird and DigiRANGE acoustic devices
- Compatible with DigiFIN steerage devices
- QuickCUFF™ compatible for rapid deployment and retrieval
- Compatible with DigiCOURSE FSK repeater technology for extended streamer deployments (up to 12 km)
- Worldwide 24 hour support and training

System		INPUT/OUTPUT, INC.
Number of Nodes	600 acoustic devices per system	
Instrument Accuracy	0.1 ms	
Range Resolution	0.05 ms	
Number of Ranges per Network	1200 ranges per system (protocol-limited)	
Host Interface Protocol	The Ethernet host protocols provide for multiple, variable-length packets with support for up to 1200 ranges with status information. Also, Input/Output supports the DigiCOURSE standard and extended binary protocol in addition to other customer-defined protocols.	
Specifications		
Number of Channels	3 optimizes for Gun 16 optimizes for streamer	
Acoustic Band	50 kHz – 100 kHz	
Ranges per Node	8	
Battery Life	180 days for Lithium (standard); 65 days for Alkaline (optional)	
CMX		
Length	105.4 cm (41.5 in.)	
Diameter	9.4 cm (3.7 in.)	
Weight (in water)	2.4 kg (5.3 lb.)	
Limited Warranty Period	1 year	
Ordering Information		INPUT/OUTPUT, INC.
Cable-mounted CMX		
26 kHz FSK	P/N 9000-4013/11	
28 kHz FSK	P/N 9000-4013/13	
Alkaline Battery Pack	P/N 4000-052	
Fishing Tool CMX Battery Pack	P/N 4000-098	
Lithium Battery Pack	P/N 4000-076	
Flotation Tube	P/N 9000-303/01	
DigiRANGE to DigiRANGE II Upgrade Kit	P/N 8200-065	

United States – Stafford, TX
Input/Output, Inc.
Fax: 281.879.3500
Phone: 281.552.3000

United States – Harahan, LA
Marine Imaging Systems Division
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Phone: 504.733.6061

Web Site
www.i-o.com



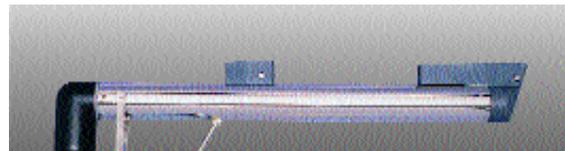
Model CMX-150 Battery Pack

- Model CMX-150 provides 150 days of typical in-water performance on the I/O CMX series of acoustic devices
- Reduces battery changes
- Life-time designed to match the new SLB-150 that is used in the Model 5000 Series Compass Birds
- Custom-designed to meet performance and safety requirements
- More efficient utilization of available energy

The model CMX-150 battery pack is a long-life battery for the cable-mounted, acoustic-ranging, I/O CMX units, giving approximately 2.5 times the life-time of the standard, alkaline, CMX battery packs. The design is intended to provide an in-water life-time that is comparable to the I/O Model 5010 Compass Birds when they are fitted with long-life SLB-150 batteries. The benefit of the CMX-150 and SLB-150 battery technologies is fewer battery changes for each device, further reducing time spent in the field and in changing batteries.



Model CMX-150 Battery Pack



DigiRANGE™ CMX



CMX-150 Tester



CMX-150 Conditioning Tool

Specifications

INPUT/OUTPUT, INC.

Shelf Life	De-rates 2% capacity per year @ +77°F
Cell Chemistry	Lithium thionyl chloride
Cathode Type	Liquid
Cell Count	9 cells
Capacity	1200 Wh

Safety	0.75-A, slo-blo fuse Hermetic-cell construction Water-resistant packaging Polarity-reversal protection
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Nominal Dimensions

Battery pack	
Diameter	7.77 cm (3.06 in)
Length	30.16 cm (11.875 in)
Weight	3.175 kg (7.0 lb)

Ordering Information

CMX-150 Battery Pack	P/N 4000-076
Battery Tester	P/N 9000-4122
CMX-150 Conditioning Tool	P/N 7000-103
CMX-150 Fishing Tool	P/N 7000-098

* Packaged as 4 packs per case where case dimensions (hxwxh) are 21.4 cm x 38.6 cm x 24.2 cm (8.5 in x 15.2 in x 9.6 in) and case weight is 13.6 kg (30 lb).

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Model 293P Data Acquisition Unit

The 293P is a rack-mounted 32-bit personal computer with an Intel® Pentium® 90 MHz processor, 3.5-inch floppy disk drive, CD ROM drive, 540 MB hard disk and a 17-inch color, multi-sync resolution monitor. The 293P contains 24 megabytes of extended memory and operates with high level language commands. It contains two serial ports and one printer port, and acts as the system controller for communications with the host computer, the sensor units on the transmission line and the DigiSCAN™ graphics package. The 293P also serves as the operator interface (OI) in the System 3™ package which uses Windows NT® and an ethernet connection to the DMU and host computers.



Specifications

INPUT/OUTPUT, INC.

Dimensions*

Monitor	19 in (w) x 15.75 in (h) x 15 in (d)
CPU	19 in (w) x 7 in (h) x 22.2 in (d)
Keyboard	19 in (w) x 1.75 in (h) x 16.5 in (d)

(* Dimensions are quoted in inches to correspond with NMEA instrumentation rack standard units of measure

AC power input 90-132 / 180-264 VAC, 47 Hz to 63 Hz

293P interface to 272 streamer interface unit RS232, 9 Pin-Serial Port #1

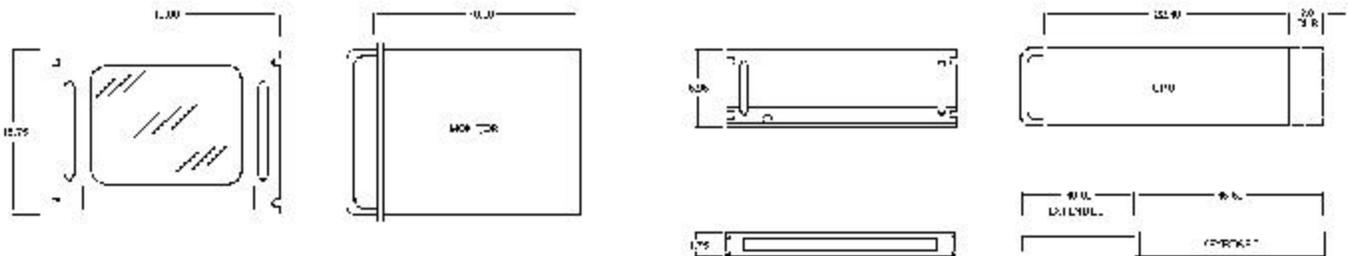
Host Interface Combinations

Interface	DigiSCAN™ Serial port #2 RS232-25 pin	System 3™ Ethernet port
Cable control	yes	yes
Compass/Bird data	yes	yes
Acoustic data	no	yes
Velocimeter data	no	yes
Protocols	Serial baud rate supported is 300-9,600 bps, configurable for stop bits, data bits and parity bits	

Ordering Information

293P P/N 9000-293/11

*Intel® and Pentium® are registered trademarks of the Intel Corporation
Windows NT® is a registered trademarks of the Microsoft Corporation*



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Model 272 Streamer Interface Unit

The 272 is a standard relay rack mountable assembly containing the electronics necessary for interfacing the DigiSCAN™ streamer cable system to the shipboard computer. The assembly contains a modem board which collects data from sensors on the streamer and stores it in memory until retrieved by the computer. The 272 is also available with two modem boards as an option. Typically one modem board is required for each streamer.



Specifications

INPUT/OUTPUT, INC.

Dimensions	19 in (w) X 14.25 in (d) X 5.21 in (h)
AC power input	90 V to 132 V/180 V to 264 V, 50 Hz to 60 Hz
In/Out to streamer	Modem interface to streamer is via a male 3 pin connector located on the back side of the 272, one for each modem.
Interface with DAU	RS232, 25 pin
Exchange between 272 and host computer	
Commands from host computer	Address search/change/location set Individual station test/system run DigiBIRD™ depth control
Data to host computer	Compass heading Streamer depth Temperature at depth sensor location DigiBIRD control fin angle and battery usage
	Handshaking and protocol information for user programming of personal computer is available in the protocol section of the DigiSCAN™ Operator's Manual (6301-293A).

Ordering Information

Single modem board chassis 26 kHz	P/N 9000-272/01
Dual modem board chassis 26 kHz	P/N 9000-272/02
Single modem board chassis 28 kHz	P/N 9000-272/04
Dual modem board chassis 28 kHz	P/N 9000-272/03
Spares kit (contains spare modem board, power supply, fan, fuses and other parts for field repair of the 272)	P/N 6500-046
DigiSCAN™ software	P/N 6300-293A-275

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Web Site
www.i-o.com

Multi-Channel Digital Streamer Tests

A series of basic daily tests, which perform detailed measurements of all the data acquisition modules and hydrophone groups, are carried out to ensure that the digital streamers are performing to specifications. These tests are as follows:

Amplifier RMS and DC Offset

Tests : Pre-amplifier noise and DC offset correction

Set-up : Pre-amplifier inputs grounded, output digitised

Analysis : RMS and mean of output calculated

Expected Values & Tolerances :

RMS Noise : Typical 4.5 μ volts, maximum 7 μ volts

DC Offset : Typical 6 μ volts, maximum 10 μ volts

(For 12 dB pre-amplifiers : different for 24 dB amplifiers)

Amplifier Impulse Response

Tests : Analogue filters

Set-up : Phones disconnected, one pre-amplifier input grounded, other pre-amplifier input driven with one-millisecond pulse, output digitised

Analysis : FFT of output calculated and three points examined

Expected Spectral Values & Tolerances (512 samples and 1 msec sampling) :

3.90625 Hz :	-2.0 \pm 0.5 dB	(Low Cut Out)
7.8125 Hz :	-4.0 \pm 0.5 dB	(Low Cut In)
31.25 Hz :	0.0 \pm 0.08 dB	(Mid-Band)
250 Hz :	-12.0 \pm 1.0 dB	(Analogue High Cut)

Channel Gain Accuracy

Tests : Pre-amplifier, filters, sample and hold, IFP amplifier

Set-up : Phones disconnected, one pre-amplifier input grounded, range of reference voltages applied to other pre-amplifier input, output digitised

Analysis : RMS calculation of output and comparison with expected values

Expected Values & Tolerances : Typical, 0.02% - maximum, 0.05%

Harmonic Distortion

Tests : Entire module, including analogue-to-digital converter

Set-up : Phones disconnected, one pre-amplifier input grounded, sinusoid of selected amplitude and frequency applied to other input, outputs digitised

Analysis : FFT of output calculated and harmonics of input sinusoid examined

Expected Values & Tolerances : < 0.02% distortion (for full or near full-scale signals)

Dynamic Resolution

Tests : IFP amplifier and analogue-to-digital converter

Set-up : Same as harmonic distortion, except full suite of amplitudes tested

Analysis : FFT of outputs calculated and harmonics of input sinusoid examined

Expected Values & Tolerances : < 0.02% distortion (for full or near full-scale signals)

Hydrophone Leakage

Tests : Hydrophone array

Set-up : Phones connected Inputs driven with step function Output digitised

Analysis : Leakage and capacitance of group calculated from phase of output

tolerances:

6.25 m Groups : 1 M Ω 0.128 μ F

12.5 m Groups : 499 k Ω 0.256 μ F

18.75 m Groups : 322 k Ω 0.384 μ F

25 m Groups : 249 k Ω 0.512 μ F

Output Options :

Pass/Fail (\pm 5% Tolerances)

Leakage and capacitance vs. channel

Time-series of output

Streamer RMS Noise

Tests : Hydrophone array; ambient acoustic noise

Set-up : Phones connected

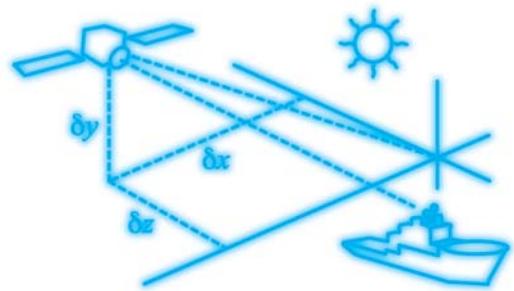
Analysis : RMS voltage calculated

Expected Values & Tolerances : Project-dependent



Positioning for Success

Ultra service



Veripos Ultra is the next generation positioning service from Veripos offering decimetre level position accuracy globally. The service is based around a positioning technique known as PPP (Precise Point Positioning) where all errors in the GPS system are either independently corrected or modelled to a high degree of accuracy.

Traditional differential GPS, generically referred to as relative positioning, relies upon reference stations, which derive corrections for each GPS satellite measurement that are then applied at the user end to cancel out common errors. Whilst this technique is very robust and well proven there are limitations, the main one being that as the users distance to the reference station increases, the accuracy decreases due to the errors becoming increasingly de-correlated.

In contrast to having a unique set of satellite corrections specific to each reference site, Veripos Ultra consists of one set of corrections for the satellites, which are valid globally. These are used at any location with no dependence on distance to reference stations.

Veripos Ultra delivers a high accuracy position using a proprietary PPP algorithm developed by Veripos that minimises or removes all of the main GPS errors sources such as satellite orbit, satellite clock, troposphere, ionosphere and multi-path.



Positioning for Success Ultra service

To carry out this absolute positioning technique orbit and clock correction information is broadcast for each and every GPS satellite to allow removal of satellite based error components.

Use of dual-frequency GPS hardware at the user-end permits the calculation and removal of local ionosphere errors, whilst troposphere delays are estimated within the calculation. Other sources of error are also modelled and include ocean loading, earth tides and phase windup.

To obtain the high-accuracy solution, multi-path and GPS receiver noise errors are minimised through use of carrier phase observables, which are precise to the millimetre level.

In all, Veripos Ultra provides a truly global, seamless high-accuracy position, which is not only robust but effective in all areas of operation, including areas of ionosphere disturbance.

Satellite Downlinks

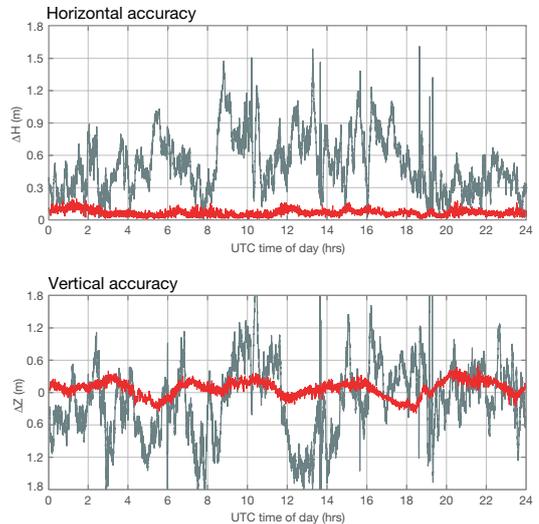
To ensure maximum reliability and availability, the Veripos Ultra service is broadcast globally from a suite of 7 L-band communication satellites, which cover the earth more than twice over. Two different power levels are broadcast; High-power (HP), which is received using a small omni-directional antenna and Low-power (LP), which requires a larger stabilised antenna such as a vessel's Inmarsat communication terminal. This configuration means that users can receive broadcast data from multiple sources giving excellent back-up and redundancy.

Correction Message

Veripos Ultra data is broadcast in a proprietary format to ensure transmission efficiency and maximum reliability. The message, which contains corrections to the broadcast GPS orbit and clock parameters for each of the current 32 satellites, repeats at a rate that is more than sufficient to prevent latency degradation.

Mobile Equipment

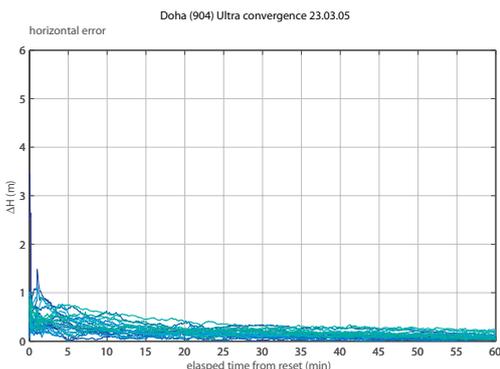
The Veripos Ultra position can be calculated in two ways; either directly inside the Veripos LD2 integrated mobile unit, or within Veripos' Verify QC software using data from the LD2. Alternatively, Verify QC can be used with an external Veripos demodulator and separate L1/L2 GPS receiver, should a user wish to utilise existing GPS hardware.



The above plots represent the horizontal and vertical position errors in Veripos Standard and Ultra solutions at a monitor site in Singapore. The reference station used in the Standard solution was located 322Km distant at Kemaman. The 2DRMS (95%) of the Veripos Ultra solution above is 0.05m horizontal and 0.29m vertical, whilst for the Veripos Standard solution above the performance is 0.56m horizontal and 1.41m vertical respectively.

Technical specifications:

- Process type: Precise Point Position (PPP)
- Observations used: CA & P code + L1 & L2 carrier phase
- Measurement rate: 0.6 seconds
- Availability: Worldwide
- HP satellites: Inmarsat 25E, 98W, 109E
- LP satellites: Inmarsat AORE, AORW, IOR, POR
- Data format: Modified RTCM SC104 Type 44
- Message types: 44
- Transmission rate: 1200 bps
- Typical data update rate: 30 seconds
- Normal Horizontal accuracy: 20cm (2DRMS)
- Normal Vertical accuracy: 30cm (2DRMS)



This plot shows the time taken for the Veripos Ultra position to initialise and converge to full accuracy. This example is based upon data for a 24-hour period at a site in Doha, MiddleEast. The system is completely reset every hour. 50cm accuracy is achieved after just 10 minutes, 25cm after 15-20 minutes and 10-20cm after 30 minutes.

For further information:

Customer helpline: +44 1224 877993

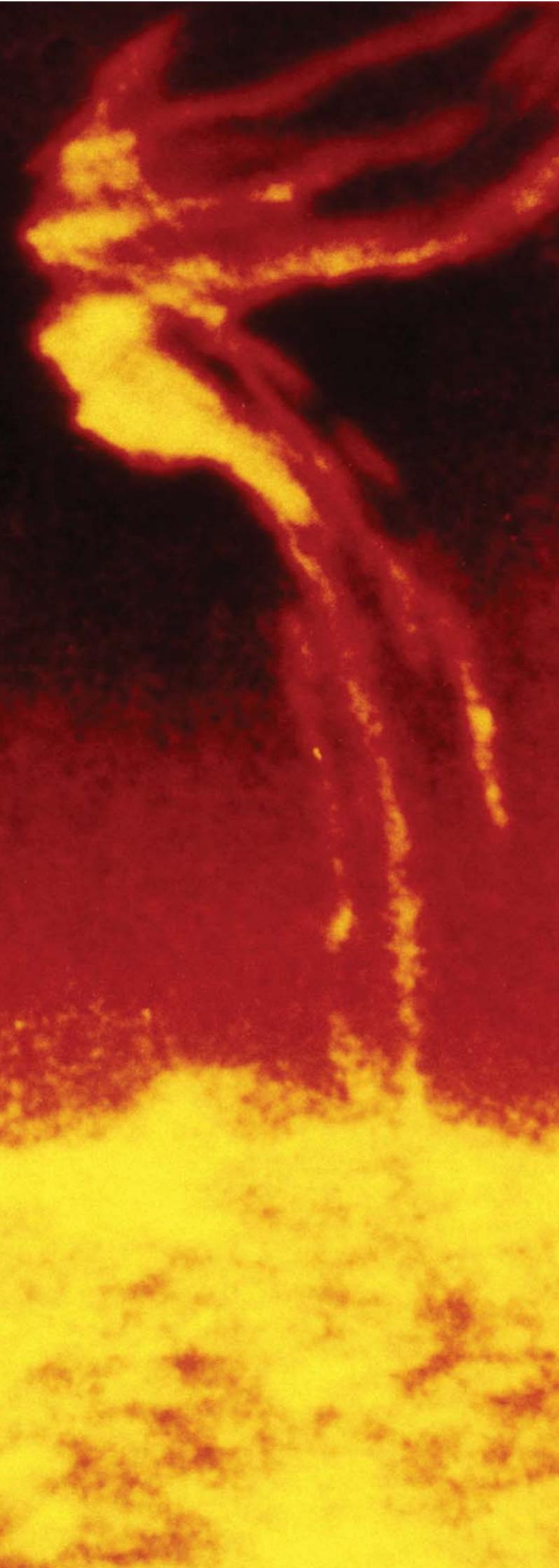
Online support: www.veripos.com

Greenwell Road, East Tullos,
Aberdeen AB12 3AX, Scotland UK

T: +44 1224 292000

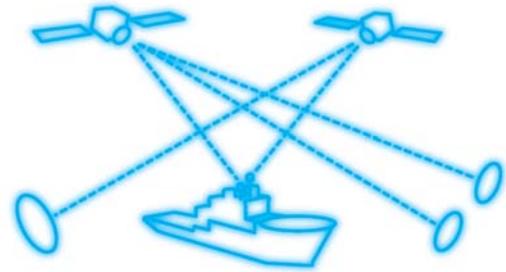
F: +44 1224 879312

E: sales@veripos.com



Positioning for Success

Standard Plus service



Differential GPS relies upon the cancellation of common errors measured at two separate locations. The greater the proximity of the locations, the higher the degree of similarity of measurement errors and subsequent cancellation. As the separation between sites increases the errors will begin to de-correlate leading to residual biases in position.

The main cause of this is the differing path of the satellite signal through the atmosphere, and in particular, the ionosphere. During normal ionosphere conditions these delays are usually similar over relatively wide areas and so largely cancel out in the differential process, especially with the assistance of a good model. When the ionosphere becomes more active such as during periods of heightened solar activity its composition can change significantly, leading to large variations in its effect on signals over small areas.

During these periods such errors may not cancel out between sites and models may become inaccurate leading to sizeable errors in differential positioning.



Positioning for Success Standard Plus service

The level of ionosphere disturbance is correlated with the following:

Solar activity (sunspot/magnetic storms). Increased ionosphere activity linked with the 11 year solar cycle (present cycle peaked in 2001).

Geographic location: Highest activity along geomagnetic equator and in the auroral regions;

Seasonal variations: Increased activity at the Vernal and Autumnal Equinoxes;

Diurnal (daily) variations: Maximum effects normally experienced one hour after local sunset until midnight.

There are two symptoms of ionosphere activity on DGPS:

- Position errors caused by failure of the differential process to cancel the effects of ionosphere delays.
- Scintillation - which causes rapid fluctuations in the phase and amplitude of the satellite signal as it passes through the ionosphere. During peaks of activity, scintillation can become so severe that it is simply not possible to track signals.

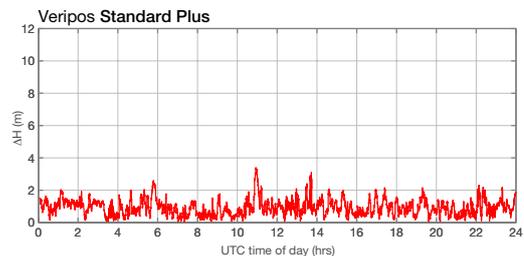
Veripos Standard Plus is an addition to the Veripos Standard service and is designed to help address these symptoms by using dual-frequency GPS. Using observations on both L1 and L2 frequencies allows the mitigation of the position errors by calculating, instead of modelling, the ionosphere delays in each satellite signal, and thereafter removing its effects. In addition to the normal pseudo-range corrections transmitted in the Standard service, measured ionosphere delay information for each satellite at each reference station is also broadcast.

This information, which is available in standard RTCM format (message Type 15) as well as a range of other formats, is then combined with the locally measured values to give a position, free from the effects of the ionosphere. As the ionosphere is changing relatively slowly, a fast update rate for the corrections (Type 15) is not required.

The problem of scintillation, however, is much more serious as the signal may be too disturbed to use or could even be absent.

Although extremely difficult to fully compensate this effect, Veripos Standard Plus can provide some improvement through using latest GPS technology as well ensuring the highest quality installations to minimize signal losses.

Veripos Standard Plus is a premium service that can provide significant improvements in operational performance & efficiency under these challenging conditions.



The above plots represent the horizontal position error in Veripos Standard and Standard Plus solutions at a monitor site in Malongo. The reference station was located 1265Km distant at Port Harcourt. The de-correlating effect of the ionosphere, which can be clearly seen in the single-frequency Standard solution, has been fully compensated in the Standard Plus solution. The 2DRMS (95%) of the Veripos Standard solution above is 6.14m horizontal, whilst for the Veripos Standard Plus solution the performance is 0.98m horizontal.

Technical specifications:

Process type: Single difference (DGPS)
Observations used: CA & P code, L1 & L2 carrier phase
Measurement rate: 0.6 seconds
Availability: Brazil, West Africa, SE Asia
(other locations available on demand)
HP satellites: Inmarsat 25E, 98W, 109E
LP satellites: Inmarsat AORE, AORW, IOR, POR
Data format: RTCM SC104
Message types: 1, 3, 15 & 16
Transmission rate: 1200 bps
Typical Type 1 correction update rate: 7 seconds
Typical Type 1 latency: 2 seconds
Typical Type 1 average age of correction: <5 seconds
Typical Type 15 correction update rate: <60 seconds
Normal accuracy: Up to 2000Km: 1-2m (2DRMS)
Ref station co-ordinate frame: ITRF00

For further information:

Customer helpline: +44 1224 877993

Online support: www.veripos.com

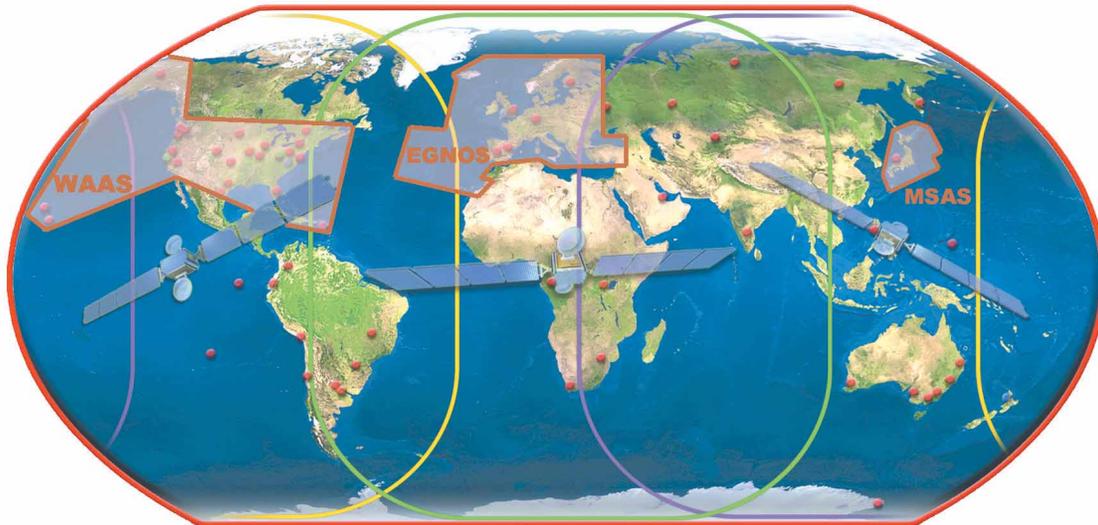
Greenwell Road, East Tullos,
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C-NAV DGPS



PRECISION ACCURACY ◦ WORLD-CLASS RELIABILITY
GLOBAL CUSTOMER SERVICE 24/7 ◦ REDUNDANT SYSTEM BACKUPS

TAKE A CLOSER LOOK AT C-NAV:

C-NAV IS A NEW CONCEPT IN GPS POSITIONING WHERE THE ACCURACY AT THE MOBILE LOCATION IS NO LONGER A FUNCTION OF THE DISTANCE FROM THE REFERENCE STATION(S).

- 1-decimeter horizontal and 3 decimeters vertical accuracy for ultra-precise positioning.
- Dual-frequency processing resolves user-location errors in C-Nav's single worldwide signal.
- Multiple-redundant regional backup systems support the worldwide signal.
- Simple three-part hardware is easy to install, rugged and reliable.
- Global 24/7 customer service when and where you need it.

THE C-NAV RTG NETWORK IS A GLOBAL SYSTEM FOR THE DISTRIBUTION OF DIFFERENTIAL GPS CORRECTIONS, GIVING THE USER THE ABILITY TO MEASURE HIS POSITION ANYWHERE IN THE WORLD WITH EXCEPTIONAL RELIABILITY AND UNPRECEDENTED ACCURACY OF 10 CM (4 INCHES) OR BETTER. BECAUSE THE DIFFERENTIAL GPS CORRECTIONS ARE BROADCAST VIA INMARSAT GEO-STATIONARY SATELLITES, THE USER NEEDS NO LOCAL REFERENCE STATIONS OR POST-PROCESSING TO GET THIS EXCEPTIONAL ACCURACY. FURTHERMORE, THE SAME ACCURACY IS AVAILABLE VIRTUALLY ANYWHERE ON THE EARTH'S SURFACE ON LAND OR SEA FROM 72° N TO 72° S LATITUDE DUE TO THE WORLDWIDE COVERAGE OF THE GEO-STATIONARY SATELLITES.

INFRASTRUCTURE

The system utilizes the DoD NavStar GPS Network, L-band communications satellites, and a worldwide network of reference stations to deliver real-time high-precision positioning.

To provide this unique service, NavCom has built a global Network of dual-frequency reference stations, which constantly receive signals from the GPS satellites as they orbit the earth. Data from these reference stations is fed to two Processing Centers in Redondo Beach, CA and Moline, IL where they are processed to generate the differential corrections. From the two Processing Centers, the correction data is fed via redundant and independent communications links to satellite uplink stations in Laurentides, Canada, Goonhilly, England and Auckland, New Zealand for uplink to the geo-stationary satellites, which broadcast it globally.

The key to the accuracy and convenience of the Network system is the source of DGPS corrections. GPS satellites transmit navigation data on two L-band frequencies. The Network reference stations are all equipped with our geodetic-quality, dual-frequency GPS receivers. These reference receivers decode GPS signals, and send precise high quality dual-frequency pseudorange and carrier phase measurements back to the Processing Centers together with the data messages, which all GPS satellites broadcast.

At the Processing Centers, NavCom's proprietary differential processing technique, developed under license from the NASA Jet Propulsion Laboratory (JPL) from the JPL Real Time Gypsy (RTG) software, is used to generate differential correction data for each satellite in the GPS constellation. This proprietary wide-area DGPS (WADGPS) algorithm is optimized for a Network in which dual-frequency ionospheric measurements are available at both the reference receivers and the user receivers. It is the use of dual-frequency receivers at both the reference stations and the user equipment together with the advanced processing algorithms, which makes the exceptional accuracy of the C-Nav system possible.

Creating the differential corrections is just the first part. From our two Processing Centers, the differential corrections are then sent to the Land Earth Station (LES) for uplink to L-band communications satellites. Each L-band satellite covers more than a third of the earth, providing global coverage between 72° N to 72° S.

Users equipped with a Network precision GPS receiver actually have two receivers in a single package, a GPS receiver and an L-band communications receiver, both designed by NavCom for this system. The GPS receiver tracks all the satellites in view and makes pseudorange measurements to the GPS satellites. Simultaneously, the L-band receiver receives the correction messages broadcast via the L-band satellite. When the corrections are applied to the GPS measurements, a position measurement of unprecedented real-time accuracy is produced.

RELIABILITY

The entire system meets or exceeds a target availability of 99.99%. To achieve this, every part of the infrastructure has a built-in backup system. All the reference stations are built with duplicate receivers, processors, and communication interfaces, which switch automatically or in response to a remote control signal from the Processing Centers. The data links from the reference stations use the Internet as the primary data link and are backed up by dedicated communications lines, but, in fact, the network is sufficiently dense that the reference stations effectively act as backup for each other. If one or several fail, the net effect on the correction accuracy is not impaired.

There are two Processing Centers located geographically distant from each other and running continuously, each receiving all of the reference site inputs and each with redundant communication links to the uplink sites (LES). The Land Earth Stations are equipped with two complete and continuously operating sets of uplink equipment arbitrated by an automatic-fail overswitch. Finally, a comprehensive team of support engineers maintains round-the-clock monitoring and control of the system.

The network is a fully automated self-monitoring system. To ensure overall system integrity, an independent integrity monitor receiver, similar to a standard StarFire-user receiver, is installed at every reference station to monitor service quality. Data from these integrity monitors is sent to the two independent processing hubs in Torrance, CA and Moline, IL. Through these integrity monitors the network is continuously checked for overall DGPS positioning accuracy, L-band signal strength, data integrity and other essential operational parameters.

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SOUTH AFRICA | #5 MELODIE ROAD | KIRSTENHOF 7945, SOUTH AFRICA | TEL: (+27) 21.702.1870 | FAX: (+27) 21.702.1870
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C-NAV DGPS

The C-Nav2050 sensor consists of a 10-channel dual-frequency precision GPS receiver, two additional channels for receiving Satellite Based Augmentation System (SBAS) signals and an L-Band demodulator for reception of C-Nav correction service. The sensor can output raw data as fast as 50Hz and Position Velocity Time (PVT) data as fast as 25Hz through two 115kbps serial ports.



THE C-NAV2050 FAMILY OF RECEIVERS:

- The **C-Nav2050G** provides 64MB internal memory for data storage and provides the user with up to 5Hz measurement and position solutions. In addition, optional 10Kz and 25Hz Fast Positioning Update rates are available as well as raw data measurement outputs at 10Hz, 25Hz or 50Hz.
- The **C-Nav2050M** has all the standard features of the C-Nav2050G plus a 1PPS output port and a combined Event/CAN Bus interface port. In addition, 25Hz Fast Position Update rate is available and optional raw data measurement outputs up to 50Hz, and optional RTK Position Velocity and Time (PVT) solution at up to 5Hz are available.
- The **C-Nav2050R** has all the standard features of the C-Nav2050G but provides for two L-Band signal connections, one for the Dual Frequency GPS antenna and the second for a hi-gain L-Band communication satellite antenna.

The C-Nav2050 GPS family of receivers provides survey positioning services on a global basis.

C-NAV2050 GPS HARDWARE

TECH SPECS

FEATURES

- "All-in-view" tracking
- Global decimeter-level accuracy using RTG corrections
- Fully automatic acquisition of satellite broadcast corrections
- Configurable for global L-band satellite coverage – RTG, WAAS, EGNOS
- Rugged and lightweight package for mobile applications
- Accepts external GPS correction input in NCT, RTCM v2.2 or CMR format
- L1 & L2 full wavelength carrier tracking
- C/A, P1 & P2 code tracking
- User programmable output rates
- Minimal data latency
- 2 separate SBAS (WAAS/EGNOS) channels
- Superior interference suppression
- Patented multipath rejection
- Supports NMEA 0183 v3.01 messages
- Self-survey mode (position averaging)
- CAN bus interface (C-Nav2050M only)
- 1PPS Output (C-Nav2050M only)
- Event Marker (C-Nav2050M only)

PHYSICAL/ENVIRONMENTAL

- Size (L x W x H): 8.18" x 5.67" x 3.06" (20.8 x 14.4 x 7.8 cm)
- Weight: 4 lbs (1.81 kg)
- External Power
 - Input Voltage: 10 VDC to 30 VDC
 - Consumption: <10 W
- Connectors
 - I/O Ports: 2 x 7 pin Lemo
 - DC Power: 4 pin Lemo
 - RF Connector: TNC (with 5 VDC bias for antenna/LNA)
- Temperature (ambient)
 - Operating: -40° C to +55° C
 - Storage: -40° C to +85° C
- Humidity: 95% non-condensing
- Tested in accordance with MIL-STD-810F for: Low pressure, solar radiation, rain, humidity, salt fog, sand and dust, and vibration

PERFORMANCE

GPS RECEIVER PERFORMANCE

- Real-time Kinematic Accuracy (RTK Option Only)
 - Relative position: Centimeter level
- Real-time StarFire DGPS Accuracy
 - Position (H): <10 cm
 - Position (V): <30 cm
 - Velocity: 0.01 m/s
- Pseudo-range Measurement Precision (RMS)
 - Raw C/A code: 20cm @ 42 dB-Hz
 - Raw carrier
 - Phase noise: L1: 0.95 mm @ 42 dB-Hz
 - L2: 0.85 mm @ 42 dB-Hz
- User Programmable Output Rates
 - PVT: 25Hz, 10Hz, 5 Hz, 2Hz, 1Hz, or slower
 - Raw data: 50Hz, 25Hz, 10Hz, 5Hz, 2Hz, 1Hz, or slower
- Data Latency
 - PVT: < 20 ms at all nav rates
 - Raw data: < 20 ms at all rates
- Time-to-first-fix
 - Cold Start, Satellite Acquisition: < 60 seconds (typical)
 - Satellite Reacquisition: < 1 second
- Dynamics
 - Acceleration: up to 6g
 - Speed*: < 300 m/s
 - Altitude*: < 60,000 ft
- 1PPS Resolution 12.5nS (C-Nav2050M only)

*Restricted by export laws

I/O CONNECTOR ASSIGNMENTS

- Data Interfaces: 2 serial ports; from 1200 bps to 115.2 kbps
CAN Bus I/F (C-Nav2050M only)
Event Marker I/P (C-Nav2050M only)

COMMUNICATIONS PORT FUNCTIONS

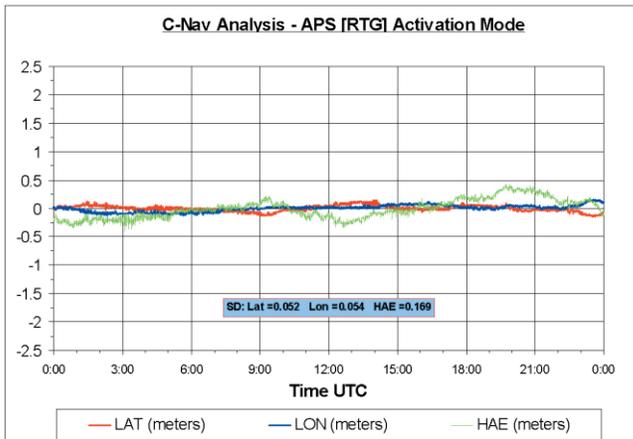
- NCT Proprietary: Data, Control
- RTCM I/O: Code Corrections
- NMEA Output: Data

INPUT/OUTPUT DATA MESSAGES

- NCT Proprietary
 - Data: PVT
Raw Measurement
Satellite Messages
Nav Quality
Receiver Commands
- NMEA Messages (Output): ALM, GGA, GLL, GSA, GSV, RMC, VTG, ZDA, and GST
- Code Corrections: RTG (proprietary) – Internal LBM
WCT (proprietary) – Internal LBM
SBAS (WAAS/EGNOS) – Internal GPS
DGPS (RTCM Type 1 or 9) – External I/O
RTK (RTCM, CMR, NCT)

LED DISPLAY FUNCTIONS (DEFAULT)

- Link (Selectable)
- Base Station
- GPS Position Quality



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Simrad EA 500

Hydrographic Echo Sounder

The hydrographer's must !

The Simrad EA 500

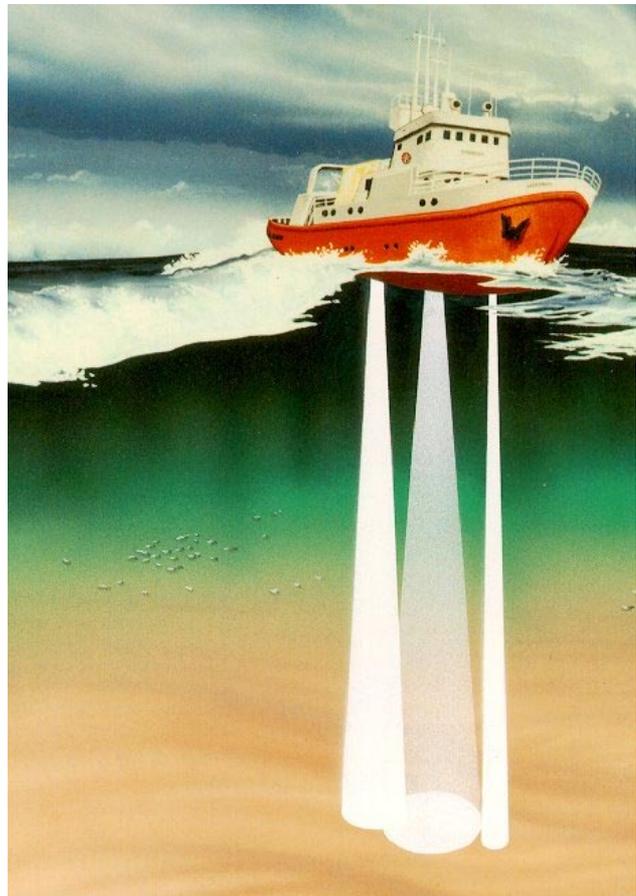
...is a modular triple channel hydrographic echo sounder, where extensive microprocessor technology combines the resolution of "the good old analogue sounders" with the benefits of a modern electronic echo sounder.

...is the first hydrographic echo sounder with 160 dB instantaneous dynamic range - the strongest and the weakest signal will be detected, stored and displayed without degradation.

...is the first hydrographic echo sounder with split beam transducers - measuring true inclination angles of the seabed in athwartships direction.

Unique EA 500 features

- Triple frequency operation
- Separate digitizer for each channel
- High transmitted power
- Pinger mode
- Extensive self-test functions
- Powerful multiprocessor system
- Multipulse operation, several pulses in the water simultaneously
- Sophisticated software algorithms for bottom tracking based on multi-criterion decision theory
- A wide range of transducers, single beam or split beam, or side-looking
- Split beam operation measuring bottom athwartships inclination angle
- Adjustable ping rate up to 10 pings/second



KONGSBERG
SIMRAD

- Digital data output for later postprocessing
- Ethernet interface type IEEE 802.3
- Remote computer command control
- Echogram presentation in 12 colours
- Menu-driven operation
- Uncomplicated push-button/joystick control
- Interface to heave, roll and pitch sensors
- Sound velocity compensation (manual or profile input)
- Navigation data input
- Annotation: data input or automatic
- Event marker input
- Pinger mode
- Deep water stabilized version, electronic beam control

Optional features

- Analyzing capabilities for silt measurements and sub-bottom profiling
- PC/workstation-based software for a variety of postprocessing and plotting purposes

- Side-looking channels
- Multichannel operation, 3x64 channels

Technical specifications

Operational range

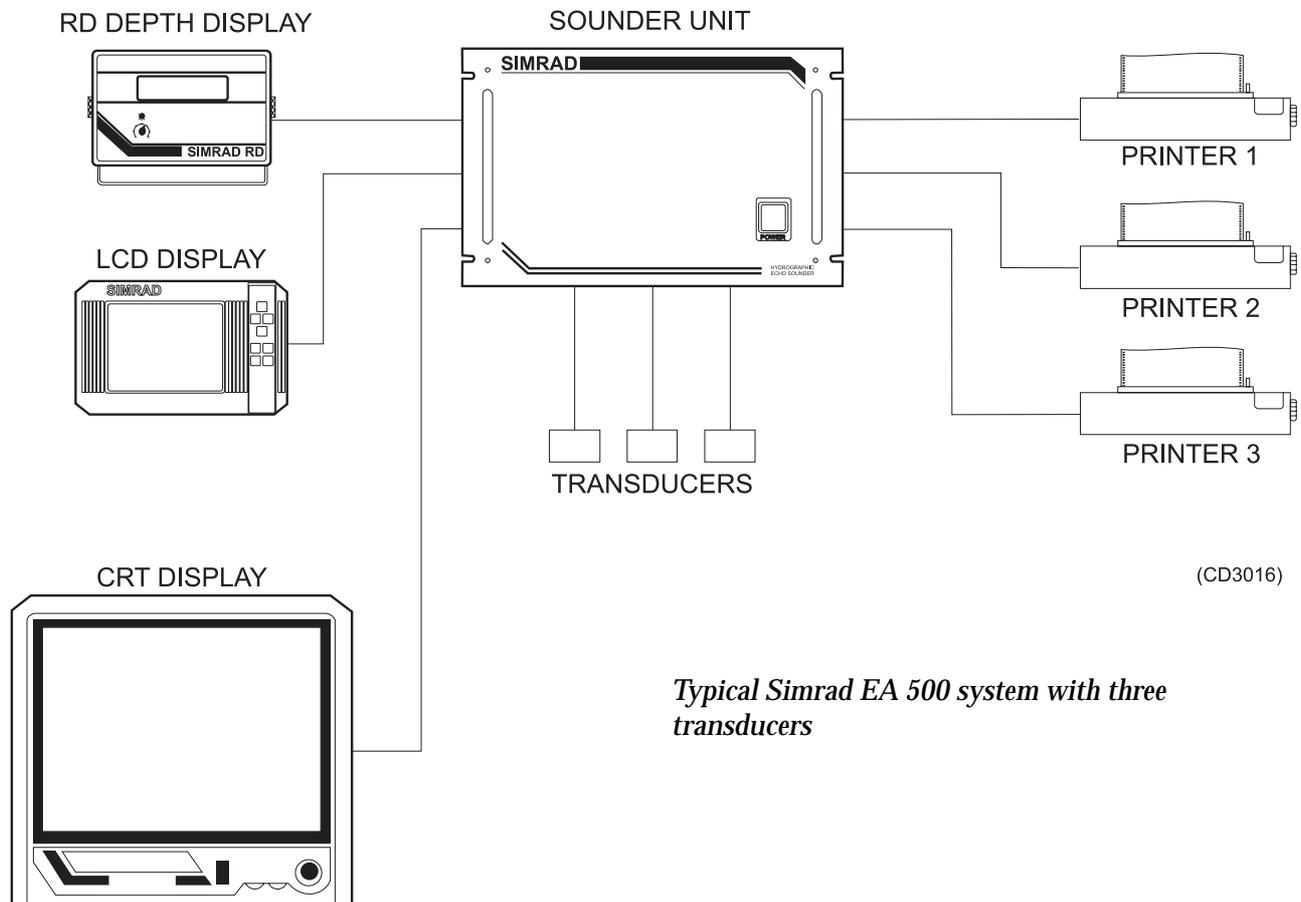
..... 1, 5, 10, 15, 25, 50, 100, 150
250, 500, 750, 1.000, 2.500, 5.000
and 10.000 m

Phasing

..... 0-10000 meters in
1-meter increments,
manual or automatic

Display and recorders

- 1, 2 or 3 echograms shown simultaneously on each device
- Individual echogram setting for each device
- Colour scale related to true bottom surface scattering coefficient
- Ping rate: Adjustable, max 10 pings/second
- Sound velocity profile: Automatic input from probe via RS232C /Ethernet interface or manually entered



Typical Simrad EA 500 system with three transducers

- Navigation input data: Programmable format (NMEA 0183 included)
- Language menu: English, norwegian, french or german
- Output data: Programmable composition of telegrams (RS 232C and/or Ethernet)

Transmit and receive

Output power

regulation 0 to -20 dB
relative to full power
(-3 dB, -23 dB selectable by jumpers)

Nonsaturated instantaneous

input range -160 dB to 0 dB
(dB relative to 1 W)

Noise figure 10 dB

Terminal impedance: 60 ohms

Voltage and power

Supply voltage 187 - 264 Vac 50/60 Hz
90 - 132 Vac 50/60 Hz
21 - 31 Vdc

Power consumption 100 W (one channel)
125 W (two channels)
150 W (three channels)

Environmental specifications

Operating temperature 0 - 55 deg C

Physical dimensions, Transceiver

Width 480 mm

Height 310 mm

Depth 440 mm

Rack Fits in 19" rack

Weight, max configuration 40 kg

Measurement resolution

cm <_ 999,99 m

dm > 1.000 m

m > 10.000 m

Measurement accuracy

Similar to sample distance when sound velocity profile is correct.

Menu operation

Manual operation of the sounder is based on a menu system which to a large extent is self-explanatory. A keypad or joystick is used for command entry. The menus are organized in a tree structure similar to the directories of a modern computer operating system, with the current menu shown on the display.

Menu overview:

Operation

General purpose operation parameters

Display

- Controls echograms and alphanumeric information on the display

Recorder 1 and 2

- Controls echograms and alphanumeric information on the recorders (separate menu for each recorder)

Transceiver

- Menu for transceiver parameters

Bottom detection

- Controls the operation of the bottom detection algorithms

Navigation

- Controls the interpretation of input data from navigation receiver (NMEA 0183 included), position, speed and external clock.

Ethernet communication

- Controls the composition of data telegrams•

Serial communication

- Controls the composition of RS232 output data telegrams

Annotation

- Comment string and event marker control

Motion sensor

- Conversion constants characterizing the heave/roll/pitch sensor

Sound velocity

- Automatic or manual loading of sound velocity profile

Utility

- Beeper, status messages, set EA500 internal clock etc, or external clock.

Test

- Production testing, service testing, calibration

Transducers

For selection of frequency and transducer, we recommend to use 70% of the theoretical depths in the table below, in order to obtain a reasonable safety margin and automatic bottom detection. The table below is based on an assumption of a backscatter strength of -10 dB.

Transducer	Type	Sounder Transmit Power	Max. Depth (m)						
			70	500	630	1800	3200	4500	8100	13000
12kHz Single	12 - 16	2 kW	[Shaded bar from 70 to 13000]						
18kHz Single	18 - 11	2 kW	[Shaded bar from 70 to 8100]						
27kHz Single	27-26/21	2 kW	[Shaded bar from 70 to 4500]						
38kHz Single	38-7	2 kW	[Shaded bar from 70 to 3200]						
49kHz Single	49-26	2 kW	[Shaded bar from 70 to 1800]						
120kHz Single	120-25	1 kW	[Shaded bar from 70 to 630]						
200kHz Single	200-28	1 kW	[Shaded bar from 70 to 500]						
710kHz Single	710-36	50 W	[Shaded bar from 70 to 70]						

(CD494)

Available transducers for the Simrad EA 500

Streamer Sections and Components

(Click on highlighted text to open relevant file. Click “previous document” arrow, as shown, to return to this document)



The attached pdf-format files provide information on the elements of the digital streamer sections and vibration dampening systems.

Streamer Tension Units (STU)

Streamer Communications Unit (SCU)

Sercel Vims

TUS Guardian Solid Streamer

GUARDIAN

The 3rd Generation Solid Seismic Streamer

Solid Streamer Timeline

- 1982 TMS BEGINS DEVELOPMENT OF SOLID MILITARY ARRAY
- 1992 "FAST TRACK" PROJECT
- 1994 SENTRY DEVELOPMENT
- 1995 PROTOTYPE SEA TRIALS / INITIAL 400 SECTION ORDER
- 1996 FULL PRODUCTION RAMP UP
- 1997 START CONTINUOUS IMPROVEMENT PROGRAM
- 1998 START GUARDIAN R&D
- 2000 OVER 500KM OF SENTRY SOLID SECTIONS PRODUCED IN THREE SYSTEM COMPATIBILITIES.
- 2001 START GUARDIAN PRODUCTION - FIRST OPERATIONAL VESSEL 12/01

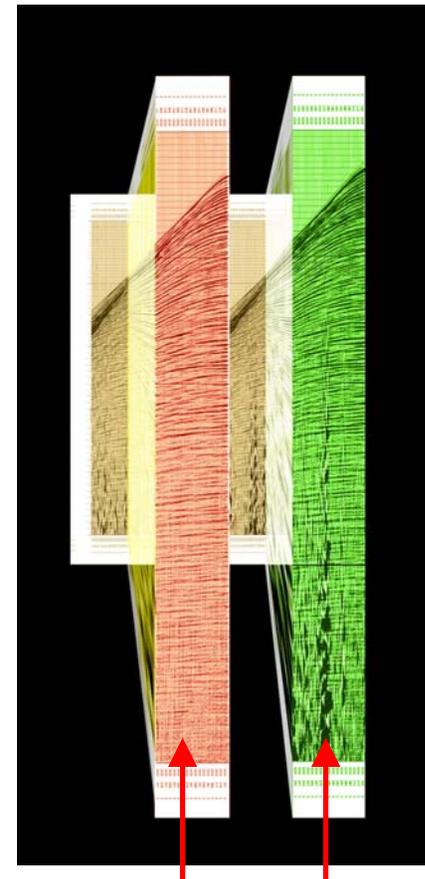


Key Guardian Benefits

- Superior acoustic performance
 - Increased productivity through wider weather window
 - Superior data quality
- Robust solid streamer design and construction
 - Repairable on-board repair
 - Reduces downtime and on board spares
- Consistent and constant modular buoyancy
 - Eliminates balancing problems and reduces setup
 - High resistance to in-water damage
- Environmentally Sound
 - Able to operate in environmentally sensitive areas

Extending the Weather Window

- Superior Acoustic Performance
 - Streamer self-noise less than 2.5 microbars RMS in sea states of 1M or less
 - Streamer self-noise less than 5.0 microbars RMS in sea states of 3M or less
 - All individual hydrophone performance verified in manufacturing and repairs

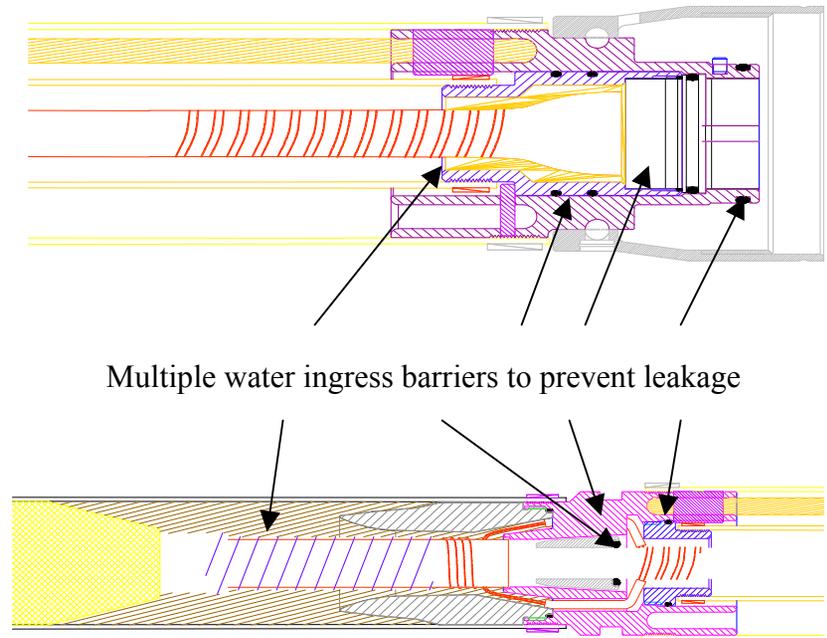


TUS
Solid
Streamer

Oil
Filled
Streamer

Robust Design Yielding Productivity Increases

- 3rd generation design coupled with a culture of continuous improvement has resulted in new standards for streamer reliability
 - Reduces downtime and onboard spares
- Guardian was designed for onboard maintenance

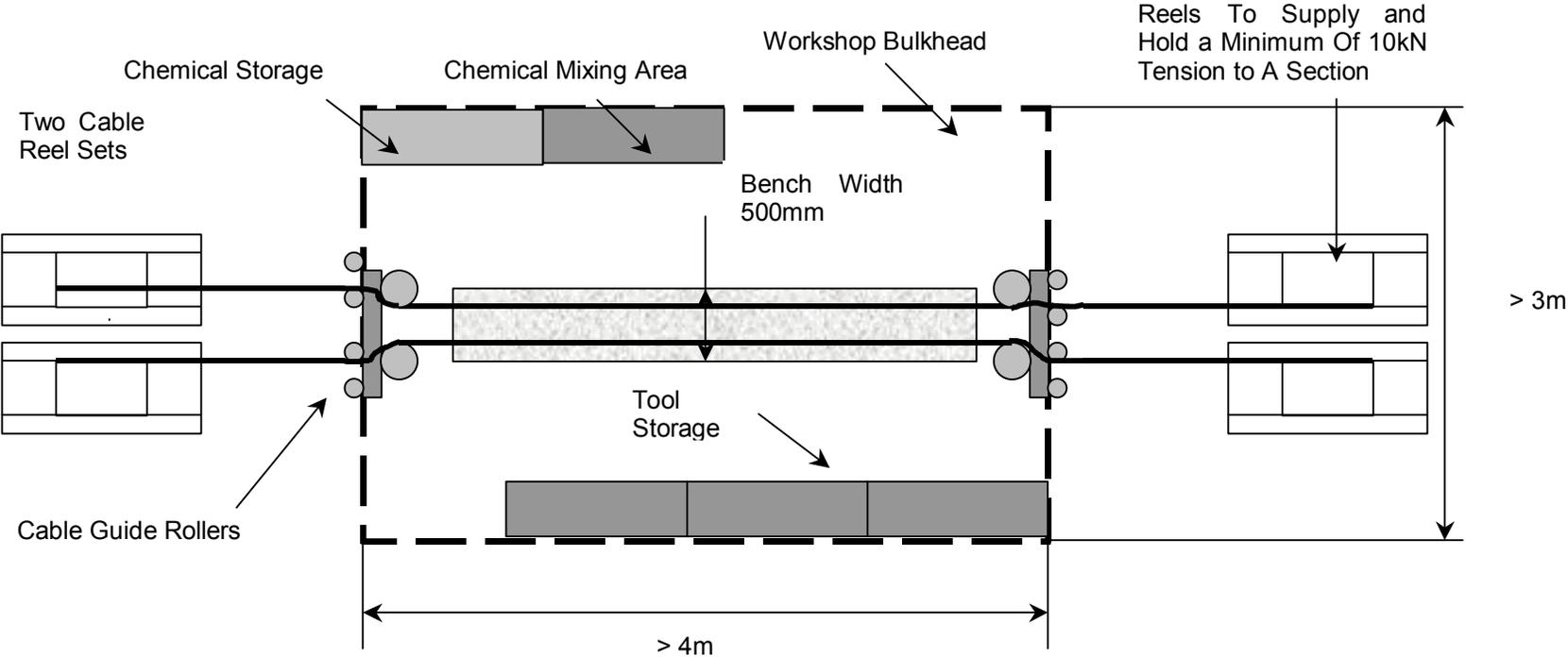


Guardian Onboard Repair

- Guardian was designed to support onboard maintenance
 - Eliminates the time and logistics effort to send off cable for repair thereby fully utilizing your investment
- A complete set of tools, spare parts and documentation in place for field support
- Solid streamer repair training available at any TUS facility or onboard your vessel



Guardian Onboard Repair Capability



Guardian: Consistent and Constant Buoyancy Control

- Consistent and constant buoyancy provides productivity benefits during deployment and operation
- Guardian delivered ballasted to customer specifications
- Durable polymer resistant to impact damage.
- In-field adjustment achieved using external clip on weights.
- Low compressibility with depth.



Guardian Specifications

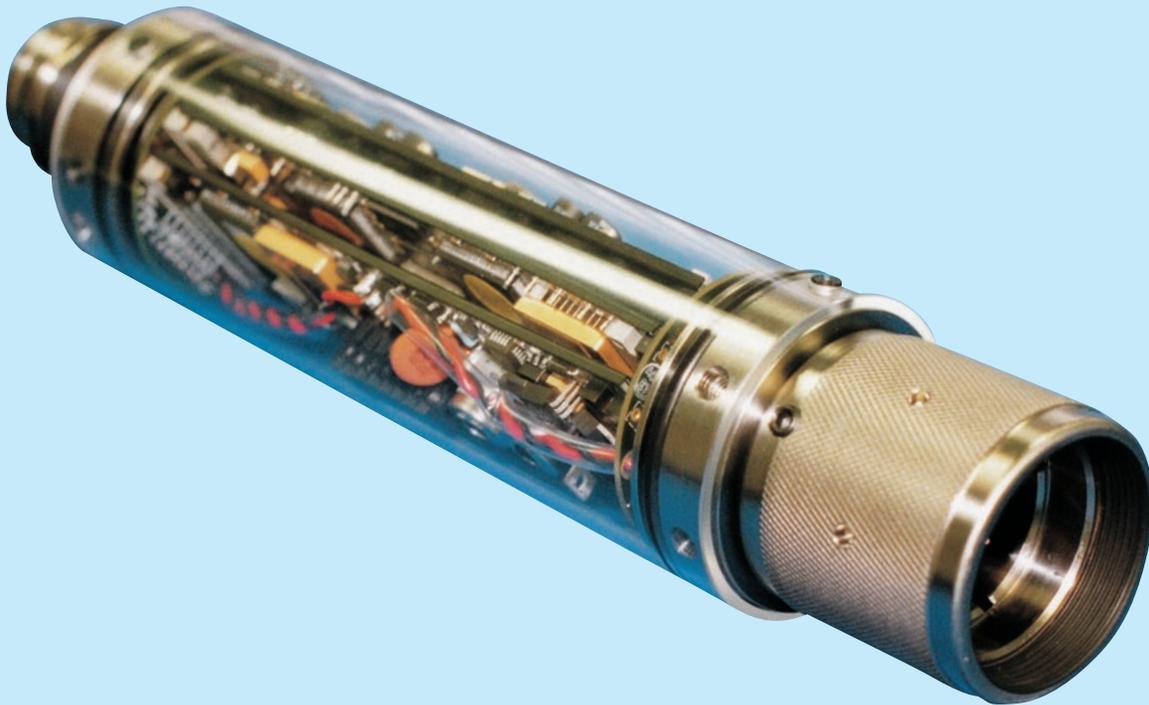
- **System Compatibility:** SYNTRAK®
MSX™
- **Sensor Type** TUS TS014 or TS020
- **Section Diameter** 57.5 mm (2.25 in)
- **Section Length** 100/150 meters
- **Streamer Length** Up to 12,000m
- **Strength Member** Aramid Fibre
- **Communications Coils** FSK and / or PRO2000
- **Flotation Material** Polyurethane matrix
- **Operating Temperature Range** -10°C to + 55°C

Improving Your Seismic Image

- Experience the benefits of Guardian Solid Streamer
 - Superior Acoustic Performance
 - Industry Leading Reliability Standards
 - Consistent and Constant Buoyancy
 - Environmentally Sound
 - World-wide Support



SCUTM (Streamer Communications Unit)



- Reliable communications to >12 km
- One SCU for every 4 km of cable
- SCU control link for troubleshooting and status
- Battery backup for continued communication in the absence of cable power
- Two repeater channels per SCU

SCUTM (Streamer Communications Unit)

Sercel's Streamer Communications Unit (SCU) extends communications even in ultra-long streamer applications. The SCU boosts bird and compass communications beyond the typical 6- or 7-km limit achievable in towed arrays. Two separate communications lines are supplied.

Extended cable length allows data collection that enhances imaging of sediments below high velocity basalts and sub-basalt structures. And not only do ultra-long cables allow a larger amount of more accurate data to be collected, they make this data collection less costly. An ultra-long cable allows a single boat to do what used to require combinations of at least two recording boats in a single pass or a gun boat and recording boat in multiple passes. The exorbitant cost and difficult-to-merge resultant data make these methods undesirable. Sercel's SCU makes them unnecessary.

The SCU is built into a standard 24-bit Data Acquisition Module housing, but its circuitry is completely different from the standard module.

Powered from the cable, the SCU also has a rechargeable battery that can power the unit for one to four days after cable power is cut off.

The SCUs have analog repeaters, handling both FSK and PSK transmissions and therefore have negligible delay affecting acoustic timing units. One repeater is required for every four kilometers of distance from the controller.

A built-in ghost communications system allows a PC with a simple RS485 interface adapter (supplied) to query the SCUs for operational status and battery state and to place the units in bypass mode for troubleshooting. Units that have shut down because of low battery power also fail-safe into bypass mode. An external charger can keep the batteries in several spare units ready to go.

The SCU is usable with both 16-bit and 24-bit SYNTRAK systems.

Specifications

Repeater Interval	4 km
Signal Delay	25 μ s maximum
Repeater Channels	2

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STUTM (Streamer Tension Unit)



- Measures streamer drag in real time
- Protects investment in streamers and electronics
- Readings up to 100 kNt or 10,000 daN (22,000 lbf)
- Battery backup provides data in the absence of streamer power

STUTM (Streamer Tension Unit)

Sercel's streamer tension unit (STU) means improved protection of your in-water assets. The STU measures stress on towed arrays and also gives the operator more control over data acquisition by providing critical information for determining the safest maximum vessel speed for towed components. Sercel's STU is a risk management tool that improves productivity.

The STU's primary task is to provide real-time streamer tension measurements to the operator. This means that the operator is immediately notified when a streamer is under excessive strain, which can easily occur when making turns, working in heavy seas or strong currents, or when seaborne materials such as seaweed, marine growths and snagged fishing gear add drag.

Functionally, the STU is an instrumented module that measures in-line tension up to 22,000 lbf (100 kNt). The accuracy is $\pm 5\%$ of reading, or ± 100 lbf (445 Nt), whichever is greater. Using a communications pair of wires in the streamer, the STU transmits continuous tension data that indicate the real-time tensile load on the streamer. Although most useful near the head of the streamer, multiple units may be located

within a single streamer to give stress readings at different points.

The STU has a companion controller that resides on the vessel and handles STUs on up to 16 streamers. Controller features for real-time monitoring and recording include average and peak displays, graphs, and recorded files.

Although powered by the streamer, the STU telemetry is completely independent from the streamer telemetry. A rechargeable battery inside the STU provides data telemetry for 16 hours after streamer power is cut off. And an external charger can keep the batteries in several spare units ready to go.

Compatible with both 16-bit and 24-bit SYNTRAK systems, Sercel's STU can improve efficiency on any marine seismic spread.

Specifications

Maximum Tension	10,000 daN (22,000 lbf) (100 kNt)
Accuracy	$\pm 5\%$ or ± 45 daN (100 lbf)
Number of Streamers per Controller	16

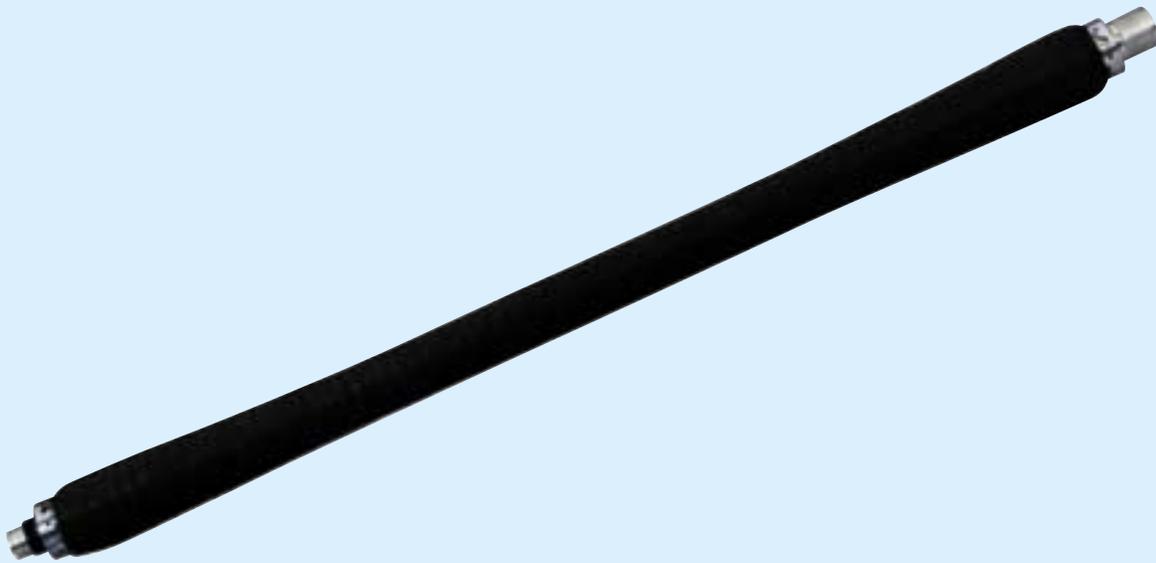
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RADIAL STRETCH



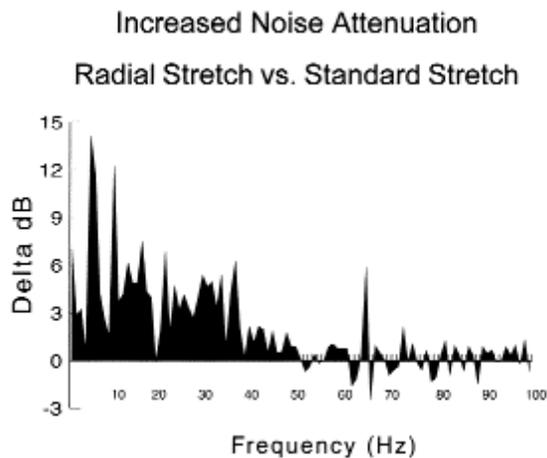
- Twice the vibration isolation
- Improved ruggedness
- Reduced streamer noise
- Reduced seismic offset
- Electrical or optical telemetry
- Tows 12-km active lengths

RADIAL STRETCH

Sercel's Radial Stretch sections are rugged. Constructed with the same technology that is used to manufacture radial tires, these sections provide extra durability exactly where it is needed - at the front of the streamer where the loads, stresses, and mechanical abuse are the greatest. But that's not all. The radial stretches provide twice the vibration isolation per meter as conventional rope-type stretch sections. This allows a reduction in seismic offsets for the same amount of isolation.

These benefits all derive from the unique construction of the Radial Stretch. The vulcanized rubber skin provides the ruggedness to survive the harsh streamer front-end environment, but because the radial rubber skin carries the streamer load, it also provides the basis for the superior elongation characteristics that result in the superb vibration isolation.

Radial Stretch sections have internal vectran snubber ropes that protect them from excess loads by load sharing. Radial Stretch sections have been used successfully with streamers up to 12,000 meters long. They are available with both electrical and optical telemetry.



Specifications

PHYSICAL

Length	25 meters (82.02 ft.)
Overall Diameter	4.6 in. at ends, 3.7 in. at center
Weight	178 kg (392.4 lb.) in air
Maximum Towing Load	4,500 Kg (10,000 lb.)
Rated Breaking Strength	10,000 Kg (22,000 lb.)

SNUBBER SETTING

High Load	1800 Kg (4,000 lb)
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NOMINAL DAMPING ATTENUATION

25 m High Load	-10 dB @ 10 Hz	-9 dB @ 20 Hz
50 m Conventional	-7 dB @ 10 Hz	-8 dB @ 20 Hz

STRESS MEMBERS

Primary	Nylon reinforced rubber hose wall
Secondary (snubbers)	9 mm Vectran

BALLAST FLUID

Isopar M	Specific Gravity, 788 @ 15°C Flash Point 91°C Quantity required 30 gal.
Streamer IX (optional)	Specific Gravity 0.83 @ 15°C Flash point 154°C Quantity required 30 gal.

ELECTRICAL

Power	5 pr. 15 AWG W/Hytrel jacket
Telemetry	2 fiber-optic Multimode 6.25/125 (distributed style) or 2 national twinaxial D-2470
Twisted Pairs	6 pairs 22 AWG, 7 pairs 26 AWG

Water Break Phones	None
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Gun Controller System

(Click on highlighted text to open relevant file. Click “previous document” arrow, as shown, to return to this document)



The attached pdf-format files provide information on the gun controller systems and gun types.

Sercel GCS-90

Bolt Long-Life Airguns

GCS90™



- Configurable for 8 to 96 guns in 8-channel increments
- Digitized resolution - 8 bits at 0.1-ms intervals
- Fire command output resolution at 0.1-ms intervals
- 0 to 60 dB adjustable gain control of each sensor input
- Configurable sensor termination
- Color graphical display of timing information
- User configurable array geometry
- Auto-fire detection
- Rugged Eurocard form
- Hard copy printout of shot statistics and signature graphics

GCS90TM

The GCS90 Gun Controller System is a wise buy! It is compatible with all types of airgun sources used in seismic operations today, and it provides the most cost-effective and reliable firing control and monitoring for all of them.

The SPS90 Solenoid Power Supply provides sixteen channels of high voltage suitable for firing various energy sources. The power supply unit is powered by either 110 Vac or 220 Vac. Voltage settings of 60, 90, 120, 150 and 180 volts can be supplied. Optional voltages of 40, 50, 60, 70 and 80 are also available.

The Gun Depth Transducer System is the most reliable on the market, providing accurate depth readings for seismic sources for up to 32 gun transducers. The two-wire, frequency modulated devices are mounted closely to the energy source and continuously report depth to the boat.

Specifications

GCS90 SOURCE CONTROLLER SYSTEM

Processor	INTEL X86-based
DRAM	32 Mbytes
Hard Disk	IDE drive, 1.4 Gbytes
Floppy Disk	1.44 Mbytes 8.89 cm (3.5")
Software	DOS (applications written in C Language)
Serial Ports	Two
Parallel Ports	One

CYCLE CONTROL BOARD

Interface Channels	Timebreak output, trigger input, two AUX inputs, two AUX programmable outputs, remote alarm output, auxiliary parallel output, data monitor input and output
Quality Control	Source signature sensor display, statistical reports, gun historical database
Configurations	Large gun arrays up to 96 guns, offset VSP

FIRE CONTROL BOARD

Processor	INTEL 80C31/12 MHz
A/D Converter	Maxim MAX158, 8 bits at 12.5-ms intervals
FCB Hardware	One FCB per each eight guns
Channel Trigger/Fire	
Control Resolution	0.1 ms
Channel Sensor	
Detection Resolution	0.1 ms

DEPTH MONITOR CONTROL BOARD

Minimum Data Acquisition Period	5 ms per depth transducer
Data Encoding	Frequency proportional
System controller	Resident within GCS90
Channels Maximum	32
Channels Measured	4 to 32 at one time
Pulse Width	25 ms
Range	0 to 40 m 0 to 131 ft of sea water 0 m = 6 kHz 40 m = 10 kHz

SPS 90 SOLENOID POWER SUPPLY

Power	110 Vac or 220 Vac
Channels	16 per unit
Voltage Selections	60, 90, 120, 150, 180 Optional 40, 50, 60, 70, 80
Fire Pulse Width	Manual - 25 ms Remote - received from GCS90 Gun Controller
Cable Length	60.96 m (200 ft) maximum
Controls	Arm/Safe Switch, Power Switch, Kill Switch
LEDs	1 per channel (illuminates when voltage is within 10% of specified voltage)

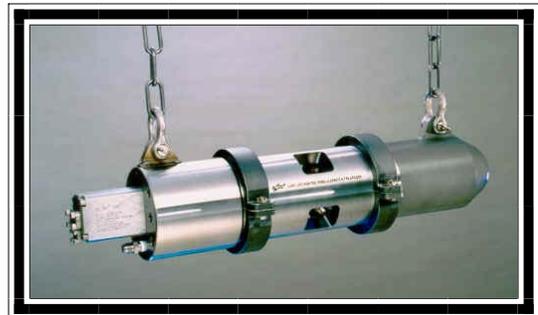
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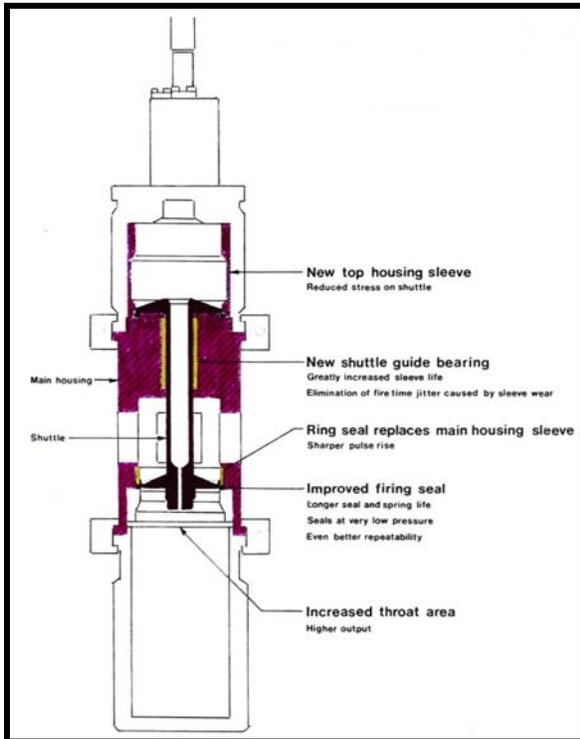
The Long-Life™ Air Gun



Long-Life™ Technology Solution

During the early 1990s, the marine seismic industry began to develop larger and substantially more complex multi-streamer vessels capable of efficiently acquiring vast amounts of 3D seismic data. Bolt Technology Corporation introduced the *Long-Life™* Air Gun in 1991, in response to demands by seismic contractors for a stable high endurance energy source that would match the efficiency of these vessels. The *Long-Life™* design has resulted in air guns that consistently produce 500,000 or more trouble-free shots before requiring significant maintenance.

Since March of 1993 Bolt Technology Corporation has sold in excess of 4,800 *Long-Life™* Air Guns, which equates to more than three fourths of the Western World's seismic fleet. The following diagram illustrates the principle features of the *Long-Life™* Air Gun.

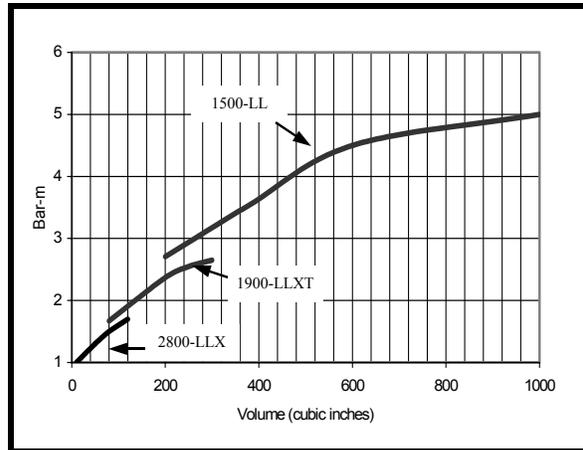


▲ 1500-LL *Long-Life™* Air Gun

The *Long-Life™* Air Gun is available both as a completely new gun or as an upgrade kit for conventional 1500CT and 1900CT Bolt Air Guns.

High Acoustic Output

A combination of increased throat area and improved shuttle speed has resulted in a significant improvement over conventional Bolt Air Guns in both peak output and peak-to-bubble ratio. The following graph illustrates peak output vs. chamber volume for Bolt *Long-Life™* Air Guns, measured through an Out-128 Hz filter.

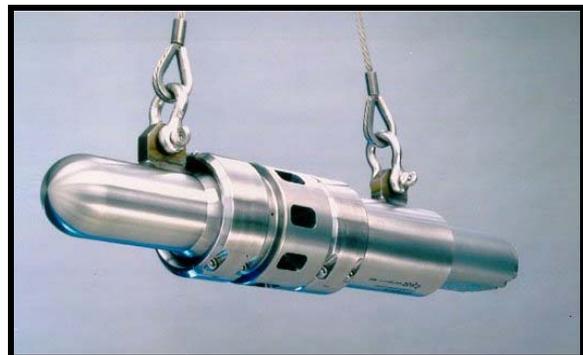


▲ Peak Output vs. Volume (Out-128 Hz Filter)

The *Long-Life™* Air Gun is available in three models spanning volumes from 5 in³ to 1,500 in³.

2800-LLX

The 2800-LLX Air Gun is designed for volumes ranging from 5 in³ to 120 in³. The gun is very light-weight, and is ideally suited for shallow water source vessels with limited deck space. For maximum energy output, it can be easily configured in 2-gun and 3-gun cluster elements.



▲ 2800-LLX Air Gun

1900-LLXT

The 1900-LLXT Air Gun is designed for volumes ranging from 10 in³ to 250 in³. The gun is extremely versatile, and is sufficiently lightweight for shallow draught vessels while powerful enough for blue-water seismic surveys.



▲ 1900-LLXT Air Gun

1500-LL

Due to its large throat area, the 1500-LL Air Gun is capable of generating very high peak output with the excellent low-frequency content associated with large chamber volumes. Using heavy-duty cluster spreader bars, it is possible to configure cluster elements in excess of 1,000 in³ without sacrificing peak output.



▲ 1500-LL Air Gun

The 1500-LL Air Gun produces the highest peak output over the largest range of chamber volumes. The gun can be configured with chamber volumes ranging in size from 40 in³ to 1,500 in³. Large chamber sizes require heavy duty towing frames to withstand the shock generated by the gun.

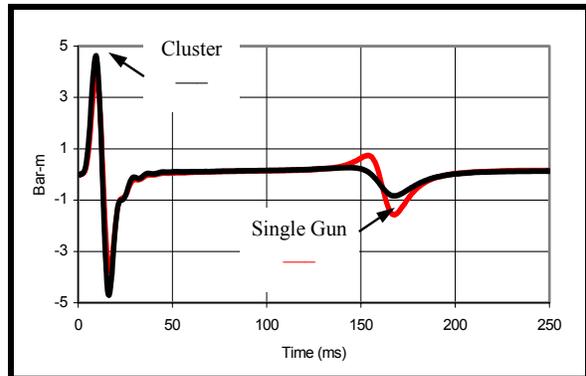
1500-LL 2-Gun Cluster

The preceding graph illustrating Peak Output vs. Volume for Bolt Air Guns clearly shows the effect of throat limitation on output. For each model of Air Gun, there is a volume limit beyond which the normal increase in output with volume is diminished.



▲ 2-Gun Cluster Frame (2 x 300 in³)

A solution to this problem is found in Bolt's heavy-duty cluster spreader bar assembly. The increase in peak output for the 2-gun cluster compared to a single 600 in³ is shown in the following far-field signatures.



▲ Single 600 in³ vs. 2 x 300 in³ cluster

The far-field signature clearly shows the 20% improvement in efficiency that results from a 2-gun cluster compared with a single 600 in³ air gun.

Carefully engineered and thoroughly tested, Bolt's *Long-Life*[™] Air Gun has proven to be the marine seismic industry's most reliable source for a decade.

Bolt's worldwide leadership as a supplier of seismic energy sources has been maintained by an on-going commitment to research and development. Bolt Technology Corporation prides itself in a long tradition of service to our customers.

The company's commitment to service and excellence is demonstrated by extensive quality control procedures and tests. In addition to in-plant inspection, Bolt maintains an extensive test facility where each marine, land and bore-hole air gun is rigorously tested under conditions which simulate actual applications.



▲ Aerial View of Bolt's Test Facility

Bolt is committed to being the premiere supplier of seismic energy sources for geophysical exploration.



▲ Bubble Venting from a 9000 in³ Air Gun at 10 m. depth

Bolt Technology Corporation

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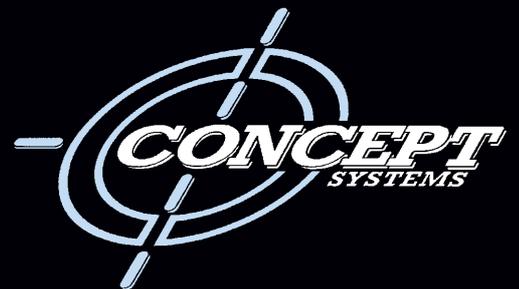
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Integrated Navigation System for Marine Geophysical Survey





SPECTRA

Integrated Navigation System for Marine Geophysical Survey Operations

The Leading Integrated Seismic Navigation System

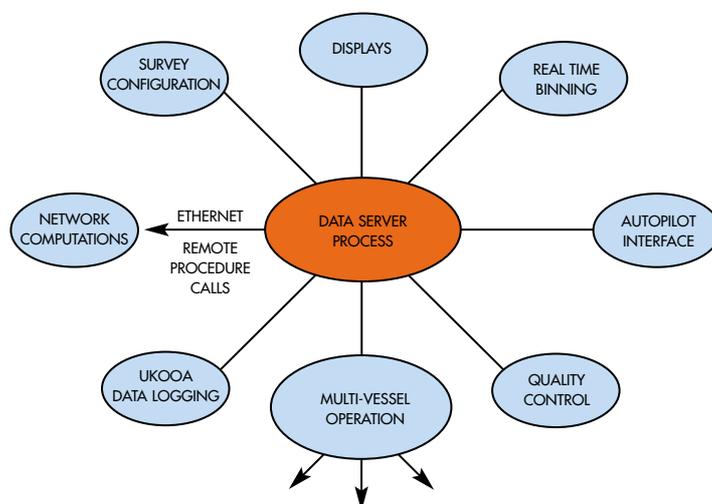
SPECTRA is a comprehensive integrated seismic navigation system with a modular design allowing customers to quickly reap the benefits of any innovations in navigational techniques.

With approval from all major oil companies and used fleetwide by the majority of leading seismic contractors, Concept Systems provide 24 hours system support and are committed to a policy of continuous improvement to keep pace with ever increasing positioning and quality control demands. Allied to Concept's Sprint and Reflex products, SPECTRA provides customers with a potent package for cost-effective on-board integrated navigation, incorporating position quality control, navigation processing and binning to meet diverse industry needs. It is an inherently flexible and scalable product, capable of quickly adapting to the dynamic of change within the industry.

SPECTRA Architecture

SPECTRA is based on an expandable network of Unix workstations with a dedicated real time navigation sensor acquisition system. Any number of workstations (IBM, SUN, HP) can be networked providing flexible configurations to meet individual customer needs ranging from simple 2D operations and 3D High-Res applications to complex 3D multi-vessel, multi-streamer surveys.

The design of SPECTRA is based around a central Data Server process which acts as the information bank and data broker for the system. Data produced by the system's producer processes (whether configuration, raw measurement or positional solution data) are stored by the data server and made available on demand to the



consumer processes providing logging, display and quality control functionality.

This modular architecture allows flexible system expansion while keeping reliability as new enhancements are included.

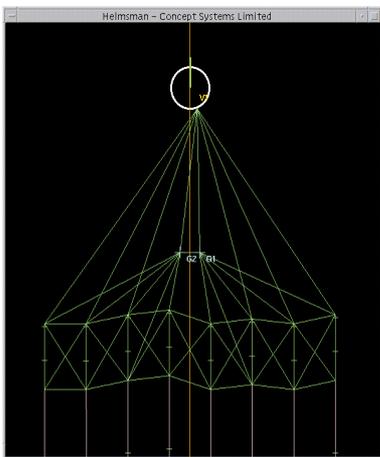
A software interface library is available which allows straightforward communication to the data server with user developed programs.



NAVIGATORS DISPLAY

Network Computations

Any number of different network topologies can be configured and solutions are provided from Network Calculation Node (NCN) processes, one for each network. Raw navigation data is timestamped to UTC time on acquisition by the Real Time Navigation Unit (RTNU). The raw data is passed to the NCN's whose Kalman filter implements the transformation from the observation domain to the state domain.



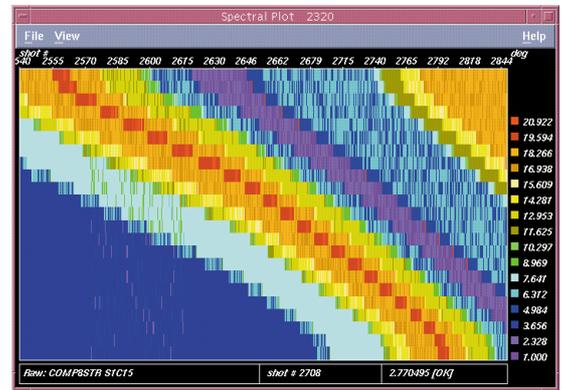
FRONT END NETWORK

The Kalman filter implementation provides the advantage that a network can still solve using an incomplete data set where a normal least squares solution could fail.

Rigorous statistical testing or data snooping provides immunity to observation spikes and blunders. DGPS and RGPS recomputation from satellite pseudo ranges with associated quality control information is also provided via the Satellite Positioning process.

UKOOA Data Logging

SPECTRA provides real-time logging of UKOOA P2/91 and P2/94 file format as well as processed P1/90 format. Multiple data logging processes can be activated for additional security and data integrity. Data can be logged directly to a variety of peripheral devices including disk and tape. A number of DGPS and RGPS receivers can be interfaced to provide Pseudo range, Ionospheric, UTC, Almanac, Ephemeris data and RTCM corrections

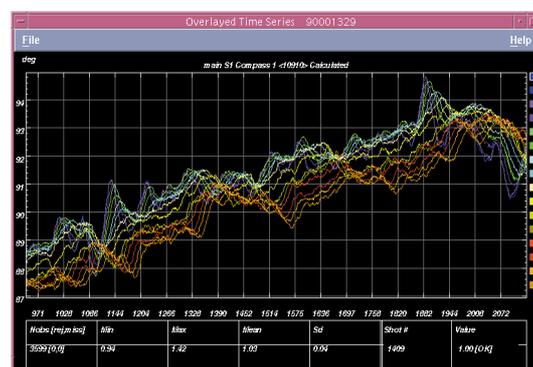


COMPASS SPECTRAL PLOT

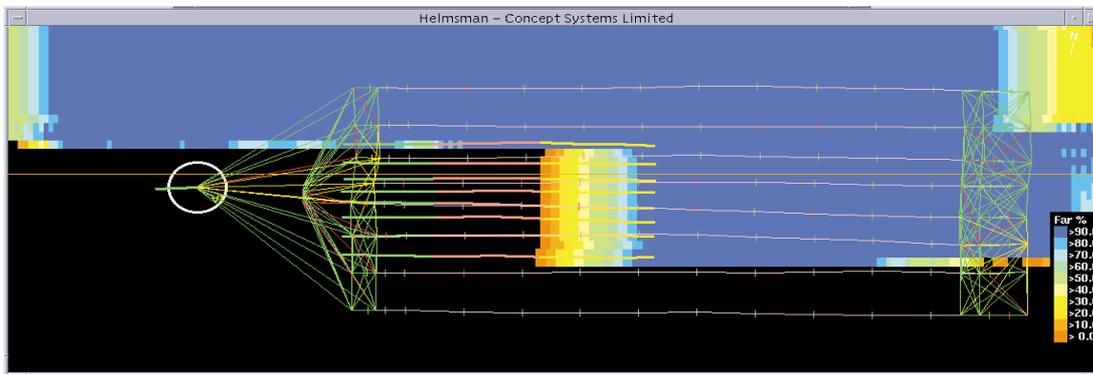
for complete P2/94 logging. Logged P2/91 and P2/94 can be replayed and the resulting data re-logged to P2/91, P2/94 and P1/90 formats.

Quality Control

The Quality Control Logging process can be configured by the user to log raw navigation data, network solution and network quality parameters to disk. The Quality Control process can be used to analyse the logged data post acquisition or in real-time. Extensive alarm and audit facilities meeting UKOOA quality guidelines are provided to alert the user to possible problems or confirm data integrity. The Quality Control process can display various types of statistical plots including, spectral plots, histograms, standard time-series, difference time-series, multiple time-series and overlaid time-series allowing comparison of several data items. Customised end of line reports can be configured which are available for output in postscript format for printing. Various spreadsheets and attribute formats compatible with other software packages, eg. Reflex, Promax are also available.



COMPASS OVERLAY TIME SERIES



REAL-TIME BINNING DISPLAY

Real-Time Binning

SPECTRA provides extensive real-time binning facilities. Bin grid parameters including offset distribution, coverage zones, flex binning parameters and individual zone colour scales can be passed from Reflex or entered directly into SPECTRA via the Binning Configuration process.

Multiple displays can be configured with fixed aspect ratios, CMP lines and selected zones. Coverage display files can be raw, i.e. logged directly from SPECTRA, or processed coverage received after binning in Reflex. Processed coverage files automatically take precedence over raw files.

Multi-Vessel Operation

SPECTRA is designed to control sophisticated multi-vessel surveys. Each slave vessel is configured to run with a data server and basic system.

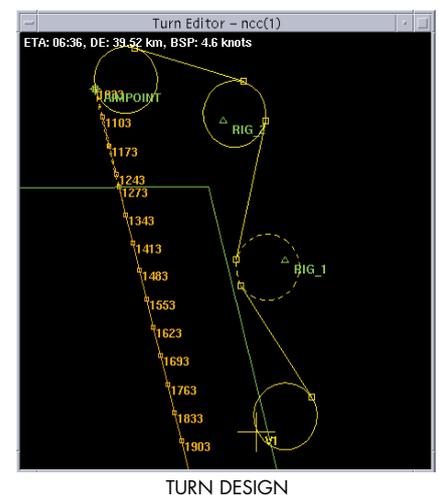
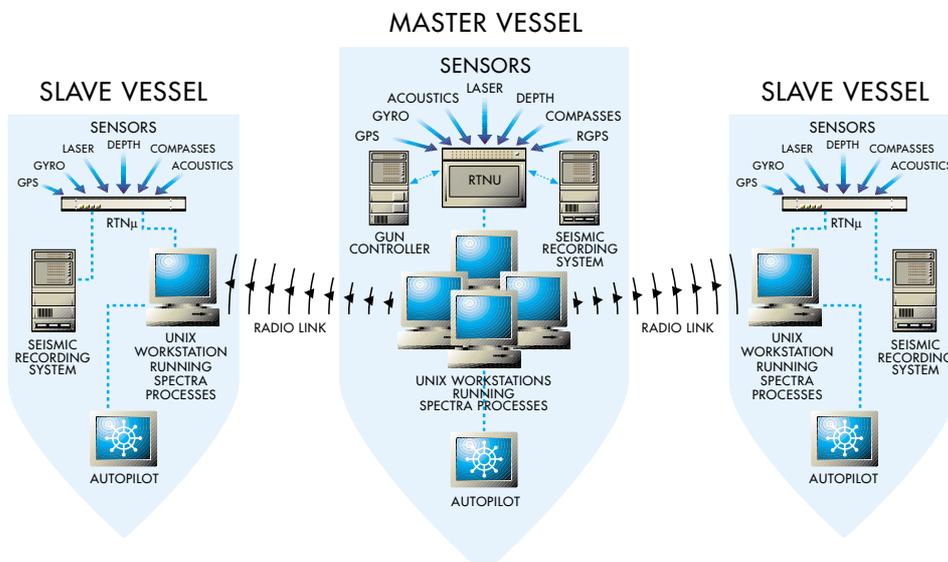
Communication between vessels is provided by the Data Transfer process. This process provides an intelligent link which is robust enough to deal with communication interference and temporary failure. The master vessel provides the overall configuration

and data logging facilities. The slave vessel can be equipped with Real Time Navigation Micro Units (RTN μ) which allow independent operation when isolated from the master vessel, eg. during cable work. The use of RTN μ 's on the slave vessel allows synchronisation of gun controller and seismic recording systems to 50 micro-seconds. Slave vessels can be stationed relative to the master vessel using the Bullseye Configuration process controlled from the master vessel. Different online and offline parameters can be provided and the slave vessels can be positioned relative to the master vessel or the current sail line.

Autopilot Interface

SPECTRA can be interfaced to the vessel autopilot and is controlled from the instrument room by the navigator. Graphical and text displays are available to provide simple and concise information to the helmsman. The autopilot interface is also fully compatible with SPECTRA's comprehensive turn planning and steering facilities. This functionality provides the user with optimum efficiency in timesharing and line change situations.

MULTI-VESSEL CONFIGURATION



TURN DESIGN

Key Benefits

- Navigation acquisition and validation with real-time source and streamer positioning for marine seismic surveys ranging from simple 2D and high resolution requirements to extensive 3D multi-streamer, multi-vessel configurations.
- Distributed data server provides simple connectivity to easily configure multi-vessel surveys.
- Real-time data acquisition units with integrated GPS receiver provide triggering to 50 micro-seconds, allowing remote synchronisation of seismic and acoustic systems.
- Real-time binning, CMP and offset distribution with bin expansion capabilities.
- Data logging to UKOOA P1/90, P2/91 and P2/94 standards with full redundancy providing confidence in data integrity.
- Quality control process providing alarm and audit facilities meeting UKOOA guidelines. Extensive on-line graphical analysis facilities and end of line reporting facilities.
- Positioning using Kalman Filtering with advanced data-snooping statistical testing techniques.
- DGPS and RGPS real-time recomputation.
- Autopilot interface controlled from instrument room leaving the navigator in charge of steering. This facility is fully integrated with a comprehensive turn planning utility providing optimum efficiency on line changes.
- Comprehensive training provided worldwide.



SPECTRA INSTALLATION



SPECTRA TRAINING

System Hardware

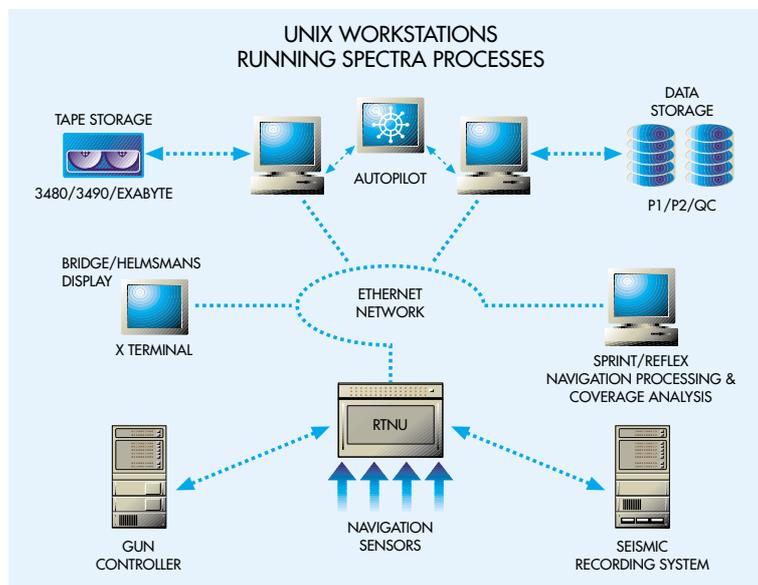
Workstations

SPECTRA supports all workstations and X-terminals running with Solaris, SunOS, AIX and HP-UX operating systems. The actual hardware configuration required is application dependent and can vary from a single low-end workstation and X-terminal for simple 2D operations to several high performance units for complex 3D surveys.

The architecture of the system provides the user with complete control over scalability.

Peripherals

The full range of SCSI peripherals supported by the UNIX operating system is available, including all major tape formats. Any postscript printer can be used for hard copy output.



Data Acquisition

The Real Time Navigation Unit (RTNU)

High capacity data acquisition and control system for 3D vessels.

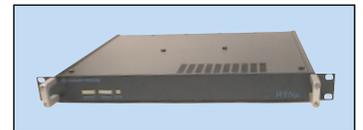
- Interfaces up to 27 independent sensors.
- Multiple seismic header output port.
- Interface code downloaded from the data server from an extensive library of over 100 navigation sensors.
- Built-in GPS receiver providing closure timing to 50 micro-seconds
- 16 programmable output triggers (TTL and Relay).
- 8 opto-isolated input triggers.



Real Time Navigation Micro Unit (RTN μ)

Compact, data acquisition and control unit for 2D, High Res, OBC and slave multi-vessel operations.

- Interfaces up to 6 independent navigation sensors.
- Single seismic header output port.
- Interface code downloaded from the data server from an extensive library of over 100 navigation sensors.
- Built-in GPS receiver providing closure timing to 50 micro-seconds
- 6 programmable input/output triggers (TTL and Relay).
- Can be stacked if expansion is required.
- Only 430mm x 400mm x 43mm.



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THE QUEEN'S AWARD FOR EXPORT ACHIEVEMENT
1997



WORLD LEADERS IN LASER MEASUREMENT TECHNOLOGY

TECHNICAL SPECIFICATION

LASER	
Type	Semiconductor Laser Diode 7.5 KHz Rep Rate
Wavelength	905nm
Beam Divergence	Vertical Horizontal
	20° 1 milli radian
Eye Safe	Class 1 CENELEC EN60825-1
Maximum Range	2,000m
Accuracy	20cm (10cm Possible Depending on Target and Scan Rate)
Angular Resolution	0.01°
MOTORISED YOKE	
Scan Speed	Up to 50° per sec
Optical Encoder	Horizontal
0° to 360°	
COMMUNICATION	
Current Loop	20mA Digital
Baud Rate	9600
POWER SUPPLY	
Output	28 V DC 3.5 amp
Universal Input	85V - 264V AC / 47 - 440Hz
	Dimensions (WxLxH)
	Weight
	160x260x140mm
	6kgs
ENVIRONMENTAL	
Operating Temperature	-10°C to +40°C
Water and Dust Resistant	IP66
PHYSICAL	
Construction	Machined Aluminium
Dimensions (WxLxH)	Standard
	With Motion Sensor
	Weight
	With Motion Sensor
	200x300x290mm
	200 x 410 x 290mm
	13.4kgs
	16kg
OPTIONAL TILT MECHANISM	
Gear Box	Servo Driven Worm and Wheel
Range	-15° to +15° (5° Increments)
OPTIONAL MOTION SENSOR	
	Heave
Accuracy	±5cm or 5% Whichever is greater
	Pitch and Roll for ±30° Vessel Motion
	Accuracy
	±0.15°
Range	±10m
Resolution	1cm
Bandwidth	0.05 to >10Hz
Update Rate	Digital -Up to 200Hz
Yaw Immunity	10° per Second with 30° Roll and Pitch
CONTROL UNIT	
	UCU
Specification	266MHz, 32Mb RAM, Windows NT4.0, Backlit Keypad, Integrated Positional Device, 800x600x250 VGA Output, Integrated Speaker
Size (WxLxH)	240x160x66mm
Weight	2.4kg
	TOUCH SCREEN OR INDUSTRIAL RACK-MOUNT PC
	Supplied to specification.

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Certification No. Q 50061



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WORLD LEADERS IN LASER MEASUREMENT TECHNOLOGY

FANBEAM® 4

LASER RADAR PRECISION POSITIONING & TRACKING SYSTEM



- Class 1 Eye Safe Laser System
- Range to 2,000m with ±10cm Accuracy
- Rugged Design Ideal for the Offshore Marine Environment
- Excellent Primary or Backup System
- Integral Motion Sensor Option
- Autotilt Mechanism Compensates for Large Differences in Elevation
- Utilises Inexpensive Intrinsically Safe Retro Reflectors
- Competitively Priced
- Easy to Install

7.5KHZ /
GAs 905nm
FANBEAM® 4
LASER

MAIN CONTROL
PROCESSOR &
POWER BOARD



AUTOTILT $\pm 15^\circ$
YOKE MECHANISM

GEARBOX / ENCODER

HEAVE · PITCH · ROLL · YAW
MOTION SENSOR MODULE

MDL's Fanbeam® is a laser range and bearing system designed for repetitive, high accuracy positioning and tracking of marine vessels, and static and semi-static anchored structures.

The system is primarily used to control or assist automatic dynamic positioning (DP) of a vessel next to the platform, jetty or other vessel. Fanbeam® can be employed as either a standalone collision avoidance monitoring system or as a local backup system for position control and ship/barge docking and manoeuvring. The system is also widely used to position seismic vessels gun array floats during geophysical survey operations.

THE SYSTEM

The basic system consists of a laser-scanning unit mounted on a motorised yoke that can rotate 360° at up to 50° per second. The Fanbeam® laser can measure to a range of 2,000m to within an accuracy of ± 10 cm using a vertical 20° fan of pulsed light produced by a multiple array of semiconductor laser diodes in combination with special optics.

Pulses reflected from a retro-reflector mounted on a rig or a vessels gun array, for example, is timed and multiplied by the speed of light to give distance. At the time of the received return the electro optical encoder is read to give bearing.

AUTOTILT MECHANISM OPTION

An autotilt mechanism incorporated into the yoke of the Fanbeam® allows the laser-scanning head to be adjusted by $\pm 15^\circ$ giving a total beam range of -25° to $+25^\circ$. This valuable option removes the need for the laser-scanning head to be manually adjusted during critical operations where large variations in height occur between a vessel and a rig or two vessels in different states of ballast. A rugged universal control unit (UCU) which features a backlit keypad for night operations controls the Fanbeam® with the autotilt option.

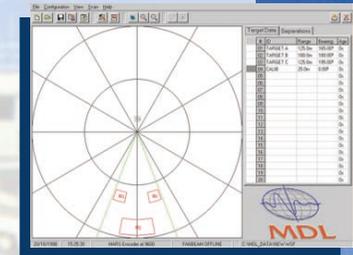
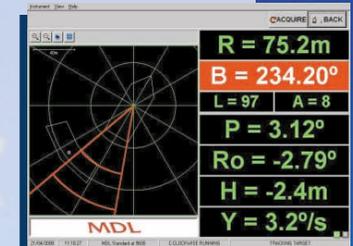
MOTION SENSOR TECHNOLOGY OPTION

MDL can now incorporate motion sensor technology into the Fanbeam® unit as an additional option. In this particular configuration, the system must be controlled via a PC that constantly updates and displays range, bearing and also heave, yaw, pitch and roll data in real-time. The errors that consistently occur between two independent systems, traditionally employed onboard a vessel, are automatically compensated for in MDL's software. This valuable option removes the need for two separate installations and complicated calibration surveys.

SOFTWARE OPTION

Fanbeam® is supplied with MDL's Single Target DP PC software as standard. In addition to a large range of configurable data output formats, MDL's Single Target DP software can be defined by the user to optimise the systems performance according to the vessels current environment. The basic software displays range and bearing information. Systems incorporating MDL's optional motion sensor technology display heave, yaw, pitch and roll as well as range and bearing information.

Alternatively, MDL can supply you with its Seismic software, which has many valuable features and procedures. The software has been designed to enable Fanbeam® to track up to twenty targets, add and modify target windows on-line and calculate the separations between any pair of targets in real-time. Improved graphics all packaged within user-friendly Windows environment makes MDL's Seismic software a valuable tool for tracking targets such as gun arrays or dyad tows.



APPLICATIONS

- Dynamic Positioning
- Collision Avoidance
- Dredging Control
- Hydrographic Survey
- Construction Barge Positioning
- Traffic Control
- Anchor Control
- Jacket Installation
- Pipe Tow Out Positioning
- Tanker Mooring
- Docking Control
- Replenishment at Sea
- FPSO Shuttle Tanker Positioning
- Mine Counter Measures
- Walk Way Monitoring

The Fanbeam® is now in regular use on board FPSO's, drill rigs and ships, survey vessels, shuttle tankers, pipe and cablelay barges, repair vessels, stone dumpers and dredgers.

ADVANTAGES

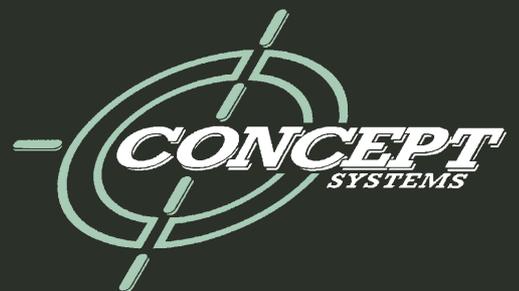
MDL's Fanbeam® system has many advantages. Our customers tell us that the Fanbeam® is straightforward to set up, performs excellently during short range operations, high accuracy is achieved consistently, the system utilises intrinsically safe targets, requires very little maintenance and is low cost compared to other systems. This versatile laser system can be employed as a primary or backup system and is considered a valuable alternative or complementary system to DGPS and other navigational aids

- Performs Excellently During Short-range Operations
- Achieves High Accuracies Consistently
- Utilises Inexpensive Intrinsically Safe Targets
- Rugged Design
- State-of-the-art Technology
- Long Product Life
- Meets Needs of a Diverse Range of Applications
- All Weather Operation
- Valuable Alternative or Complementary to DGPS
- Excellent Standalone or Backup System





Navigation Processing & QC System for Marine Geophysical Survey



SPRINT

Navigation Processing & QC System for Marine Geophysical Survey

SPRINT Navigation Processing & QC System

SPRINT has established itself as the most effective navigation data processing system in the marine seismic industry. It has been adopted by the leading seismic contractors for full production navigation processing and oil companies have chosen it as the most reliable and sophisticated QC system for offshore navigation data processing.

SPRINT provides customers with a high level of confidence in the complete navigation data set, which is available within a few hours of acquisition. SPRINT can quickly make the best use of the available data, preventing unnecessary reshoots and infill, thus reducing overall costs and ensuring the survey is completed in the minimum time.

The development of SPRINT reflects Concept's unique relationship with its market. Technical input and financial support from major oil companies were significant contributors to the initial development process. This mutually beneficial collaboration continues with feedback from the extensive list of users incorporated in Concept's ongoing SPRINT enhancement programmes.

Backed by Concept's worldwide support and training facilities, SPRINT provides customers with the means for ensuring the navigation data is both properly acquired and processed. Combined with Concept's Spectra and Reflex, they offer the ultimate integrated navigation system to meet diverse and ever changing industry needs.

SPRINT Design

SPRINT is a flexible and expandable product which has been designed around a Relational Database Management System (RDBMS) with a Structured Query Language (SQL) interface. This RDBMS environment enables users to interact in a controlled and audited manner with all data in the database. The generic database design facilitates the addition of the interfaces to contractor specific formats. In this way the system can apply state of the art processing techniques to older surveys which can result in dramatic data quality improvement.

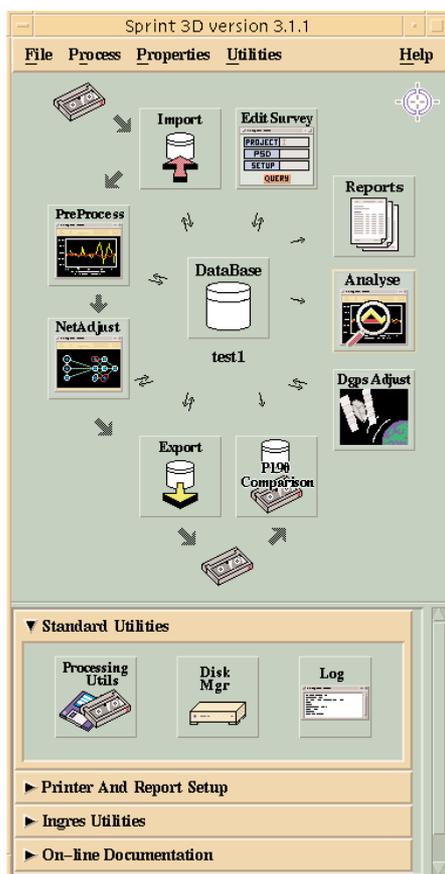
Automatic aids are used whenever possible within SPRINT to highlight potential problem areas, either data quality issues, or related to the processing of data. This ensures the problem identification and correction cycle time is minimised and results in faster throughput of data.

SPRINT's design will transparently accommodate future changes in the positioning technology so that no new software investment will be required. The latest graphical user interface (GUI) technology has been employed throughout the software ensuring that operator training is minimised.

SPRINT currently runs on a range of powerful workstations

and a variety of UNIX operating systems.

Written in industry standard programming languages it can be easily ported to a wide variety of platforms.



SPRINT MAIN MENU

Flexible Processing

SPRINT provides a choice of processing algorithms specially adapted to cater for a variety of navigation problems. These algorithms may be used in two distinct modes of operation to ensure optimum results.

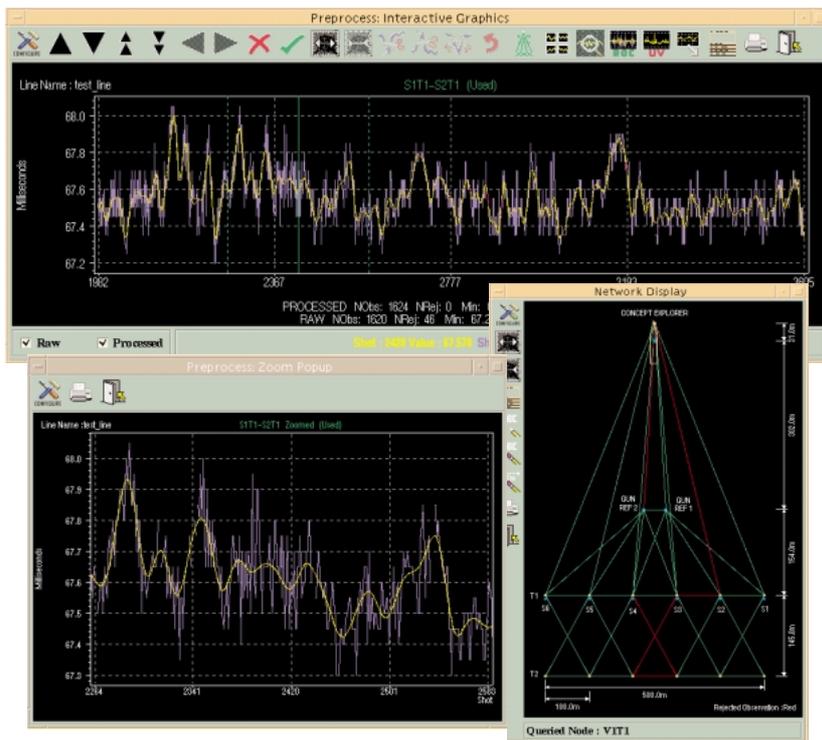
The batch processing method is used during normal operation and allows multiple lines to be processed in a way that guarantees fast turnaround. When data quality is variable, the interactive mode allows the user to perform fast 'what-if' enquiries and make quick decisions on optimum processing parameters specific

Geodetic Computations

The system uses a standard library of geodetic computation algorithms for co-ordinate transformations, datum transformations and least squares adjustment. The library was developed by Concept Systems in conjunction with a major oil company. It is designed to allow transformations using all commonly used Projection, Spheroid and Datum definitions, as well as performing the network adjustment of seismic spreads regardless of size. The system has been used successfully to perform integrated processing of four vessel, 12 streamer spreads using gyro, DGPS, acoustics, RGPS, laser and compass data.

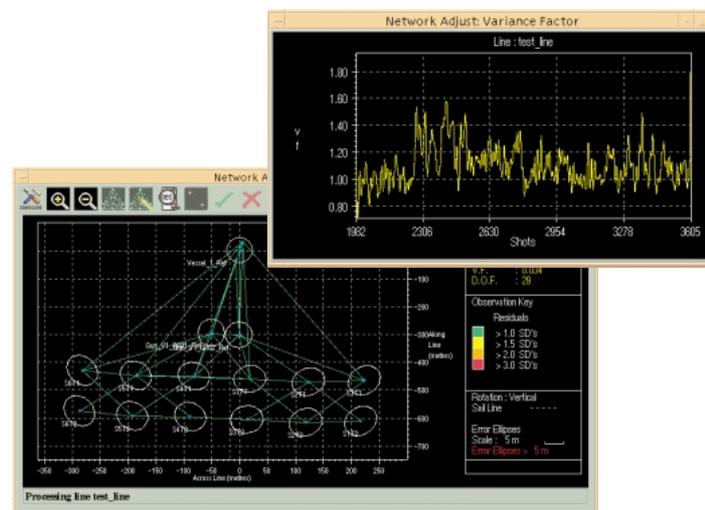
Streamer Shaping

Streamer acoustics, RGPS, laser, and compass data are integrated to give the optimum streamer node and receiver positions. SPRINT can use either a circle fit model or a polynomial fit model, which provides effective QC and allows the ideal model to be chosen for particular operating conditions.

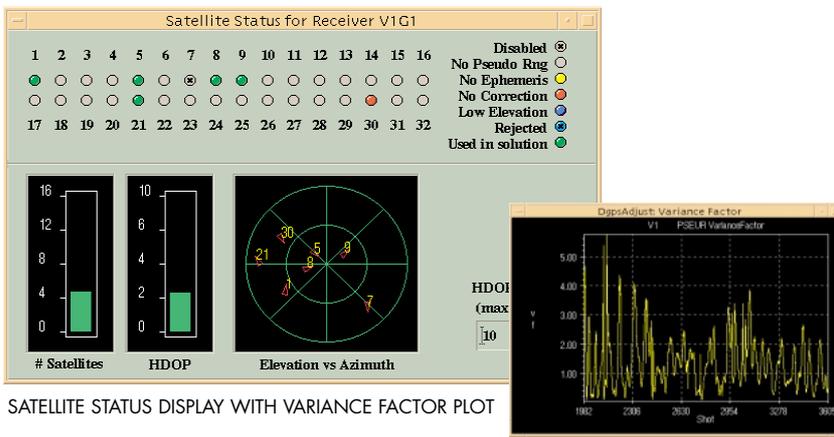


PRE PROCESS GRAPHICS WITH ZOOM AND NETWORK DISPLAY

to the requirements. Combined with powerful data editing facilities, this ensures that the acquired dataset is used whenever possible so that reshoots and infill are kept to a minimum.



NETWORK DISPLAY WITH VARIANCE FACTOR PLOT



SATELLITE STATUS DISPLAY WITH VARIANCE FACTOR PLOT

DGPS Recomputation

SPRINT can read in DGPS data (pseudo range, ephemeris, and differential corrections) from P2/94 format, validate this data format, and reprocess the data to find positions. A sophisticated stochastic model is used and statistical testing and rejection may be applied to eliminate data errors.

Both raw and computed data may be analysed using the full suite of SPRINT tools and thus the entire data set, including satellite receiver positions, may be verified and if necessary corrected in processing.

The following data may be analysed graphically:

- Raw pseudo ranges
- Elevations and azimuths
- Corrections/age of corrections
- Hdops, network unit variance

UKOOA P1/90 Verification

A SPRINT utility compares a UKOOA P1/90 file with the equivalent data stored in the SPRINT database.

This provides:

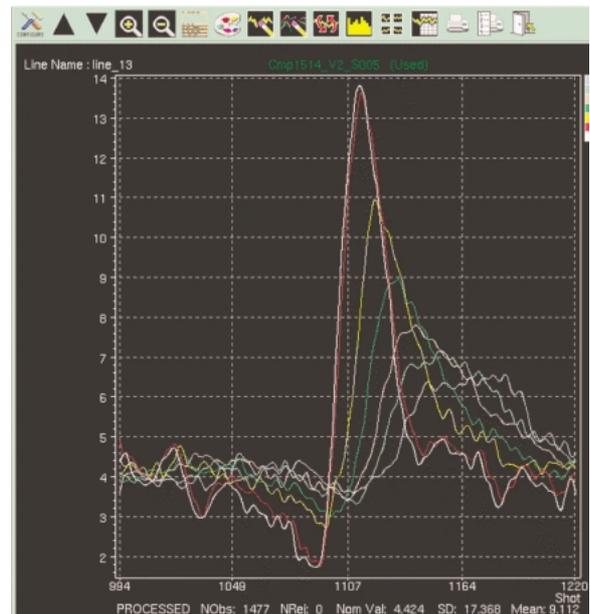
- Comparison of vessel, tailbuoy, source and receiver group records
- Presentation of results in statistical, time series, or spatial summary format
- Comparisons of water depth and cable depth
- Header verification

SPRINT can display a colour graphical plot representing all the position differences for the entire line. This allows all receivers in the spread to be analysed and displayed in a sensible fashion. The analyst thus has total confidence in the complete navigation data set.

Advanced QC

SPRINT incorporates sophisticated quality control throughout the processing cycle, from initial data input to final data output, providing full quality assurance of all archived data.

- Error checking on input data, including flagging of configuration changes.
- Automatic QC and exception reporting
- Variety of graphical analysis techniques
- Plots output to Postscript printer (full resolution)
- Reports output in spreadsheet compatible format
- Spatial attribute analysis



COMPASS DATA OVERLAY PLOT

Exporting Module

SPRINT's flexible export utility features:

- UKOOA P1/90 output, with datum transformation, trace renumbering and trace/shot range selection options
- UKOOA P2 output
- Reflex compatible ASC11 attribute file

Features

- Fast data processing from raw data (P2/86, P2/91, P2/94, Contractors format) through to UKOOA P1/90.
- Powerful interactive editing and processing functions
- Fully integrated network computation – unlimited number of points
- Flexible 2D and 3D processing options
- Batch mode (multi-line) capability in all modules
- Full Delft method statistical network analysis (NR, MDE, Xrel)
- P1/90 data provided on any commonly used Datum or Projection including RSO, Polyconic and New Zealand Map Grid
- Comparison and verification of all data in contractor's P1/90 file
- Audit trail records all processing steps
- Futureproof Open Systems implementation
- Standard Interface (SQL) to all data in SPRINT database
- Support for multi-processor architecture
- Available on multiple platforms including
 - Sun (Solaris)
 - IBM (AIX)
 - HP (HP – UX)
 - SGI (IRIX)





The SPRINT Advantage

SPRINT was developed by Concept Systems for use offshore and onshore in response to an industry demand for faster turnaround of processed navigation data in the 2D and 3D marine seismic acquisition and processing cycle.

The processing power and QC facilities of SPRINT have been used in a variety of navigation contexts. Seismic contractors have adopted SPRINT as a full production navigation processing system, while oil companies have found the system to be the most reliable and sophisticated QC facility for offshore navigation data processing.

SPRINT was designed and developed with technical and financial assistance from major oil companies BP Exploration, Mobil North Sea, Phillips Petroleum UK and Total Oil Marine as well as the UK Offshore Supplies Office. This collaboration has ensured that SPRINT meets the

industry's requirements and now the system's extensive user-base provides continuous feedback on which to base regular enhancements of the product. Recent advances include improved database technology and support for multi-processor technology, providing further significant reductions in processing time.

Benefits

- Final processing keeps pace with acquisition
- Reduces operator training costs
- Minimises reshoots and infill operations
- Guaranteed product longevity
- Provides total confidence in complete navigation data set
- Support available worldwide from Concept's navigation data processing department



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THE QUEEN'S AWARD FOR EXPORT ACHIEVEMENT
1997



**REPORT FOR THE
GYRO COMPASS, RGPS AND
DGPS CALIBRATION FOR THE
SR/V VERITAS VIKING II**

FUGRO SURVEY JOB NO. P0452

Client : Veritas DGC Asia Pacific Ltd
37 Jalan Pemimpin
#06-01 Union Industrial Building
Singapore 577177

Date of Survey : 21 – 22 April 2006

0	Final			8 May 2006
Rev	Description	Checked	Approved	Date

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1.0 INTRODUCTION

Fugro Survey Pty Ltd (Fugro) was contracted by Veritas DGC Asia Pacific Ltd (Veritas) to provide surveying services onboard the *SR/V Veritas Viking II* for the calibration of two gyro compasses, together with the verification of four Differential GPS systems and eight RGPS tailbuoy systems.

The calibrations and verifications were carried out whilst the vessel was alongside Common User Berths 11, North Quay, Fremantle Harbour, Western Australia on the 21 and 22 April 2006. All observations made by Fugro and Veritas have been recorded in UTC Time. Western Standard Time (WST) is +8.0 hours ahead of UTC Time.

This report details the procedures adopted and results obtained during the calibration and verification observations.

Details of Fugro's involvement in calibration and verification processes are presented in the Daily Operations Reports included in Appendix A.

2.0 GEODESY AND SURVEY CONTROL

2.1 Geodetic Parameters

All coordinates supplied in this report are referenced to the World Geodetic System 1984 (WGS84) except where indicated. Global Positioning System (GPS) also operates in reference to WGS84. Operations and calculations were undertaken using the following datum parameters:

Datum	:	WGS84
Reference Spheroid	:	World Geodetic System 1984
Semi-major Axis	:	6378137m
Inverse Flattening (1/f)	:	298.257223563
Grid	:	UTM Zone 50 South
Projection	:	Transverse Mercator
Latitude of Origin	:	0°
Central Meridian	:	117° E (Zone 50)
Central Scale Factor	:	0.9996
False Easting	:	500000m
False Northing	:	10000000m
Units	:	Metres

2.2 Survey Control

Two coordinated survey marks had already been established on the Fremantle Wharf by FUGRO Spatial Surveys.

The Survey Marks are shown in Table 2-1.

WGS84, CM117°E		
Name	Easting (m)	Northing (m)
13-N	381873.59	6454460.45
14-N	382035.05	6454488.72

TABLE 2-1 : SURVEY MARKS 13-N AND 14-N

Utilising these survey marks, temporary control points were established on Fremantle Wharf as shown in Table 2-2.

WGS84, CM117°E		
Name	Easting (m)	Northing (m)
FUG1	381819.32	6454450.95
TB11-B	382101.44	6454470.78
TB11-C	382105.94	6454467.49

TABLE 2-2 : TEMPORARY SURVEY MARKS

Details of the Survey Marks and field calculations are shown in Appendix B.

3.0 SURVEY PROCEDURES

3.1 Differential GPS Verification

The Differential GPS verification of the two DGPS systems, V1G1 and V1G3, on board the *SR/V Veritas Viking II* was undertaken between 08:14 and 08:43 (UTC) on 21 April 2006, as part of a post-project DGPS verification check the Differential GPS verification of the two DGPS systems, V1G1 and V1G2, on board the *SR/V Veritas Viking II* was undertaken between 00:47 and 01:16 (UTC) on 22 April 2006, for an upcoming project.

A Total Station (Topcon GTS-211D) was set up over 13-N using 14-N as the reference object (RO). Thirty observations were made to a prism attached to the centre of the antenna mast at 1 minute intervals during the observation period. These observations were synchronised with the navigation computer on board the *SR/V Veritas Viking II*. The Veritas on board navigation system was set to log WGS84 coordinates for the V1G1, V1G2 and V1G3 systems at one second intervals.

A series of bearings and distances was observed from survey station 13-N to the antenna mast. These observations were used to compute the calculated positions of V1G1, V1G2 and V1G3 antennae. WGS84 differentially corrected coordinates for the systems were extracted from the on board navigation system logs. They were matched for time with the Total Station observations, and entered as Positioning System DGPS Coordinates into Fugro's Static DGPS Verification – Single Total Station Method Sheet. Offsets from the prism to each of the antenna were taken and used for the spreadsheet.

The Static Differential GPS Verification - Single Total Station Method sheets for V1G1, V1G2 and V1G3 showing the differences between calculated and observed values are shown in Appendix C.

The general arrangement of the vessel navigation offsets on the *SR/V Veritas Viking II* is shown in Appendix D.

3.2 Gyro Compass Calibration

Gyro compass calibrations were conducted by time coordinated, simultaneous observations using two Total Stations set over stations 13N and TB11-C and referenced to stations 14-N. Observations were made prisms secured to the centre bow and stern of the *SR/V Veritas Viking II*.

The Veritas onboard navigation system was set to log raw uncorrected gyro compass headings for the Port Gyro (SG Brown) and Starboard Gyro (SG Brown) at 1 second intervals.

Two rounds of synchronized observations were taken between 07:30 (UTC) and 07:59 (UTC) on the 21 April 2006, and between 01:55 (UTC) and 02:26 (UTC) on 22 April 2006, whilst the vessel was moored alongside Fremantle Wharf. The first set of observations was taken whilst the ship was on a heading of 261°. A second set of observations was conducted with the ship on a heading of 081°. The vessel had been tied up alongside the wharf for three hours prior to the second set of observations, allowing each gyro compass to settle.

Raw values for each gyro compass were entered onto the calculation sheets as the observed true heading (O). Observations to the prisms located at the bow and stern were used to compute the calculated vessel heading (C). The calculated vessel heading (C) was compared to the observed vessel heading (O) to determine the calculated minus observed (C-O) value for each gyro compass.

The C-O determines the correction to be applied to the gyro compass raw output values. Results are provided in Section 4.0.

The Gyro Calibration Summary sheets are shown in Appendix E.

3.3 RGPS Tailbuoy Unit Verification

RGPS verification for the eight Tailbuoy units was conducted over a period during the *SR/V Veritas Viking II* visit to Fremantle.

A position was coordinated on the Fremantle Wharf close to the stern of the vessel. The tailbuoys were set as close as possible to the control mark, TB11-B, and over a 30 minute period a range and bearing of the tailbuoys was recorded from the V1G1 DGPS antenna and logged on the ships navigation system. Observations of the tailbuoys were taken at different times throughout the day.

Range and bearing of the tailbuoys from the V1G1 DGPS antenna were logged at one second intervals. These values were then reduced to produce 'observed' coordinates which were compared to the actual coordinate to give a C-O for each of the tailbuoys.

The RGPS Tailbuoy Verification Results for each of the eight tailbuoys are shown in Appendix F of the report.

4.0 RESULTS

4.1 DGPS Verification

The mean Calculated minus Observed (C-O) values for the Differential GPS verifications carried out on the 21 April 2006, are shown in Table 4-1.

System	Mean C-O (mE)	SD (m)	Mean C-O (mN)	SD (m)
V1G1	-0.276	0.890	-0.253	0.437
V1G3	0.197	0.041	-0.108	0.035

TABLE 4-1 : DIFFERENTIAL DGPS VERIFICATION 21 APRIL 2006

The mean Calculated minus Observed (C-O) values for the Differential GPS verifications carried out on the 22 April 2006, are shown in Table 4-2.

System	Mean C-O (mE)	SD (m)	Mean C-O (mN)	SD (m)
V1G1	0.100	0.280	0.084	0.043
V1G2	0.048	0.359	0.377	0.219

TABLE 4-2 : DIFFERENTIAL DGPS VERIFICATION 22 APRIL 2006

The individual observations and results for the Differential GPS verifications are tabulated in the Static Differential GPS Check Sheets located in Appendix C.

4.2 Gyro Compass Calibration

Corrections required for the gyro are shown in Table 4-3.

	Port Gyro (SG Brown)		Starboard Gyro (SG Brown)	
	Mean C-O	SD	Mean C-O	SD
Heading 081°	-0.34°	0.04°	-0.35°	0.04°
Heading 261°	-0.38°	0.05°	-0.22°	0.03°
Average heading results°	-0.36°		-0.29°	

TABLE 4-3 : GYRO COMPASS CALIBRATION

The individual observations and results of the gyro compass calibration are shown in the Gyro Compass Calibration Summary Sheets in Appendix E

4.3 DGPS Tailbuoy Unit Verification

In total eight Tailbuoys were checked, the results of which are shown in Table 4-4.

Tailbuoy	Easting (C-O)	SD	Northing (C-O)	SD
#123	0.4	1.07	-0.8	0.78
#129	-1.7	3.33	-0.9	1.72
#134	-0.8	1.04	-1.4	1.76
#135	-0.4	1.02	-1.0	1.37
#137	0.1	0.91	0.1	0.96
#143	0.1	1.03	-0.8	1.36
#144	-0.5	0.81	-0.4	0.95
#152	-0.7	1.46	-1.0	1.92

TABLE 4-4 : DGPS TAILBUOY VERIFICATION

The observations and results of each unit are shown in the DGPS Tailbuoy Verification Results sheets provided in Appendix F.

A Field Report summarising the preliminary calibration and verification results is shown in Appendix G.

5.0 DISTRIBUTION

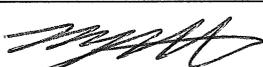
Copies of this report have been distributed as follows:

Veritas DGC Asia Pacific Ltd : 3 hard copies
Attn: Harry Tan : 1 electronic copy via e-mail

Fugro Survey Pty Ltd : 1 hard copy
: 1 electronic copy

APPENDIX A
DAILY OPERATIONS REPORTS



CLIENT: VERITAS DGC		LOCATION: FEMANTLE WHARF		DATE: 21/04/2006	
PROJECT: CALIBRATION		VESSEL: SR/V VERITAS VIKING II		JOB NO: P0452	
FROM	TO	SUMMARY OF OPERATIONS			
0700		A. Hamilton departs to collect M. Yorath			
0730		A. Hamilton and M. Yorath departs Perth for Fremantle			
0800		Fugro personnel arrive at Fremantle Wharf			
		Recon survey marks			
0930		Arrange for obstructions on the wharf to be moved			
1100		Wharf clear			
1130		Begin observations for control survey			
1430		Complete control survey and survey for tailbuoy position			
1430	1530	Set up vessel for gyro calibration and configure vessel navigation system			
1530	1600	Start gyro calibration			
1600		Set up for DGPS verification check			
1614	1643	Start DGPS verification check			
1700	2100	Complete reductions and data input for gyro and DGPS calibrations			
2100		Depart vessel			
2130		M. Yorath arrives in Perth			
2200		A. Hamilton arrives in Perth			
EQUIPMENT	NO.	EQUIPMENT	NO.	PERSONNEL	TITLE
Total Station	2			M. Yorath	Surveyor / PC
Prism	8			A. Hamilton	Surveyor
Tripod	4				
Tape Measure	2				
Laptop	2				
VEHICLES:				1	
CONSUMABLES:					
ACCOMMODATION:					
AUTHORISED CONTRACT CHANGES / COMMENTS					
Party Chief Signature:			Client Representative Signature:		D O R Number
					1



CLIENT: VERITAS DGC		LOCATION: FEMANTLE WHARF		DATE: 22/04/2006	
PROJECT: CALIBRATION		VESSEL: SR/V VERITAS VIKING II		JOB NO: P0452	
FROM	TO	SUMMARY OF OPERATIONS			
0530		A. Hamilton departs to collect M. Yorath			
0600		M. Yorath and A. Hamilton departs Perth for Fremantle			
0630		Fugro personnel arrive at Fremantle Wharf			
		Recon survey marks			
0640		Arrange for obstructions on the wharf to be moved			
0700	0800	Set up vessel for gyro calibration and configure vessel navigation system			
0840		Wharf clear			
0847	0916	Start DGPS verification check			
0920	0950	Crane obstructing vessel			
0955	1026	Complete gyro calibration			
1100	1330	Complete reductions and data input for gyro and DGPS calibrations			
1345		Depart vessel			
1430	1630	Complete reductions for tailbuoy pods			
1630	1800	Complete reporting			
EQUIPMENT	NO.	EQUIPMENT	NO.	PERSONNEL	TITLE
Total Station	2			M. Yorath	Surveyor / PC
Prism	8			A. Hamilton	Surveyor
Tripod	4				
Tape Measure	2				
Laptop	2				
VEHICLES:		1			
CONSUMABLES:					
ACCOMMODATION:					
AUTHORISED CONTRACT CHANGES / COMMENTS					
Party Chief Signature:		Client Representative Signature:		D O R Number	
				2	

APPENDIX B
SURVEY MARKS



**SURVEY CONTROL
STATION DESCRIPTION**

Fremantle Wharf 13-N

PRIMARY NAME: Fremantle Wharf 13-N
ALTERNATE NAME: 13-N
LOCATION: Berths 11/12 Fremantle Wharf
MARK DESCRIPTION: Steel Rod set in Concrete
ESTABLISHED: UNKNOWN
RE-ESTABLISHED: 27th April 2005
SURVEY METHOD: UNKNOWN

PRIMARY CO-ORDINATES

Horizontal Details

Datum: Geocentric Datum of Australia 1994 (GDA94)
Latitude: 32° 02' 23.5641" South
Longitude: 115° 44' 56.0075" East

Projection: Map Grid of Australia 1994 (MGA) Zone 50 Central Meridian 117° East
Easting: 381 873.11m
Northing: 6 454 459.75m

Vertical Details

Australian Height Datum (AHD) Height: U/K
Geocentric Datum of Australia 1994 (GDA94) Ellipsoidal Height: U/K
AUSGeoid98 Geoid-Ellipsoid Separation: U/K

DERIVED CO-ORDINATES

Horizontal Details

Datum: Australian Geodetic Datum 1984 (AGD84)
Latitude: 32° 02' 27.9498" South
Longitude: 115° 44' 50.6674" East

Projection: Australian Map Grid (AMG84) Zone 50 Central Meridian 117° East
Easting: 381 734.18m
Northing: 6 454 310.78m

HISTORICAL PRIMARY CO-ORDINATES

NO HISTORICAL DATA FOR THIS CONTROL MARK

Horizontal Details

Datum:
Latitude:
Longitude:

Vertical Details

Australian Height Datum (AHD) Height:
Geocentric Datum of Australia 1994 (GDA94) Ellipsoidal Height:
AUSGeoid93 Geoid-Ellipsoid Separation:

HISTORICAL DERIVED CO-ORDINATES

Horizontal Details

Datum:
Latitude:
Longitude:

Projection:
Easting:
Northing:

Notes

13-N was previously established mark and was found in good order on revising. He mark was re-painted and left in good order.

Datum Transformations

AGD84 Co-ordinates Derived Using GDA94/WGS84 (7 Parameter) Transformation. Parameters:
Dx=-117.763m, Dy=51.510m, Dz=-139.061m, Rx=0.292", Ry=0.443", Rz=0.277", Scale=-0.1910ppm

Ellipsoid Details

GDA94: Geodetic Reference System 1980 (GRS80), a=6378137m, 1/f=298.257222101
WGS84: World Geodetic System 1984 (WGS84), a=6378137m, 1/f=298.257223563
AGD84: Australian National Spheroid 1966 (ANS66), a=6378160m, 1/f=298.25

Remarks

Survey Mark 13-N is located at the eastern end of the Fremantle Wharf, Berth 11. The survey mark is a steel rod set in concrete. 13-N is 34.4m north of bollard 80 on the wharf and 163.8m east of station mark 14-N. Access to the wharf is off Tydeman Rd Fremantle and a security check is required on entry to the wharf area.

At time of installation a well painted circle and the description 13-N marked the location of Survey Mark 13-N. The steel rod is significant enough that should the paint be painted a wire brush or scraper would reveal its location.

Identification Photograph





**SURVEY CONTROL
STATION DESCRIPTION**

Fremantle Wharf 14-N

PRIMARY NAME: Fremantle Wharf 14-N
ALTERNATE NAME: 14-N
LOCATION: Berths 11/12 Fremantle Wharf
MARK DESCRIPTION: Steel Rod set in Concrete
ESTABLISHED: UNKNOWN
RE-ESTABLISHED: 27th April 2005
SURVEY METHOD: UNKNOWN

PRIMARY CO-ORDINATES

Horizontal Details

Datum: Geocentric Datum of Australia 1994 (GDA94)

Latitude: 32° 02' 22.7068" South

Longitude: 115° 45' 02.1752" East

Projection: Map Grid of Australia 1994 (MGA) Zone 50 Central Meridian 117° East

Easting: 382 034.57m

Northing: 6 454 488.02m

Vertical Details

Australian Height Datum (AHD) Height: U/K

Geocentric Datum of Australia 1994 (GDA94) Ellipsoidal Height: U/K

AUSGeoid98 Geoid-Ellipsoid Separation: U/K

DERIVED CO-ORDINATES

Horizontal Details

Datum: Australian Geodetic Datum 1984 (AGD84)

Latitude: 32° 02' 27.0927" South

Longitude: 115° 44' 56.8353" East

Projection: Australian Map Grid (AMG84) Zone 50 Central Meridian 117° East

Easting: 381 895.65m

Northing: 6 454 339.05m

HISTORICAL PRIMARY CO-ORDINATES

NO HISTORICAL DATA FOR THIS CONTROL MARK

Horizontal Details

Datum:

Latitude:

Longitude:

Vertical Details

Australian Height Datum (AHD) Height:

Geocentric Datum of Australia 1994 (GDA94) Ellipsoidal Height:

AUSGeoid93 Geoid-Ellipsoid Separation:

HISTORICAL DERIVED CO-ORDINATES

Horizontal Details

Datum:
Latitude:
Longitude:

Projection:
Easting:
Northing:

Notes

14-N was previously established mark and was found in good order on revising. The mark is a steel rod set in bitumen. A large crack has developed around the mark but the station was easily identifiable and solid. The mark was re-painted and left in good order.

Datum Transformations

AGD84 Co-ordinates Derived Using GDA94/WGS84 (7 Parameter) Transformation. Parameters:
Dx=-117.763m, Dy=51.510m, Dz=-139.061m, Rx=0.292", Ry=0.443", Rz=0.277", Scale=-0.1910ppm

Ellipsoid Details

GDA94: Geodetic Reference System 1980 (GRS80), a=6378137m, 1/f=298.257222101
WGS84: World Geodetic System 1984 (WGS84), a=6378137m, 1/f=298.257223563
AGD84: Australian National Spheroid 1966 (ANS66), a=6378160m, 1/f=298.25

Remarks

Survey Mark 14-N is located in the centre of the Fremantle Wharf, Berth 11. The survey mark is a steel rod set in bitumen. 14-N is 34.2m north of the edge of the wharf. 14-N is also located 8.45m to the western corner of the toilet block and 16.4m to the eastern corner of the toilet block. Access to the wharf is off Tydeman Rd Fremantle and a security check is required on entry to the wharf area. At time of installation a well painted circle and the description 14-N marked the location of Survey Mark 14-N. Life of mark is expected 10 years

Identification Photograph





Field Calculations
 Berth 11 North Fremantle Wharf
 21 April 2006

Stn: TB11-B (Tailbuoy Position)

At Stn 14-N: $382\,035.05\text{m E}$ } WGS 84
 $6\,454\,488.72\text{m N}$ }

Backsight to Stn 13-N: $0^{\circ}00'00''$

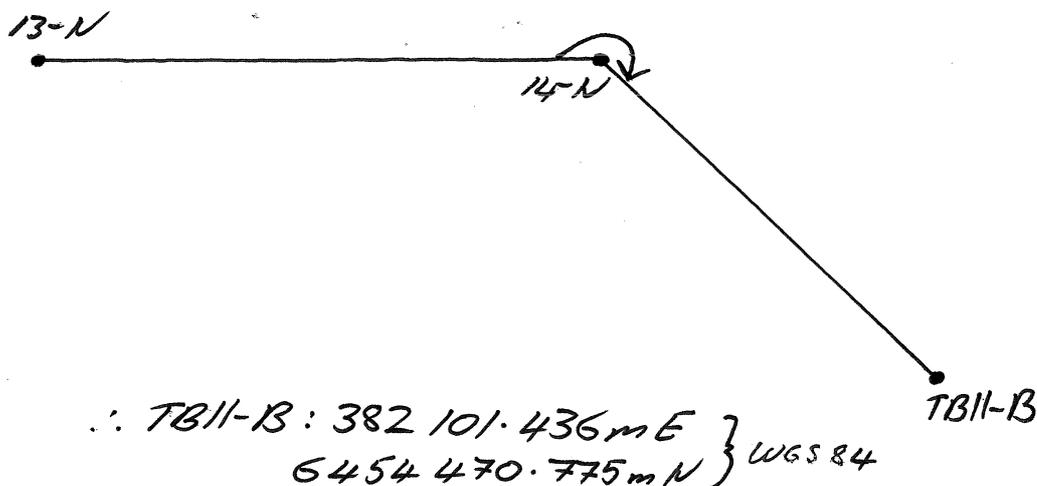
Stn 13-N: $381\,873.59\text{m E}$ } WGS 84
 $6\,454\,460.45\text{m N}$ }

\therefore Brg 14-N to 13-N: $260^{\circ}04'07.54''$

Observations:

Stn	FL	Dist	FR	Dist
13-N	$0^{\circ}00'00''$	163.946	$179^{\circ}59'54''$	163.947
TB11-B	$205^{\circ}03'32''$	68.769	$025^{\circ}03'26''$	68.769
13-N	$359^{\circ}59'58''$	163.946	$179^{\circ}59'54''$	163.946
TB11-B	$205^{\circ}03'29''$	68.770	$025^{\circ}03'24''$	68.769

\therefore \angle 13-N to TB11-B: $205^{\circ}03'27.75''$
 Dist: 68.769m



Field Calculations
 Berth 11 North Fremantle Wharf
 21 April 2006

Stn: TB11-C (Observation Position)

At Stn 14-N: $382\,035.05\text{m E}$ } WGS 84
 $6\,454\,488.72\text{m N}$ }

Backsight to Stn 13-N: $0^{\circ}00'00''$

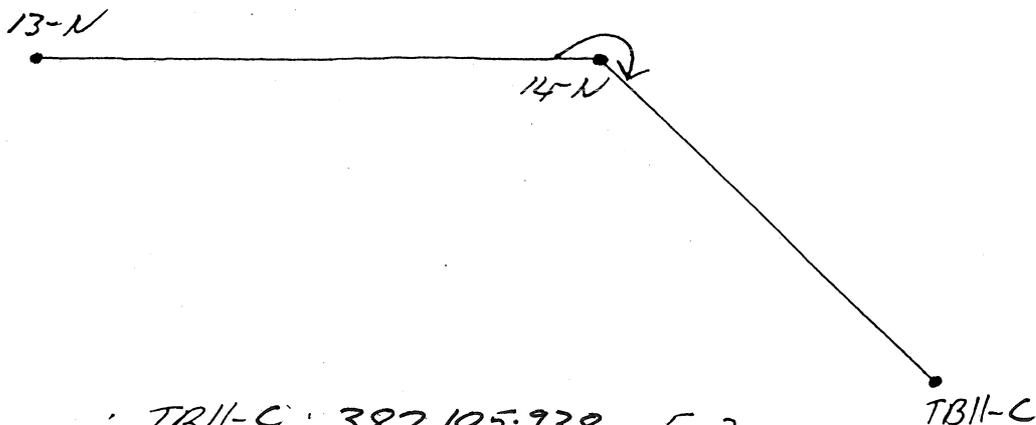
Stn 13-N: $381\,873.59\text{m E}$ } WGS 84
 $6\,454\,460.45\text{m N}$ }

\therefore Brg 14-N to 13-N: $260^{\circ}04'07.54''$

Observations:

Stn	FL	Dist	FR	Dist
13-N	$0^{\circ}00'00''$	163.946	$180^{\circ}00'04''$	163.946
TB11-C	$206^{\circ}36'12''$	73.998	$026^{\circ}36'06''$	73.998
13-N	$0^{\circ}00'09''$	163.946	$180^{\circ}00'00''$	163.946
TB11-C	$206^{\circ}36'04''$	73.998	$026^{\circ}36'00''$	73.998

\therefore \angle 13-N to TB11-C: $206^{\circ}36'05.50''$
 Dist: 73.998m



\therefore TB11-C: $382\,105.938\text{m E}$ } WGS 84
 $6\,454\,467.493\text{m N}$ }

APPENDIX C
DGPS STATIC VERIFICATION SHEETS



Static DGPS Verification - Single Total Station Method

Fugro Job Number:	P0452	Wharf:	Berth 11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Antenna	V1G1
Time Zone :	UTC + 8		

Geodesy			
Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.2572	False Easting	500000
Datum	WGS84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details				Prism Offsets to DGPS System	
<i>Instrument Station:</i>	13N	Easting (m):	381873.59	Y:	0.00
<i>Instrument Type :</i>	Topcon GTS-211D	Northing (m):	6454460.45	X:	0.10
<i>Instrument Serial No. :</i>	136777	AHD Height (m):	0.00	Offset Convention	
<i>Backsight Station (RO) :</i>	14N	Easting (m):	382035.05		
		Northing (m):	6454488.72		
		AHD Height (m):	0.00		

Calculated Grid Bearing to RO :	080° 04' 8.78"	Correction to Gyro from Cal.
Calculated Convergence :	-000° 39' 49.66"		Corrn. : -0.36°

Observations To:	V1G1			Easting (m):	381819.32
<i>Backsight Observation (Set to) :</i>	0°	0'	0'	<i>CHECK Backsight Station (RO) :</i>	Northing (m): 6454450.95
<i>Check Backsight:</i>	180°	0'	05		AHD Height (m): 0.00

Obs	Time (hh:mm:ss)	Observed Distance (m)	Observed Direction (DMS)			Positioning System DGPS Co-ordinates		Vessel Heading
						Latitude	Longitude	
1	8:14:00	162.944	015	59	11	-32.040039	115.750616	261.1
2	8:15:00	162.951	015	59	27	-32.040035	115.750596	261.2
3	8:16:00	162.959	015	56	01	-32.040032	115.750594	261.3
4	8:17:00	162.944	015	59	47	-32.040037	115.750609	261.2
5	8:18:00	162.959	015	58	27	-32.040042	115.750609	261.2
6	8:19:00	162.911	015	58	45	-32.040041	115.750610	261.2
7	8:20:00	162.944	015	59	17	-32.040043	115.750613	261.2
8	8:21:00	162.905	015	59	10	-32.040042	115.750599	261.1
9	8:22:00	162.905	015	58	27	-32.040045	115.750602	261.1
10	8:23:00	162.891	015	59	19	-32.040041	115.750603	261.2
11	8:24:00	162.914	015	59	58	-32.040035	115.750598	261.3
12	8:25:00	162.956	015	59	59	-32.040042	115.750608	261.1
13	8:26:00	162.924	016	00	33	-32.040043	115.750609	261.2
14	8:27:00	162.931	016	02	17	-32.040045	115.750607	261.3
15	8:28:00	162.975	016	00	07	-32.040046	115.750603	261.1
16	8:29:00	162.931	016	01	35	-32.040039	115.750607	261.1
17	8:30:00	162.920	016	02	37	-32.040048	115.750616	261.3
18	8:31:00	162.999	016	01	22	-32.040040	115.750624	261.1
19	8:32:00	162.944	016	03	02	-32.040042	115.750623	261.2
20	8:33:00	162.969	016	02	28	-32.040045	115.750624	261.4
21	8:34:00	162.913	016	00	54	-32.040038	115.750617	261.2
22	8:35:00	162.926	016	01	31	-32.040046	115.750612	261.3
23	8:36:00	162.992	016	03	21	-32.040042	115.750618	261.4
24	8:37:00	162.948	016	02	02	-32.040051	115.750619	261.2
25	8:38:00	162.951	016	01	42	-32.040049	115.750622	261.3
26	8:39:00	162.970	016	02	40	-32.040048	115.750626	261.3
27	8:40:00	162.912	016	00	08	-32.040038	115.750626	261.2
28	8:41:00	162.954	016	00	15	-32.040041	115.750626	261.2
29	8:42:00	162.919	016	00	18	-32.040042	115.750618	261.3

Obs	Time (hh:mm:ss)	Observed Distance (m)	Observed Direction (DMS)			Positioning System DGPS Co-ordinates		Vessel Heading
						Latitude	Longitude	
30	8:43:00	162.968	015	57	13	-32.040041	115.750613	261.3

Signature



 SURVEYOR/PARTY CHIEF



Static DGPS Verification - Single Total Station Method

Fugro Job Number: P0452	Wharf: Berth 11 North Fremantle Wharf	Geodesy
Job Description: Calibration	Vessel: Veritas Viking II	Spheroid WGS84
Client: Veritas	Date: 21 April 2006	Datum WGS84
Surveyor: M. Yorath & A. Hamilton	DGPS : V1G1	Projection UTM
Time Zone : UTC + 8	Serial No.: 136777	Central Meridia 117

Observations To: V1G1	RESULTS :	C-O East(m)	C-O North(m)
Signature  SURVEYOR/PARTY CHIEF		Linear Misclose: 0.38	MEAN SD -0.276 0.890	-0.253 0.437

Obs	Time (hh:mm:ss)	Observed Direction (DMS)			Observed Distance (m)	Calculated Co-ordinates of DGPS Antenna		Observed Position of DGPS Antenna		Positioning System DGPS Co-ordinates		C-O East	C-O North
						Easting (m)	Northing (m)	Latitude	Longitude	Easting (m)	Northing (m)		
1	8:14:00	015	59	11	162.944	382035.578	6454443.361	-32.040039	115.750616	382036.20	6454443.89	-0.62	-0.53
2	8:15:00	015	59	27	162.951	382035.583	6454443.347	-32.040035	115.750596	382034.30	6454444.31	1.28	-0.96
3	8:16:00	015	56	01	162.959	382035.609	6454443.508	-32.040032	115.750594	382034.11	6454444.64	1.50	-1.13
4	8:17:00	015	59	47	162.944	382035.575	6454443.332	-32.040037	115.750609	382035.53	6454444.10	0.04	-0.77
5	8:18:00	015	58	27	162.959	382035.596	6454443.394	-32.040042	115.750609	382035.54	6454443.55	0.06	-0.15
6	8:19:00	015	58	45	162.911	382035.547	6454443.385	-32.040041	115.750610	382035.63	6454443.66	-0.09	-0.27
7	8:20:00	015	59	17	162.944	382035.577	6454443.356	-32.040043	115.750613	382035.92	6454443.44	-0.34	-0.08
8	8:21:00	015	59	10	162.905	382035.539	6454443.366	-32.040042	115.750599	382034.60	6454443.54	0.94	-0.17
9	8:22:00	015	58	27	162.905	382035.542	6454443.399	-32.040045	115.750602	382034.88	6454443.21	0.66	0.19
10	8:23:00	015	59	19	162.891	382035.524	6454443.360	-32.040041	115.750603	382034.97	6454443.65	0.55	-0.29
11	8:24:00	015	59	58	162.914	382035.544	6454443.327	-32.040035	115.750598	382034.49	6454444.31	1.05	-0.98
12	8:25:00	015	59	59	162.956	382035.585	6454443.322	-32.040042	115.750608	382035.45	6454443.55	0.14	-0.22
13	8:26:00	016	00	33	162.924	382035.551	6454443.298	-32.040043	115.750609	382035.54	6454443.44	0.01	-0.14
14	8:27:00	016	02	17	162.931	382035.549	6454443.216	-32.040045	115.750607	382035.35	6454443.21	0.19	0.00
15	8:28:00	016	00	07	162.975	382035.604	6454443.313	-32.040046	115.750603	382034.98	6454443.10	0.63	0.22
16	8:29:00	016	01	35	162.931	382035.553	6454443.249	-32.040039	115.750607	382035.35	6454443.88	0.21	-0.63
17	8:30:00	016	02	37	162.920	382035.537	6454443.201	-32.040048	115.750616	382036.21	6454442.89	-0.67	0.31
18	8:31:00	016	01	22	162.999	382035.621	6454443.252	-32.040040	115.750624	382036.95	6454443.78	-1.33	-0.53
19	8:32:00	016	03	02	162.944	382035.558	6454443.179	-32.040042	115.750623	382036.86	6454443.56	-1.30	-0.38
20	8:33:00	016	02	28	162.969	382035.586	6454443.203	-32.040045	115.750624	382036.96	6454443.23	-1.37	-0.03
21	8:34:00	016	00	54	162.913	382035.538	6454443.283	-32.040038	115.750617	382036.29	6454444.00	-0.75	-0.72
22	8:35:00	016	01	31	162.926	382035.548	6454443.253	-32.040046	115.750612	382035.83	6454443.11	-0.28	0.15
23	8:36:00	016	03	21	162.992	382035.605	6454443.159	-32.040042	115.750618	382036.39	6454443.56	-0.78	-0.40
24	8:37:00	016	02	02	162.948	382035.567	6454443.226	-32.040051	115.750619	382036.50	6454442.56	-0.93	0.67
25	8:38:00	016	01	42	162.951	382035.572	6454443.241	-32.040049	115.750622	382036.78	6454442.78	-1.20	0.46
26	8:39:00	016	02	40	162.970	382035.586	6454443.194	-32.040048	115.750626	382037.15	6454442.90	-1.57	0.29

27	8:40:00	016	00	08	162.912	382035.541	6454443.319	-32.040038	115.750626	382037.14	6454444.01	-1.60	-0.69
28	8:41:00	016	00	15	162.954	382035.582	6454443.309	-32.040041	115.750626	382037.14	6454443.68	-1.56	-0.37
29	8:42:00	016	00	18	162.919	382035.547	6454443.311	-32.040042	115.750618	382036.39	6454443.56	-0.84	-0.25
30	8:43:00	015	57	13	162.968	382035.612	6454443.451	-32.040041	115.750613	382035.92	6454443.66	-0.30	-0.21



Static DGPS Verification - Single Total Station Method

Fugro Job Number:	P0452	Wharf:	Berth 11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	22 April 2006
Surveyor:	M. Yorath & A. Hamilton	Antenna	V1G1
Time Zone :	UTC + 8		

Geodesy			
Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.2572	False Easting	500000
Datum	WGS84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details				Prism Offsets to DGPS System	
<i>Instrument Station:</i>	13N	Easting (m):	381873.59	Y:	0.00
<i>Instrument Type :</i>	Topcon GTS-211D	Northing (m):	6454460.45	X:	0.00
<i>Instrument Serial No. :</i>	136777	AHD Height (m):	0.00	Offset Convention	
<i>Backsight Station (RO) :</i>	14N	Easting (m):	382035.05		
		Northing (m):	6454488.72		
		AHD Height (m):	0.00		

Calculated Grid Bearing to RO :	080° 04' 8.78"	Correction to Gyro from Cal.
Calculated Convergence :	-000° 39' 49.66"		Corn. : -0.36°

Observations To:	V1G1	Easting (m):	381819.32
<i>Backsight Observation (Set to) :</i>	0° 0' 0' <i>CHECK Backsight Station (RO) :</i>	Northing (m):	6454450.95
<i>Check Backsight:</i>	180° 0' 05	AHD Height (m):	0.00

Obs	Time (hh:mm:ss)	Observed Distance (m)	Observed Direction (DMS)			Positioning System DGPS Co-ordinates		Vessel Heading
						Latitude	Longitude	
1	0:47:00	182.283	014	31	17	-32.040024	115.750819	81.0
2	0:48:00	182.308	014	31	45	-32.040024	115.750819	81.1
3	0:49:00	182.318	014	31	04	-32.040023	115.750819	81.1
4	0:50:00	182.326	014	31	02	-32.040024	115.750819	81.0
5	0:51:00	182.325	014	31	36	-32.040024	115.750819	80.9
6	0:52:00	182.316	014	31	23	-32.040024	115.750819	80.9
7	0:53:00	182.376	014	33	15	-32.040025	115.750819	81.0
8	0:54:00	182.440	014	31	23	-32.040024	115.750820	81.1
9	0:55:00	182.369	014	31	16	-32.040024	115.750819	81.0
10	0:56:00	182.354	014	31	04	-32.040024	115.750819	81.0
11	0:57:00	182.335	014	30	32	-32.040024	115.750818	81.0
12	0:58:00	182.348	014	31	06	-32.040024	115.750819	81.0
13	0:59:00	182.299	014	31	05	-32.040024	115.750818	81.0
14	1:00:00	182.358	014	31	42	-32.040024	115.750818	81.1
15	1:01:00	182.389	014	31	47	-32.040025	115.750819	81.0
16	1:02:00	182.354	014	31	18	-32.040024	115.750818	81.0
17	1:03:00	182.376	014	30	49	-32.040024	115.750819	81.0
18	1:04:00	182.435	014	29	52	-32.040024	115.750819	80.9
19	1:05:00	182.397	014	31	25	-32.040024	115.750818	81.1
20	1:06:00	183.382	014	31	25	-32.040024	115.750818	81.0
21	1:07:00	183.384	014	30	59	-32.040024	115.750818	81.0
22	1:08:00	182.382	014	31	54	-32.040024	115.750818	81.1
23	1:09:00	182.419	014	30	47	-32.040024	115.750819	81.0
24	1:10:00	182.406	014	30	46	-32.040024	115.750819	81.0
25	1:11:00	182.386	014	30	25	-32.040023	115.750818	81.0
26	1:12:00	182.368	014	29	30	-32.040024	115.750818	81.0
27	1:13:00	182.424	014	30	40	-32.040024	115.750818	81.0
28	1:14:00	182.427	014	31	47	-32.040024	115.750818	80.9
29	1:15:00	182.402	014	31	10	-32.040024	115.750818	81.0

Obs	Time (hh:mm:ss)	Observed Distance (m)	Observed Direction (DMS)			Positioning System DGPS Co-ordinates		Vessel Heading
						Latitude	Longitude	
30	1:16:00	182.342	014	31	16	-32.040024	115.750817	81.0

Signature



 SURVEYOR/PARTY CHIEF



Static DGPS Verification - Single Total Station Method

Fugro Job Number: P0452	Wharf: Berth 11 North Fremantle Wharf	Geodesy
Job Description: Calibration	Vessel: Veritas Viking II	Spheroid WGS84
Client: Veritas	Date: 22 April 2006	Datum WGS84
Surveyor: M. Yorath & A. Hamilton	DGPS : V1G1	Projection UTM
Time Zone : UTC + 8	Serial No.: 136777	Central Meridia 117

Observations To: V1G1	RESULTS :	MEAN	C-O	C-O
Signature  SURVEYOR/PARTY CHIEF			East(m)	North(m)
	Linear Misclose: 0.13	SD	0.100	0.084
			0.280	0.043

Obs	Time (hh:mm:ss)	Observed Direction (DMS)			Observed Distance (m)	Calculated Co-ordinates of DGPS Antenna		Observed Position of DGPS Antenna		Positioning System DGPS Co-ordinates		C-O East	C-O North
						Easting (m)	Northing (m)	Latitude	Longitude	Easting (m)	Northing (m)		
1	0:47:00	014	31	17	182.283	382055.251	6454445.862	-32.040024	115.750819	382055.35	6454445.77	-0.10	0.09
2	0:48:00	014	31	45	182.308	382055.274	6454445.835	-32.040024	115.750819	382055.35	6454445.77	-0.07	0.06
3	0:49:00	014	31	04	182.318	382055.287	6454445.870	-32.040023	115.750819	382055.34	6454445.88	-0.06	-0.01
4	0:50:00	014	31	02	182.326	382055.295	6454445.871	-32.040024	115.750819	382055.35	6454445.77	-0.05	0.10
5	0:51:00	014	31	36	182.325	382055.291	6454445.841	-32.040024	115.750819	382055.35	6454445.77	-0.05	0.07
6	0:52:00	014	31	23	182.316	382055.283	6454445.854	-32.040024	115.750819	382055.35	6454445.77	-0.06	0.08
7	0:53:00	014	33	15	182.376	382055.335	6454445.750	-32.040025	115.750819	382055.35	6454445.66	-0.01	0.09
8	0:54:00	014	31	23	182.440	382055.407	6454445.844	-32.040024	115.750820	382055.44	6454445.77	-0.03	0.07
9	0:55:00	014	31	16	182.369	382055.337	6454445.856	-32.040024	115.750819	382055.35	6454445.77	-0.01	0.08
10	0:56:00	014	31	04	182.354	382055.322	6454445.867	-32.040024	115.750819	382055.35	6454445.77	-0.02	0.10
11	0:57:00	014	30	32	182.335	382055.306	6454445.897	-32.040024	115.750818	382055.25	6454445.77	0.05	0.13
12	0:58:00	014	31	06	182.348	382055.316	6454445.866	-32.040024	115.750819	382055.35	6454445.77	-0.03	0.09
13	0:59:00	014	31	05	182.299	382055.268	6454445.871	-32.040024	115.750818	382055.25	6454445.77	0.02	0.10
14	1:00:00	014	31	42	182.358	382055.324	6454445.834	-32.040024	115.750818	382055.25	6454445.77	0.07	0.06
15	1:01:00	014	31	47	182.389	382055.354	6454445.827	-32.040025	115.750819	382055.35	6454445.66	0.01	0.17
16	1:02:00	014	31	18	182.354	382055.321	6454445.855	-32.040024	115.750818	382055.25	6454445.77	0.07	0.08
17	1:03:00	014	30	49	182.376	382055.345	6454445.879	-32.040024	115.750819	382055.35	6454445.77	0.00	0.11
18	1:04:00	014	29	52	182.435	382055.408	6454445.924	-32.040024	115.750819	382055.35	6454445.77	0.06	0.15
19	1:05:00	014	31	25	182.397	382055.364	6454445.845	-32.040024	115.750818	382055.25	6454445.77	0.11	0.08
20	1:06:00	014	31	25	183.382	382056.345	6454445.767	-32.040024	115.750818	382055.25	6454445.77	1.09	0.00
21	1:07:00	014	30	59	183.384	382056.349	6454445.789	-32.040024	115.750818	382055.25	6454445.77	1.10	0.02
22	1:08:00	014	31	54	182.382	382055.347	6454445.821	-32.040024	115.750818	382055.25	6454445.77	0.10	0.05
23	1:09:00	014	30	47	182.419	382055.388	6454445.877	-32.040024	115.750819	382055.35	6454445.77	0.04	0.11
24	1:10:00	014	30	46	182.406	382055.376	6454445.879	-32.040024	115.750819	382055.35	6454445.77	0.03	0.11
25	1:11:00	014	30	25	182.386	382055.357	6454445.899	-32.040023	115.750818	382055.25	6454445.88	0.11	0.02
26	1:12:00	014	29	30	182.368	382055.343	6454445.949	-32.040024	115.750818	382055.25	6454445.77	0.09	0.18

27	1:13:00	014	30	40	182.424	382055.394	6454445.883	-32.040024	115.750818	382055.25	6454445.77	0.14	0.11
28	1:14:00	014	31	47	182.427	382055.392	6454445.824	-32.040024	115.750818	382055.25	6454445.77	0.14	0.05
29	1:15:00	014	31	10	182.402	382055.370	6454445.858	-32.040024	115.750818	382055.25	6454445.77	0.12	0.09
30	1:16:00	014	31	16	182.342	382055.310	6454445.858	-32.040024	115.750817	382055.16	6454445.77	0.15	0.09



Static DGPS Verification - Single Total Station Method

Fugro Job Number:	P0452	Wharf:	Berth 11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	22 April 2006
Surveyor:	M. Yorath & A. Hamilton	Antenna:	V1G2
Time Zone :	UTC + 8		

Geodesy			
Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.2572	False Easting	500000
Datum	WGS84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details				Prism Offsets to DGPS System	
<i>Instrument Station:</i>	13N	Easting (m):	381873.59	Y:	-0.28
<i>Instrument Type :</i>	Topcon GTS-211D	Northing (m):	6454460.45	X:	0.58
<i>Instrument Serial No. :</i>	136777	AHD Height (m):	0.00	Offset Convention	
<i>Backsight Station (RO) :</i>	14N	Easting (m):	382035.05		
		Northing (m):	6454488.72		
		AHD Height (m):	0.00		

Calculated Grid Bearing to RO :	080° 04' 8.78"	Correction to Gyro from Cal.
Calculated Convergence :	-000° 39' 49.66"		Corrn. : -0.36°

Observations To:	V1G2			Easting (m):	381819.32
Backsight Observation (Set to) :	0°	0'	0'	<i>CHECK Backsight Station (RO) :</i>	Northing (m): 6454450.95
Check Backsight:	180°	0'	05		AHD Height (m): 0.00

Obs	Time (hh:mm:ss)	Observed Distance (m)	Observed Direction (DMS)			Positioning System DGPS Co-ordinates		Vessel Heading
						Latitude	Longitude	
1	0:47:00	182.283	014	31	17	-32.040029	115.750819	81.0
2	0:48:00	182.308	014	31	45	-32.040029	115.750819	81.1
3	0:49:00	182.318	014	31	04	-32.040031	115.750817	81.1
4	0:50:00	182.326	014	31	02	-32.040032	115.750817	81.0
5	0:51:00	182.325	014	31	36	-32.040034	115.750818	80.9
6	0:52:00	182.316	014	31	23	-32.040032	115.750820	80.9
7	0:53:00	182.376	014	33	15	-32.040034	115.750820	81.0
8	0:54:00	182.440	014	31	23	-32.040038	115.750818	81.1
9	0:55:00	182.369	014	31	16	-32.040035	115.750816	81.0
10	0:56:00	182.354	014	31	04	-32.040031	115.750816	81.0
11	0:57:00	182.335	014	30	32	-32.040035	115.750814	81.0
12	0:58:00	182.348	014	31	06	-32.040034	115.750816	81.0
13	0:59:00	182.299	014	31	05	-32.040034	115.750815	81.0
14	1:00:00	182.358	014	31	42	-32.040034	115.750814	81.1
15	1:01:00	182.389	014	31	47	-32.040033	115.750814	81.0
16	1:02:00	182.354	014	31	18	-32.040030	115.750814	81.0
17	1:03:00	182.376	014	30	49	-32.040031	115.750814	81.0
18	1:04:00	182.435	014	29	52	-32.040031	115.750816	80.9
19	1:05:00	182.397	014	31	25	-32.040033	115.750815	81.1
20	1:06:00	183.382	014	31	25	-32.040032	115.750815	81.0
21	1:07:00	183.384	014	30	59	-32.040032	115.750816	81.0
22	1:08:00	182.382	014	31	54	-32.040031	115.750815	81.1
23	1:09:00	182.419	014	30	47	-32.040030	115.750817	81.0
24	1:10:00	182.406	014	30	46	-32.040029	115.750816	81.0
25	1:11:00	182.386	014	30	25	-32.040031	115.750818	81.0
26	1:12:00	182.368	014	29	30	-32.040032	115.750819	81.0
27	1:13:00	182.424	014	30	40	-32.040032	115.750821	81.0
28	1:14:00	182.427	014	31	47	-32.040032	115.750821	80.9
29	1:15:00	182.402	014	31	10	-32.040032	115.750819	81.0

Obs	Time (hh:mm:ss)	Observed Distance (m)	Observed Direction (DMS)			Positioning System DGPS Co-ordinates		Vessel Heading
						Latitude	Longitude	
30	1:16:00	182.342	014	31	16	-32.040032	115.750819	81.0

Signature



 SURVEYOR/PARTY CHIEF



Static DGPS Verification - Single Total Station Method

Fugro Job Number: P0452	Wharf: Berth 11 North Fremantle Wharf	Geodesy
Job Description: Calibration	Vessel: Veritas Viking II	Spheroid WGS84
Client: Veritas	Date: 22 April 2006	Datum WGS84
Surveyor: M. Yorath & A. Hamilton	DGPS : V1G2	Projection UTM
Time Zone : UTC + 8	Serial No.: 136777	Central Meridia 117

Observations To: V1G2	RESULTS :	MEAN	C-O	C-O
Signature  SURVEYOR/PARTY CHIEF			East(m)	North(m)
	Linear	0.38	0.048	0.377
	Misclose:		0.359	0.219

Obs	Time (hh:mm:ss)	Observed Direction (DMS)			Observed Distance (m)	Calculated Co-ordinates of DGPS Antenna		Observed Position of DGPS Antenna		Positioning System DGPS Co-ordinates		C-O East	C-O North
						Easting (m)	Northing (m)	Latitude	Longitude	Easting (m)	Northing (m)		
1	0:47:00	014	31	17	182.283	382055.058	6454445.247	-32.040029	115.750819	382055.35	6454445.22	-0.29	0.03
2	0:48:00	014	31	45	182.308	382055.080	6454445.221	-32.040029	115.750819	382055.35	6454445.22	-0.27	0.00
3	0:49:00	014	31	04	182.318	382055.093	6454445.256	-32.040031	115.750817	382055.17	6454444.99	-0.07	0.26
4	0:50:00	014	31	02	182.326	382055.102	6454445.257	-32.040032	115.750817	382055.17	6454444.88	-0.07	0.37
5	0:51:00	014	31	36	182.325	382055.099	6454445.227	-32.040034	115.750818	382055.26	6454444.66	-0.16	0.57
6	0:52:00	014	31	23	182.316	382055.091	6454445.239	-32.040032	115.750820	382055.45	6454444.89	-0.36	0.35
7	0:53:00	014	33	15	182.376	382055.142	6454445.136	-32.040034	115.750820	382055.45	6454444.66	-0.31	0.47
8	0:54:00	014	31	23	182.440	382055.213	6454445.230	-32.040038	115.750818	382055.27	6454444.22	-0.06	1.01
9	0:55:00	014	31	16	182.369	382055.144	6454445.241	-32.040035	115.750816	382055.08	6454444.55	0.07	0.69
10	0:56:00	014	31	04	182.354	382055.130	6454445.253	-32.040031	115.750816	382055.07	6454444.99	0.06	0.26
11	0:57:00	014	30	32	182.335	382055.113	6454445.283	-32.040035	115.750814	382054.89	6454444.55	0.23	0.74
12	0:58:00	014	31	06	182.348	382055.123	6454445.252	-32.040034	115.750816	382055.08	6454444.66	0.05	0.59
13	0:59:00	014	31	05	182.299	382055.075	6454445.256	-32.040034	115.750815	382054.98	6454444.66	0.09	0.60
14	1:00:00	014	31	42	182.358	382055.130	6454445.219	-32.040034	115.750814	382054.89	6454444.66	0.24	0.56
15	1:01:00	014	31	47	182.389	382055.161	6454445.212	-32.040033	115.750814	382054.89	6454444.77	0.28	0.44
16	1:02:00	014	31	18	182.354	382055.129	6454445.241	-32.040030	115.750814	382054.88	6454445.10	0.25	0.14
17	1:03:00	014	30	49	182.376	382055.153	6454445.264	-32.040031	115.750814	382054.88	6454444.99	0.27	0.27
18	1:04:00	014	29	52	182.435	382055.216	6454445.310	-32.040031	115.750816	382055.07	6454444.99	0.14	0.32
19	1:05:00	014	31	25	182.397	382055.170	6454445.231	-32.040033	115.750815	382054.98	6454444.77	0.19	0.46
20	1:06:00	014	31	25	183.382	382056.153	6454445.152	-32.040032	115.750815	382054.98	6454444.88	1.17	0.27
21	1:07:00	014	30	59	183.384	382056.156	6454445.175	-32.040032	115.750816	382055.07	6454444.88	1.08	0.29
22	1:08:00	014	31	54	182.382	382055.153	6454445.207	-32.040031	115.750815	382054.98	6454444.99	0.18	0.22
23	1:09:00	014	30	47	182.419	382055.196	6454445.263	-32.040030	115.750817	382055.16	6454445.10	0.03	0.16
24	1:10:00	014	30	46	182.406	382055.183	6454445.265	-32.040029	115.750816	382055.07	6454445.21	0.11	0.05
25	1:11:00	014	30	25	182.386	382055.164	6454445.285	-32.040031	115.750818	382055.26	6454444.99	-0.10	0.29
26	1:12:00	014	29	30	182.368	382055.150	6454445.335	-32.040032	115.750819	382055.36	6454444.88	-0.21	0.45

27	1:13:00	014	30	40	182.424	382055.201	6454445.268	-32.040032	115.750821	382055.54	6454444.89	-0.34	0.38
28	1:14:00	014	31	47	182.427	382055.200	6454445.209	-32.040032	115.750821	382055.54	6454444.89	-0.34	0.32
29	1:15:00	014	31	10	182.402	382055.177	6454445.244	-32.040032	115.750819	382055.36	6454444.88	-0.18	0.36
30	1:16:00	014	31	16	182.342	382055.117	6454445.243	-32.040032	115.750819	382055.36	6454444.88	-0.24	0.36



Static DGPS Verification - Single Total Station Method

Fugro Job Number:	P0452	Wharf:	Berth 11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Antenna	V1G3
Time Zone :	UTC + 8		

Geodesy			
Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.2572	False Easting	500000
Datum	WGS84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details				Prism Offsets to DGPS System	
<i>Instrument Station:</i>	13N	Easting (m):	381873.59	Y:	-0.23
<i>Instrument Type :</i>	Topcon GTS-211D	Northing (m):	6454460.45	X:	-4.50
<i>Instrument Serial No. :</i>	136777	AHD Height (m):	0.00	Offset Convention	
<i>Backsight Station (RO) :</i>	14N	Easting (m):	382035.05		
		Northing (m):	6454488.72		
		AHD Height (m):	0.00		

Calculated Grid Bearing to RO :	080° 04' 8.78"	Correction to Gyro from Cal.
Calculated Convergence :	-000° 39' 49.66"		Corrn. : -0.36°

Observations To:	V1G3			Easting (m):	381819.32
<i>Backsight Observation (Set to) :</i>	0°	0'	0'	<i>CHECK Backsight Station (RO) :</i>	Northing (m): 6454450.95
<i>Check Backsight:</i>	180°	0'	05		AHD Height (m): 0.00

Obs	Time (hh:mm:ss)	Observed Distance (m)	Observed Direction (DMS)			Positioning System DGPS Co-ordinates		Vessel Heading
						Latitude	Longitude	
1	8:14:00	162.944	015	59	11	-32.040084	115.750616	261.1
2	8:15:00	162.951	015	59	27	-32.040084	115.750617	261.2
3	8:16:00	162.959	015	56	01	-32.040082	115.750617	261.3
4	8:17:00	162.944	015	59	47	-32.040084	115.750616	261.2
5	8:18:00	162.959	015	58	27	-32.040083	115.750616	261.2
6	8:19:00	162.911	015	58	45	-32.040083	115.750616	261.2
7	8:20:00	162.944	015	59	17	-32.040084	115.750616	261.2
8	8:21:00	162.905	015	59	10	-32.040084	115.750616	261.1
9	8:22:00	162.905	015	58	27	-32.040083	115.750616	261.1
10	8:23:00	162.891	015	59	19	-32.040083	115.750616	261.2
11	8:24:00	162.914	015	59	58	-32.040084	115.750616	261.3
12	8:25:00	162.956	015	59	59	-32.040084	115.750616	261.1
13	8:26:00	162.924	016	00	33	-32.040084	115.750616	261.2
14	8:27:00	162.931	016	02	17	-32.040085	115.750616	261.3
15	8:28:00	162.975	016	00	07	-32.040084	115.750616	261.1
16	8:29:00	162.931	016	01	35	-32.040084	115.750615	261.1
17	8:30:00	162.920	016	02	37	-32.040085	115.750616	261.3
18	8:31:00	162.999	016	01	22	-32.040085	115.750616	261.1
19	8:32:00	162.944	016	03	02	-32.040085	115.750615	261.2
20	8:33:00	162.969	016	02	28	-32.040085	115.750616	261.4
21	8:34:00	162.913	016	00	54	-32.040084	115.750616	261.2
22	8:35:00	162.926	016	01	31	-32.040085	115.750615	261.3
23	8:36:00	162.992	016	03	21	-32.040085	115.750616	261.4
24	8:37:00	162.948	016	02	02	-32.040085	115.750616	261.2
25	8:38:00	162.951	016	01	42	-32.040084	115.750616	261.3
26	8:39:00	162.970	016	02	40	-32.040085	115.750616	261.3
27	8:40:00	162.912	016	00	08	-32.040084	115.750616	261.2
28	8:41:00	162.954	016	00	15	-32.040084	115.750616	261.2
29	8:42:00	162.919	016	00	18	-32.040084	115.750615	261.3

Obs	Time (hh:mm:ss)	Observed Distance (m)	Observed Direction (DMS)			Positioning System DGPS Co-ordinates		Vessel Heading
						Latitude	Longitude	
30	8:43:00	162.968	015	57	13	-32.040083	115.750616	261.3

Signature



 SURVEYOR/PARTY CHIEF



Static DGPS Verification - Single Total Station Method

Fugro Job Number: P0452	Wharf: Berth 11 North Fremantle Wharf	Geodesy
Job Description: Calibration	Vessel: Veritas Viking II	Spheroid WGS84
Client: Veritas	Date: 21 April 2006	Datum WGS84
Surveyor: M. Yorath & A. Hamilton	DGPS : V1G3	Projection UTM
Time Zone : UTC + 8	Serial No.: 136777	Central Meridia 117

Observations To: V1G3	RESULTS :	MEAN	C-O	C-O
Signature  SURVEYOR/PARTY CHIEF			East(m)	North(m)
	Linear Misclose: 0.23	SD	0.197	-0.108
			0.041	0.035

Obs	Time (hh:mm:ss)	Observed Direction (DMS)			Observed Distance (m)	Calculated Co-ordinates of DGPS Antenna		Observed Position of DGPS Antenna		Positioning System DGPS Co-ordinates		C-O East	C-O North
						Easting (m)	Northing (m)	Latitude	Longitude	Easting (m)	Northing (m)		
1	8:14:00	015	59	11	162.944	382036.464	6454438.841	-32.040084	115.750616	382036.25	6454438.90	0.21	-0.06
2	8:15:00	015	59	27	162.951	382036.462	6454438.826	-32.040084	115.750617	382036.35	6454438.90	0.11	-0.07
3	8:16:00	015	56	01	162.959	382036.479	6454438.986	-32.040082	115.750617	382036.35	6454439.12	0.13	-0.14
4	8:17:00	015	59	47	162.944	382036.453	6454438.811	-32.040084	115.750616	382036.25	6454438.90	0.20	-0.09
5	8:18:00	015	58	27	162.959	382036.475	6454438.873	-32.040083	115.750616	382036.25	6454439.01	0.22	-0.14
6	8:19:00	015	58	45	162.911	382036.426	6454438.863	-32.040083	115.750616	382036.25	6454439.01	0.17	-0.15
7	8:20:00	015	59	17	162.944	382036.456	6454438.835	-32.040084	115.750616	382036.25	6454438.90	0.20	-0.06
8	8:21:00	015	59	10	162.905	382036.425	6454438.846	-32.040084	115.750616	382036.25	6454438.90	0.17	-0.05
9	8:22:00	015	58	27	162.905	382036.429	6454438.880	-32.040083	115.750616	382036.25	6454439.01	0.18	-0.13
10	8:23:00	015	59	19	162.891	382036.403	6454438.839	-32.040083	115.750616	382036.25	6454439.01	0.15	-0.17
11	8:24:00	015	59	58	162.914	382036.415	6454438.804	-32.040084	115.750616	382036.25	6454438.90	0.16	-0.09
12	8:25:00	015	59	59	162.956	382036.472	6454438.802	-32.040084	115.750616	382036.25	6454438.90	0.22	-0.10
13	8:26:00	016	00	33	162.924	382036.430	6454438.777	-32.040084	115.750616	382036.25	6454438.90	0.18	-0.12
14	8:27:00	016	02	17	162.931	382036.420	6454438.693	-32.040085	115.750616	382036.26	6454438.79	0.16	-0.09
15	8:28:00	016	00	07	162.975	382036.490	6454438.794	-32.040084	115.750616	382036.25	6454438.90	0.24	-0.10
16	8:29:00	016	01	35	162.931	382036.439	6454438.729	-32.040084	115.750615	382036.16	6454438.90	0.28	-0.17
17	8:30:00	016	02	37	162.920	382036.408	6454438.679	-32.040085	115.750616	382036.26	6454438.79	0.15	-0.11
18	8:31:00	016	01	22	162.999	382036.508	6454438.732	-32.040085	115.750616	382036.26	6454438.79	0.25	-0.05
19	8:32:00	016	03	02	162.944	382036.437	6454438.658	-32.040085	115.750615	382036.16	6454438.79	0.28	-0.13
20	8:33:00	016	02	28	162.969	382036.449	6454438.679	-32.040085	115.750616	382036.26	6454438.79	0.19	-0.11
21	8:34:00	016	00	54	162.913	382036.417	6454438.762	-32.040084	115.750616	382036.25	6454438.90	0.16	-0.14
22	8:35:00	016	01	31	162.926	382036.419	6454438.730	-32.040085	115.750615	382036.16	6454438.79	0.26	-0.06
23	8:36:00	016	03	21	162.992	382036.468	6454438.635	-32.040085	115.750616	382036.26	6454438.79	0.21	-0.15
24	8:37:00	016	02	02	162.948	382036.446	6454438.705	-32.040085	115.750616	382036.26	6454438.79	0.19	-0.08
25	8:38:00	016	01	42	162.951	382036.443	6454438.719	-32.040084	115.750616	382036.25	6454438.90	0.19	-0.18
26	8:39:00	016	02	40	162.970	382036.457	6454438.671	-32.040085	115.750616	382036.26	6454438.79	0.20	-0.12

27	8:40:00	016	00	08	162.912	382036.420	6454438.798	-32.040084	115.750616	382036.25	6454438.90	0.17	-0.10
28	8:41:00	016	00	15	162.954	382036.461	6454438.788	-32.040084	115.750616	382036.25	6454438.90	0.21	-0.11
29	8:42:00	016	00	18	162.919	382036.418	6454438.788	-32.040084	115.750615	382036.16	6454438.90	0.26	-0.11
30	8:43:00	015	57	13	162.968	382036.482	6454438.928	-32.040083	115.750616	382036.25	6454439.01	0.23	-0.08

APPENDIX D
VESSEL NAVIGATION OFFSETS

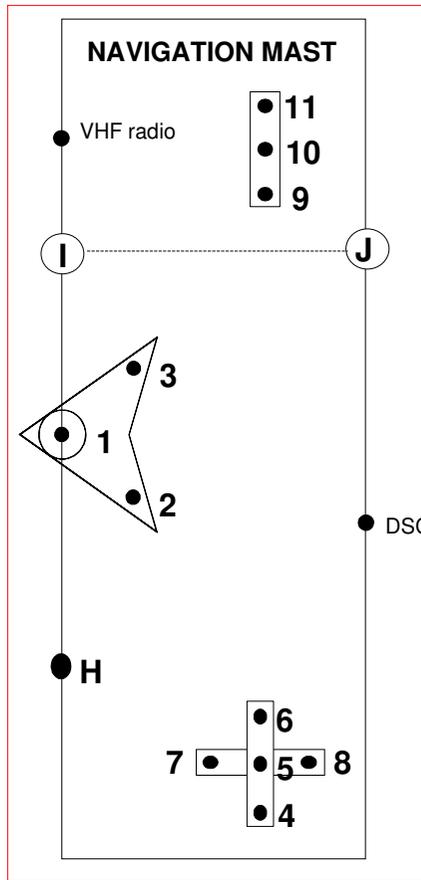


Antenna Offsets

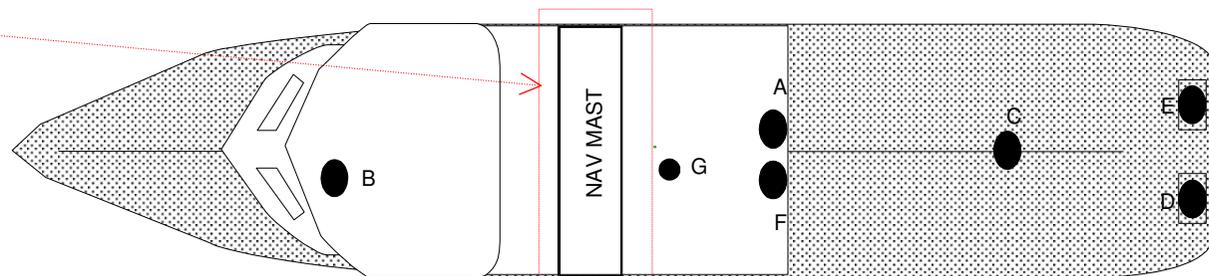
Esso Australia Pty Ltd – 2006 Bream 3D

VERITAS DGC Asia Pacific

www.veritasdgc.com



KEY : (all measurements in metres)	LATERAL OFFSET	INLINE OFFSET	HEIGHT
• V1G1 VERIPOS DGPS – SYSTEM 1	0.00	0.00	+28.00
• V1R1 STORM BUOYLINK GPS	-0.56	-0.28	+28.00
• V1G2 VERIPOS DGPS – SYSTEM 2	0.58	-0.28	+28.00
• RTNU GPS (PPS TIMING)	-4.87	-0.70	+26.00
• EMPTY	-4.40	-0.70	+26.00
• VERIPOS RTCM	-3.93	-0.70	+26.00
• V1G3 C-NAV DGPS	-4.40	-0.23	+26.00
• EMPTY	-4.40	-1.17	+26.00
• EMPTY	3.93	-0.70	+26.00
• STORM BUOYLINK TELEMETRY	4.40	-0.70	+26.00
• EMPTY	4.87	-0.70	+26.00
A EMPTY	0.80	-13.07	-8.00
B V1E1 DEPTH SOUNDER TRANSDUCER	-0.78	26.50	-6.20
C EMPTY	-0.42	-39.67	+10.11
D EMPTY	-3.13	-56.25	+9.40
E EMPTY	3.13	-56.25	+9.40
F DOPPLER SPEED LOG	-0.80	-13.07	-8.00
G GRAVITY METER (N/A)	-0.20	-4.10	+2.45
H RTNU GPS (PPS TIMING)-SPARE	-3.50	0.00	+22.00
I/J EMPTY	+3.50	0.00/-1.2	+22.00



VESSEL :	SR/V Veritas Viking 2	FROM DATE :	XX-APR-2006	Not to scale Measurements in metres	M Boon - Geo Supervisor	Page 7
CLIENT :	Esso Australia Pty. Ltd.	TO DATE :	XX-XXX-2006		GS: <i>Print</i> <i>Sign</i>	Created: XX-APR-06
AREA :	2006 Greater Bream 3D	FROM SEQ :	1		Onboard Representative	
JOB # :	20323	TO SEQ :	XXX		Client: <i>Print</i> <i>Sign</i>	NavDef #03

APPENDIX E
GYRO CALIBRATIONS



Gyrocompass Calibration - Dual Total Station Method

Fugro Job Number:	P0452	Wharf:	Berth 11 North Fremantle Wharf
Job Description:	Port Gyro Calibration: 261deg	Vessel:	Veritas Viking II
Client:	Veritas	Observation Date :	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Gyro Type:	SG Brown
Time Zone :	UTC + 8	Serial No.:	Port

Geodesy

Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.2572236	False Easting	500000
Datum	WGS84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details

Bow	ID	Easting	Northing	AHD Height		
Instrument Station	13N	381 873.59	6 454 460.45	0.00	Instrument Type	Topcon GTS-211D
Backsight Station	14N	382 035.05	6 454 488.72	0.00	Instrument Serial No. :	136777

Stern						
Instrument Station	TB11-C	382 105.94	6 454 467.49	0.00	Instrument Type	Topcon GTS-225
Backsight Station	14N	382 035.05	6 454 488.72	0.00	Instrument Serial No. :	136340

Calculated Grid Bearing (Bow RO):	80	04	08
Calculated Grid Bearing (Stern RO) :	286	40	18
Calculated Grid Convergence :	000	39	50

Gyrocompass Observations

Bow Backsight Observation:	0	00	00
Stern Backsight Observation :	0	00	00

Obs	Time	Observation Point	Observed Direction (DMS)			Observed Distance (m)	Observed Heading
1	7:30:00	Bow	020	44	34	128.370	261.50
2	7:30:00	Stern	296	38	13	21.547	261.50
3	7:31:00	Bow	020	43	46	128.330	261.40
4	7:31:00	Stern	296	54	12	21.449	261.40
5	7:32:00	Bow	020	47	05	128.412	261.20
6	7:32:00	Stern	297	01	39	21.441	261.20
7	7:33:00	Bow	020	45	52	128.385	261.40
8	7:33:00	Stern	296	40	18	21.549	261.40
9	7:34:00	Bow	020	44	35	128.357	261.30
10	7:34:00	Stern	297	16	48	21.378	261.30
11	7:35:00	Bow	020	47	50	128.404	261.20
12	7:35:00	Stern	297	14	05	21.394	261.20
13	7:36:00	Bow	020	46	26	128.418	261.30
14	7:36:00	Stern	296	48	17	21.472	261.30
15	7:37:00	Bow	020	46	34	128.384	261.20
16	7:37:00	Stern	297	25	49	21.331	261.20
17	7:38:00	Bow	020	45	47	128.408	261.30
18	7:38:00	Stern	296	50	7	21.482	261.30
19	7:39:00	Bow	020	47	24	128.389	261.30
20	7:39:00	Stern	297	33	49	21.273	261.30
21	7:40:00	Bow	020	46	52	128.394	261.10
22	7:40:00	Stern	297	52	48	21.226	261.10
23	7:41:00	Bow	020	46	34	128.418	261.20
24	7:41:00	Stern	297	06	10	21.404	261.20
25	7:42:00	Bow	020	48	18	128.433	261.30
26	7:42:00	Stern	296	57	29	21.431	261.30

Obs	Time	Observation Point	Observed Direction (DMS)			Observed Distance (m)	Observed Heading
27	7:43:00	Bow	020	45	44	128.394	261.30
28	7:43:00	Stern	297	12	32	21.391	261.30
29	7:44:00	Bow	020	47	58	128.443	261.30
30	7:44:00	Stern	297	00	04	21.428	261.30
31	7:45:00	Bow	020	48	38	128.462	261.30
32	7:45:00	Stern	296	38	50	21.491	261.30
33	7:46:00	Bow	020	49	9	128.441	261.20
34	7:46:00	Stern	296	57	34	21.460	261.20
35	7:47:00	Bow	020	50	33	128.507	261.30
36	7:47:00	Stern	296	40	45	21.492	261.30
37	7:48:00	Bow	020	49	58	128.451	261.20
38	7:48:00	Stern	296	55	9	21.444	261.20
39	7:49:00	Bow	020	49	55	128.473	261.30
40	7:49:00	Stern	296	48	24	21.473	261.30
41	7:50:00	Bow	020	50	46	128.499	261.30
42	7:50:00	Stern	296	27	44	21.547	261.30
43	7:51:00	Bow	020	54	01	128.516	261.20
44	7:51:00	Stern	296	47	05	21.506	261.20
45	7:52:00	Bow	020	52	05	128.506	261.30
46	7:52:00	Stern	296	28	19	21.538	261.30
47	7:53:00	Bow	020	52	10	128.502	261.30
48	7:53:00	Stern	296	40	02	21.498	261.30
49	7:54:00	Bow	020	52	48	128.515	261.30
50	7:54:00	Stern	296	35	52	21.532	261.30
51	7:55:00	Bow	020	49	38	128.503	261.40
52	7:55:00	Stern	296	22	21	21.446	261.40
53	7:56:00	Bow	020	50	17	128.465	261.30
54	7:56:00	Stern	296	42	29	21.502	261.30
55	7:57:00	Bow	020	50	30	128.485	261.20
56	7:57:00	Stern	296	45	40	21.479	261.20
57	7:58:00	Bow	020	51	51	128.492	261.20
58	7:58:00	Stern	297	3	43	21.411	261.20
59	7:59:00	Bow	020	51	14	128.479	261.30
60	7:59:00	Stern	296	40	14	21.524	261.30

Signature


 SURVEYOR/PARTY CHIEF

Date 2/04/06

Fugro Survey Pty Ltd



FSHY31-4

GYROCOMPASS CALIBRATION - DUAL TOTAL STATION METHOD

Fugro Job Number:	P0452	Wharf:	Berth 11 North Fremantle Wharf
Job Description:	Port Gyro Calibration: 261deg Hdg	Vessel:	Veritas Viking II
Client:	Veritas	Observation Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Gyro :	SG Brown
Time Zone :	UTC + 8	Serial No.:	Port

Geodesy

Spheroid	WGS84	Projection	UTM	Zone	50
Datum	WGS84	Central Meridian	117		

Results

Obs	Time UTC (hh:mm:ss)	Obs Point	Observed Direction (DMS)			Observed Distance (m)	Plane Bearing			Plane Distance (m)	Calculated Coordinates		Calc True	Obs True Heading	C-O
											Easting	Northing			
1	7:30:00	Bow	020	44	34	128.370	100	48	42	128.341	381999.65	6454436.38	261.09	261.50	-0.41
2	7:30:00	Stern	296	38	13	21.547	223	18	31	21.542	382091.16	6454451.81			
3	7:31:00	Bow	020	43	46	128.330	100	47	54	128.301	381999.62	6454436.41	261.03	261.40	-0.37
4	7:31:00	Stern	296	54	12	21.449	223	34	30	21.444	382091.16	6454451.95			
5	7:32:00	Bow	020	47	05	128.412	100	51	13	128.383	381999.68	6454436.28	260.91	261.20	-0.29
6	7:32:00	Stern	297	01	39	21.441	223	41	57	21.436	382091.13	6454451.99			
7	7:33:00	Bow	020	45	52	128.385	100	49	60	128.356	381999.66	6454436.33	261.05	261.40	-0.35
8	7:33:00	Stern	296	40	18	21.549	223	20	36	21.544	382091.15	6454451.82			
9	7:34:00	Bow	020	44	35	128.357	100	48	43	128.328	381999.64	6454436.38	260.91	261.30	-0.39
10	7:34:00	Stern	297	16	48	21.378	223	57	06	21.373	382091.11	6454452.10			
11	7:35:00	Bow	020	47	50	128.404	100	51	58	128.375	381999.66	6454436.25	260.84	261.20	-0.36
12	7:35:00	Stern	297	14	05	21.394	223	54	23	21.389	382091.11	6454452.08			
13	7:36:00	Bow	020	46	26	128.418	100	50	34	128.389	381999.69	6454436.30	260.98	261.30	-0.32
14	7:36:00	Stern	296	48	17	21.472	223	28	35	21.467	382091.17	6454451.91			
15	7:37:00	Bow	020	46	34	128.384	100	50	42	128.355	381999.65	6454436.30	260.81	261.20	-0.39
16	7:37:00	Stern	297	25	49	21.331	224	06	07	21.326	382091.10	6454452.18			
17	7:38:00	Bow	020	45	47	128.408	100	49	55	128.379	381999.68	6454436.32	260.99	261.30	-0.31
18	7:38:00	Stern	296	50	07	21.482	223	30	25	21.477	382091.15	6454451.91			
19	7:39:00	Bow	020	47	24	128.389	100	51	32	128.360	381999.65	6454436.27	260.75	261.30	-0.55
20	7:39:00	Stern	297	33	49	21.273	224	14	07	21.268	382091.10	6454452.25			
21	7:40:00	Bow	020	46	52	128.394	100	50	60	128.365	381999.66	6454436.29	260.68	261.10	-0.42
22	7:40:00	Stern	297	52	48	21.226	224	33	06	21.221	382091.05	6454452.37			
23	7:41:00	Bow	020	46	34	128.418	100	50	42	128.389	381999.69	6454436.29	260.89	261.20	-0.31
24	7:41:00	Stern	297	06	10	21.404	223	46	28	21.399	382091.14	6454452.04			
25	7:42:00	Bow	020	48	18	128.433	100	52	26	128.404	381999.69	6454436.23	260.89	261.30	-0.41

26	7:42:00	Stern	296	57	29	21.431	223	37	47	21.426	382091.16	6454451.98			
27	7:43:00	Bow	020	45	44	128.394	100	49	52	128.365	381999.67	6454436.33	260.89	261.30	-0.41
28	7:43:00	Stern	297	12	32	21.391	223	52	50	21.386	382091.12	6454452.08			
29	7:44:00	Bow	020	47	58	128.443	100	52	06	128.414	381999.70	6454436.24	260.89	261.30	-0.41
30	7:44:00	Stern	297	00	04	21.428	223	40	22	21.423	382091.15	6454451.99			
31	7:45:00	Bow	020	48	38	128.462	100	52	46	128.433	381999.71	6454436.21	260.96	261.30	-0.34
32	7:45:00	Stern	296	38	50	21.491	223	19	08	21.486	382091.20	6454451.86			
33	7:46:00	Bow	020	49	09	128.441	100	53	17	128.412	381999.69	6454436.19	260.88	261.20	-0.32
34	7:46:00	Stern	296	57	34	21.460	223	37	52	21.455	382091.14	6454451.96			
35	7:47:00	Bow	020	50	33	128.507	100	54	41	128.478	381999.74	6454436.13	260.90	261.30	-0.40
36	7:47:00	Stern	296	40	45	21.492	223	21	03	21.487	382091.19	6454451.87			
37	7:48:00	Bow	020	49	58	128.451	100	54	06	128.422	381999.69	6454436.16	260.86	261.20	-0.34
38	7:48:00	Stern	296	55	09	21.444	223	35	27	21.439	382091.16	6454451.96			
39	7:49:00	Bow	020	49	55	128.473	100	54	03	128.444	381999.72	6454436.16	260.89	261.30	-0.41
40	7:49:00	Stern	296	48	24	21.473	223	28	42	21.468	382091.17	6454451.91			
41	7:50:00	Bow	020	50	46	128.499	100	54	54	128.470	381999.74	6454436.12	260.96	261.30	-0.34
42	7:50:00	Stern	296	27	44	21.547	223	08	02	21.542	382091.21	6454451.77			
43	7:51:00	Bow	020	54	01	128.516	100	58	09	128.487	381999.73	6454436.00	260.81	261.20	-0.39
44	7:51:00	Stern	296	47	05	21.506	223	27	23	21.501	382091.15	6454451.88			
45	7:52:00	Bow	020	52	05	128.506	100	56	13	128.477	381999.73	6454436.07	260.92	261.30	-0.38
46	7:52:00	Stern	296	28	19	21.538	223	08	37	21.533	382091.22	6454451.78			
47	7:53:00	Bow	020	52	10	128.502	100	56	18	128.473	381999.73	6454436.07	260.87	261.30	-0.43
48	7:53:00	Stern	296	40	02	21.498	223	20	20	21.493	382091.19	6454451.86			
49	7:54:00	Bow	020	52	48	128.515	100	56	56	128.486	381999.74	6454436.05	260.88	261.30	-0.42
50	7:54:00	Stern	296	35	52	21.532	223	16	10	21.527	382091.18	6454451.82			
51	7:55:00	Bow	020	49	38	128.503	100	53	46	128.474	381999.75	6454436.17	260.96	261.40	-0.44
52	7:55:00	Stern	296	22	21	21.446	223	02	39	21.441	382091.31	6454451.82			
53	7:56:00	Bow	020	50	17	128.465	100	54	25	128.436	381999.71	6454436.15	260.91	261.30	-0.39
54	7:56:00	Stern	296	42	29	21.502	223	22	47	21.497	382091.18	6454451.87			
55	7:57:00	Bow	020	50	30	128.485	100	54	38	128.456	381999.72	6454436.14	260.89	261.20	-0.31
56	7:57:00	Stern	296	45	40	21.479	223	25	58	21.474	382091.18	6454451.90			
57	7:58:00	Bow	020	51	51	128.492	100	55	59	128.463	381999.72	6454436.09	260.77	261.20	-0.43
58	7:58:00	Stern	297	03	43	21.411	223	44	01	21.406	382091.14	6454452.02			
59	7:59:00	Bow	020	51	14	128.479	100	55	22	128.450	381999.71	6454436.11	260.90	261.30	-0.40
60	7:59:00	Stern	296	40	14	21.524	223	20	32	21.519	382091.17	6454451.84			

Mean C-O	-0.38
SD	0.05

Signature


 SURVEYOR/PARTY CHIEF

Date





Gyrocompass Calibration - Dual Total Station Method

Fugro Job Number:	P0452	Wharf:	Berth 11 North Fremantle Wharf
Job Description:	Stbd Gyro Calibration: 261deg	Vessel:	Veritas Viking II
Client:	Veritas	Observation Date :	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Gyro Type:	SG Brown
Time Zone :	UTC + 8	Serial No.:	Starboard

Geodesy

Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.2572236	False Easting	500000
Datum	WGS84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details

Bow	ID	Easting	Northing	AHD Height		
Instrument Station	13N	381 873.59	6 454 460.45	0.00	Instrument Type	Topcon GTS-211D
Backsight Station	14N	382 035.05	6 454 488.72	0.00	Instrument Serial No. :	136777

Stern						
Instrument Station	TB11-C	382 105.94	6 454 467.49	0.00	Instrument Type	Topcon GTS-225
Backsight Station	14N	382 035.05	6 454 488.72	0.00	Instrument Serial No. :	136340

Calculated Grid Bearing (Bow RO):	80	04	08
Calculated Grid Bearing (Stern RO) :	286	40	18
Calculated Grid Convergence :	000	39	50

Gyrocompass Observations

Bow Backsight Observation:	0	00	00
Stern Backsight Observation :	0	00	00

Obs	Time	Observation Point	Observed Direction (DMS)			Observed Distance (m)	Observed Heading
1	7:30:00	Bow	020	44	34	128.370	261.30
2	7:30:00	Stern	296	38	13	21.547	261.30
3	7:31:00	Bow	020	43	46	128.330	261.20
4	7:31:00	Stern	296	54	12	21.449	261.20
5	7:32:00	Bow	020	47	05	128.412	261.10
6	7:32:00	Stern	297	01	39	21.441	261.10
7	7:33:00	Bow	020	45	52	128.385	261.30
8	7:33:00	Stern	296	40	18	21.549	261.30
9	7:34:00	Bow	020	44	35	128.357	261.10
10	7:34:00	Stern	297	16	48	21.378	261.10
11	7:35:00	Bow	020	47	50	128.404	261.10
12	7:35:00	Stern	297	14	05	21.394	261.10
13	7:36:00	Bow	020	46	26	128.418	261.20
14	7:36:00	Stern	296	48	17	21.472	261.20
15	7:37:00	Bow	020	46	34	128.384	261.00
16	7:37:00	Stern	297	25	49	21.331	261.00
17	7:38:00	Bow	020	45	47	128.408	261.20
18	7:38:00	Stern	296	50	7	21.482	261.20
19	7:39:00	Bow	020	47	24	128.389	261.10
20	7:39:00	Stern	297	33	49	21.273	261.10
21	7:40:00	Bow	020	46	52	128.394	260.90
22	7:40:00	Stern	297	52	48	21.226	260.90
23	7:41:00	Bow	020	46	34	128.418	261.10
24	7:41:00	Stern	297	06	10	21.404	261.10
25	7:42:00	Bow	020	48	18	128.433	261.10
26	7:42:00	Stern	296	57	29	21.431	261.10
27	7:43:00	Bow	020	45	44	128.394	261.10

Obs	Time	Observation Point	Observed Direction (DMS)			Observed Distance (m)	Observed Heading
28	7:43:00	Stern	297	12	32	21.391	261.10
29	7:44:00	Bow	020	47	58	128.443	261.10
30	7:44:00	Stern	297	00	04	21.428	261.10
31	7:45:00	Bow	020	48	38	128.462	261.20
32	7:45:00	Stern	296	38	50	21.491	261.20
33	7:46:00	Bow	020	49	9	128.441	261.10
34	7:46:00	Stern	296	57	34	21.460	261.10
35	7:47:00	Bow	020	50	33	128.507	261.10
36	7:47:00	Stern	296	40	45	21.492	261.10
37	7:48:00	Bow	020	49	58	128.451	261.10
38	7:48:00	Stern	296	55	9	21.444	261.10
39	7:49:00	Bow	020	49	55	128.473	261.10
40	7:49:00	Stern	296	48	24	21.473	261.10
41	7:50:00	Bow	020	50	46	128.499	261.20
42	7:50:00	Stern	296	27	44	21.547	261.20
43	7:51:00	Bow	020	54	01	128.516	261.00
44	7:51:00	Stern	296	47	05	21.506	261.00
45	7:52:00	Bow	020	52	05	128.506	261.20
46	7:52:00	Stern	296	28	19	21.538	261.20
47	7:53:00	Bow	020	52	10	128.502	261.10
48	7:53:00	Stern	296	40	02	21.498	261.10
49	7:54:00	Bow	020	52	48	128.515	261.10
50	7:54:00	Stern	296	35	52	21.532	261.10
51	7:55:00	Bow	020	49	38	128.503	261.20
52	7:55:00	Stern	296	22	21	21.446	261.20
53	7:56:00	Bow	020	50	17	128.465	261.10
54	7:56:00	Stern	296	42	29	21.502	261.10
55	7:57:00	Bow	020	50	30	128.485	261.10
56	7:57:00	Stern	296	45	40	21.479	261.10
57	7:58:00	Bow	020	51	51	128.492	261.00
58	7:58:00	Stern	297	3	43	21.411	261.00
59	7:59:00	Bow	020	51	14	128.479	261.10
60	7:59:00	Stern	296	40	14	21.524	261.10

Signature


 SURVEYOR/PARTY CHIEF

Date 2/10/06

Fugro Survey Pty Ltd



FSHY31-4

GYROCOMPASS CALIBRATION - DUAL TOTAL STATION METHOD

Fugro Job Number:	P0452	Wharf:	Berth 11 North Fremantle Wharf
Job Description:	Stbd Gyro Calibration: 261deg Hdg	Vessel:	Veritas Viking II
Client:	Veritas	Observation Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Gyro :	SG Brown
Time Zone :	UTC + 8	Serial No.:	Starboard

Geodesy

Spheroid	WGS84	Projection	UTM	Zone	50
Datum	WGS84	Central Meridian	117		

Results

Obs	Time UTC (hh:mm:ss)	Obs Point	Observed Direction (DMS)			Observed Distance (m)	Plane Bearing			Plane Distance (m)	Calculated Coordinates		Calc True	Obs True Heading	C-O
											Easting	Northing			
1	7:30:00	Bow	020	44	34	128.370	100	48	42	128.341	381999.65	6454436.38	261.09	261.30	-0.21
2	7:30:00	Stern	296	38	13	21.547	223	18	31	21.542	382091.16	6454451.81			
3	7:31:00	Bow	020	43	46	128.330	100	47	54	128.301	381999.62	6454436.41	261.03	261.20	-0.17
4	7:31:00	Stern	296	54	12	21.449	223	34	30	21.444	382091.16	6454451.95			
5	7:32:00	Bow	020	47	05	128.412	100	51	13	128.383	381999.68	6454436.28	260.91	261.10	-0.19
6	7:32:00	Stern	297	01	39	21.441	223	41	57	21.436	382091.13	6454451.99			
7	7:33:00	Bow	020	45	52	128.385	100	49	60	128.356	381999.66	6454436.33	261.05	261.30	-0.25
8	7:33:00	Stern	296	40	18	21.549	223	20	36	21.544	382091.15	6454451.82			
9	7:34:00	Bow	020	44	35	128.357	100	48	43	128.328	381999.64	6454436.38	260.91	261.10	-0.19
10	7:34:00	Stern	297	16	48	21.378	223	57	06	21.373	382091.11	6454452.10			
11	7:35:00	Bow	020	47	50	128.404	100	51	58	128.375	381999.66	6454436.25	260.84	261.10	-0.26
12	7:35:00	Stern	297	14	05	21.394	223	54	23	21.389	382091.11	6454452.08			
13	7:36:00	Bow	020	46	26	128.418	100	50	34	128.389	381999.69	6454436.30	260.98	261.20	-0.22
14	7:36:00	Stern	296	48	17	21.472	223	28	35	21.467	382091.17	6454451.91			
15	7:37:00	Bow	020	46	34	128.384	100	50	42	128.355	381999.65	6454436.30	260.81	261.00	-0.19
16	7:37:00	Stern	297	25	49	21.331	224	06	07	21.326	382091.10	6454452.18			
17	7:38:00	Bow	020	45	47	128.408	100	49	55	128.379	381999.68	6454436.32	260.99	261.20	-0.21
18	7:38:00	Stern	296	50	07	21.482	223	30	25	21.477	382091.15	6454451.91			
19	7:39:00	Bow	020	47	24	128.389	100	51	32	128.360	381999.65	6454436.27	260.75	261.10	-0.35
20	7:39:00	Stern	297	33	49	21.273	224	14	07	21.268	382091.10	6454452.25			
21	7:40:00	Bow	020	46	52	128.394	100	50	60	128.365	381999.66	6454436.29	260.68	260.90	-0.22
22	7:40:00	Stern	297	52	48	21.226	224	33	06	21.221	382091.05	6454452.37			
23	7:41:00	Bow	020	46	34	128.418	100	50	42	128.389	381999.69	6454436.29	260.89	261.10	-0.21
24	7:41:00	Stern	297	06	10	21.404	223	46	28	21.399	382091.14	6454452.04			
25	7:42:00	Bow	020	48	18	128.433	100	52	26	128.404	381999.69	6454436.23	260.89	261.10	-0.21

Approved by the Operations Manager, 29-Mar-2005.

Note: To ensure this is the latest version check the Online BMS.

26	7:42:00	Stern	296	57	29	21.431	223	37	47	21.426	382091.16	6454451.98			
27	7:43:00	Bow	020	45	44	128.394	100	49	52	128.365	381999.67	6454436.33	260.89	261.10	-0.21
28	7:43:00	Stern	297	12	32	21.391	223	52	50	21.386	382091.12	6454452.08			
29	7:44:00	Bow	020	47	58	128.443	100	52	06	128.414	381999.70	6454436.24	260.89	261.10	-0.21
30	7:44:00	Stern	297	00	04	21.428	223	40	22	21.423	382091.15	6454451.99			
31	7:45:00	Bow	020	48	38	128.462	100	52	46	128.433	381999.71	6454436.21	260.96	261.20	-0.24
32	7:45:00	Stern	296	38	50	21.491	223	19	08	21.486	382091.20	6454451.86			
33	7:46:00	Bow	020	49	09	128.441	100	53	17	128.412	381999.69	6454436.19	260.88	261.10	-0.22
34	7:46:00	Stern	296	57	34	21.460	223	37	52	21.455	382091.14	6454451.96			
35	7:47:00	Bow	020	50	33	128.507	100	54	41	128.478	381999.74	6454436.13	260.90	261.10	-0.20
36	7:47:00	Stern	296	40	45	21.492	223	21	03	21.487	382091.19	6454451.87			
37	7:48:00	Bow	020	49	58	128.451	100	54	06	128.422	381999.69	6454436.16	260.86	261.10	-0.24
38	7:48:00	Stern	296	55	09	21.444	223	35	27	21.439	382091.16	6454451.96			
39	7:49:00	Bow	020	49	55	128.473	100	54	03	128.444	381999.72	6454436.16	260.89	261.10	-0.21
40	7:49:00	Stern	296	48	24	21.473	223	28	42	21.468	382091.17	6454451.91			
41	7:50:00	Bow	020	50	46	128.499	100	54	54	128.470	381999.74	6454436.12	260.96	261.20	-0.24
42	7:50:00	Stern	296	27	44	21.547	223	08	02	21.542	382091.21	6454451.77			
43	7:51:00	Bow	020	54	01	128.516	100	58	09	128.487	381999.73	6454436.00	260.81	261.00	-0.19
44	7:51:00	Stern	296	47	05	21.506	223	27	23	21.501	382091.15	6454451.88			
45	7:52:00	Bow	020	52	05	128.506	100	56	13	128.477	381999.73	6454436.07	260.92	261.20	-0.28
46	7:52:00	Stern	296	28	19	21.538	223	08	37	21.533	382091.22	6454451.78			
47	7:53:00	Bow	020	52	10	128.502	100	56	18	128.473	381999.73	6454436.07	260.87	261.10	-0.23
48	7:53:00	Stern	296	40	02	21.498	223	20	20	21.493	382091.19	6454451.86			
49	7:54:00	Bow	020	52	48	128.515	100	56	56	128.486	381999.74	6454436.05	260.88	261.10	-0.22
50	7:54:00	Stern	296	35	52	21.532	223	16	10	21.527	382091.18	6454451.82			
51	7:55:00	Bow	020	49	38	128.503	100	53	46	128.474	381999.75	6454436.17	260.96	261.20	-0.24
52	7:55:00	Stern	296	22	21	21.446	223	02	39	21.441	382091.31	6454451.82			
53	7:56:00	Bow	020	50	17	128.465	100	54	25	128.436	381999.71	6454436.15	260.91	261.10	-0.19
54	7:56:00	Stern	296	42	29	21.502	223	22	47	21.497	382091.18	6454451.87			
55	7:57:00	Bow	020	50	30	128.485	100	54	38	128.456	381999.72	6454436.14	260.89	261.10	-0.21
56	7:57:00	Stern	296	45	40	21.479	223	25	58	21.474	382091.18	6454451.90			
57	7:58:00	Bow	020	51	51	128.492	100	55	59	128.463	381999.72	6454436.09	260.77	261.00	-0.23
58	7:58:00	Stern	297	03	43	21.411	223	44	01	21.406	382091.14	6454452.02			
59	7:59:00	Bow	020	51	14	128.479	100	55	22	128.450	381999.71	6454436.11	260.90	261.10	-0.20
60	7:59:00	Stern	296	40	14	21.524	223	20	32	21.519	382091.17	6454451.84			
													Mean C-O		-0.22
													SD		0.03

Signature


SURVEYOR/PARTY CHIEF

Date

2/04/06



Gyrocompass Calibration - Dual Total Station Method

Fugro Job Number:	P0452	Wharf:	Berth 11 North Fremantle Wharf
Job Description:	Port Gyro Calibration: 81deg H	Vessel:	Veritas Viking II
Client:	Veritas	Observation Date :	22 April 2006
Surveyor:	M. Yorath & A. Hamilton	Gyro Type:	SG Brown
Time Zone :	UTC + 8	Serial No.:	Port

Geodesy

Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.2572236	False Easting	500000
Datum	WGS84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details

Bow	ID	Easting	Northing	AHD Height		
Instrument Station	TB11-C	382 105.94	6 454 467.49	0.00	Instrument Type	Topcon GTS-225
Backsight Station	14N	382 035.05	6 454 488.72	0.00	Instrument Serial No. :	136340

Stern	ID	Easting	Northing	AHD Height		
Instrument Station	13N	381 873.59	6 454 460.45	0.00	Instrument Type	Topcon GTS-211D
Backsight Station	14N	382 035.05	6 454 488.72	0.00	Instrument Serial No. :	136777

Calculated Grid Bearing (Bow RO):	286	40	18
Calculated Grid Bearing (Stern RO) :	80	04	08
Calculated Grid Convergence :	000	39	45

Gyrocompass Observations

Bow Backsight Observation:	0	00	00
Stern Backsight Observation :	0	00	00

Obs	Time	Observation Point	Observed Direction (DMS)			Observed Distance (m)	Observed Heading
1	1:55:00	Bow	296	45	23	20.994	81.10
2	1:55:00	Stern	020	49	51	128.844	81.10
3	1:56:00	Bow	296	51	22	21.081	81.10
4	1:56:00	Stern	020	49	23	128.852	81.10
5	1:57:00	Bow	296	47	47	21.088	81.10
6	1:57:00	Stern	020	47	50	128.852	81.10
7	1:58:00	Bow	296	40	06	20.989	81.10
8	1:58:00	Stern	020	46	36	128.931	81.10
9	2:00:00	Bow	296	45	40	21.007	81.00
10	2:00:00	Stern	020	47	06	128.907	81.00
11	2:01:00	Bow	296	42	10	21.096	81.10
12	2:01:00	Stern	020	47	07	128.850	81.10
13	2:02:00	Bow	296	54	56	21.006	81.00
14	2:02:00	Stern	020	47	25	128.864	81.00
15	2:03:00	Bow	296	53	55	21.016	81.00
16	2:03:00	Stern	020	46	55	128.854	81.00
17	2:04:00	Bow	296	57	2	21.006	81.00
18	2:04:00	Stern	020	47	47	128.875	81.00
19	2:05:00	Bow	296	54	54	21.039	81.00
20	2:05:00	Stern	020	47	37	128.851	81.00
21	2:06:00	Bow	296	40	04	21.013	81.00
22	2:06:00	Stern	020	48	36	128.839	81.00
23	2:07:00	Bow	296	44	58	21.013	81.10
24	2:07:00	Stern	020	46	34	128.881	81.10
25	2:08:00	Bow	296	39	12	21.012	81.10
26	2:08:00	Stern	020	46	19	128.914	81.10
27	2:09:00	Bow	296	47	15	20.933	81.00

Obs	Time	Observation Point	Observed Direction (DMS)			Observed Distance (m)	Observed Heading
28	2:09:00	Stern	020	46	49	128.964	81.00
29	2:10:00	Bow	296	39	01	20.969	81.00
30	2:10:00	Stern	020	47	19	128.971	81.00
31	2:11:00	Bow	296	49	42	20.959	81.00
32	2:11:00	Stern	020	47	27	128.930	81.00
33	2:12:00	Bow	296	46	48	20.983	81.00
34	2:12:00	Stern	020	45	55	128.896	81.00
35	2:13:00	Bow	296	49	48	20.960	81.00
36	2:13:00	Stern	020	46	53	128.928	81.00
37	2:14:00	Bow	296	39	57	21.047	81.10
38	2:14:00	Stern	020	46	12	128.904	81.10
39	2:15:00	Bow	296	43	6	20.967	81.00
40	2:15:00	Stern	020	46	37	128.936	81.00
41	2:16:00	Bow	296	50	58	20.984	81.00
42	2:16:00	Stern	020	47	32	128.906	81.00
43	2:17:00	Bow	296	37	25	21.009	81.00
44	2:17:00	Stern	020	47	03	128.940	81.00
45	2:18:00	Bow	296	34	18	21.044	81.10
46	2:18:00	Stern	020	46	51	128.931	81.10
47	2:19:00	Bow	296	28	13	20.999	81.00
48	2:19:00	Stern	020	47	48	129.004	81.00
49	2:20:00	Bow	296	46	15	20.925	80.90
50	2:20:00	Stern	020	48	34	129.003	80.90
51	2:21:00	Bow	296	43	24	20.974	81.00
52	2:21:00	Stern	020	47	03	128.953	81.00
53	2:22:00	Bow	296	40	24	20.953	81.00
54	2:22:00	Stern	020	46	55	128.963	81.00
55	2:23:00	Bow	296	43	39	21.055	81.00
56	2:23:00	Stern	020	47	11	128.895	81.00
57	2:24:00	Bow	296	45	45	21.019	81.00
58	2:24:00	Stern	020	47	12	128.919	81.00
59	2:26:00	Bow	296	48	13	20.948	80.90
60	2:26:00	Stern	020	48	23	128.950	80.90

Signature


 SURVEYOR/PARTY CHIEF

Date 22/04/06

Fugro Survey Pty Ltd



FSHY31-4

GYROCOMPASS CALIBRATION - DUAL TOTAL STATION METHOD

Fugro Job Number:	P0452	Wharf:	Berth 11 North Fremantle Wharf
Job Description:	Port Gyro Calibration: 81deg Hdg	Vessel:	Veritas Viking II
Client:	Veritas	Observation Date:	22 April 2006
Surveyor:	M. Yorath & A. Hamilton	Gyro :	SG Brown
Time Zone :	UTC + 8	Serial No.:	Port

Geodesy

Spheroid	WGS84	Projection	UTM	Zone	50
Datum	WGS84	Central Meridian	117		

Results

Obs	Time UTC (hh:mm:ss)	Obs Point	Observed Direction (DMS)			Observed Distance (m)	Plane Bearing			Plane Distance (m)	Calculated Coordinates		Calc True	Obs True Heading	C-O
											Easting	Northing			
1	1:55:00	Bow	296	45	23	20.994	223	25	41	20.989	382091.51	6454452.25	80.64	81.10	-0.46
2	1:55:00	Stern	020	49	51	128.844	100	53	59	128.815	382000.08	6454436.09			
3	1:56:00	Bow	296	51	22	21.081	223	31	40	21.076	382091.42	6454452.21	80.67	81.10	-0.43
4	1:56:00	Stern	020	49	23	128.852	100	53	31	128.823	382000.09	6454436.11			
5	1:57:00	Bow	296	47	47	21.088	223	28	05	21.083	382091.44	6454452.19	80.71	81.10	-0.39
6	1:57:00	Stern	020	47	50	128.852	100	51	58	128.823	382000.10	6454436.17			
7	1:58:00	Bow	296	40	06	20.989	223	20	24	20.984	382091.54	6454452.23	80.71	81.10	-0.39
8	1:58:00	Stern	020	46	36	128.931	100	50	44	128.902	382000.19	6454436.20			
9	2:00:00	Bow	296	45	40	21.007	223	25	58	21.002	382091.50	6454452.24	80.69	81.00	-0.31
10	2:00:00	Stern	020	47	06	128.907	100	51	14	128.878	382000.16	6454436.18			
11	2:01:00	Bow	296	42	10	21.096	223	22	28	21.091	382091.46	6454452.16	80.75	81.10	-0.35
12	2:01:00	Stern	020	47	07	128.850	100	51	15	128.821	382000.11	6454436.19			
13	2:02:00	Bow	296	54	56	21.006	223	35	14	21.001	382091.46	6454452.28	80.67	81.00	-0.33
14	2:02:00	Stern	020	47	25	128.864	100	51	33	128.835	382000.12	6454436.18			
15	2:03:00	Bow	296	53	55	21.016	223	34	13	21.011	382091.46	6454452.27	80.69	81.00	-0.31
16	2:03:00	Stern	020	46	55	128.854	100	51	03	128.825	382000.11	6454436.20			
17	2:04:00	Bow	296	57	02	21.006	223	37	20	21.001	382091.45	6454452.29	80.65	81.00	-0.35
18	2:04:00	Stern	020	47	47	128.875	100	51	55	128.846	382000.13	6454436.16			
19	2:05:00	Bow	296	54	54	21.039	223	35	12	21.034	382091.44	6454452.25	80.68	81.00	-0.32
20	2:05:00	Stern	020	47	37	128.851	100	51	45	128.822	382000.10	6454436.17			
21	2:06:00	Bow	296	40	04	21.013	223	20	22	21.008	382091.52	6454452.21	80.69	81.00	-0.31
22	2:06:00	Stern	020	48	36	128.839	100	52	44	128.810	382000.08	6454436.14			
23	2:07:00	Bow	296	44	58	21.013	223	25	16	21.008	382091.50	6454452.23	80.71	81.10	-0.39
24	2:07:00	Stern	020	46	34	128.881	100	50	42	128.852	382000.14	6454436.21			
25	2:08:00	Bow	296	39	12	21.012	223	19	30	21.007	382091.53	6454452.21	80.73	81.10	-0.37

Approved by the Operations Manager, 29-Mar-2005.

Note: To ensure this is the latest version check the Online BMS.

26	2:08:00	Stern	020	46	19	128.914	100	50	27	128.885	382000.17	6454436.21			
27	2:09:00	Bow	296	47	15	20.933	223	27	33	20.928	382091.54	6454452.30	80.65	81.00	-0.35
28	2:09:00	Stern	020	46	49	128.964	100	50	57	128.935	382000.22	6454436.18			
29	2:10:00	Bow	296	39	01	20.969	223	19	19	20.964	382091.56	6454452.24	80.68	81.00	-0.32
30	2:10:00	Stern	020	47	19	128.971	100	51	27	128.942	382000.22	6454436.16			
31	2:11:00	Bow	296	49	42	20.959	223	30	00	20.954	382091.52	6454452.29	80.65	81.00	-0.35
32	2:11:00	Stern	020	47	27	128.930	100	51	35	128.901	382000.18	6454436.16			
33	2:12:00	Bow	296	46	48	20.983	223	27	06	20.978	382091.51	6454452.26	80.71	81.00	-0.29
34	2:12:00	Stern	020	45	55	128.896	100	50	03	128.867	382000.16	6454436.23			
35	2:13:00	Bow	296	49	48	20.960	223	30	06	20.955	382091.51	6454452.29	80.66	81.00	-0.34
36	2:13:00	Stern	020	46	53	128.928	100	51	01	128.899	382000.18	6454436.19			
37	2:14:00	Bow	296	39	57	21.047	223	20	15	21.042	382091.50	6454452.19	80.74	81.10	-0.36
38	2:14:00	Stern	020	46	12	128.904	100	50	20	128.875	382000.17	6454436.22			
39	2:15:00	Bow	296	43	06	20.967	223	23	24	20.962	382091.54	6454452.26	80.69	81.00	-0.31
40	2:15:00	Stern	020	46	37	128.936	100	50	45	128.907	382000.19	6454436.19			
41	2:16:00	Bow	296	50	58	20.984	223	31	16	20.979	382091.49	6454452.28	80.66	81.00	-0.34
42	2:16:00	Stern	020	47	32	128.906	100	51	40	128.877	382000.16	6454436.17			
43	2:17:00	Bow	296	37	25	21.009	223	17	43	21.004	382091.54	6454452.20	80.71	81.00	-0.29
44	2:17:00	Stern	020	47	03	128.940	100	51	11	128.911	382000.19	6454436.18			
45	2:18:00	Bow	296	34	18	21.044	223	14	36	21.039	382091.53	6454452.16	80.74	81.10	-0.36
46	2:18:00	Stern	020	46	51	128.931	100	50	59	128.902	382000.19	6454436.19			
47	2:19:00	Bow	296	28	13	20.999	223	08	31	20.994	382091.58	6454452.17	80.71	81.00	-0.29
48	2:19:00	Stern	020	47	48	129.004	100	51	56	128.975	382000.25	6454436.14			
49	2:20:00	Bow	296	46	15	20.925	223	26	33	20.920	382091.55	6454452.30	80.61	80.90	-0.29
50	2:20:00	Stern	020	48	34	129.003	100	52	42	128.974	382000.25	6454436.11			
51	2:21:00	Bow	296	43	24	20.974	223	23	42	20.969	382091.53	6454452.25	80.68	81.00	-0.32
52	2:21:00	Stern	020	47	03	128.953	100	51	11	128.924	382000.21	6454436.18			
53	2:22:00	Bow	296	40	24	20.953	223	20	42	20.948	382091.56	6454452.26	80.68	81.00	-0.32
54	2:22:00	Stern	020	46	55	128.963	100	51	03	128.934	382000.22	6454436.18			
55	2:23:00	Bow	296	43	39	21.055	223	23	57	21.050	382091.48	6454452.20	80.72	81.00	-0.28
56	2:23:00	Stern	020	47	11	128.895	100	51	19	128.866	382000.15	6454436.18			
57	2:24:00	Bow	296	45	45	21.019	223	26	03	21.014	382091.49	6454452.23	80.69	81.00	-0.31
58	2:24:00	Stern	020	47	12	128.919	100	51	20	128.890	382000.17	6454436.18			
59	2:26:00	Bow	296	48	13	20.948	223	28	31	20.943	382091.53	6454452.29	80.63	80.90	-0.27
60	2:26:00	Stern	020	48	23	128.950	100	52	31	128.921	382000.20	6454436.13			
													Mean C-O		-0.34
													SD		0.04

Signature


SURVEYOR/PARTY CHIEF

Date





Gyrocompass Calibration - Dual Total Station Method

Fugro Job Number:	P0452	Wharf:	Berth 11 North Fremantle Wharf
Job Description:	Stbd Gyro Calibration: 81deg	Vessel:	Veritas Viking II
Client:	Veritas	Observation Date :	22 April 2006
Surveyor:	M. Yorath & A. Hamilton	Gyro Type:	SG Brown
Time Zone :	UTC + 8	Serial No.:	Starboard

Geodesy

Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.2572236	False Easting	500000
Datum	WGS84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details

Bow	ID	Easting	Northing	AHD Height		
Instrument Station	TB11-C	382 105.94	6 454 467.49	0.00	Instrument Type	Topcon GTS-225
Backsight Station	14N	382 035.05	6 454 488.72	0.00	Instrument Serial No. :	136340
Stern						
Instrument Station	13N	381 873.59	6 454 460.45	0.00	Instrument Type	Topcon GTS-211D
Backsight Station	14N	382 035.05	6 454 488.72	0.00	Instrument Serial No. :	136777
Calculated Grid Bearing (Bow RO):		286	40	18		
Calculated Grid Bearing (Stern RO) :		80	04	08		
Calculated Grid Convergence :		000	39	45		

Gyrocompass Observations

Bow Backsight Observation:	0	00	00
Stern Backsight Observation :	0	00	00

Obs	Time	Observation Point	Observed Direction (DMS)			Observed Distance (m)	Observed Heading
1	1:55:00	Bow	296	45	23	20.994	81.10
2	1:55:00	Stern	020	49	51	128.844	81.10
3	1:56:00	Bow	296	51	22	21.081	81.00
4	1:56:00	Stern	020	49	23	128.852	81.00
5	1:57:00	Bow	296	47	47	21.088	81.00
6	1:57:00	Stern	020	47	50	128.852	81.00
7	1:58:00	Bow	296	40	06	20.989	81.00
8	1:58:00	Stern	020	46	36	128.931	81.00
9	2:00:00	Bow	296	45	40	21.007	81.00
10	2:00:00	Stern	020	47	06	128.907	81.00
11	2:01:00	Bow	296	42	10	21.096	81.10
12	2:01:00	Stern	020	47	07	128.850	81.10
13	2:02:00	Bow	296	54	56	21.006	81.00
14	2:02:00	Stern	020	47	25	128.864	81.00
15	2:03:00	Bow	296	53	55	21.016	81.00
16	2:03:00	Stern	020	46	55	128.854	81.00
17	2:04:00	Bow	296	57	2	21.006	81.00
18	2:04:00	Stern	020	47	47	128.875	81.00
19	2:05:00	Bow	296	54	54	21.039	81.00
20	2:05:00	Stern	020	47	37	128.851	81.00
21	2:06:00	Bow	296	40	04	21.013	81.00
22	2:06:00	Stern	020	48	36	128.839	81.00
23	2:07:00	Bow	296	44	58	21.013	81.10
24	2:07:00	Stern	020	46	34	128.881	81.10
25	2:08:00	Bow	296	39	12	21.012	81.10
26	2:08:00	Stern	020	46	19	128.914	81.10

Obs	Time	Observation Point	Observed Direction (DMS)			Observed Distance (m)	Observed Heading
27	2:09:00	Bow	296	47	15	20.933	81.00
28	2:09:00	Stern	020	46	49	128.964	81.00
29	2:10:00	Bow	296	39	01	20.969	81.00
30	2:10:00	Stern	020	47	19	128.971	81.00
31	2:11:00	Bow	296	49	42	20.959	81.00
32	2:11:00	Stern	020	47	27	128.930	81.00
33	2:12:00	Bow	296	46	48	20.983	81.10
34	2:12:00	Stern	020	45	55	128.896	81.10
35	2:13:00	Bow	296	49	48	20.960	81.00
36	2:13:00	Stern	020	46	53	128.928	81.00
37	2:14:00	Bow	296	39	57	21.047	81.10
38	2:14:00	Stern	020	46	12	128.904	81.10
39	2:15:00	Bow	296	43	6	20.967	81.00
40	2:15:00	Stern	020	46	37	128.936	81.00
41	2:16:00	Bow	296	50	58	20.984	81.00
42	2:16:00	Stern	020	47	32	128.906	81.00
43	2:17:00	Bow	296	37	25	21.009	81.10
44	2:17:00	Stern	020	47	03	128.940	81.10
45	2:18:00	Bow	296	34	18	21.044	81.10
46	2:18:00	Stern	020	46	51	128.931	81.10
47	2:19:00	Bow	296	28	13	20.999	81.00
48	2:19:00	Stern	020	47	48	129.004	81.00
49	2:20:00	Bow	296	46	15	20.925	81.00
50	2:20:00	Stern	020	48	34	129.003	81.00
51	2:21:00	Bow	296	43	24	20.974	81.00
52	2:21:00	Stern	020	47	03	128.953	81.00
53	2:22:00	Bow	296	40	24	20.953	81.00
54	2:22:00	Stern	020	46	55	128.963	81.00
55	2:23:00	Bow	296	43	39	21.055	81.10
56	2:23:00	Stern	020	47	11	128.895	81.10
57	2:24:00	Bow	296	45	45	21.019	81.10
58	2:24:00	Stern	020	47	12	128.919	81.10
59	2:26:00	Bow	296	48	13	20.948	81.00
60	2:26:00	Stern	020	48	23	128.950	81.00

Signature



 SURVEYOR/PARTY CHIEF

Date 22/04/06

Fugro Survey Pty Ltd



FSHY31-4

GYROCOMPASS CALIBRATION - DUAL TOTAL STATION METHOD

Fugro Job Number:	P0452	Wharf:	Berth 11 North Fremantle Wharf
Job Description:	Stbd Gyro Calibration: 81deg Hdg	Vessel:	Veritas Viking II
Client:	Veritas	Observation Date:	22 April 2006
Surveyor:	M. Yorath & A. Hamilton	Gyro :	SG Brown
Time Zone :	UTC + 8	Serial No.:	Starboard

Geodesy

Spheroid	WGS84	Projection	UTM	Zone	50
Datum	WGS84	Central Meridian	117		

Results

Obs	Time UTC (hh:mm:ss)	Obs Point	Observed Direction (DMS)			Observed Distance (m)	Plane Bearing			Plane Distance (m)	Calculated Coordinates		Calc True	Obs True Heading	C-O
											Easting	Northing			
1	1:55:00	Bow	296	45	23	20.994	223	25	41	20.989	382091.51	6454452.25	80.64	81.10	-0.46
2	1:55:00	Stern	020	49	51	128.844	100	53	59	128.815	382000.08	6454436.09			
3	1:56:00	Bow	296	51	22	21.081	223	31	40	21.076	382091.42	6454452.21	80.67	81.00	-0.33
4	1:56:00	Stern	020	49	23	128.852	100	53	31	128.823	382000.09	6454436.11			
5	1:57:00	Bow	296	47	47	21.088	223	28	05	21.083	382091.44	6454452.19	80.71	81.00	-0.29
6	1:57:00	Stern	020	47	50	128.852	100	51	58	128.823	382000.10	6454436.17			
7	1:58:00	Bow	296	40	06	20.989	223	20	24	20.984	382091.54	6454452.23	80.71	81.00	-0.29
8	1:58:00	Stern	020	46	36	128.931	100	50	44	128.902	382000.19	6454436.20			
9	2:00:00	Bow	296	45	40	21.007	223	25	58	21.002	382091.50	6454452.24	80.69	81.00	-0.31
10	2:00:00	Stern	020	47	06	128.907	100	51	14	128.878	382000.16	6454436.18			
11	2:01:00	Bow	296	42	10	21.096	223	22	28	21.091	382091.46	6454452.16	80.75	81.10	-0.35
12	2:01:00	Stern	020	47	07	128.850	100	51	15	128.821	382000.11	6454436.19			
13	2:02:00	Bow	296	54	56	21.006	223	35	14	21.001	382091.46	6454452.28	80.67	81.00	-0.33
14	2:02:00	Stern	020	47	25	128.864	100	51	33	128.835	382000.12	6454436.18			
15	2:03:00	Bow	296	53	55	21.016	223	34	13	21.011	382091.46	6454452.27	80.69	81.00	-0.31
16	2:03:00	Stern	020	46	55	128.854	100	51	03	128.825	382000.11	6454436.20			
17	2:04:00	Bow	296	57	02	21.006	223	37	20	21.001	382091.45	6454452.29	80.65	81.00	-0.35
18	2:04:00	Stern	020	47	47	128.875	100	51	55	128.846	382000.13	6454436.16			
19	2:05:00	Bow	296	54	54	21.039	223	35	12	21.034	382091.44	6454452.25	80.68	81.00	-0.32
20	2:05:00	Stern	020	47	37	128.851	100	51	45	128.822	382000.10	6454436.17			
21	2:06:00	Bow	296	40	04	21.013	223	20	22	21.008	382091.52	6454452.21	80.69	81.00	-0.31
22	2:06:00	Stern	020	48	36	128.839	100	52	44	128.810	382000.08	6454436.14			
23	2:07:00	Bow	296	44	58	21.013	223	25	16	21.008	382091.50	6454452.23	80.71	81.10	-0.39
24	2:07:00	Stern	020	46	34	128.881	100	50	42	128.852	382000.14	6454436.21			
25	2:08:00	Bow	296	39	12	21.012	223	19	30	21.007	382091.53	6454452.21	80.73	81.10	-0.37

Approved by the Operations Manager, 29-Mar-2005.

Note: To ensure this is the latest version check the Online BMS.

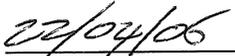
26	2:08:00	Stern	020	46	19	128.914	100	50	27	128.885	382000.17	6454436.21			
27	2:09:00	Bow	296	47	15	20.933	223	27	33	20.928	382091.54	6454452.30	80.65	81.00	-0.35
28	2:09:00	Stern	020	46	49	128.964	100	50	57	128.935	382000.22	6454436.18			
29	2:10:00	Bow	296	39	01	20.969	223	19	19	20.964	382091.56	6454452.24	80.68	81.00	-0.32
30	2:10:00	Stern	020	47	19	128.971	100	51	27	128.942	382000.22	6454436.16			
31	2:11:00	Bow	296	49	42	20.959	223	30	00	20.954	382091.52	6454452.29	80.65	81.00	-0.35
32	2:11:00	Stern	020	47	27	128.930	100	51	35	128.901	382000.18	6454436.16			
33	2:12:00	Bow	296	46	48	20.983	223	27	06	20.978	382091.51	6454452.26	80.71	81.10	-0.39
34	2:12:00	Stern	020	45	55	128.896	100	50	03	128.867	382000.16	6454436.23			
35	2:13:00	Bow	296	49	48	20.960	223	30	06	20.955	382091.51	6454452.29	80.66	81.00	-0.34
36	2:13:00	Stern	020	46	53	128.928	100	51	01	128.899	382000.18	6454436.19			
37	2:14:00	Bow	296	39	57	21.047	223	20	15	21.042	382091.50	6454452.19	80.74	81.10	-0.36
38	2:14:00	Stern	020	46	12	128.904	100	50	20	128.875	382000.17	6454436.22			
39	2:15:00	Bow	296	43	06	20.967	223	23	24	20.962	382091.54	6454452.26	80.69	81.00	-0.31
40	2:15:00	Stern	020	46	37	128.936	100	50	45	128.907	382000.19	6454436.19			
41	2:16:00	Bow	296	50	58	20.984	223	31	16	20.979	382091.49	6454452.28	80.66	81.00	-0.34
42	2:16:00	Stern	020	47	32	128.906	100	51	40	128.877	382000.16	6454436.17			
43	2:17:00	Bow	296	37	25	21.009	223	17	43	21.004	382091.54	6454452.20	80.71	81.10	-0.39
44	2:17:00	Stern	020	47	03	128.940	100	51	11	128.911	382000.19	6454436.18			
45	2:18:00	Bow	296	34	18	21.044	223	14	36	21.039	382091.53	6454452.16	80.74	81.10	-0.36
46	2:18:00	Stern	020	46	51	128.931	100	50	59	128.902	382000.19	6454436.19			
47	2:19:00	Bow	296	28	13	20.999	223	08	31	20.994	382091.58	6454452.17	80.71	81.00	-0.29
48	2:19:00	Stern	020	47	48	129.004	100	51	56	128.975	382000.25	6454436.14			
49	2:20:00	Bow	296	46	15	20.925	223	26	33	20.920	382091.55	6454452.30	80.61	81.00	-0.39
50	2:20:00	Stern	020	48	34	129.003	100	52	42	128.974	382000.25	6454436.11			
51	2:21:00	Bow	296	43	24	20.974	223	23	42	20.969	382091.53	6454452.25	80.68	81.00	-0.32
52	2:21:00	Stern	020	47	03	128.953	100	51	11	128.924	382000.21	6454436.18			
53	2:22:00	Bow	296	40	24	20.953	223	20	42	20.948	382091.56	6454452.26	80.68	81.00	-0.32
54	2:22:00	Stern	020	46	55	128.963	100	51	03	128.934	382000.22	6454436.18			
55	2:23:00	Bow	296	43	39	21.055	223	23	57	21.050	382091.48	6454452.20	80.72	81.10	-0.38
56	2:23:00	Stern	020	47	11	128.895	100	51	19	128.866	382000.15	6454436.18			
57	2:24:00	Bow	296	45	45	21.019	223	26	03	21.014	382091.49	6454452.23	80.69	81.10	-0.41
58	2:24:00	Stern	020	47	12	128.919	100	51	20	128.890	382000.17	6454436.18			
59	2:26:00	Bow	296	48	13	20.948	223	28	31	20.943	382091.53	6454452.29	80.63	81.00	-0.37
60	2:26:00	Stern	020	48	23	128.950	100	52	31	128.921	382000.20	6454436.13			

Mean C-O	-0.35
SD	0.04

Signature


SURVEYOR/PARTY CHIEF

Date



APPENDIX F
RGPS TAILBUOY VERIFICATION RESULTS



Tailbuoy Verification - Direct Readings

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Time Zone :	UTC + 8

Geodesy			
Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.25722	False Easting	500000
Datum	WGS 84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details

Instrument Station:	14N	Easting (m):	382035.05
Instrument Type :	Topcon GTS-225	Northing (m):	6454488.72
Instrument Serial No. :	136340	AHD Height (m):	0.00
Backsight Station (RO) :	13N	Easting (m):	381873.59
		Northing (m):	6454460.45
		AHD Height (m):	0.00
Actual Tailbuoy Position:		Easting (m):	382101.44
		Northing (m):	6454470.78
		AHD Height (m):	0.00
Calculated Grid Bearing to RO :		263° 18' 40.01"	
Calculated Convergence :		-000° 39' 46.37"	

Observations To: Tailbuoy # 123

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
1	8:10:00	70.5	67.223	8:10:00	-32.040036	115.750597
2	8:11:00	72.1	66.669	8:11:00	-32.040041	115.750610
3	8:12:00	70.9	68.949	8:12:00	-32.040043	115.750618
4	8:13:00	71.3	67.263	8:13:00	-32.040047	115.750607
5	8:14:00	70.8	67.257	8:14:00	-32.040039	115.750616
6	8:15:00	71.0	67.027	8:15:00	-32.040035	115.750596
7	8:16:00	71.6	67.568	8:16:00	-32.040033	115.750594
8	8:17:00	70.6	67.441	8:17:00	-32.040037	115.750608
9	8:18:00	70.8	67.363	8:18:00	-32.040041	115.750608
10	8:19:00	70.3	67.816	8:19:00	-32.040041	115.750610
11	8:20:00	71.3	67.899	8:20:00	-32.040042	115.750613
12	8:21:00	71.6	67.870	8:21:00	-32.040042	115.750599
13	8:22:00	71.4	67.979	8:22:00	-32.040045	115.750602
14	8:23:00	71.2	67.773	8:23:00	-32.040041	115.750603
15	8:24:00	71.3	67.330	8:24:00	-32.040035	115.750598
16	8:25:01	70.7	66.998	8:25:01	-32.040042	115.750606
17	8:26:01	71.2	67.627	8:26:01	-32.040042	115.750608
18	8:27:01	71.1	67.658	8:27:01	-32.040046	115.750608
19	8:28:00	71.9	67.063	8:28:00	-32.040045	115.750603
20	8:29:00	72.2	66.915	8:29:00	-32.040039	115.750606
21	8:30:01	70.8	67.419	8:30:01	-32.040048	115.750616
22	8:31:00	70.7	67.723	8:31:00	-32.040039	115.750624
23	8:32:00	71.6	67.142	8:32:00	-32.040042	115.750623
24	8:33:00	71.4	67.172	8:33:00	-32.040045	115.750624
25	8:34:00	71.3	67.581	8:34:00	-32.040038	115.750617
26	8:35:00	71.7	67.854	8:35:00	-32.040045	115.750611
27	8:36:01	71.4	67.492	8:36:01	-32.040041	115.750619

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
28	8:37:00	68.0	66.745	8:37:00	-32.040051	115.750619
29	8:38:00	71.4	67.249	8:38:00	-32.040048	115.750622
30	8:39:00	71.7	67.459	8:39:00	-32.040048	115.750626

Signature



SURVEYOR/PARTY CHIEF



Tailbuoy Verification

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Instrument Type:	Topcon GTS-225
Time Zone :	UTC + 8	Serial No.:	136340

Geodesy		Projection	UTM	Station Details	
Spheroid	WGS84	Central Meridian	117	Control Point for Tailbuoy :	
Semi Major Axis	6378137	False Easting	500000	Easting (m):	382101.44
Inverse Flattening	298.2572	False Northing	10000000	Northing (m):	6454470.78
Datum	WGS 84	Central Scale Factor	0.9996	AHD Height (m):	0.00

Observations To:		Signature:		RESULTS :	MEAN	C-O East	C-O North
Tailbuoy #	123		SURVEYOR/PARTY CHIEF		SD	0.4	-0.8
						1.07	0.78

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	RGPS Position						OBS POSn		Actual POSn (Coord Pt)		C-O	
				EAST	NORTH	EAST	NORTH	EAST	NORTH	EAST	NORTH				
1	8:10:00	70.48	67.22	-32	2	24.130	115	45	2.149	382,099.06	6,454,472.24	382,101.44	6,454,470.78	2.4	-1.5
2	8:11:00	72.07	66.67	-32	2	24.148	115	45	2.196	382,101.48	6,454,472.97	382,101.44	6,454,470.78	0.0	-2.2
3	8:12:00	70.92	68.95	-32	2	24.155	115	45	2.225	382,102.28	6,454,469.68	382,101.44	6,454,470.78	-0.8	1.1
4	8:13:00	71.26	67.26	-32	2	24.169	115	45	2.185	382,100.76	6,454,471.29	382,101.44	6,454,470.78	0.7	-0.5
5	8:14:00	70.83	67.26	-32	2	24.140	115	45	2.218	382,101.20	6,454,472.02	382,101.44	6,454,470.78	0.2	-1.2
6	8:15:00	70.98	67.03	-32	2	24.126	115	45	2.146	382,099.33	6,454,472.77	382,101.44	6,454,470.78	2.1	-2.0
7	8:16:00	71.60	67.57	-32	2	24.119	115	45	2.138	382,099.98	6,454,472.61	382,101.44	6,454,470.78	1.5	-1.8
8	8:17:00	70.58	67.44	-32	2	24.133	115	45	2.189	382,100.30	6,454,471.93	382,101.44	6,454,470.78	1.1	-1.2
9	8:18:00	70.83	67.36	-32	2	24.148	115	45	2.189	382,100.50	6,454,471.67	382,101.44	6,454,470.78	0.9	-0.9
10	8:19:00	70.32	67.82	-32	2	24.148	115	45	2.196	382,100.44	6,454,470.96	382,101.44	6,454,470.78	1.0	-0.2
11	8:20:00	71.29	67.90	-32	2	24.151	115	45	2.207	382,101.66	6,454,471.14	382,101.44	6,454,470.78	-0.2	-0.4
12	8:21:00	71.64	67.87	-32	2	24.151	115	45	2.156	382,100.64	6,454,471.29	382,101.44	6,454,470.78	0.8	-0.5
13	8:22:00	71.41	67.98	-32	2	24.162	115	45	2.167	382,100.77	6,454,470.75	382,101.44	6,454,470.78	0.7	0.0
14	8:23:00	71.19	67.77	-32	2	24.148	115	45	2.171	382,100.55	6,454,471.34	382,101.44	6,454,470.78	0.9	-0.6
15	8:24:00	71.35	67.33	-32	2	24.126	115	45	2.153	382,100.00	6,454,472.57	382,101.44	6,454,470.78	1.4	-1.8
16	8:25:01	70.75	67.00	-32	2	24.151	115	45	2.182	382,100.06	6,454,471.94	382,101.44	6,454,470.78	1.4	-1.2
17	8:26:01	71.25	67.63	-32	2	24.151	115	45	2.189	382,101.01	6,454,471.42	382,101.44	6,454,470.78	0.4	-0.6
18	8:27:01	71.06	67.66	-32	2	24.166	115	45	2.189	382,100.86	6,454,470.87	382,101.44	6,454,470.78	0.6	-0.1
19	8:28:00	71.85	67.06	-32	2	24.162	115	45	2.171	382,100.82	6,454,471.97	382,101.44	6,454,470.78	0.6	-1.2
20	8:29:00	72.23	66.92	-32	2	24.140	115	45	2.182	382,101.37	6,454,472.96	382,101.44	6,454,470.78	0.1	-2.2
21	8:30:01	70.80	67.42	-32	2	24.173	115	45	2.218	382,101.26	6,454,470.83	382,101.44	6,454,470.78	0.2	-0.1
22	8:31:00	70.74	67.72	-32	2	24.140	115	45	2.246	382,102.10	6,454,471.47	382,101.44	6,454,470.78	-0.7	-0.7
23	8:32:00	71.56	67.14	-32	2	24.151	115	45	2.243	382,102.48	6,454,472.12	382,101.44	6,454,470.78	-1.0	-1.3
24	8:33:00	71.44	67.17	-32	2	24.162	115	45	2.246	382,102.48	6,454,471.71	382,101.44	6,454,470.78	-1.0	-0.9
25	8:34:00	71.29	67.58	-32	2	24.137	115	45	2.221	382,101.87	6,454,471.95	382,101.44	6,454,470.78	-0.4	-1.2
26	8:35:00	71.72	67.85	-32	2	24.162	115	45	2.200	382,101.84	6,454,471.02	382,101.44	6,454,470.78	-0.4	-0.2
27	8:36:01	71.35	67.49	-32	2	24.148	115	45	2.228	382,102.08	6,454,471.74	382,101.44	6,454,470.78	-0.6	-1.0
28	8:37:00	68.05	66.75	-32	2	24.184	115	45	2.228	382,098.70	6,454,470.15	382,101.44	6,454,470.78	2.7	0.6
29	8:38:00	71.45	67.25	-32	2	24.173	115	45	2.239	382,102.34	6,454,471.29	382,101.44	6,454,470.78	-0.9	-0.5
30	8:39:00	71.71	67.46	-32	2	24.173	115	45	2.254	382,103.06	6,454,471.15	382,101.44	6,454,470.78	-1.6	-0.4



Tailbuoy Verification - Direct Readings

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Time Zone :	UTC + 8

Geodesy			
Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.25722	False Easting	500000
Datum	WGS 84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details

Instrument Station:	14N	Easting (m):	382035.05
Instrument Type :	Topcon GTS-225	Northing (m):	6454488.72
Instrument Serial No. :	136340	AHD Height (m):	0.00
Backsight Station (RO) :	13N	Easting (m):	381873.59
		Northing (m):	6454460.45
		AHD Height (m):	0.00
Actual Tailbuoy Position:		Easting (m):	382101.44
		Northing (m):	6454470.78
		AHD Height (m):	0.00
Calculated Grid Bearing to RO :		263° 18' 40.01"	
Calculated Convergence :		-000° 39' 46.37"	

Observations To: Tailbuoy # 129

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
1	9:28:02	72.2	66.649	9:28:02	-32.040047	115.750631
2	9:28:58	71.8	67.311	9:28:58	-32.040054	115.750627
3	9:29:58	72.3	68.509	9:29:58	-32.040057	115.750626
4	9:30:01	69.7	68.293	9:30:01	-32.040055	115.750626
5	9:30:58	70.1	67.902	9:30:58	-32.040058	115.750616
6	9:31:59	71.5	68.533	9:31:59	-32.040059	115.750613
7	9:32:59	71.8	67.186	9:32:59	-32.040053	115.750609
8	9:33:56	71.6	67.580	9:33:56	-32.040045	115.750601
9	9:35:00	73.0	68.420	9:35:00	-32.040046	115.750614
10	9:37:00	72.3	66.467	9:37:00	-32.040049	115.750620
11	9:37:58	73.3	66.226	9:37:58	-32.040037	115.750607
12	9:38:59	71.6	66.197	9:38:59	-32.040052	115.750627
13	9:39:59	72.7	66.970	9:39:59	-32.040038	115.750610
14	9:41:01	72.6	66.405	9:41:01	-32.040040	115.750609
15	9:42:01	71.8	66.664	9:42:01	-32.040056	115.750626
16	9:42:57	72.5	67.057	9:42:57	-32.040042	115.750627
17	9:44:00	70.2	68.652	9:44:00	-32.040044	115.750623
18	9:44:59	72.2	67.054	9:44:59	-32.040053	115.750629
19	9:46:01	71.6	67.902	9:46:01	-32.040046	115.750618
20	9:46:59	72.8	66.423	9:46:59	-32.040051	115.750625
21	9:48:00	72.0	67.448	9:48:00	-32.040038	115.750615
22	9:49:00	71.3	66.776	9:49:00	-32.040041	115.750628
23	9:51:01	72.3	66.541	9:51:01	-32.040045	115.750623
24	9:52:00	72.2	66.970	9:52:00	-32.040044	115.750628
25	9:53:00	73.0	67.980	9:53:00	-32.040044	115.750622
26	9:54:02	71.7	67.187	9:54:02	-32.040039	115.750620
27	9:54:59	86.7	73.959	9:54:59	-32.040035	115.750624

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
28	9:55:59	71.4	65.629	9:55:59	-32.040029	115.750612
29	9:56:58	72.2	67.234	9:56:58	-32.040032	115.750622
30	9:58:00	72.0	67.292	9:58:00	-32.040027	115.750616

Signature



 SURVEYOR/PARTY CHIEF



Tailbuoy Verification

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Instrument Type:	Topcon GTS-225
Time Zone :	UTC + 8	Serial No.:	136340

Geodesy	WGS84	Projection	UTM
Spheroid	6378137	Central Meridian	117
Semi Major Axis	298.2572	False Easting	500000
Inverse Flattening	WGS 84	False Northing	1000000
Datum		Central Scale Factor	0.9996

Station Details
Control Point for Tailbuoy :
 Easting (m): 382101.44
 Northing (m): 6454470.78
 AHD Height (m): 0.00

Observations To:	Tailbuoy # 129	Signature: SURVEYOR/PARTY CHIEF	RESULTS :									
			<table border="0" style="width:100%"> <tr> <td style="width:50%">MEAN</td> <td style="width:25%">C-O East</td> <td style="width:25%">C-O North</td> </tr> <tr> <td>SD</td> <td>-1.7</td> <td>-0.9</td> </tr> <tr> <td></td> <td>3.33</td> <td>1.72</td> </tr> </table>	MEAN	C-O East	C-O North	SD	-1.7	-0.9		3.33	1.72
MEAN	C-O East	C-O North										
SD	-1.7	-0.9										
	3.33	1.72										

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	RGPS Position						OBS POSn		Actual POSn (Coord Pt)		C-O	
										EAST	NORTH	EAST	NORTH	EAST	NORTH
1	9:28:02	72.21	66.65	-32	2	24.169	115	45	2.272	382,103.58	6,454,472.40	382,101.44	6,454,470.78	-2.1	-1.6
2	9:28:58	71.80	67.31	-32	2	24.194	115	45	2.257	382,103.17	6,454,470.69	382,101.44	6,454,470.78	-1.7	0.1
3	9:29:58	72.28	68.51	-32	2	24.205	115	45	2.254	382,104.11	6,454,469.16	382,101.44	6,454,470.78	-2.7	1.6
4	9:30:01	69.73	68.29	-32	2	24.198	115	45	2.254	382,101.65	6,454,468.66	382,101.44	6,454,470.78	-0.2	2.1
5	9:30:58	70.08	67.90	-32	2	24.209	115	45	2.218	382,100.84	6,454,468.89	382,101.44	6,454,470.78	0.6	1.9
6	9:31:59	71.45	68.53	-32	2	24.212	115	45	2.207	382,102.13	6,454,468.58	382,101.44	6,454,470.78	-0.7	2.2
7	9:32:59	71.83	67.19	-32	2	24.191	115	45	2.192	382,101.44	6,454,470.94	382,101.44	6,454,470.78	0.0	-0.2
8	9:33:56	71.62	67.58	-32	2	24.162	115	45	2.164	382,100.68	6,454,471.29	382,101.44	6,454,470.78	0.8	-0.5
9	9:35:00	72.97	68.42	-32	2	24.166	115	45	2.210	382,103.56	6,454,470.73	382,101.44	6,454,470.78	-2.1	0.0
10	9:37:00	72.31	66.47	-32	2	24.176	115	45	2.232	382,102.54	6,454,472.42	382,101.44	6,454,470.78	-1.1	-1.6
11	9:37:58	73.29	66.23	-32	2	24.133	115	45	2.185	382,102.07	6,454,474.42	382,101.44	6,454,470.78	-0.6	-3.6
12	9:38:59	71.64	66.20	-32	2	24.187	115	45	2.257	382,102.46	6,454,472.13	382,101.44	6,454,470.78	-1.0	-1.4
13	9:39:59	72.74	66.97	-32	2	24.137	115	45	2.196	382,102.23	6,454,473.22	382,101.44	6,454,470.78	-0.8	-2.4
14	9:41:01	72.58	66.40	-32	2	24.144	115	45	2.192	382,101.71	6,454,473.59	382,101.44	6,454,470.78	-0.3	-2.8
15	9:42:01	71.76	66.66	-32	2	24.202	115	45	2.254	382,102.72	6,454,471.20	382,101.44	6,454,470.78	-1.3	-0.4
16	9:42:57	72.49	67.06	-32	2	24.151	115	45	2.257	382,103.66	6,454,472.59	382,101.44	6,454,470.78	-2.2	-1.8
17	9:44:00	70.22	68.65	-32	2	24.158	115	45	2.243	382,101.97	6,454,469.66	382,101.44	6,454,470.78	-0.5	1.1
18	9:44:59	72.17	67.05	-32	2	24.191	115	45	2.264	382,103.57	6,454,471.25	382,101.44	6,454,470.78	-2.1	-0.5
19	9:46:01	71.61	67.90	-32	2	24.166	115	45	2.225	382,102.43	6,454,470.82	382,101.44	6,454,470.78	-1.0	0.0
20	9:46:59	72.82	66.42	-32	2	24.184	115	45	2.250	382,103.46	6,454,472.46	382,101.44	6,454,470.78	-2.0	-1.7
21	9:48:00	72.04	67.45	-32	2	24.137	115	45	2.214	382,102.31	6,454,472.39	382,101.44	6,454,470.78	-0.9	-1.6
22	9:49:00	71.30	66.78	-32	2	24.148	115	45	2.261	382,102.52	6,454,472.55	382,101.44	6,454,470.78	-1.1	-1.8
23	9:51:01	72.34	66.54	-32	2	24.162	115	45	2.243	382,102.88	6,454,472.79	382,101.44	6,454,470.78	-1.4	-2.0
24	9:52:00	72.24	66.97	-32	2	24.158	115	45	2.261	382,103.49	6,454,472.38	382,101.44	6,454,470.78	-2.1	-1.6
25	9:53:00	72.99	67.98	-32	2	24.158	115	45	2.239	382,104.12	6,454,471.49	382,101.44	6,454,470.78	-2.7	-0.7
26	9:54:02	71.69	67.19	-32	2	24.140	115	45	2.232	382,102.33	6,454,472.45	382,101.44	6,454,470.78	-0.9	-1.7
27	9:54:59	86.71	73.96	-32	2	24.126	115	45	2.246	382,120.00	6,454,469.26	382,101.44	6,454,470.78	-18.6	1.5
28	9:55:59	71.44	65.63	-32	2	24.104	115	45	2.203	382,100.54	6,454,475.22	382,101.44	6,454,470.78	0.9	-4.4
29	9:56:58	72.19	67.23	-32	2	24.115	115	45	2.239	382,102.99	6,454,473.37	382,101.44	6,454,470.78	-1.6	-2.6
30	9:58:00	72.01	67.29	-32	2	24.097	115	45	2.218	382,102.29	6,454,473.78	382,101.44	6,454,470.78	-0.9	-3.0



Tailbuoy Verification - Direct Readings

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Time Zone :	UTC + 8

Geodesy

Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.25722	False Easting	500000
Datum	WGS 84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details

Instrument Station:	14N	Easting (m):	382035.05
Instrument Type :	Topcon GTS-225	Northing (m):	6454488.72
Instrument Serial No. :	136340	AHD Height (m):	0.00
Backsight Station (RO) :	13N	Easting (m):	381873.59
		Northing (m):	6454460.45
		AHD Height (m):	0.00
Actual Tailbuoy Position:		Easting (m):	382101.44
		Northing (m):	6454470.78
		AHD Height (m):	0.00
Calculated Grid Bearing to RO :		263° 18' 40.01"	
Calculated Convergence :		-000° 39' 46.37"	

Observations To: Tailbuoy # 134

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
1	9:28:02	71.4	67.088	9:28:02	-32.040047	115.750631
2	9:28:58	70.2	68.129	9:28:58	-32.040054	115.750627
3	9:29:58	71.7	66.717	9:29:58	-32.040057	115.750626
4	9:30:01	69.7	67.794	9:30:01	-32.040055	115.750626
5	9:30:58	71.5	66.373	9:30:58	-32.040058	115.750616
6	9:31:59	72.0	66.659	9:31:59	-32.040059	115.750613
7	9:32:59	71.9	66.517	9:32:59	-32.040053	115.750609
8	9:33:56	72.4	66.407	9:33:56	-32.040045	115.750601
9	9:35:00	72.5	64.464	9:35:00	-32.040046	115.750614
10	9:37:00	71.9	66.781	9:37:00	-32.040049	115.750620
11	9:37:58	71.8	66.881	9:37:58	-32.040037	115.750607
12	9:38:59	72.9	69.922	9:38:59	-32.040052	115.750627
13	9:39:59	73.2	66.992	9:39:59	-32.040038	115.750610
14	9:41:01	71.8	67.687	9:41:01	-32.040040	115.750609
15	9:42:01	71.4	67.301	9:42:01	-32.040056	115.750626
16	9:42:57	72.1	66.154	9:42:57	-32.040042	115.750627
17	9:44:00	72.5	66.167	9:44:00	-32.040044	115.750623
18	9:44:59	72.0	66.344	9:44:59	-32.040053	115.750629
19	9:46:01	73.4	63.358	9:46:01	-32.040046	115.750618
20	9:46:59	71.9	67.542	9:46:59	-32.040051	115.750625
21	9:48:00	71.2	66.238	9:48:00	-32.040038	115.750615
22	9:49:00	71.8	66.701	9:49:00	-32.040041	115.750628
23	9:51:01	72.5	67.739	9:51:01	-32.040045	115.750623
24	9:52:00	71.7	66.970	9:52:00	-32.040044	115.750628
25	9:53:00	72.0	66.541	9:53:00	-32.040044	115.750622
26	9:54:02	72.5	67.966	9:54:02	-32.040039	115.750620
27	9:54:59	69.6	67.247	9:54:59	-32.040035	115.750624

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
28	9:55:59	72.2	66.856	9:55:59	-32.040029	115.750612
29	9:56:58	71.9	66.677	9:56:58	-32.040032	115.750622
30	9:58:00	71.4	67.724	9:58:00	-32.040027	115.750616

Signature



 SURVEYOR/PARTY CHIEF



Tailbuoy Verification

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Instrument Type:	Topcon GTS-225
Time Zone :	UTC + 8	Serial No.:	136340

Geodesy		Projection		Station Details	
Spheroid	WGS84	Central Meridian	UTM	Control Point for Tailbuoy :	
Semi Major Axis	6378137	False Easting	117	Easting (m):	382101.44
Inverse Flattening	298.2572	False Northing	500000	Northing (m):	6454470.78
Datum	WGS 84	Central Scale Factor	10000000	AHD Height (m):	0.00
			0.9996		

Observations To:		Signature:  SURVEYOR/PARTY CHIEF	RESULTS :	C-O East	C-O North
Tailbuoy #	134			MEAN	-0.8	-1.4
			SD	1.04	1.76

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	RGPS Position					OBS POSn		Actual POSn (Coord Pt)		C-O		
									EAST	NORTH	EAST	NORTH	EAST	NORTH	
1	9:28:02	71.44	67.09	-32	2	24.169	115	45	2.272	382,103.10	6,454,471.59	382,101.44	6,454,470.78	-1.7	-0.8
2	9:28:58	70.21	68.13	-32	2	24.194	115	45	2.257	382,102.11	6,454,469.14	382,101.44	6,454,470.78	-0.7	1.6
3	9:29:58	71.72	66.72	-32	2	24.205	115	45	2.254	382,102.72	6,454,471.01	382,101.44	6,454,470.78	-1.3	-0.2
4	9:30:01	69.73	67.79	-32	2	24.198	115	45	2.254	382,101.41	6,454,469.22	382,101.44	6,454,470.78	0.0	1.6
5	9:30:58	71.46	66.37	-32	2	24.209	115	45	2.218	382,101.36	6,454,471.18	382,101.44	6,454,470.78	0.1	-0.4
6	9:31:59	71.96	66.66	-32	2	24.212	115	45	2.207	382,101.68	6,454,470.94	382,101.44	6,454,470.78	-0.2	-0.2
7	9:32:59	71.95	66.52	-32	2	24.191	115	45	2.192	382,101.21	6,454,471.76	382,101.44	6,454,470.78	0.2	-1.0
8	9:33:56	72.37	66.41	-32	2	24.162	115	45	2.164	382,100.77	6,454,472.94	382,101.44	6,454,470.78	0.7	-2.2
9	9:35:00	72.54	64.46	-32	2	24.166	115	45	2.210	382,101.11	6,454,475.14	382,101.44	6,454,470.78	0.3	-4.4
10	9:37:00	71.90	66.78	-32	2	24.176	115	45	2.232	382,102.34	6,454,471.89	382,101.44	6,454,470.78	-0.9	-1.1
11	9:37:58	71.77	66.88	-32	2	24.133	115	45	2.185	382,101.02	6,454,473.04	382,101.44	6,454,470.78	0.4	-2.3
12	9:38:59	72.95	69.92	-32	2	24.187	115	45	2.257	382,105.47	6,454,468.29	382,101.44	6,454,470.78	-4.0	2.5
13	9:39:59	73.22	66.99	-32	2	24.137	115	45	2.196	382,102.69	6,454,473.39	382,101.44	6,454,470.78	-1.3	-2.6
14	9:41:01	71.81	67.69	-32	2	24.144	115	45	2.192	382,101.65	6,454,471.80	382,101.44	6,454,470.78	-0.2	-1.0
15	9:42:01	71.44	67.30	-32	2	24.202	115	45	2.254	382,102.74	6,454,470.34	382,101.44	6,454,470.78	-1.3	0.4
16	9:42:57	72.08	66.15	-32	2	24.151	115	45	2.257	382,102.82	6,454,473.47	382,101.44	6,454,470.78	-1.4	-2.7
17	9:44:00	72.48	66.17	-32	2	24.158	115	45	2.243	382,102.82	6,454,473.39	382,101.44	6,454,470.78	-1.4	-2.6
18	9:44:59	71.98	66.34	-32	2	24.191	115	45	2.264	382,103.04	6,454,471.99	382,101.44	6,454,470.78	-1.6	-1.2
19	9:46:01	73.37	63.36	-32	2	24.166	115	45	2.225	382,101.59	6,454,476.77	382,101.44	6,454,470.78	-0.1	-6.0
20	9:46:59	71.87	67.54	-32	2	24.184	115	45	2.250	382,103.16	6,454,470.79	382,101.44	6,454,470.78	-1.7	0.0
21	9:48:00	71.21	66.24	-32	2	24.137	115	45	2.214	382,100.94	6,454,473.44	382,101.44	6,454,470.78	0.5	-2.7
22	9:49:00	71.84	66.70	-32	2	24.148	115	45	2.261	382,102.98	6,454,472.85	382,101.44	6,454,470.78	-1.5	-2.1
23	9:51:01	72.51	67.74	-32	2	24.162	115	45	2.243	382,103.65	6,454,471.47	382,101.44	6,454,470.78	-2.2	-0.7
24	9:52:00	71.70	66.97	-32	2	24.158	115	45	2.261	382,102.99	6,454,472.16	382,101.44	6,454,470.78	-1.6	-1.4
25	9:53:00	71.97	66.54	-32	2	24.158	115	45	2.239	382,102.46	6,454,472.75	382,101.44	6,454,470.78	-1.0	-2.0
26	9:54:02	72.52	67.97	-32	2	24.140	115	45	2.232	382,103.48	6,454,471.87	382,101.44	6,454,470.78	-2.0	-1.1
27	9:54:59	69.62	67.25	-32	2	24.126	115	45	2.246	382,100.83	6,454,472.01	382,101.44	6,454,470.78	0.6	-1.2
28	9:55:59	72.25	66.86	-32	2	24.104	115	45	2.203	382,101.91	6,454,474.15	382,101.44	6,454,470.78	-0.5	-3.4
29	9:56:58	71.93	66.68	-32	2	24.115	115	45	2.239	382,102.47	6,454,473.91	382,101.44	6,454,470.78	-1.0	-3.1
30	9:58:00	71.37	67.72	-32	2	24.097	115	45	2.218	382,101.91	6,454,473.03	382,101.44	6,454,470.78	-0.5	-2.3



Tailbuoy Verification - Direct Readings

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Time Zone :	UTC + 8

Geodesy			
Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.25722	False Easting	500000
Datum	WGS 84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details

Instrument Station:	14N	Easting (m):	382035.05
Instrument Type :	Topcon GTS-225	Northing (m):	6454488.72
Instrument Serial No. :	136340	AHD Height (m):	0.00
Backsight Station (RO) :	13N	Easting (m):	381873.59
		Northing (m):	6454460.45
		AHD Height (m):	0.00
Actual Tailbuoy Position:		Easting (m):	382101.44
		Northing (m):	6454470.78
		AHD Height (m):	0.00
Calculated Grid Bearing to RO :		263° 18' 40.01"	
Calculated Convergence :		-000° 39' 46.37"	

Observations To: Tailbuoy # 135

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
1	9:28:02	71.6	68.334	9:28:02	-32.040047	115.750631
2	9:28:58	71.9	67.088	9:28:58	-32.040054	115.750627
3	9:29:58	71.2	67.526	9:29:58	-32.040057	115.750626
4	9:30:01	71.1	67.149	9:30:01	-32.040055	115.750626
5	9:30:58	71.2	67.460	9:30:58	-32.040058	115.750616
6	9:31:59	70.5	67.518	9:31:59	-32.040059	115.750613
7	9:32:59	71.2	66.021	9:32:59	-32.040053	115.750609
8	9:33:56	71.3	67.118	9:33:56	-32.040045	115.750601
9	9:35:00	71.1	66.434	9:35:00	-32.040046	115.750614
10	9:37:00	71.3	67.529	9:37:00	-32.040049	115.750620
11	9:37:58	70.7	65.874	9:37:58	-32.040037	115.750607
12	9:38:59	71.4	66.945	9:38:59	-32.040052	115.750627
13	9:39:59	70.9	67.025	9:39:59	-32.040038	115.750610
14	9:41:01	71.4	67.430	9:41:01	-32.040040	115.750609
15	9:42:01	71.8	67.056	9:42:01	-32.040056	115.750626
16	9:42:57	71.7	66.536	9:42:57	-32.040042	115.750627
17	9:44:00	72.4	65.790	9:44:00	-32.040044	115.750623
18	9:44:59	71.2	67.162	9:44:59	-32.040053	115.750629
19	9:46:01	70.8	68.160	9:46:01	-32.040046	115.750618
20	9:46:59	70.9	67.828	9:46:59	-32.040051	115.750625
21	9:48:00	71.0	66.810	9:48:00	-32.040038	115.750615
22	9:49:00	71.1	66.964	9:49:00	-32.040041	115.750628
23	9:51:01	71.0	66.048	9:51:01	-32.040045	115.750623
24	9:52:00	71.1	67.746	9:52:00	-32.040044	115.750628
25	9:53:00	72.0	67.275	9:53:00	-32.040044	115.750622
26	9:54:02	70.6	67.067	9:54:02	-32.040039	115.750620
27	9:54:59	70.9	67.197	9:54:59	-32.040035	115.750624

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
28	9:55:59	71.3	67.088	9:55:59	-32.040029	115.750612
29	9:56:58	71.1	66.011	9:56:58	-32.040032	115.750622
30	9:58:00	71.5	66.886	9:58:00	-32.040027	115.750616

Signature



 SURVEYOR/PARTY CHIEF



Tailbuoy Verification

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Instrument Type:	Topcon GTS-225
Time Zone :	UTC + 8	Serial No.:	136340

Geodesy		Projection		UTM		Station Details	
Spheroid	WGS84	Central Meridian	6378137	UTM	117	Control Point for Tailbuoy :	
Semi Major Axis	298.2572	False Easting	500000	Easting (m):	382101.44	Northing (m):	6454470.78
Inverse Flattening	WGS 84	False Northing	10000000	AHD Height (m):	0.00		
Datum		Central Scale Factor	0.9996				

Observations To:		Signature:  SURVEYOR/PARTY CHIEF	RESULTS :	C-O East		C-O North
Tailbuoy #	135			MEAN	-0.4	-1.0
			SD	1.02	1.37	

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	RGPS Position					OBS POSn		Actual POSn (Coord Pt)		C-O		
				EAST	NORTH	EAST	NORTH	EAST	NORTH	EAST	NORTH				
1	9:28:02	71.61	68.33	-32	2	24.169	115	45	2.272	382,103.87	6,454,470.22	382,101.44	6,454,470.78	-2.4	0.6
2	9:28:58	71.87	67.09	-32	2	24.194	115	45	2.257	382,103.13	6,454,470.98	382,101.44	6,454,470.78	-1.7	-0.2
3	9:29:58	71.23	67.53	-32	2	24.205	115	45	2.254	382,102.67	6,454,469.89	382,101.44	6,454,470.78	-1.2	0.9
4	9:30:01	71.10	67.15	-32	2	24.198	115	45	2.254	382,102.36	6,454,470.49	382,101.44	6,454,470.78	-0.9	0.3
5	9:30:58	71.24	67.46	-32	2	24.209	115	45	2.218	382,101.69	6,454,469.85	382,101.44	6,454,470.78	-0.3	0.9
6	9:31:59	70.54	67.52	-32	2	24.212	115	45	2.207	382,100.80	6,454,469.39	382,101.44	6,454,470.78	0.6	1.4
7	9:32:59	71.17	66.02	-32	2	24.191	115	45	2.192	382,100.25	6,454,472.00	382,101.44	6,454,470.78	1.2	-1.2
8	9:33:56	71.33	67.12	-32	2	24.162	115	45	2.164	382,100.18	6,454,471.70	382,101.44	6,454,470.78	1.3	-0.9
9	9:35:00	71.06	66.43	-32	2	24.166	115	45	2.210	382,100.82	6,454,472.27	382,101.44	6,454,470.78	0.6	-1.5
10	9:37:00	71.30	67.53	-32	2	24.176	115	45	2.232	382,102.15	6,454,470.79	382,101.44	6,454,470.78	-0.7	0.0
11	9:37:58	70.67	65.87	-32	2	24.133	115	45	2.185	382,099.51	6,454,473.73	382,101.44	6,454,470.78	1.9	-3.0
12	9:38:59	71.36	66.95	-32	2	24.187	115	45	2.257	382,102.59	6,454,471.16	382,101.44	6,454,470.78	-1.2	-0.4
13	9:39:59	70.89	67.03	-32	2	24.137	115	45	2.196	382,100.57	6,454,472.42	382,101.44	6,454,470.78	0.9	-1.6
14	9:41:01	71.41	67.43	-32	2	24.144	115	45	2.192	382,101.15	6,454,471.94	382,101.44	6,454,470.78	0.3	-1.2
15	9:42:01	71.85	67.06	-32	2	24.202	115	45	2.254	382,103.00	6,454,470.79	382,101.44	6,454,470.78	-1.6	0.0
16	9:42:57	71.73	66.54	-32	2	24.151	115	45	2.257	382,102.71	6,454,472.89	382,101.44	6,454,470.78	-1.3	-2.1
17	9:44:00	72.35	65.79	-32	2	24.158	115	45	2.243	382,102.50	6,454,473.77	382,101.44	6,454,470.78	-1.1	-3.0
18	9:44:59	71.15	67.16	-32	2	24.191	115	45	2.264	382,102.70	6,454,470.72	382,101.44	6,454,470.78	-1.3	0.1
19	9:46:01	70.78	68.16	-32	2	24.166	115	45	2.225	382,101.78	6,454,470.20	382,101.44	6,454,470.78	-0.3	0.6
20	9:46:59	70.90	67.83	-32	2	24.184	115	45	2.250	382,102.40	6,454,470.08	382,101.44	6,454,470.78	-1.0	0.7
21	9:48:00	71.02	66.81	-32	2	24.137	115	45	2.214	382,101.05	6,454,472.72	382,101.44	6,454,470.78	0.4	-1.9
22	9:49:00	71.09	66.96	-32	2	24.148	115	45	2.261	382,102.42	6,454,472.25	382,101.44	6,454,470.78	-1.0	-1.5
23	9:51:01	71.00	66.05	-32	2	24.162	115	45	2.243	382,101.41	6,454,472.80	382,101.44	6,454,470.78	0.0	-2.0
24	9:52:00	71.14	67.75	-32	2	24.158	115	45	2.261	382,102.86	6,454,471.05	382,101.44	6,454,470.78	-1.4	-0.3
25	9:53:00	72.01	67.27	-32	2	24.158	115	45	2.239	382,102.87	6,454,471.92	382,101.44	6,454,470.78	-1.4	-1.1
26	9:54:02	70.56	67.07	-32	2	24.140	115	45	2.232	382,101.23	6,454,472.13	382,101.44	6,454,470.78	0.2	-1.4
27	9:54:59	70.88	67.20	-32	2	24.126	115	45	2.246	382,101.97	6,454,472.56	382,101.44	6,454,470.78	-0.5	-1.8
28	9:55:59	71.31	67.09	-32	2	24.104	115	45	2.203	382,101.16	6,454,473.51	382,101.44	6,454,470.78	0.3	-2.7
29	9:56:58	71.06	66.01	-32	2	24.115	115	45	2.239	382,101.34	6,454,474.31	382,101.44	6,454,470.78	0.1	-3.5
30	9:58:00	71.52	66.89	-32	2	24.097	115	45	2.218	382,101.63	6,454,474.05	382,101.44	6,454,470.78	-0.2	-3.3



Tailbuoy Verification - Direct Readings

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Time Zone :	UTC + 8

Geodesy			
Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.25722	False Easting	500000
Datum	WGS 84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details

Instrument Station:	14N	Easting (m):	382035.05
Instrument Type :	Topcon GTS-225	Northing (m):	6454488.72
Instrument Serial No. :	136340	AHD Height (m):	0.00
Backsight Station (RO) :	13N	Easting (m):	381873.59
		Northing (m):	6454460.45
		AHD Height (m):	0.00
Actual Tailbuoy Position:		Easting (m):	382101.44
		Northing (m):	6454470.78
		AHD Height (m):	0.00
Calculated Grid Bearing to RO :		263° 18' 40.01"	
Calculated Convergence :		-000° 39' 46.37"	

Observations To: Tailbuoy # 137

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
1	7:11:00	70.7	67.670	7:11:00	-32.040051	115.750620
2	7:12:00	70.5	67.693	7:12:00	-32.040058	115.750621
3	7:13:00	70.8	67.586	7:13:00	-32.040055	115.750625
4	7:14:00	71.2	67.388	7:14:00	-32.040052	115.750603
5	7:15:00	71.2	67.256	7:15:00	-32.040056	115.750614
6	7:16:01	71.1	67.483	7:16:01	-32.040054	115.750616
7	7:17:00	71.2	67.730	7:17:00	-32.040047	115.750614
8	7:18:00	70.9	67.827	7:18:00	-32.040055	115.750620
9	7:19:00	70.8	67.827	7:19:00	-32.040050	115.750626
10	7:20:00	71.1	67.896	7:20:00	-32.040039	115.750618
11	7:21:00	70.9	67.655	7:21:00	-32.040039	115.750621
12	7:22:00	71.0	67.899	7:22:00	-32.040045	115.750611
13	7:23:00	71.1	68.002	7:23:00	-32.040045	115.750618
14	7:24:00	70.7	67.509	7:24:00	-32.040046	115.750627
15	7:25:00	70.6	67.452	7:25:00	-32.040041	115.750622
16	7:26:00	70.1	66.283	7:26:00	-32.040046	115.750620
17	7:27:00	70.7	67.590	7:27:00	-32.040047	115.750617
18	7:28:00	71.2	69.064	7:28:00	-32.040056	115.750616
19	7:29:00	70.6	67.412	7:29:00	-32.040056	115.750614
20	7:30:00	70.8	67.922	7:30:00	-32.040058	115.750610
21	7:31:00	70.8	68.276	7:31:00	-32.040053	115.750626
22	7:32:00	70.8	67.666	7:32:00	-32.040044	115.750619
23	7:33:00	70.7	67.459	7:33:00	-32.040042	115.750620
24	7:34:00	70.6	67.460	7:34:00	-32.040035	115.750602
25	7:35:00	70.8	67.739	7:35:00	-32.040032	115.750596
26	7:36:00	70.6	67.957	7:36:00	-32.040031	115.750587
27	7:37:00	70.6	68.181	7:37:00	-32.040036	115.750609

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
28	7:38:00	70.7	68.123	7:38:00	-32.040041	115.750612
29	7:39:00	70.7	68.247	7:39:00	-32.040040	115.750617
30	7:40:00	70.8	68.588	7:40:00	-32.040039	115.750609

Signature



 SURVEYOR/PARTY CHIEF



Tailbuoy Verification

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Instrument Type:	Topcon GTS-225
Time Zone :	UTC + 8	Serial No.:	136340

Geodesy		Projection	UTM	Station Details	
Spheroid	WGS84	Central Meridian	117	Control Point for Tailbuoy :	
Semi Major Axis	6378137	False Easting	500000	Easting (m):	382101.44
Inverse Flattening	298.2572	False Northing	10000000	Northing (m):	6454470.78
Datum	WGS 84	Central Scale Factor	0.9996	AHD Height (m):	0.00

Observations To:		Signature:		RESULTS :	MEAN	C-O East	C-O North
Tailbuoy #	137		SURVEYOR/PARTY CHIEF		SD	0.1	0.1
						0.91	0.96

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	RGPS Position						OBS POSn		Actual POSn (Coord Pt)		C-O	
										EAST	NORTH	EAST	NORTH	EAST	NORTH
1	7:11:00	70.71	67.67	-32	2	24.184	115	45	2.232	382,101.68	6,454,470.18	382,101.44	6,454,470.78	-0.2	0.6
2	7:12:00	70.50	67.69	-32	2	24.209	115	45	2.236	382,101.60	6,454,469.30	382,101.44	6,454,470.78	-0.2	1.5
3	7:13:00	70.84	67.59	-32	2	24.198	115	45	2.250	382,102.24	6,454,469.89	382,101.44	6,454,470.78	-0.8	0.9
4	7:14:00	71.20	67.39	-32	2	24.187	115	45	2.171	382,100.39	6,454,470.57	382,101.44	6,454,470.78	1.0	0.2
5	7:15:00	71.18	67.26	-32	2	24.202	115	45	2.210	382,101.35	6,454,470.28	382,101.44	6,454,470.78	0.1	0.5
6	7:16:01	71.15	67.48	-32	2	24.194	115	45	2.218	382,101.62	6,454,470.23	382,101.44	6,454,470.78	-0.2	0.5
7	7:17:00	71.17	67.73	-32	2	24.169	115	45	2.210	382,101.56	6,454,470.73	382,101.44	6,454,470.78	-0.1	0.0
8	7:18:00	70.90	67.83	-32	2	24.198	115	45	2.232	382,101.94	6,454,469.63	382,101.44	6,454,470.78	-0.5	1.1
9	7:19:00	70.84	67.83	-32	2	24.180	115	45	2.254	382,102.45	6,454,470.17	382,101.44	6,454,470.78	-1.0	0.6
10	7:20:00	71.08	67.90	-32	2	24.140	115	45	2.225	382,101.93	6,454,471.40	382,101.44	6,454,470.78	-0.5	-0.6
11	7:21:00	70.95	67.66	-32	2	24.140	115	45	2.236	382,101.97	6,454,471.62	382,101.44	6,454,470.78	-0.5	-0.8
12	7:22:00	70.96	67.90	-32	2	24.162	115	45	2.200	382,101.17	6,454,470.67	382,101.44	6,454,470.78	0.3	0.1
13	7:23:00	71.08	68.00	-32	2	24.162	115	45	2.225	382,101.99	6,454,470.61	382,101.44	6,454,470.78	-0.6	0.2
14	7:24:00	70.73	67.51	-32	2	24.166	115	45	2.257	382,102.28	6,454,470.93	382,101.44	6,454,470.78	-0.8	-0.2
15	7:25:00	70.59	67.45	-32	2	24.148	115	45	2.239	382,101.64	6,454,471.49	382,101.44	6,454,470.78	-0.2	-0.7
16	7:26:00	70.14	66.28	-32	2	24.166	115	45	2.232	382,100.47	6,454,472.07	382,101.44	6,454,470.78	1.0	-1.3
17	7:27:00	70.69	67.59	-32	2	24.169	115	45	2.221	382,101.33	6,454,470.70	382,101.44	6,454,470.78	0.1	0.1
18	7:28:00	71.24	69.06	-32	2	24.202	115	45	2.218	382,102.45	6,454,468.22	382,101.44	6,454,470.78	-1.0	2.6
19	7:29:00	70.61	67.41	-32	2	24.202	115	45	2.210	382,100.90	6,454,469.87	382,101.44	6,454,470.78	0.5	0.9
20	7:30:00	70.78	67.92	-32	2	24.209	115	45	2.196	382,100.93	6,454,469.14	382,101.44	6,454,470.78	0.5	1.6
21	7:31:00	70.82	68.28	-32	2	24.191	115	45	2.254	382,102.64	6,454,469.32	382,101.44	6,454,470.78	-1.2	1.5
22	7:32:00	70.84	67.67	-32	2	24.158	115	45	2.228	382,101.69	6,454,471.01	382,101.44	6,454,470.78	-0.3	-0.2
23	7:33:00	70.73	67.46	-32	2	24.151	115	45	2.232	382,101.59	6,454,471.43	382,101.44	6,454,470.78	-0.2	-0.7
24	7:34:00	70.61	67.46	-32	2	24.126	115	45	2.167	382,099.77	6,454,472.14	382,101.44	6,454,470.78	1.7	-1.4
25	7:35:00	70.79	67.74	-32	2	24.115	115	45	2.146	382,099.50	6,454,472.21	382,101.44	6,454,470.78	1.9	-1.4
26	7:36:00	70.65	67.96	-32	2	24.112	115	45	2.113	382,098.62	6,454,472.01	382,101.44	6,454,470.78	2.8	-1.2
27	7:37:00	70.55	68.18	-32	2	24.130	115	45	2.192	382,100.72	6,454,471.19	382,101.44	6,454,470.78	0.7	-0.4
28	7:38:00	70.67	68.12	-32	2	24.148	115	45	2.203	382,101.09	6,454,470.75	382,101.44	6,454,470.78	0.3	0.0
29	7:39:00	70.74	68.25	-32	2	24.144	115	45	2.221	382,101.69	6,454,470.75	382,101.44	6,454,470.78	-0.2	0.0
30	7:40:00	70.77	68.59	-32	2	24.140	115	45	2.192	382,101.12	6,454,470.48	382,101.44	6,454,470.78	0.3	0.3



Tailbuoy Verification - Direct Readings

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Time Zone :	UTC + 8

Geodesy			
Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.25722	False Easting	500000
Datum	WGS 84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details

Instrument Station:	14N	Easting (m):	382035.05
Instrument Type :	Topcon GTS-225	Northing (m):	6454488.72
Instrument Serial No. :	136340	AHD Height (m):	0.00
Backsight Station (RO) :	13N	Easting (m):	381873.59
		Northing (m):	6454460.45
		AHD Height (m):	0.00
Actual Tailbuoy Position:		Easting (m):	382101.44
		Northing (m):	6454470.78
		AHD Height (m):	0.00
Calculated Grid Bearing to RO :		263° 18' 40.01"	
Calculated Convergence :		-000° 39' 46.37"	

Observations To: Tailbuoy # 143

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
1	8:10:00	70.9	67.647	8:10:00	-32.040036	115.750597
2	8:11:00	71.3	67.666	8:11:00	-32.040041	115.750610
3	8:12:00	71.8	67.544	8:12:00	-32.040043	115.750618
4	8:13:00	71.0	67.587	8:13:00	-32.040047	115.750607
5	8:14:00	69.5	68.155	8:14:00	-32.040039	115.750616
6	8:15:00	70.2	67.437	8:15:00	-32.040035	115.750596
7	8:16:00	72.0	67.733	8:16:00	-32.040033	115.750594
8	8:17:00	71.4	66.051	8:17:00	-32.040037	115.750608
9	8:18:00	70.5	66.978	8:18:00	-32.040041	115.750608
10	8:19:00	70.8	67.147	8:19:00	-32.040041	115.750610
11	8:20:00	71.0	67.391	8:20:00	-32.040042	115.750613
12	8:25:01	70.6	67.593	8:25:01	-32.040042	115.750606
13	8:27:01	71.0	66.025	8:27:01	-32.040046	115.750608
14	8:32:00	71.2	67.503	8:32:00	-32.040042	115.750623
15	8:33:00	68.1	71.527	8:33:00	-32.040045	115.750624
16	8:34:00	70.8	67.921	8:34:00	-32.040038	115.750617
17	8:34:39	71.8	67.941	8:34:39	-32.040039	115.750616
18	8:36:01	71.7	67.476	8:36:01	-32.040041	115.750619
19	8:37:00	71.2	67.277	8:37:00	-32.040051	115.750619
20	8:38:00	71.1	67.255	8:38:00	-32.040048	115.750622
21	8:39:00	71.1	67.129	8:39:00	-32.040048	115.750626
22	8:40:16	71.6	67.264	8:40:16	-32.040042	115.750624
23	8:46:00	71.0	67.568	8:46:00	-32.040034	115.750621
24	8:47:00	71.4	67.488	8:47:00	-32.040041	115.750621
25	8:48:00	71.6	67.506	8:48:00	-32.040051	115.750609
26	8:49:00	71.3	67.349	8:49:00	-32.040047	115.750611
27	8:51:01	70.8	68.020	8:51:01	-32.040035	115.750611

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
28	8:54:00	71.5	67.651	8:54:00	-32.040041	115.750615
29	8:55:00	70.9	67.779	8:55:00	-32.040031	115.750632
30	8:56:00	70.8	67.548	8:56:00	-32.040021	115.750619

Signature



 SURVEYOR/PARTY CHIEF



Tailbuoy Verification

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Instrument Type:	Topcon GTS-225
Time Zone :	UTC + 8	Serial No.:	136340

Geodesy	WGS84	Projection	UTM	Station Details
Spheroid	6378137	Central Meridian	117	Control Point for Tailbuoy :
Semi Major Axis	298.2572	False Easting	500000	Easting (m):
Inverse Flattening	WGS 84	False Northing	10000000	Northing (m):
Datum		Central Scale Factor	0.9996	AHD Height (m):
				382101.44
				6454470.78
				0.00

Observations To:	Signature:	RESULTS :	<table border="0" style="width:100%"> <tr> <td></td> <td style="text-align:center">C-O East</td> <td style="text-align:center">C-O North</td> </tr> <tr> <td>MEAN</td> <td style="text-align:center">0.1</td> <td style="text-align:center">-0.8</td> </tr> <tr> <td>SD</td> <td style="text-align:center">1.03</td> <td style="text-align:center">1.36</td> </tr> </table>		C-O East	C-O North	MEAN	0.1	-0.8	SD	1.03	1.36
	C-O East	C-O North										
MEAN	0.1	-0.8										
SD	1.03	1.36										
Tailbuoy #	143											
	SURVEYOR PARTY CHIEF											

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	RGPS Position					OBS POSn		Actual POSn (Coord Pt)		C-O		
									EAST	NORTH	EAST	NORTH	EAST	NORTH	
1	8:10:00	70.87	67.65	-32	2	24.130	115	45	2.149	382,099.62	6,454,471.91	382,101.44	6,454,470.78	1.8	-1.1
2	8:11:00	71.28	67.67	-32	2	24.148	115	45	2.196	382,101.25	6,454,471.51	382,101.44	6,454,470.78	0.2	-0.7
3	8:12:00	71.77	67.54	-32	2	24.155	115	45	2.225	382,102.39	6,454,471.62	382,101.44	6,454,470.78	-1.0	-0.8
4	8:13:00	70.96	67.59	-32	2	24.169	115	45	2.185	382,100.64	6,454,470.80	382,101.44	6,454,470.78	0.8	0.0
5	8:14:00	69.51	68.15	-32	2	24.140	115	45	2.218	382,100.41	6,454,470.49	382,101.44	6,454,470.78	1.0	0.3
6	8:15:00	70.24	67.44	-32	2	24.126	115	45	2.146	382,098.85	6,454,472.01	382,101.44	6,454,470.78	2.6	-1.2
7	8:16:00	72.03	67.73	-32	2	24.119	115	45	2.138	382,100.45	6,454,472.59	382,101.44	6,454,470.78	1.0	-1.8
8	8:17:00	71.40	66.05	-32	2	24.133	115	45	2.189	382,100.35	6,454,473.84	382,101.44	6,454,470.78	1.1	-3.1
9	8:18:00	70.52	66.98	-32	2	24.148	115	45	2.189	382,100.02	6,454,471.98	382,101.44	6,454,470.78	1.4	-1.2
10	8:19:00	70.83	67.15	-32	2	24.148	115	45	2.196	382,100.58	6,454,471.92	382,101.44	6,454,470.78	0.9	-1.1
11	8:20:00	70.99	67.39	-32	2	24.151	115	45	2.207	382,101.13	6,454,471.60	382,101.44	6,454,470.78	0.3	-0.8
12	8:25:01	70.65	67.59	-32	2	24.151	115	45	2.182	382,100.25	6,454,471.23	382,101.44	6,454,470.78	1.2	-0.5
13	8:27:01	70.96	66.03	-32	2	24.166	115	45	2.189	382,099.95	6,454,472.68	382,101.44	6,454,470.78	1.5	-1.9
14	8:32:00	71.21	67.50	-32	2	24.151	115	45	2.243	382,102.33	6,454,471.57	382,101.44	6,454,470.78	-0.9	-0.8
15	8:33:00	68.09	71.53	-32	2	24.162	115	45	2.246	382,101.29	6,454,465.55	382,101.44	6,454,470.78	0.1	5.2
16	8:34:00	70.85	67.92	-32	2	24.137	115	45	2.221	382,101.63	6,454,471.39	382,101.44	6,454,470.78	-0.2	-0.6
17	8:34:39	71.78	67.94	-32	2	24.140	115	45	2.218	382,102.41	6,454,471.61	382,101.44	6,454,470.78	-1.0	-0.8
18	8:36:01	71.73	67.48	-32	2	24.148	115	45	2.228	382,102.42	6,454,471.91	382,101.44	6,454,470.78	-1.0	-1.1
19	8:37:00	71.21	67.28	-32	2	24.184	115	45	2.228	382,101.85	6,454,470.82	382,101.44	6,454,470.78	-0.4	0.0
20	8:38:00	71.11	67.25	-32	2	24.173	115	45	2.239	382,102.04	6,454,471.15	382,101.44	6,454,470.78	-0.6	-0.4
21	8:39:00	71.15	67.13	-32	2	24.173	115	45	2.254	382,102.38	6,454,471.31	382,101.44	6,454,470.78	-0.9	-0.5
22	8:40:16	71.63	67.26	-32	2	24.151	115	45	2.246	382,102.70	6,454,472.01	382,101.44	6,454,470.78	-1.3	-1.2
23	8:46:00	71.01	67.57	-32	2	24.122	115	45	2.236	382,101.98	6,454,472.30	382,101.44	6,454,470.78	-0.5	-1.5
24	8:47:00	71.40	67.49	-32	2	24.148	115	45	2.236	382,102.31	6,454,471.77	382,101.44	6,454,470.78	-0.9	-1.0
25	8:48:00	71.57	67.51	-32	2	24.184	115	45	2.192	382,101.36	6,454,470.69	382,101.44	6,454,470.78	0.1	0.1
26	8:49:00	71.26	67.35	-32	2	24.169	115	45	2.200	382,101.18	6,454,471.20	382,101.44	6,454,470.78	0.3	-0.4
27	8:51:01	70.80	68.02	-32	2	24.126	115	45	2.200	382,101.06	6,454,471.58	382,101.44	6,454,470.78	0.4	-0.8
28	8:54:00	71.46	67.65	-32	2	24.148	115	45	2.214	382,101.88	6,454,471.60	382,101.44	6,454,470.78	-0.4	-0.8
29	8:55:00	70.92	67.78	-32	2	24.112	115	45	2.275	382,103.03	6,454,472.37	382,101.44	6,454,470.78	-1.6	-1.6
30	8:56:00	70.77	67.55	-32	2	24.076	115	45	2.228	382,101.54	6,454,473.67	382,101.44	6,454,470.78	-0.1	-2.9



Tailbuoy Verification - Direct Readings

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Time Zone :	UTC + 8

Geodesy			
Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.25722	False Easting	500000
Datum	WGS 84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details

Instrument Station:	14N	Easting (m):	382035.05
Instrument Type :	Topcon GTS-225	Northing (m):	6454488.72
Instrument Serial No. :	136340	AHD Height (m):	0.00
Backsight Station (RO) :	13N	Easting (m):	381873.59
		Northing (m):	6454460.45
		AHD Height (m):	0.00
Actual Tailbuoy Position:		Easting (m):	382101.44
		Northing (m):	6454470.78
		AHD Height (m):	0.00
Calculated Grid Bearing to RO :		263° 18' 40.01"	
Calculated Convergence :		-000° 39' 46.37"	

Observations To: Tailbuoy # 144

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
1	7:11:00	71.4	67.517	7:11:00	-32.040051	115.750620
2	7:12:00	71.3	67.556	7:12:00	-32.040058	115.750621
3	7:13:00	71.2	67.232	7:13:00	-32.040055	115.750625
4	7:14:00	71.8	67.529	7:14:00	-32.040052	115.750603
5	7:15:00	71.9	67.634	7:15:00	-32.040056	115.750614
6	7:16:01	72.2	67.946	7:16:01	-32.040054	115.750616
7	7:17:00	72.0	67.851	7:17:00	-32.040047	115.750614
8	7:18:00	71.5	67.641	7:18:00	-32.040055	115.750620
9	7:19:00	70.8	67.469	7:19:00	-32.040050	115.750626
10	7:20:00	71.2	67.618	7:20:00	-32.040039	115.750618
11	7:21:00	71.2	67.767	7:21:00	-32.040039	115.750621
12	7:22:00	71.5	67.604	7:22:00	-32.040045	115.750611
13	7:23:00	71.6	67.406	7:23:00	-32.040045	115.750618
14	7:24:00	71.3	67.516	7:24:00	-32.040046	115.750627
15	7:25:00	71.6	67.718	7:25:00	-32.040041	115.750622
16	7:26:00	72.1	67.329	7:26:00	-32.040046	115.750620
17	7:27:00	71.0	67.378	7:27:00	-32.040047	115.750617
18	7:28:00	71.8	67.858	7:28:00	-32.040056	115.750616
19	7:29:00	71.2	67.782	7:29:00	-32.040056	115.750614
20	7:30:00	71.7	67.250	7:30:00	-32.040058	115.750610
21	7:31:00	71.3	67.863	7:31:00	-32.040053	115.750626
22	7:32:00	72.1	67.391	7:32:00	-32.040044	115.750619
23	7:33:00	72.1	67.627	7:33:00	-32.040042	115.750620
24	7:34:00	71.3	68.014	7:34:00	-32.040035	115.750602
25	7:35:00	72.1	67.361	7:35:00	-32.040032	115.750596
26	7:36:00	71.8	67.299	7:36:00	-32.040031	115.750587
27	7:37:00	71.9	67.499	7:37:00	-32.040036	115.750609

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degr	Longitude Degr
28	7:38:00	71.3	67.564	7:38:00	-32.040041	115.750612
29	7:39:00	71.4	67.672	7:39:00	-32.040040	115.750617
30	7:40:00	71.6	67.648	7:40:00	-32.040039	115.750609

Signature



 SURVEYOR/PARTY CHIEF



Tailbuoy Verification

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Instrument Type:	Topcon GTS-225
Time Zone :	UTC + 8	Serial No.:	136340

Geodesy		Projection		Station Details	
Spheroid	WGS84	Central Meridian	UTM	Control Point for Tailbuoy :	
Semi Major Axis	6378137	False Easting	117	Easting (m):	382101.44
Inverse Flattening	298.2572	False Northing	500000	Northing (m):	6454470.78
Datum	WGS 84	Central Scale Factor	10000000	AHD Height (m):	0.00
			0.9996		

Observations To:		Signature: SURVEYOR/PARTY CHIEF	RESULTS :	MEAN	C-O East	C-O North
Tailbuoy #	144			SD	-0.5	-0.4
				0.81	0.95	

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	RGPS Position					OBS POSn		Actual POSn (Coord Pt)		C-O		
									EAST	NORTH	EAST	NORTH	EAST	NORTH	
1	7:11:00	71.45	67.52	-32	2	24.184	115	45	2.232	382,102.29	6,454,470.65	382,101.44	6,454,470.78	-0.9	0.1
2	7:12:00	71.34	67.56	-32	2	24.209	115	45	2.236	382,102.31	6,454,469.78	382,101.44	6,454,470.78	-0.9	1.0
3	7:13:00	71.18	67.23	-32	2	24.198	115	45	2.250	382,102.38	6,454,470.43	382,101.44	6,454,470.78	-0.9	0.3
4	7:14:00	71.84	67.53	-32	2	24.187	115	45	2.171	382,101.05	6,454,470.66	382,101.44	6,454,470.78	0.4	0.1
5	7:15:00	71.91	67.63	-32	2	24.202	115	45	2.210	382,102.21	6,454,470.13	382,101.44	6,454,470.78	-0.8	0.6
6	7:16:01	72.24	67.95	-32	2	24.194	115	45	2.218	382,102.85	6,454,470.12	382,101.44	6,454,470.78	-1.4	0.7
7	7:17:00	72.00	67.85	-32	2	24.169	115	45	2.210	382,102.39	6,454,470.91	382,101.44	6,454,470.78	-1.0	-0.1
8	7:18:00	71.53	67.64	-32	2	24.198	115	45	2.232	382,102.43	6,454,470.09	382,101.44	6,454,470.78	-1.0	0.7
9	7:19:00	70.84	67.47	-32	2	24.180	115	45	2.254	382,102.27	6,454,470.58	382,101.44	6,454,470.78	-0.8	0.2
10	7:20:00	71.15	67.62	-32	2	24.140	115	45	2.225	382,101.86	6,454,471.74	382,101.44	6,454,470.78	-0.4	-1.0
11	7:21:00	71.18	67.77	-32	2	24.140	115	45	2.236	382,102.24	6,454,471.59	382,101.44	6,454,470.78	-0.8	-0.8
12	7:22:00	71.52	67.60	-32	2	24.162	115	45	2.200	382,101.53	6,454,471.23	382,101.44	6,454,470.78	-0.1	-0.5
13	7:23:00	71.59	67.41	-32	2	24.162	115	45	2.225	382,102.16	6,454,471.49	382,101.44	6,454,470.78	-0.7	-0.7
14	7:24:00	71.32	67.52	-32	2	24.166	115	45	2.257	382,102.82	6,454,471.16	382,101.44	6,454,470.78	-1.4	-0.4
15	7:25:00	71.60	67.72	-32	2	24.148	115	45	2.239	382,102.70	6,454,471.58	382,101.44	6,454,470.78	-1.3	-0.8
16	7:26:00	72.08	67.33	-32	2	24.166	115	45	2.232	382,102.77	6,454,471.66	382,101.44	6,454,470.78	-1.3	-0.9
17	7:27:00	71.01	67.38	-32	2	24.169	115	45	2.221	382,101.53	6,454,471.07	382,101.44	6,454,470.78	-0.1	-0.3
18	7:28:00	71.79	67.86	-32	2	24.202	115	45	2.218	382,102.39	6,454,469.83	382,101.44	6,454,470.78	-1.0	0.9
19	7:29:00	71.16	67.78	-32	2	24.202	115	45	2.210	382,101.59	6,454,469.67	382,101.44	6,454,470.78	-0.2	1.1
20	7:30:00	71.69	67.25	-32	2	24.209	115	45	2.196	382,101.44	6,454,470.26	382,101.44	6,454,470.78	0.0	0.5
21	7:31:00	71.26	67.86	-32	2	24.191	115	45	2.254	382,102.85	6,454,469.96	382,101.44	6,454,470.78	-1.4	0.8
22	7:32:00	72.10	67.39	-32	2	24.158	115	45	2.228	382,102.72	6,454,471.82	382,101.44	6,454,470.78	-1.3	-1.0
23	7:33:00	72.08	67.63	-32	2	24.151	115	45	2.232	382,102.91	6,454,471.77	382,101.44	6,454,470.78	-1.5	-1.0
24	7:34:00	71.34	68.01	-32	2	24.126	115	45	2.167	382,100.71	6,454,471.79	382,101.44	6,454,470.78	0.7	-1.0
25	7:35:00	72.06	67.36	-32	2	24.115	115	45	2.146	382,100.48	6,454,473.15	382,101.44	6,454,470.78	1.0	-2.4
26	7:36:00	71.82	67.30	-32	2	24.112	115	45	2.113	382,099.38	6,454,473.23	382,101.44	6,454,470.78	2.1	-2.5
27	7:37:00	71.90	67.50	-32	2	24.130	115	45	2.192	382,101.64	6,454,472.49	382,101.44	6,454,470.78	-0.2	-1.7
28	7:38:00	71.35	67.56	-32	2	24.148	115	45	2.203	382,101.45	6,454,471.65	382,101.44	6,454,470.78	0.0	-0.9
29	7:39:00	71.43	67.67	-32	2	24.144	115	45	2.221	382,102.05	6,454,471.68	382,101.44	6,454,470.78	-0.6	-0.9
30	7:40:00	71.61	67.65	-32	2	24.140	115	45	2.192	382,101.45	6,454,471.88	382,101.44	6,454,470.78	0.0	-1.1



Tailbuoy Verification - Direct Readings

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Time Zone :	UTC + 8

Geodesy			
Spheroid	WGS84	Projection	UTM
Semi Major Axis	6378137	Central Meridian	117
Inverse Flattening	298.25722	False Easting	500000
Datum	WGS 84	False Northing	10000000
		Central Scale Factor	0.9996

Station Details

Instrument Station:	14N	Easting (m):	382035.05
Instrument Type :	Topcon GTS-225	Northing (m):	6454488.72
Instrument Serial No. :	136340	AHD Height (m):	0.00
Backsight Station (RO) :	13N	Easting (m):	381873.59
		Northing (m):	6454460.45
		AHD Height (m):	0.00
Actual Tailbuoy Position:		Easting (m):	382101.44
		Northing (m):	6454470.78
		AHD Height (m):	0.00
Calculated Grid Bearing to RO :		263° 18' 40.01"	
Calculated Convergence :		-000° 39' 46.37"	

Observations To: Tailbuoy # 152

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degs	Longitude Degs
1	9:28:02	71.0	67.328	9:28:02	-32.040047	115.750631
2	9:28:58	70.3	68.559	9:28:58	-32.040054	115.750627
3	9:29:58	71.6	68.100	9:29:58	-32.040057	115.750626
4	9:30:01	71.4	67.483	9:30:01	-32.040055	115.750626
5	9:30:58	69.9	68.031	9:30:58	-32.040058	115.750616
6	9:31:59	71.1	66.589	9:31:59	-32.040059	115.750613
7	9:32:59	72.9	66.275	9:32:59	-32.040053	115.750609
8	9:33:56	71.9	66.755	9:33:56	-32.040045	115.750601
9	9:35:00	70.9	66.812	9:35:00	-32.040046	115.750614
10	9:37:00	71.4	66.095	9:37:00	-32.040049	115.750620
11	9:37:58	71.5	65.814	9:37:58	-32.040037	115.750607
12	9:38:59	70.7	68.635	9:38:59	-32.040052	115.750627
13	9:39:59	73.2	66.619	9:39:59	-32.040038	115.750610
14	9:41:01	71.4	67.390	9:41:01	-32.040040	115.750609
15	9:42:01	71.2	66.719	9:42:01	-32.040056	115.750626
16	9:42:57	72.7	66.482	9:42:57	-32.040042	115.750627
17	9:44:00	71.8	67.714	9:44:00	-32.040044	115.750623
18	9:44:59	71.7	67.719	9:44:59	-32.040053	115.750629
19	9:46:01	71.1	60.751	9:46:01	-32.040046	115.750618
20	9:46:59	72.4	67.807	9:46:59	-32.040051	115.750625
21	9:48:00	73.9	69.115	9:48:00	-32.040038	115.750615
22	9:49:00	70.9	66.374	9:49:00	-32.040041	115.750628
23	9:51:01	72.9	67.179	9:51:01	-32.040045	115.750623
24	9:52:00	71.2	67.671	9:52:00	-32.040044	115.750628
25	9:53:00	72.0	67.485	9:53:00	-32.040044	115.750622
26	9:54:02	72.1	68.519	9:54:02	-32.040039	115.750620
27	9:54:59	71.8	67.267	9:54:59	-32.040035	115.750624

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	Time (hh:mm:ss)	RGPS Position	
					Latitude (-ve S, +ve N) Degr	Longitude Degr
28	9:55:59	69.2	67.157	9:55:59	-32.040029	115.750612
29	9:56:58	72.0	67.606	9:56:58	-32.040032	115.750622
30	9:58:00	71.3	68.251	9:58:00	-32.040027	115.750616

Signature



 SURVEYOR/PARTY CHIEF



Tailbuoy Verification

Fugro Job Number:	P0452	Wharf:	11 North Fremantle Wharf
Job Description:	Calibration	Vessel:	Veritas Viking II
Client:	Veritas	Date:	21 April 2006
Surveyor:	M. Yorath & A. Hamilton	Instrument Type:	Topcon GTS-225
Time Zone :	UTC + 8	Serial No.:	136340

Geodesy		Projection		UTM		Station Details	
Spheroid	WGS84	Central Meridian		117		<i>Control Point for Tailbuoy :</i>	
Semi Major Axis	6378137	False Easting		500000		Easting (m):	382101.44
Inverse Flattening	298.2572	False Northing		1000000		Northing (m):	6454470.78
Datum	WGS 84	Central Scale Factor		0.9996		AHD Height (m):	0.00

Observations To:		Signature: SURVEYOR/PARTY CHIEF	RESULTS :	MEAN	C-O East	C-O North
Tailbuoy #	152			SD	-0.7	-1.0

Obs	Time (hh:mm:ss)	Logged Tailbuoy Range	Logged Tailbuoy Bearing	RGPS Position					OBS POSn		Actual POSn (Coord Pt)		C-O		
									EAST	NORTH	EAST	NORTH	EAST	NORTH	
1	9:28:02	71.03	67.33	-32	2	24.169	115	45	2.272	382,102.84	6,454,471.15	382,101.44	6,454,470.78	-1.4	-0.4
2	9:28:58	70.34	68.56	-32	2	24.194	115	45	2.257	382,102.43	6,454,468.70	382,101.44	6,454,470.78	-1.0	2.1
3	9:29:58	71.63	68.10	-32	2	24.205	115	45	2.254	382,103.31	6,454,469.38	382,101.44	6,454,470.78	-1.9	1.4
4	9:30:01	71.39	67.48	-32	2	24.198	115	45	2.254	382,102.78	6,454,470.22	382,101.44	6,454,470.78	-1.3	0.6
5	9:30:58	69.89	68.03	-32	2	24.209	115	45	2.218	382,100.73	6,454,468.68	382,101.44	6,454,470.78	0.7	2.1
6	9:31:59	71.14	66.59	-32	2	24.212	115	45	2.207	382,100.89	6,454,470.69	382,101.44	6,454,470.78	0.5	0.1
7	9:32:59	72.94	66.28	-32	2	24.191	115	45	2.192	382,101.99	6,454,472.45	382,101.44	6,454,470.78	-0.6	-1.7
8	9:33:56	71.86	66.75	-32	2	24.162	115	45	2.164	382,100.48	6,454,472.33	382,101.44	6,454,470.78	1.0	-1.6
9	9:35:00	70.92	66.81	-32	2	24.166	115	45	2.210	382,100.88	6,454,471.79	382,101.44	6,454,470.78	0.6	-1.0
10	9:37:00	71.36	66.09	-32	2	24.176	115	45	2.232	382,101.48	6,454,472.45	382,101.44	6,454,470.78	0.0	-1.7
11	9:37:58	71.47	65.81	-32	2	24.133	115	45	2.185	382,100.19	6,454,474.13	382,101.44	6,454,470.78	1.2	-3.4
12	9:38:59	70.67	68.63	-32	2	24.187	115	45	2.257	382,102.76	6,454,468.96	382,101.44	6,454,470.78	-1.3	1.8
13	9:39:59	73.24	66.62	-32	2	24.137	115	45	2.196	382,102.51	6,454,473.83	382,101.44	6,454,470.78	-1.1	-3.1
14	9:41:01	71.36	67.39	-32	2	24.144	115	45	2.192	382,101.09	6,454,471.96	382,101.44	6,454,470.78	0.3	-1.2
15	9:42:01	71.19	66.72	-32	2	24.202	115	45	2.254	382,102.23	6,454,470.91	382,101.44	6,454,470.78	-0.8	-0.1
16	9:42:57	72.66	66.48	-32	2	24.151	115	45	2.257	382,103.52	6,454,473.33	382,101.44	6,454,470.78	-2.1	-2.6
17	9:44:00	71.78	67.71	-32	2	24.158	115	45	2.243	382,102.96	6,454,471.33	382,101.44	6,454,470.78	-1.5	-0.6
18	9:44:59	71.70	67.72	-32	2	24.191	115	45	2.264	382,103.47	6,454,470.30	382,101.44	6,454,470.78	-2.0	0.5
19	9:46:01	71.14	60.75	-32	2	24.166	115	45	2.225	382,098.05	6,454,478.59	382,101.44	6,454,470.78	3.4	-7.8
20	9:46:59	72.40	67.81	-32	2	24.184	115	45	2.250	382,103.78	6,454,470.69	382,101.44	6,454,470.78	-2.3	0.1
21	9:48:00	73.91	69.11	-32	2	24.137	115	45	2.214	382,104.84	6,454,471.14	382,101.44	6,454,470.78	-3.4	-0.4
22	9:49:00	70.89	66.37	-32	2	24.148	115	45	2.261	382,101.95	6,454,472.84	382,101.44	6,454,470.78	-0.5	-2.1
23	9:51:01	72.87	67.18	-32	2	24.162	115	45	2.243	382,103.70	6,454,472.26	382,101.44	6,454,470.78	-2.3	-1.5
24	9:52:00	71.25	67.67	-32	2	24.158	115	45	2.261	382,102.93	6,454,471.17	382,101.44	6,454,470.78	-1.5	-0.4
25	9:53:00	71.98	67.48	-32	2	24.158	115	45	2.239	382,102.94	6,454,471.67	382,101.44	6,454,470.78	-1.5	-0.9
26	9:54:02	72.14	68.52	-32	2	24.140	115	45	2.232	382,103.39	6,454,471.08	382,101.44	6,454,470.78	-2.0	-0.3
27	9:54:59	71.80	67.27	-32	2	24.126	115	45	2.246	382,102.84	6,454,472.85	382,101.44	6,454,470.78	-1.4	-2.1
28	9:55:59	69.23	67.16	-32	2	24.104	115	45	2.203	382,099.29	6,454,472.60	382,101.44	6,454,470.78	2.1	-1.8
29	9:56:58	72.00	67.61	-32	2	24.115	115	45	2.239	382,103.00	6,454,472.87	382,101.44	6,454,470.78	-1.6	-2.1
30	9:58:00	71.30	68.25	-32	2	24.097	115	45	2.218	382,102.10	6,454,472.40	382,101.44	6,454,470.78	-0.7	-1.6

APPENDIX G
FIELD REPORT – CALIBRATION RESULTS

FIELD REPORT PRELIMINARY CALIBRATION RESULTS



CLIENT: VERITAS

DATE: 22nd APRIL 2006

VESSEL: SR/V VERITAS VIKING II

LOCATION: FREMANTLE

DGPS VERIFICATION – 21 APRIL 2006

	<u>EASTING</u>		<u>NORTHING</u>	
	Mean C-O	Std Dev	Mean C-O	Std Dev.
V1G1	<u>-0.276m</u>	<u>±0.890m</u>	<u>-0.253m</u>	<u>±0.437m</u>
V1G3	<u>0.197m</u>	<u>±0.041m</u>	<u>-0.108m</u>	<u>±0.035m</u>

DGPS VERIFICATION – 22 APRIL 2006

	<u>EASTING</u>		<u>NORTHING</u>	
	Mean C-O	Std Dev	Mean C-O	Std Dev.
V1G1	<u>0.100m</u>	<u>±0.280m</u>	<u>0.084m</u>	<u>±0.043m</u>
V1G2	<u>0.048m</u>	<u>±0.359m</u>	<u>0.377m</u>	<u>±0.219m</u>

GYRO COMPASS CALIBRATION

VESSEL HEADING	<u>PORT</u>		<u>STARBOARD</u>	
	Mean C-O	Std Dev	Mean C-O	Std Dev
081°	<u>-0.34°</u>	<u>±0.04</u>	<u>-0.35°</u>	<u>±0.04</u>
261°	<u>-0.38°</u>	<u>±0.05</u>	<u>-0.22°</u>	<u>±0.03</u>

Mean Gyro Compass C-O values

Port Gyro -0.36°
Starboard Gyro -0.29°

FIELD REPORT PRELIMINARY CALIBRATION RESULTS



TAILBUOY VERIFICATION

Tailbuoy / Gun	Easting	SD	Northing	SD
Unit				
#123	0.4	±1.07	-0.8	±0.78
#129	-1.7	±3.33	-0.9	±1.72
# 134	-0.8	±1.04	-1.4	±1.76
# 135	-0.4	±1.02	-1.0	±1.37
# 137	0.1	±0.91	0.1	±0.96
# 143	0.1	±1.03	-0.8	±1.36
# 144	-0.5	±0.81	-0.4	±0.95
# 152	-0.7	±1.46	-1.0	±1.92

Michael Yorath

A handwritten signature in black ink, appearing to read "Michael Yorath".

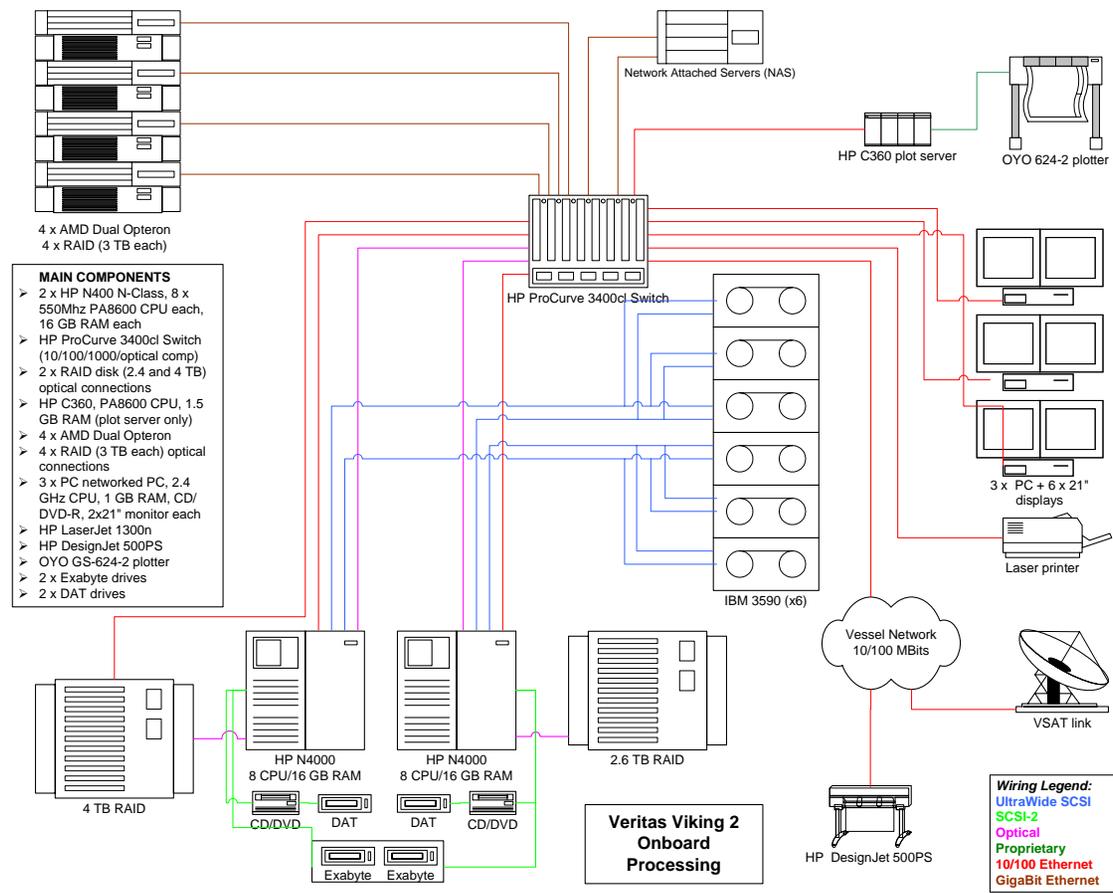
Fugro Survey Pty Ltd

Client Representative



SR/V Veritas Viking II Onboard Processing Setup

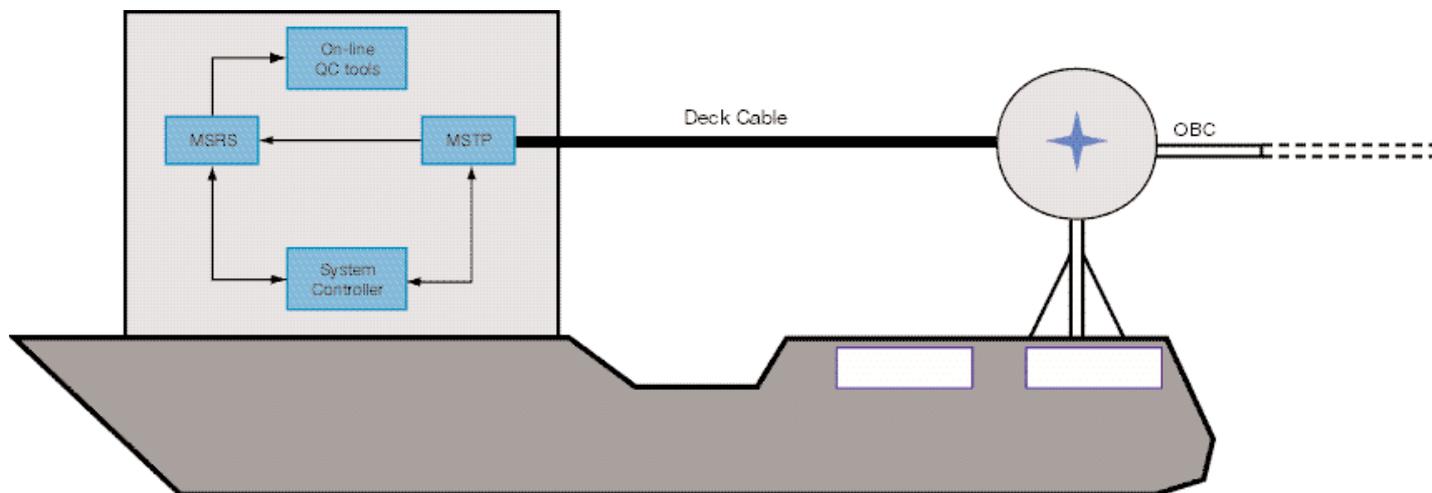
VERITAS DGC Inc.
10300 Town Park
Houston, Texas 77072 USA
www.veritasdgc.com



VESSEL :	SR/V Veritas Viking II	FROM DATE :	22 Apr 2006	Not to Scale. Measurements Quoted in Meters.	Marine ATG Field Engineer Print	Page 1
CLIENT :	Esso Australia Pty Ltd.	TO DATE :	06 Jul 2006			Created: 4/22/06
AREA :	Greater Bream 3D 2006	FROM SEQ :	001		Sign	NavDef #1
JOB # :	20323	TO SEQ :	198			

SYNTRAK

Components



ON-BOARD EQUIPMENT

SYSTEM CONTROLLER

The System Controller is a real-time, preemptive, multi-tasking operating system that regulates the activity of the recorder and processor via a custom high-speed serial link developed by Sercel. System performance can be analyzed offline and after each boat pass, and a programmable set of quality assurance tests allows daily, weekly, and monthly system evaluation.

MSTP

An MSTP acts as an interface between two digital streamers and the recording system. Up to 8 MSTP chassis can be operated simultaneously. The MSTP controls and analyzes streamer and module diagnostics and displays them on a high-resolution monitor. Built-in QC capabilities allow daily, weekly, and monthly tests to be pre-programmed and automatically run.

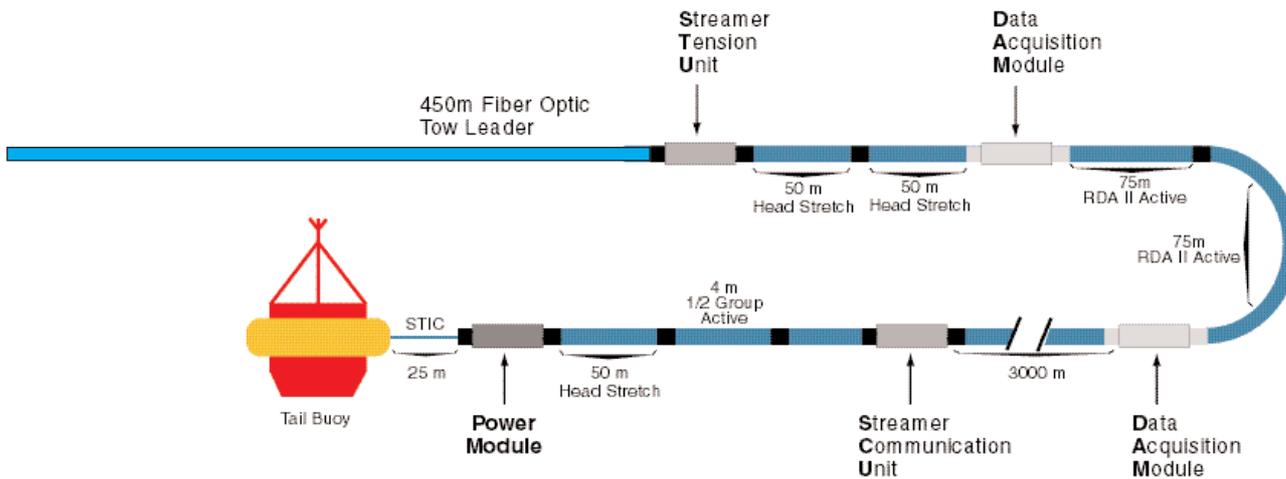
MSRS

The MSRS houses all of the hardware for collecting and recording data. The system receives MSTP data, creates headers, and formats seismic data, which it writes to tape for processing. The system allows data to be plotted in real time on two plotters simultaneously. Data may also be plotted from tape in the playback mode. Recording functions include: data collection, tape, plot, observer's log, reproduction, and off-line QC. A second MSRS allows real-time tapes copying and dual recording.

ON-LINE QC TOOLS

The SYNTRAK System is now fully compatible with SeaPro QC and SeaPro Bin software, allowing a real-time and on-line seismic QC processing and on-board binning analysis.

Components



IN-WATER EQUIPMENT

DAM

The 24-bit Data Acquisition Module offers extended resolution that allows the system to record extremely small amplitude signals. Delta-Sigma analog-to-digital conversion and DSP technology allow digital filtering and signal processing to be performed in the module.

RDA II

The Reduced Diameter Array design provides increased crush strength in the spacers and allows the streamer to survive greater physical abuse in the field, while rounded components reduce skin damage during general use. A new hydrophone virtually eliminates sensitivity hysteresis in depths down to 100 m, and a unique flow-through oil valve prevents total fluid loss if a compartment becomes damaged.

IN-WATER ANCILLARY MODULES

TAIL BUOY POWER MODULE

The Tail Buoy Power Module lies between the last active streamer section and the tail buoy and is controlled via the System Controller in the MSTs. The module supplies power to the tail buoy and can be activated or deactivated during streamer initialization and while on-line in Record Mode.

SCU

The Streamer Communication Unit boosts bird communication signal levels to enable a signal to travel to any cable length at 3-km intervals without degrading even in the presence of leakage. The SCU is compatible with DigiCourse compass/bird acoustics systems and with Sonardyne acoustic units (SIPS). A special battery backup keeps the SCU working even when power to the main streamer is interrupted.

STU

The Streamer Tension Unit manages streamer deployment, retrieval, operation, and maintenance. Powered from the streamer, the STU continuously measures the tensile load on the streamer and communicates that information shot-by-shot to an onboard recording unit. Operators use the information gathered by the STU to reduce risk during data collection, to protect in-water assets, and to optimize the time invested in the data collection process.

Specifications

IN-WATER EQUIPMENT

24-BIT DATA ACQUISITION MODULE

Number of Seis Channels	12 Channels per Module
Dynamic Range	(3 - 206 Hz : 2-ms sample rate)
114 dB	@ 12 dB K-Gain
113 dB	@ 24 dB K-Gain
109 dB	@ 36 dB K-Gain
99 dB	@ 48 dB K-Gain
Equivalent Input Noise	(3 - 206 Hz : 2-ms sample rate)
3.000 μ V RMS	@ 12 dB K-Gain
0.800 μ V RMS	@ 24 dB K-Gain
0.312 μ V RMS	@ 36 dB K-Gain
0.250 μ V RMS	@ 48 dB K-Gain
DC Offset	(3 - 206 Hz : 2-ms sample rate)
3.000 μ V RMS	@ 12 dB K-Gain
0.800 μ V RMS	@ 24 dB K-Gain
0.312 μ V RMS	@ 36 dB K-Gain
0.250 μ V RMS	@ 48 dB K-Gain

Distortion (nominal)	Less than 0.0005% (>106 dB) at 3 dB below Full Scale
----------------------	--

Common Mode Rejection	80 dB
-----------------------	-------

Internal Crossfeed Isolation	110 dB
------------------------------	--------

Depth Transducer

Type	Strain Gage
Accuracy	- 0.46 m (1.5 feet)
Range	0 to 122 m (0 to 400 feet)
Pressure	200 psi Max.

Internal Pressure

Transducer Pressure	25 psi nominal
Depth	200 m, operating 300 m, survival

Power Requirements

Consumption

Electrical Module @ 25°C

input	acquisition mode	standby
150 VDC	8 W	7,5 W
350 VDC	9,1 W	8,7 W

Optical Module @ 25°C

input	acquisition mode	standby
230 VDC	11,3 W	10,8 W
350 VDC	11,7 W	11,2 W

Input Voltage	130 to 400 Vdc
---------------	----------------

Dimensions

Canister Housing	8.255 cm (3.25") diameter x 26.7 cm (10.5") length
------------------	---

Face-to-Face Distance	34.97 cm (13.727")
-----------------------	--------------------

Overall Length with Connectors	57 cm (22.4")
--------------------------------	---------------

PREAMPLIFIER

Type	Voltage Mode Differential 181.8 kW , electrical module 286 kW , optical module
------	--

Preamplifier K-Gain

Gain (\pm 0.4%)	Max Volts Peak	Pressure (20 Volts/Bar) peak
12 dB	2048 mV	102.4 millibars
24 dB	512 mV	25.6 millibars
36 dB	128 mV	6.4 millibars
48 dB	32 mV	1.6 millibars

LOW-CUT FILTER

Analog (Butterworth) (electrical only)

Frequency	3 Hz
Slope	- 6dB/octave

Digital (IIR Butterworth)

Electrical	Frequency 3 - 15 Hz Slope - 6dB/octave
Optical	Frequency 2Hz 4Hz 6Hz 8 Hz Slope - 6 - 12 - 12 -18 dB/octave

HIGH-CUT FILTER

Type	Digital Linear Phase
Selectable Sample Rate	Filter Corner Frequency (-3dB)
4 ms	103 Hz @ 276 dB/octave
2 ms	206 Hz @ 276 dB/octave
1 ms	412 Hz @ 276 dB/octave
0.5 ms	824 Hz @ 276 dB/octave

HIGH-CUT FILTER CHARACTERISTICS

Output Word Rate f0 (Hz)	Passband f1 (Hz)	Passband Flatness (dB)	-3dB Freq f2 (Hz)	Stop-band f3 (Hz)	Group Delay ** (ms)
2000	750	0.04	824	1000	14.50
1000	375	0.08	412	500	29.00
500	188	0.10	206	250	58.00
250	94	0.10	103	125	116.00

** Without digital low-cut filter

With digital low-cut filter, group delays are zero ms

A/D CONVERTER

Type	Delta-Sigma Architecture
Number of Bits	24 bits
Dynamic Range	120 dB typical

TEST OSCILLATOR

Distortion Output Levels	Less than 0.0003% (-110 dB) 2048 mV peak 512 mV peak 128 mV peak 32 mV peak
Frequency	31.25 Hz Sine Wave

TEST CAPABILITY

Digitizing Module	DC Offset Equivalent Input Noise Harmonic Distortion System Dynamic Range Gain Accuracy Impulse Response Common Mode Rejection Ratio (CMRR) Internal Crosstalk Leakage
-------------------	--

EXPORTABILITY

Exportable versions of the 24-bit DAM that comply with the US Department of Commerce regulations are also available. Restricted from operating at depths less than 2 meters and at depths greater than 35 meters, these versions offer the same advantages and quality than the standard versions.

SYNTRAK TAIL BUOY POWER MODULE

Input Voltage	65 - 400 Vdc
Output Voltage	13.8, 27.6 or 48 Vdc nominal
Output Power	50 W maximum
Output Current	1A maximum
Remote On/Off Control	Via the Operator Interface in the SYNTRAK® 960-24 MSTs
Safety Feature	Internal short circuit protection to prevent instrument damage under fault condition
Sampling	Remote sampling of output voltage and current
Housing	Nitrogen - pressurized titanium

SCU™

Internal Battery Duration	1 to 4 days
Repeater Interval	4 km
Signal Delay	25 µs max.
Repeater Channels	2, FSK or DSK

STU™

Maximum In-line Tension	10,000 daN (22,000 lbf)
Accuracy	± 45 daN (100 lbf) or ± 5% of reading
Internal Battery Duration	16 hours

SHIPBOARD EQUIPMENT

SYSTEM CONTROLLER

PC Chassis	Passive backplane 48.26 cm (19") rack mount
Processor	Intel Pentium 200 MHz
CPU Memory	32 Mbytes DRAM standard
Disk Storage	1 Gbyte
Width	48.26 cm (19") standard rack mount
Height	17.78 cm (7")
Depth	55.88 cm (22") [allow 60.96 cm (24") for cable clearance]
Weight	20.41 kg (45 lbs)
Input Voltage	90 - 132 Vac or 180 - 264 Vac
Frequency	47 - 63 Hz
Graphics Display	One 1280x1024 high-resolution color graphics monitor
Printers	One Hewlett Packard LaserJet printer and one dot matrix impact printer
VME Link	DSP-controlled high-speed serial data link (55 Mbps)
Time	Synchronized to GPS receiver in MSRS Chassis
Keyboard	101 key
Mouse	Optical, mechanical or trackball
Monitor	35.56 cm (14") VGA

MSTP CHASSIS

Chassis/Bus	Custom 6U/9U VME
Input Voltage Frequency	90 - 132 Vac or 180 - 264 Vac 47 - 63 Hz
Width	48.26 cm (19")
Height	53.34 cm (21")
Depth	60.96 cm (24)
Streamer Interface	One or two Streamer Interface Boards
System Controller Interface	DSP-controlled high-speed serial data link (55 Mbps) and VME Bus Interface board
VME Controller	VME Bus Arbiter Board
QC Graphics	One QCG-II Board
GPS Receiver	One True Time GPS-VME Receiver (optional)

STREAMER INTERFACE BOARD

Maximum	960 channels at 2-ms and 4-ms sample rate
Bandwidth	1440 channels at 4-ms sample rate 480 channels at 1-ms sample rate 240 channels at 0.5-ms sample rate

MSRS CHASSIS

Chassis/Bus	Custom 6U/9U VME
Input Voltage Frequency	90 - 132 Vac or 180 - 264 Vac 47 - 63 Hz
Width	48.26 cm (19")
Height	53.34 cm (21")
Depth	60.96 cm (24)
MSTP Interface	Up to four Data Collector boards with up to four streamers each
Processing Hardware	Two System Processor boards
VME Memory	512 Mbytes to 4 Gbytes DRAM
System Controller Interface	DSP-controlled high-speed serial data link (55 Mbps) and VME Bus Interface board
VME Controller	VME Bus Arbiter
Tape Subsystem	Two SCSI-2 (fast and wide) Interface boards and a maximum of four of the following IBM compatible cartridge tape units : 3480 (dual), 3490E (single) or 3590 (single)
Disk Subsystem	SCSI Interface board, 4.0 Gbyte hard disk drive
Plot Subsystem	Up to two 55.88 cm (22-inch) or 60.96 (24-inch) plotters with a Versatec interface.

DATA COLLECTOR BOARD

Maximum Streamer Capacity	Up to 4 Data Collector Boards per MSRS chassis
---------------------------	--

SYSTEM PROCESSOR BOARD 1_RASTERIZER BOARD

Plotters Supported	2
Plotter Interface	Versatec
Rasterization Time	53 ms per trace for 8-sec record, 1-ms sample rate

SYSTEM PROCESSOR BOARD 2_RECORDING SYSTEM BOARD

Standard Format	SEG-D Revision 1, Demultiplexed, 2.5 byte (8015), 3 byte (8036), and 4 byte (8038, 8048, 8058)
Plot Types	Single-trace, Monitor
Plot Gain Modes	AGC, PGC, Fixed
Plot Low-Cut Filter	IIR Selectable ; 0, 5, 8 or 10 Hz
Trace Presentation	Wiggle, variable area

Note : Tape-blocking is supported under SEG-D Revision 1

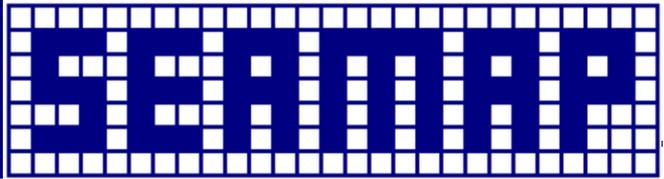
VME CHASSIS POWER

Input Voltage Frequency	90 - 132 Vac or 180 - 264 Vac 47 - 63 Hz
Height	17.78 cm (7")
Width	48.26 cm (19")
Depth	62.23 cm (24.5")

AUXILIARY INPUT UNIT

Channel Capacity	12- or 48 channel unit
Appended Modules	Append or overlay up to 48 channels of data to the end or record
Sample Rate	Same as Data Acquisition Module
Filtering	Same as Data Acquisition Module
Height	26.67 cm (10.5")
Width	48.26 cm (19")
Depth	60.96 cm (24")

BuoyLink



GPS Seismic Gun Float and Tail Buoy Tracking System

BuoyLink Module– Delrin® Housing

16 Channel P/S Interface Unit



- **Ruggedised** : Shock mounted electronics packaged in a Delrin® high strength plastic housing provides reliable operation on gun floats and tail buoys.
- **Navigation Software Interface** : Available with direct interface to Spectra™ by Concept Systems.
- **Radio**: Each 900Mhz Spread Spectrum Radio is configured with a TDMA communication protocol.
- **Radio Net Software**: User-friendly software is available for efficient management of the RF network.
- **Dual Function** : Each module is equipped with RS422 data output and optional spread spectrum radio output.
- **Accuracy** : Field Proven sub-meter accuracy.
- **Controller** : Standard 19" rack mount 16 channel on-board controller available.

Seamap's BuoyLink provides a ruggedised GPS tracking system capable of providing sub meter accurate tracking of seismic gun floats, forward navigation buoys, tail buoys, chase vessels and other remote position requirements.

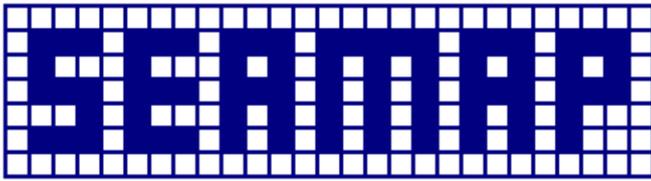
Each BuoyLink module comprises of a 12 channel GPS receiver, a power supply and data transmission system and an optional spread spectrum radio transmitter and amplifier. The electronic assemblies are shock mounted and housed in a high strength Delrin® housing with double o-ring seals. Close attention has been paid to the shock mounting design to insure reliable long term operation in the harsh environment found on gun floats and tail buoys. Each module has a standard RS422 output or optional spread spectrum

radio output. The on-board controller comprises of a 16 channel power supply capable of powering up to 16 BuoyLink modules and a 16 channel RS422 input terminals to receive the incoming data. The resultant output is send to a serial server to process a single IP string for further input to the navigation system.

A software interface is available from Concept Systems for their Spectra™ Navigation System.

The BuoyLink System provides a reliable cost effective solution for sub meter tracking of multiple seismic gun floats and tail buoys.

Description	Part Number
Standard BuoyLink Module	01-28-0308
BuoyLink with Radio Option	01-28-0309
16 Channel P/S Interface Unit	01-28-0401
BuoyLink Master GPS Interface Unit	01-28-0409
BuoyLink Spares Kit	17-28-0300
RF Management Software	16-28-0001
Radio Upgrade Kit	17-28-0301



Specifications

GPS Receiver	
No. of Channels	12
Antenna Gain	26dB +/- 3dB
BuoyLink Module	
Standard data output	RS 422 over twisted pairs
Connector	AGP 27X4M
Optional radio telemetry output	900MHz (Spread spectrum)
Frequency	902 to 928 MHz (Spread spectrum)
Output power	1w
Radio telemetry connector	AGC waterproof coaxial bulkhead
Input power	18 to 32 volts DC, typically 8 watts @ 24 volts DC
On-Board Control Unit	
Number of power channels	16 (individually switched)
Number of data channels	16 (with additional radio telemetry input)
Mounting	Standard 19" rack mounted
Mechanical	
Module housing	High Strength Delrin [®] Plastic
Module diameter (Excluding mounting clamps)	133mm
Module length (Excluding Connectors)	305mm
Module weight (Excluding clamps)	3.2kg
Mounting Accessories	
Pole Mount w/Clamp	Combination Stainless Steel and Delrin [®]
Docking Clamp	High Strength Delrin [®] Plastic
Custom Mounting Options Available	On request

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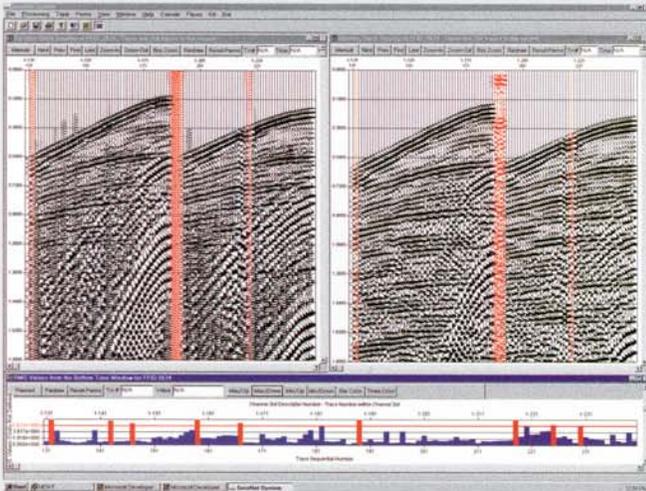
SEISNET™

On-Line Data Capture & Quality Assurance

SeisNet provides the quality assurance of on-line data analysis and the security of data backup in a cost effective network of seismic data facilities:

- Data Capture
- Processing
- Plotting
- Tape Copy/Dual Write
- UNIX Network Link - e.g. ProMAX[†]

*All In Real Time
On Windows NT**



Raw/Filtered Data + RMS

Interactive real time display of raw & filtered data, trace attributes & bad trace detection.

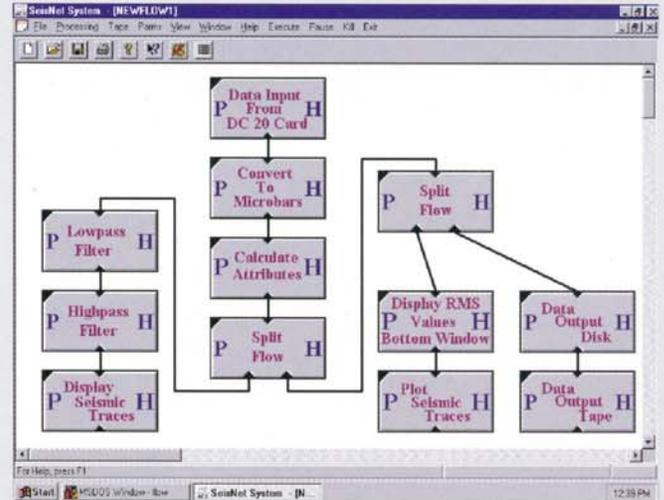
System Compatibility

SeisNet can be interfaced to most marine and land seismic recording systems.

Software Sciences, Inc.

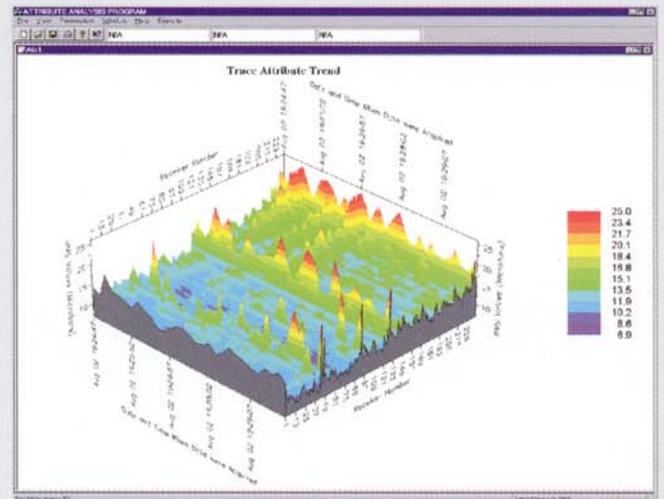
1317 West 121st Avenue
Denver, Colorado 80234, USA
Phone: 303-450-6050 Fax: 303-450-6116
Email: SSISERVER@AOL.COM

[†]ProMAX is a trademark of Landmark Graphics Corporation
* Windows NT is a trademark of Microsoft Corporation



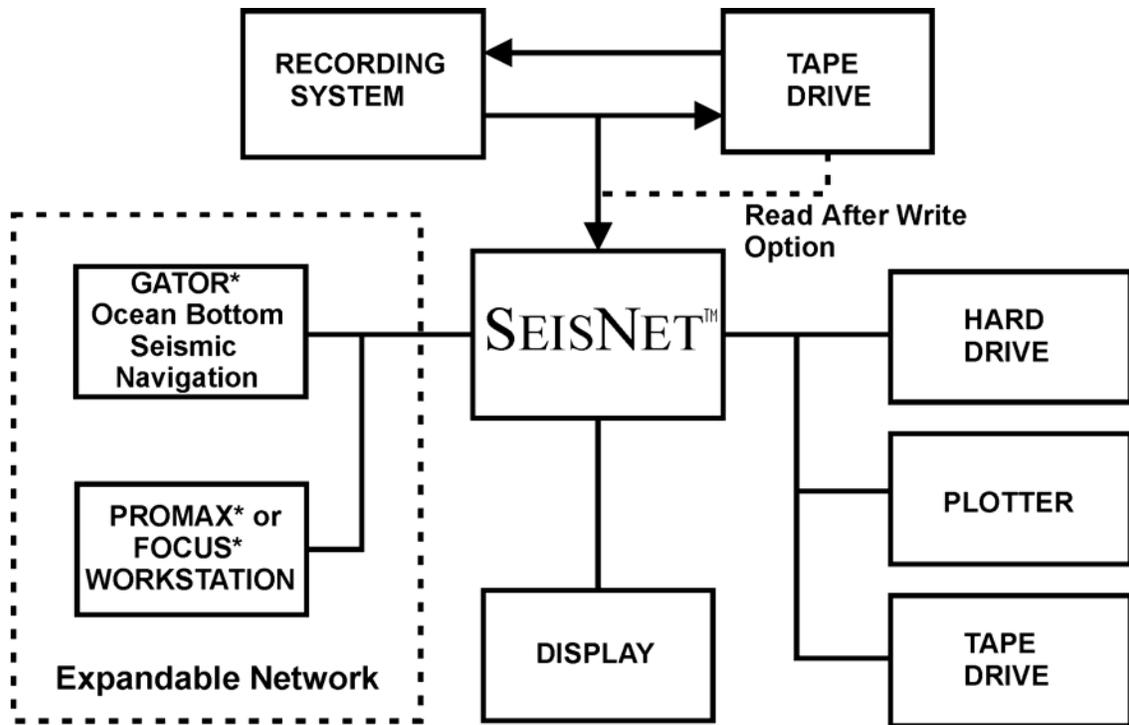
Parallel Processing

SeisNet's intuitive graphical user interface and scalable multiprocessor support allows multiple parallel processing flows to be set up and stored at the discretion of the operator. The passive recorder interface is invisible to the host recording system and allows all data operations to be performed simultaneously with the seismic data acquisition process.



Trace Attribute Trend

Trace attribute trends may be plotted over an extended time frame.



The SeisNet™ System

Capture

Fast Wide SCSI-2 (20 MBytes/Sec)

Processing

Shot Record Display + Filtering
 Amplitude & Spectrum Attributes
 Single Trace Gather
 Trace Attribute Display
 Read After Write Tape Verify
 Summing + Correlation
 Realtime Brute Stack
 Dynamic First Break Picking
 4 Component Sensor Support
 Gun Performance Database

Plotting

V80 Compatible, OYO 612/622/624
 DFM480, HP LaserJet

Tape Copy/Dual Write

3480/3490/3590, DLT, 4mm and 8mm
 Hard Disk FIFO Archive

Network Link

Focus* or ProMAX* workstation link
 OYO DAS* Recorder network link
 Gator* ocean bottom seismic link

Compatibility

Any recording system writing to a SCSI device. Fujitsu Read After Write, MDS-16/18 Y2K/Tape Drive Upgrade & Pertec interfaces also available.

Software

Windows NT 4.0 operating system
 Scaleable multi-processor executive

Hardware

Recommended host PC configuration:

Pentium III* 800 MHz
 40 GByte Hard Drive
 256 MByte RAM
 19" Monitor - 1600 x 1200 Resolution

Data Capture Hardware:

DC-20 PCI bus SCSI-2 capture card

*Pentium III is a trademark of Intel Corporation.
 *Gator is a trademark of Concept Systems Ltd.
 *DAS is a trademark of OYO Geospace.
 *Focus is a trademark of Paradigm Geophysical.
 *ProMAX is a trademark of Landmark Graphics Corporation.
 *Windows NT is a trademark of Microsoft Corporation.

Sound Velocity Profilers

(Click on highlighted text to open relevant file. Click “previous document” arrow, as shown, to return to this document)



The attached pdf-format files provide information on the sound velocity profilers included within the vessel spread and for stationary deployment from the workboat.

CTD-12 Plus – Water column profiler

DigiCOURSE Model 7000 – Cable hung velocimeter

The **ONLY CHOICE** for reliable measurements of Conductivity, Temperature, Depth Profiles

CTD-12 Plus Conductivity, Temperature, Depth Profiler

The CTD Plus is a lightweight, rugged, intelligent CTD designed for precision measurements of conductivity, temperature, and pressure.

The CTD Plus offers the options of logging data continuously, at user selected depth increments, at user selected time increments, or upon request.

The output format can be configured for "real" computed engineering values or "raw" integers for post processing.

A standard feature of every CTD Plus is AML's powerful, user friendly MS Windows™ compatible "Integrated Systems Software." ISS allows for viewing, editing, printing, and graphing of data logged by the instrument.

Features

- High accuracy and resolution
- Internal calculation of salinity according to UNESCO standards
- Non-volatile memory to 200 Mbytes
- Windows™ compatible software
- Autonomous battery powered instrument
- Small size, light weight for easy handling
- Profiling to 5000 meters or in-situ long term deployments
- Supports four additional sensors
- Optically isolated autobauding RS-232 communications to 19.2 Kbaud
- Real time clock
- Five year limited warranty



Instrumentation
THROUGH
Innovation



**APPLIED
MICROSYSTEMS
LTD**

CTD-12 Plus

Conductivity, Temperature, Depth Profiler

Electrical

- Non-volatile 128K RAM expandable to 200 Mbytes
- 4 1/2 digit analog to digital converter (40,000 counts resolution)
- 11 scans per second for date/time, C, T, D and battery
- Real time clock
- Optically isolated autobauding RS-232 port
- Supports four additional analog channels
- Auto shut-down in low battery conditions

Power

- Alkaline (9 x "D" cell) 10 A-H
- 80 mA sampling
- 5 mA standby
- 0.04 mA sleep mode

Battery Options

- Lithium (3 x "D" cell) 14 A-H
- Nicad (9 x "D" cell) 4.4 A-H
- External power (8 to 16 volts DC)

Software

- Real time graphing & tables
- Instrument setup
- Downloading data
- Exporting data
- Windows™ 95/98/NT compatible

Mechanical

- Weight: 9.0 kg (19.7 lbs) in air
3.5 kg (7.6 lbs) in water
- Dimensions: 675 mm (26.5") x 102 mm (4.0") Ø
- Construction: Hard anodized 6061-T6 aluminum; rated to 5000 meters
Optional: 7075-T6; rated to 8000 meters
- Connectors: IMPULSE Wet Pluggable™ series
- Environmental: Operating: -20° to 50°C
Storage: -40° to 70°C

Sensors

- Conductivity: Patented platinized four electrode glass cell
- Temperature: Pressure protected, aged thermistor
- Pressure: Semiconductor strain gauge (optional temperature compensation)

Accessories

- Protection cage
- Radio modem
- Suspension bar
- Additional cable

SENSOR SPECIFICATIONS		Range	Response	Accuracy	Resolution
Standard Sensors	Conductivity				
	Seawater	0 to 7 S/m	5 to 25 ms	±0.001 S/m	0.0003 S/m
	Fresh water (optional)	0 to 0.7 S/m	5 to 25 ms	±0.001 S/m	0.0003 S/m
	Temperature	-2 to 32°C	85 ms	±0.005°C	0.001°C
	Pressure	Assorted to 5000 dbar	10 ms	±0.15% FS	0.005% FS
Calculated Parameters	Salinity	0.2 to 40	Calculated	±0.010	0.003
	Sound Velocity	1400 to 1600 m/s	Via Software	±0.25 m/s	0.1 m/s
	Density/Sigma T/Gamma	0.99 to 1.1 g/cm3	Via Software	0.12% FS	0.005% FS
Optional Sensors	Temperature Compensated Pressure	Assorted to 5000 dbar	10 ms	± 0.05% FS	0.005% FS
	Dissolved Oxygen	0 to 15 mg/l	60 s	±0.2 mg/l*	0.01 mg/l
	pH	2 to 12	15 s	±0.1	0.01
	Redox/Orp	±2000 mV	15 s	±2 mV	0.1 mV
	Turbidity	Consult factory			
	Ambient Light	Consult factory			
	Fluorometer	Consult factor			

*with pump

Accuracies based upon RMS errors. All specifications subject to change without notice.

Instrumentation
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Innovation

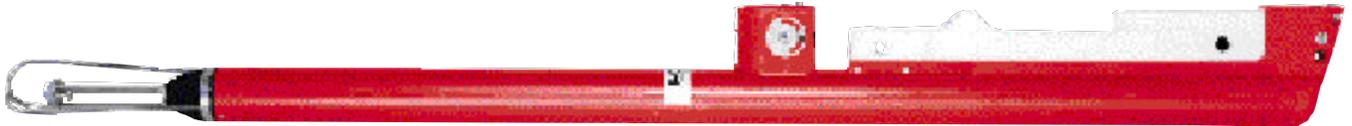


Head Office

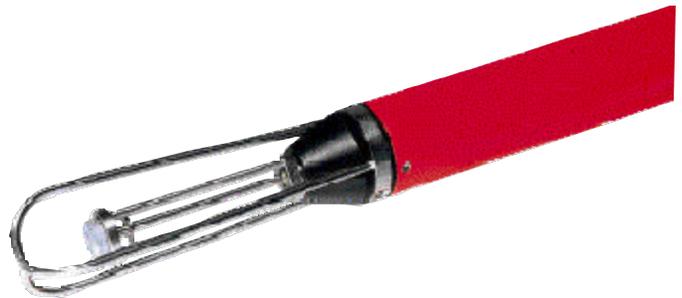
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Sidney, B.C. Canada V8L 5X6
Phone: 250 656 0771
Fax: 250 655 3655
1 800 663 8721 (Canada & USA)
info@AppliedMicrosystems.com



Model 7000 Streamer Mounted Velocimeter



- Real-time, 0.5-meters/second (RMS), sound-propagation velocity accuracy
- Sound velocity measurements typically once every 60 seconds (operator-selectable)
- Bi-directional communications
- Industry-standard batteries
- Sound velocity measurements transparent to the seismic-acquisitioning process
- Easy installation
- Common shipboard hardware and software



The Input/Output Model 7000 Velocimeter is a microprocessor-based, speed-of-sound measurement device that is mounted externally onto a seismic streamer cable. The assembly is streamlined to minimize noise and is designed for compatibility with existing mounting hardware and communication coils. The device is temperature-compensated.

The sensor directly measures the time of flight of a single acoustic pulse over a fixed-length baseline. Real-time, sound velocity observations are made within the same water column that the acoustic streamer cable-positioning measurements are made. The Model 7000 will allow for real-time and post-processing corrections for the observed velocity variations, providing an increase in acoustic-ranging accuracy to improve the positioning network solution of the seismic receiver arrays.

Specifications

INPUT/OUTPUT, INC.

Housing	uni-body platform, DigiCOURSE® 5000
Weight (in air)	6.0 kg (13.2 lb)
Weight (in sea water)	1.3 kg (2.9 lb)
Length	1.47 m (58 in)
Mounting	Industry-standard collars on 0.57-m (22.5-in) centers
Shock	1-m drop test onto hard surface
Operating Temperature	-4°C to +40°C (+25°F to +104°F)
Maximum Operating Depth	122 m (400 ft)
Survival Depth	244 m (800 ft)
Power	4, D-cell, lithium batteries <i>standard</i> SLB 150 battery pack <i>optional</i>
Battery Life	100 days _{typ} @ 60-s sample rate (<i>standard</i> D-cell batteries) 250 days _{typ} @ 60-s sample rate (<i>optional</i> SLB 150 battery pack)
Resolution	0.1 m/s
Accuracy (RMS)	0.5 m/s
Measurement Range	1400.0 m/s to 1550.0 m/s
Sample Rate	User-selectable; default is every 6th-shot interval
Communications	2400-bps, serial, FSK
Data Output	Binary data message; poll upon demand to host-CPU
Limited Warranty Periods	1 year; 2 years for velocimeter calibration
System Data Display	Status for and speed of sound for each active device; updated each scan cycle

Ordering Information

Model 7000 Velocimeter	P/N 9000-7000
SLB 150 Battery Pack	P/N 4000-074
Non-magnetic, Lithium, D-cell Battery	P/N 4000-009

United States – Stafford, TX
 Input/Output, Inc.
 Fax: 281.879.3500
 Phone: 281.933.3339
 E-mail: info@i-o.com

England
 I/O Marine Systems Limited
 Fax: 44.1483.277655
 Phone: 44.1483.277644

Web Site
www.i-o.com



NOAA Photo

MK21 OCEANOGRAPHIC DATA ACQUISITION SYSTEM



Sippican's MK21 Oceanographic Data Acquisition System provides oceanographers, marine scientists and ocean engineers with a versatile and low cost capability to collect, display and store data from expendable oceanographic instruments.

MK21 SYSTEM DESCRIPTION

The MK21 Oceanographic Data Acquisition System is a 5/8 size PC card which is installed in an IBM compatible Pentium computer with an ISA slot. The MK21 uses DSP technology for onboard processing and buffered I/O for operation with Windows 95 and higher. Data collection is controlled by the MK21 and the buffered I/O stores all the data until it can be read in by the operating system. Every data point is time stamped by an independent clock on the MK21 to ensure no data is lost or skipped. The MK21 also has flash memory for in system programming capability to give users the flexibility to add newly developed probe capability and firmware upgrades. The MK21 is compatible with all Sippican expendable probes and launchers.

The MK21 may be used anywhere a PC is available aboard research vessels, on ships of opportunity or even in small boats. The MK21

may also be used in aircraft with Sippican air-launched expendable probes.

Software developed for use with Sippican products provides a variety of data processing capabilities. Profiles of ocean characteristics may be displayed real-time in graphic form and the data permanently stored. The user may retrieve this information for further analysis in several formats to aid in a detailed understanding of the ocean environment.



MK21 OPERATION

The operator uses the computer keyboard and display to input the type of probe to be launched and other parameters to be stored with the data such as date, time and latitude/longitude in a preformatted header display. The computer performs system diagnostics and prelaunch tests and then indicates the probe is ready for launch. It then receives probe data during the probe descent and displays and stores the information.

Data is easily translated in an ASCII text format so the user can readily generate the measured profiles using spread sheet applications or transfer the data to ray path or range prediction programs.

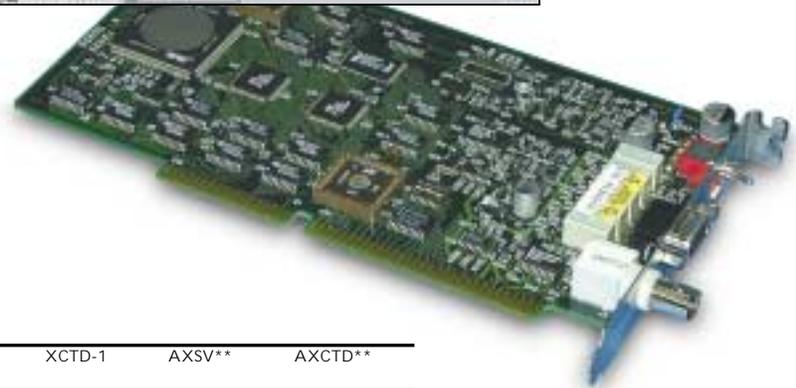
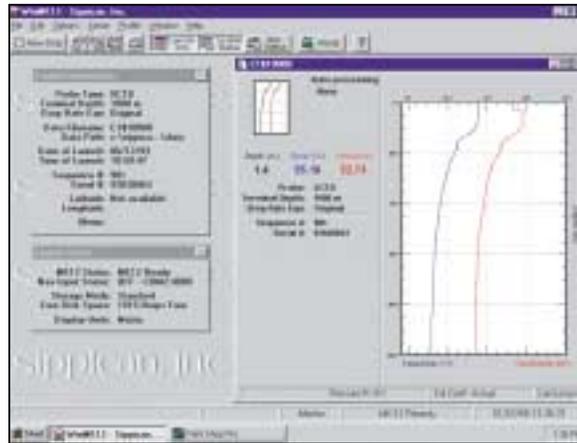
The MK21 Windows Software has auto GPS (NMEA 0813) input capability, selectable IGOSS and original drop rates, a new, easier-to-use display and improved post-processing options. The XCTD trace shown in the accompanying screen shot demonstrates some of the software's features:

- A highly visual, user-friendly display that utilizes the capabilities of Windows
- Improved post-processing options

- User-selectable features include drop rate, probe min / max depth, auto post-processing, noise reduction, data averaging, and calculated salinity, density, and sound velocity profiles.

THE MK21 KIT CONTENTS

The MK21 processor card, Sippican MK21 application software, MK21 to launcher interface box, and Operator's manual.



MK21 SYSTEM SPECIFICATIONS

PROBE TYPE	XBT	XSV	XCTD	XCTD-1	AXSV**	AXCTD**
Sampling Rate	10Hz	10Hz	4Hz	4Hz	10Hz	4Hz
Vertical Resolution	60cm (18cm for T-11 FSXBT)	60cm	100cm	17cm	60cm	100cm
System Accuracy	±0.2°C	±0.25 m/sec	±0.035°C* ±0.035 mS/cm ±0.05 PSU	±0.02°C	±0.25 m/sec	±0.035°C ±0.035 mS/cm ±0.05 PSU
Temperature Resolution	0.01°C	-	0.01°C	0.01°C	-	0.01°C
Temperature Range	-2 to 35°C	-	-2.2 to 30°C	-2 to 35°C	-	-2.2 to 30°C
Sound Velocity Resolution	-	0.04 m/sec	0.05 m/sec	-	0.04 m/sec	0.05 m/sec
Sound Velocity Range	-	1405-1560 m/sec	1405-1560 m/sec	-	1405-1560 m/sec	1405-1560 m/sec
Conductivity Resolution	-	-	0.01 mS/sec	0.017 mS/sec	-	0.01 mS/sec
Conductivity Range	-	-	20-75 mS/cm	0-70 mS/sec	-	20-75 mS/cm

System Depth Accuracy: 4.6 meters or 2% of depth, whichever is greater.

*Nominal accuracy characterization based on XCTD horizontal profiles against a calibrated transfer CTD (each comparison used 4pt. smoothing). 95% of tabulated data was within ±0.035° and mS/cm of the transfer CTD.

**External RF demodulator required.

Sippican, Inc.

SEA-AIR SYSTEMS DIVISION

7 Barnabas Road, Marion, MA 02738 TEL (508) 748-1160 FAX (508) 748-3626 EMAIL sea_air@sippican.com www.sippican.com



Marine Acquisition

Action Point Register Report SR/V Veritas Viking

Active

Action Point Status: Active
Date Opened: 06/12/2006
Est. Date Closed: 06/29/2006
Party Responsible: Tech/APM
Non-Conformity: Intercom system from back deck is very hard to make out in recording room
Action to be taken: New amplifier?

AP Reference No: 339
Origin: APR
Act. Date Closed:

Date: 06/12/2006
Author: Committee Meeting

Comments:
Comments: Veritas technician investigating.

Date: 07/24/2006
Author: Committee Meeting

Comments:
Comments: Tech to continue to look into the problem but do not see an immediate solution. The outside areas are very large and the ambient noise would be hard to dampen

Closed

Action Point Status: Closed
Date Opened: 06/18/2006
Est. Date Closed: 06/19/2006
Party Responsible: Chief Engineer
Non-Conformity: Engine starting problems and loose fanbelt noise coming from engine compartment on bucket use.
Action to be taken: Ships Engineer and Electrician to investigate and repair.

AP Reference No: 341
Origin: V2-IR-06-CVVG6QV6MK
Act. Date Closed: 06/18/2006

Action Point Status: Closed
Date Opened: 06/12/2006
Est. Date Closed: 09/29/2006
Party Responsible: Eidsvik
Non-Conformity: The internal door to the hospital is not wide enough to traverse a patient on a stretcher.
Action to be taken: A request has been made to widen the door during the pending vessel dry dock, scheduled for September 2006. Eidesvik to investigate.

AP Reference No: 340
Origin: V2-IR-06-VVIG6QQ79J
Act. Date Closed: 07/24/2006

Date: 07/24/2006
Author: Committee Meeting

Comments:
Act Date Closed Changed: From Null To 25/07/2006
Status Changed: From Active To Closed

Comments: It is felt that due to the tight confines of the hallway that the internal door would not be of practical use when transporting a patient into the hospital via a stretcher. The external door is large enough to accommodate the width of a stretcher, as to vessel design.

Action Point Status: Closed **AP Reference No:** 338
Date Opened: 06/12/2006 **Origin:** APR
Est. Date Closed: 06/29/2006 **Act. Date Closed:** 07/06/2006
Party Responsible: Ch. Mechanic
Non-Conformity: Extinguisher 21 outside rigging store has bracket bent and hose is not secure
Action to be taken: New bracket to be fabricated

Date: 06/12/2006 **Author:** Committee Meeting
Comments: Comments: In hand. Onboard mechanics will fabricate required bracket and re-secure fire extinguisher 21. This will be done at the earliest convenience.

Date: 06/26/2006 **Author:** Greg Campbell
Comments: Extinguisher 21 outside rigging store has had a new bracket installed and the hose has been made secure with an additional hook.

Date: 07/24/2006 **Author:** Committee Meeting
Comments: Act Date Closed Changed: From Null To 07/07/2006
Status Changed: From Active To Closed

Comments: New bracket installed

Action Point Status: Closed **AP Reference No:** 337
Date Opened: 03/30/2006 **Origin:** AU-OV-0580
Est. Date Closed: 04/16/2006 **Act. Date Closed:** 05/24/2006
Party Responsible: Electrician
Non-Conformity: Stern spotlights for reels 5 and 8 not working.
Action to be taken: Spotlight globes need changing by electrician

Date: 04/12/2006 **Author:** Committee Meeting
Comments: Comments: Need to have a stable platform to work from. To be taken care of at next port call or at the up coming shipyard.

Date: 05/24/2006 **Author:** Committee Meeting
Comments: Act Date Closed Changed: From Null To 25/05/2006
Status Changed: From Active To Closed

Comments: Spotlight globes were replaced by the vessel's electrician in Fremantle, Apr 2006.

Action Point Status: Closed **AP Reference No:** 334
Date Opened: 03/17/2006 **Origin:** V2-IR-06-OSVV6L7ASE
Est. Date Closed: 04/29/2006 **Act. Date Closed:** 06/12/2006
Party Responsible: Ch Off; Captain
Non-Conformity: Straps for securing hoses in some fire-hose cabinets are either missing or perished.
Action to be taken: New straps have been ordered by the bridge and once they are received and fitted, this AP will be closed.

Date: 03/17/2006 **Author:** Committee Meeting
Comments: Comments: These items have been requisitioned by Eidesvik. Awaiting a requisition number from the chief officer to allow this to be tracked.

Date: 03/22/2006 **Author:** PM Veritas-Viking2
Comments: Eidesvik requisition number 68-0019-2006. When the items are received onboard and fitted, this AP will be considered closed.

Date: 04/12/2006 **Author:** Committee Meeting

Comments: Comments: Should arrive onboard during next port call in Fremantle

Date: 05/24/2006 **Author:** Committee Meeting

Comments: Comments: No change in status. Eidesvik requisition number 68-0019-2006. Waiting for straps to arrive. When the items are received onboard and fitted, this AP and attached IR will be considered closed.

Date: 06/12/2006 **Author:** Committee Meeting

Comments: Act Date Closed Changed: From Null To 13/06/2006
Status Changed: From Active To Closed

Comments: Fire hose storage box straps have been replaced/ repaired. AP considered closed.

- End Report -

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
06/27/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Abandon Ship Drill

Attendees:

<input checked="" type="checkbox"/> Mcnelly Richard Morgan	<input checked="" type="checkbox"/> Cowie John	<input checked="" type="checkbox"/> Harrison Jeffrey William	<input checked="" type="checkbox"/> Graham Peter
<input checked="" type="checkbox"/> Cassim Glenn Gordon	<input checked="" type="checkbox"/> Francisco Richard Conce	<input checked="" type="checkbox"/> Ramos Romeo P	<input checked="" type="checkbox"/> Best James
<input checked="" type="checkbox"/> Bell Michael Angus William	<input checked="" type="checkbox"/> Anwar Abdul Rashid B	<input checked="" type="checkbox"/> Saevik Helmik	<input checked="" type="checkbox"/> Savetta Matthew
<input checked="" type="checkbox"/> Fleming Rick Ray	<input checked="" type="checkbox"/> Doyle Anthony Denis James	<input checked="" type="checkbox"/> Weeks Roger Brian	<input checked="" type="checkbox"/> Mcgregor Murray Rowland
<input checked="" type="checkbox"/> Quinlan Vera	<input checked="" type="checkbox"/> Tan Larry Hock Chye	<input checked="" type="checkbox"/> Ramchandran Rishiraj	<input checked="" type="checkbox"/> Lee Robert
<input checked="" type="checkbox"/> Tibor Thomas James	<input checked="" type="checkbox"/> Haarmans Johan Michael	<input checked="" type="checkbox"/> Ballantine Kenneth Gordon	<input checked="" type="checkbox"/> May Errol
<input checked="" type="checkbox"/> Fletcher Darryl Michael	<input checked="" type="checkbox"/> Certeza Levi Basas	<input checked="" type="checkbox"/> Kjerrgard Kare	<input checked="" type="checkbox"/> Mendoza Jr Constante
<input checked="" type="checkbox"/> Tan Alan Eng Liang	<input checked="" type="checkbox"/> Naylor David	<input checked="" type="checkbox"/> Heath Robert	<input checked="" type="checkbox"/> Macknight Fiona
<input checked="" type="checkbox"/> Tan Vivian Ping Khun	<input checked="" type="checkbox"/> Higgins Brett Andrew	<input checked="" type="checkbox"/> Grimwood Bruce	<input checked="" type="checkbox"/> Jakkett Nigel Alexander
<input checked="" type="checkbox"/> Malofeev Mikhail	<input checked="" type="checkbox"/> Ross Stephen A	<input checked="" type="checkbox"/> Nonis P	<input checked="" type="checkbox"/> Ashworth Ryan
<input checked="" type="checkbox"/> Hewison Howard	<input checked="" type="checkbox"/> Hieb Galen Guy	<input checked="" type="checkbox"/> Darlington Mark	<input checked="" type="checkbox"/> Hutchings Colin Reginald
<input checked="" type="checkbox"/> Perkin Andrew John	<input checked="" type="checkbox"/> Hawkins Peter	<input checked="" type="checkbox"/> Hovland Bjorn Tore Gaard	<input checked="" type="checkbox"/> Barrow Herbert
<input checked="" type="checkbox"/> Campbell Gregory Gerard	<input checked="" type="checkbox"/> Chong Wee Chen	<input checked="" type="checkbox"/> Shelley Noel	<input checked="" type="checkbox"/> Kennard James Montrose
<input checked="" type="checkbox"/> Collinge Neil Franklin	<input checked="" type="checkbox"/> Lofts Alan	<input checked="" type="checkbox"/> Draper Dudley Drew	

Minutes:

Drill Details:

1245 – Alarms sounded and all crew mustered

1248 – All hands present.

1248 –1302 All new joining crew were briefed about Life boat boarding and launching procedures. Uses of Lifeboat equipments were also explained. Life boat engines checked and tried out and found satisfactory

1302 – 1307 Immersion Suits donning carried out by new joining crew.

1307 – 1315 Life Raft Launching and boarding procedures,

1315 Drill completed

1315 – 1345 Lifeboat lowered to embarkation deck and housed back.

Analysis

A good response and familiarisation session.

Comments

All equipment worked well.

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
06/20/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Abandon Ship Drill

Attendees:

<input checked="" type="checkbox"/> Mcnely Richard Morgan	<input checked="" type="checkbox"/> Francisco Richard Conce	<input checked="" type="checkbox"/> Saevik Helmik	<input checked="" type="checkbox"/> Cooper Peter Terrence
<input checked="" type="checkbox"/> Cassim Glenn Gordon	<input checked="" type="checkbox"/> Anwar Abdul Rashid B	<input checked="" type="checkbox"/> Hardy Paul	<input checked="" type="checkbox"/> Diggle Mark Leslie
<input checked="" type="checkbox"/> Bell Michael Angus William	<input checked="" type="checkbox"/> Doyle Anthony Denis James	<input checked="" type="checkbox"/> Honiss Gerhard	<input checked="" type="checkbox"/> Cooks Andrew
<input checked="" type="checkbox"/> Fleming Rick Ray	<input checked="" type="checkbox"/> Tan Larry Hock Chye	<input checked="" type="checkbox"/> Ballantine Kenneth Gordon	<input checked="" type="checkbox"/> Miller Paul Anthony
<input checked="" type="checkbox"/> Quinlan Vera	<input checked="" type="checkbox"/> Haarmans Johan Michael	<input checked="" type="checkbox"/> Kjerrgard Kare	<input checked="" type="checkbox"/> Mendoza Jr Constante
<input checked="" type="checkbox"/> Tibor Thomas James	<input checked="" type="checkbox"/> Certeza Levi Basas	<input checked="" type="checkbox"/> Farley Edward Roy	<input checked="" type="checkbox"/> Macknight Fiona
<input checked="" type="checkbox"/> Fletcher Darryl Michael	<input checked="" type="checkbox"/> Naylor David	<input checked="" type="checkbox"/> Appel Tomiln	<input checked="" type="checkbox"/> Waugh Nathan Francis
<input checked="" type="checkbox"/> Tan Alan Eng Liang	<input checked="" type="checkbox"/> Higgins Brett Andrew	<input checked="" type="checkbox"/> Leach Peter Thomas	<input checked="" type="checkbox"/> Jackett Nigel Alexander
<input checked="" type="checkbox"/> Tan Vivian Ping Khun	<input checked="" type="checkbox"/> Ross Stephen A	<input checked="" type="checkbox"/> Hovland Bjorn Tore Gaard	<input checked="" type="checkbox"/> Hutchings Colin Reginald
<input checked="" type="checkbox"/> Malofeev Mikhail	<input checked="" type="checkbox"/> Hieb Galen Guy	<input checked="" type="checkbox"/> Hockley Keith Robert	<input checked="" type="checkbox"/> Barrow Herbert
<input checked="" type="checkbox"/> Hewison Howard	<input checked="" type="checkbox"/> Hawkins Peter	<input checked="" type="checkbox"/> Duffy Robert Andrew	<input checked="" type="checkbox"/> Kennard James Montrose
<input checked="" type="checkbox"/> Perkin Andrew John	<input checked="" type="checkbox"/> Chong Wee Chen	<input checked="" type="checkbox"/> Williams Paul Robert	<input checked="" type="checkbox"/> Chandler Emma Soili
<input checked="" type="checkbox"/> Campbell Gregory Gerard	<input checked="" type="checkbox"/> Lofts Alan	<input checked="" type="checkbox"/> Cavanagh Ronald	<input checked="" type="checkbox"/> Dousset Jaimee
<input checked="" type="checkbox"/> Collinge Neil Franklin	<input checked="" type="checkbox"/> Harrison Jeffrey William	<input checked="" type="checkbox"/> Fairbrother Cyra Louise	
<input checked="" type="checkbox"/> Cowie John	<input checked="" type="checkbox"/> Ramos Romeo P	<input checked="" type="checkbox"/> Gobel Brian William Keith	

Minutes:

Drill Detail

1245 Abandon ship alarm sounded
1247 All person accounted for at muster station
1248 All persons asked to board the life boat.
1250 All persons given a detailed description of the life boat
1310 Drill Complete

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
06/02/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Abandon Ship Drill

Attendees:

<input checked="" type="checkbox"/> Grizaard Howard Peter	<input checked="" type="checkbox"/> Doyle Anthony Denis James	<input checked="" type="checkbox"/> Knutsen Knut	<input checked="" type="checkbox"/> Fairbrother Cyra Louise
<input checked="" type="checkbox"/> Cassim Glenn Gordon	<input checked="" type="checkbox"/> Tan Larry Hock Chye	<input checked="" type="checkbox"/> Hardy Paul	<input checked="" type="checkbox"/> Gobel Brian William Keith
<input checked="" type="checkbox"/> Bell Michael Angus William	<input checked="" type="checkbox"/> Dyer Stephen	<input checked="" type="checkbox"/> Honiss Gerhard	<input checked="" type="checkbox"/> Cooper Peter Terrence
<input checked="" type="checkbox"/> Quinlan Vera	<input checked="" type="checkbox"/> Tankard Leonard Arthur	<input checked="" type="checkbox"/> Ballantine Kenneth Gordon	<input checked="" type="checkbox"/> Diggle Mark Leslie
<input checked="" type="checkbox"/> Harman Noel Edward	<input checked="" type="checkbox"/> Higgins Brett Andrew	<input checked="" type="checkbox"/> Trengereid Birger Kare	<input checked="" type="checkbox"/> Cooks Andrew
<input checked="" type="checkbox"/> Griffiths Sam Marc	<input checked="" type="checkbox"/> Tambi Deris Ak	<input checked="" type="checkbox"/> Farley Edward Roy	<input checked="" type="checkbox"/> Miller Paul Anthony
<input checked="" type="checkbox"/> Fletcher Darryl Michael	<input checked="" type="checkbox"/> Strickland Anthony Wayne	<input checked="" type="checkbox"/> Appel Tomiln	<input checked="" type="checkbox"/> Manalang Fedelino
<input checked="" type="checkbox"/> Malofeev Mikhail	<input checked="" type="checkbox"/> Hieb Galen Guy	<input checked="" type="checkbox"/> Leach Peter Thomas	<input checked="" type="checkbox"/> Macknight Fiona
<input checked="" type="checkbox"/> Hewison Howard	<input checked="" type="checkbox"/> Jones Paul William	<input checked="" type="checkbox"/> Hovland Bjorn Tore Gaard	<input checked="" type="checkbox"/> Waugh Nathan Francis
<input checked="" type="checkbox"/> Shelley Neil Brad	<input checked="" type="checkbox"/> Chong Wee Chen	<input checked="" type="checkbox"/> Hockley Keith Robert	<input checked="" type="checkbox"/> Allen Simon James
<input checked="" type="checkbox"/> Campbell Gregory Gerard	<input checked="" type="checkbox"/> Lofts Alan	<input checked="" type="checkbox"/> Duffy Robert Andrew	<input checked="" type="checkbox"/> Hutchings Colin Reginald
<input checked="" type="checkbox"/> Wells Mike John	<input checked="" type="checkbox"/> Huseyn-Zada Urfan Turqud	<input checked="" type="checkbox"/> Williams Paul Robert	<input checked="" type="checkbox"/> Kennard James Montrose
<input checked="" type="checkbox"/> Anwar Abdul Rashid B	<input checked="" type="checkbox"/> Papio Rommel Samson	<input checked="" type="checkbox"/> Cavanagh Ronald	<input checked="" type="checkbox"/> Danyluk David Michael

Minutes:



Emergency muster and abandon ship drill_30 May '06.doc

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
05/09/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Abandon Ship Drill

Attendees: <input checked="" type="checkbox"/> Grizaard Howard Peter	<input checked="" type="checkbox"/> Tankard Leonard Arthur	<input checked="" type="checkbox"/> Weeks Roger Brian	<input checked="" type="checkbox"/> Mcgregor Murray Rowland
<input checked="" type="checkbox"/> Turpin Paul	<input checked="" type="checkbox"/> Tambi Deris Ak	<input checked="" type="checkbox"/> Ramchandran Rishiraj	<input checked="" type="checkbox"/> Lee Robert
<input checked="" type="checkbox"/> Boon Marc Lodewijk Ari	<input checked="" type="checkbox"/> Hufano Ricardo Obong	<input checked="" type="checkbox"/> Pinto Joe	<input checked="" type="checkbox"/> Miller Paul Anthony
<input checked="" type="checkbox"/> Collins Jeremy N	<input checked="" type="checkbox"/> Caisido Remegio Caisido	<input checked="" type="checkbox"/> Aga Einar	<input checked="" type="checkbox"/> Laurence John
<input checked="" type="checkbox"/> Bradshaw Craig J	<input checked="" type="checkbox"/> Goddard Graham	<input checked="" type="checkbox"/> Heath Robert	<input checked="" type="checkbox"/> May Errol
<input checked="" type="checkbox"/> Harman Noel Edward	<input checked="" type="checkbox"/> Strickland Anthony Wayne	<input checked="" type="checkbox"/> Grimwood Bruce	<input checked="" type="checkbox"/> Manalang Fedelino
<input checked="" type="checkbox"/> Li Melissa Xiaowei	<input checked="" type="checkbox"/> Jones Paul William	<input checked="" type="checkbox"/> Wark David	<input checked="" type="checkbox"/> Jarret Bret Malcolm
<input checked="" type="checkbox"/> Griffiths Sam Marc	<input checked="" type="checkbox"/> Ellis Kristian John Curwen	<input checked="" type="checkbox"/> Andersen Odd Helge	<input checked="" type="checkbox"/> Donolly Dave
<input checked="" type="checkbox"/> Hales David Shane	<input checked="" type="checkbox"/> Flower Richard William	<input checked="" type="checkbox"/> Darlington Mark	<input checked="" type="checkbox"/> Howard Adrian
<input checked="" type="checkbox"/> Wells Mike John	<input checked="" type="checkbox"/> Barratt David Brian	<input checked="" type="checkbox"/> Graham Peter	<input checked="" type="checkbox"/> Danyluk David Michael
<input checked="" type="checkbox"/> Ollada Emmanuel Fabro	<input checked="" type="checkbox"/> Huseyn-Zada Urfan Turqud	<input checked="" type="checkbox"/> Savetta Matthew	<input checked="" type="checkbox"/> Lambert Christopher Robert
<input checked="" type="checkbox"/> De Young David	<input checked="" type="checkbox"/> Papio Rommel Samson	<input checked="" type="checkbox"/> Draper Dudley Drew	<input checked="" type="checkbox"/> Li Michael Robert
<input checked="" type="checkbox"/> Dyer Stephen	<input checked="" type="checkbox"/> Knutsen Knut	<input checked="" type="checkbox"/> Best James	

Minutes:



Emergency muster and abandon ship drill_09 May '06.doc

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
04/30/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Abandon Ship Drill

Attendees: <input checked="" type="checkbox"/> Mcnelly Richard Morgan	<input checked="" type="checkbox"/> Haarmans Johan Michael	<input checked="" type="checkbox"/> Saevik Helmik	<input checked="" type="checkbox"/> Lee Robert
<input checked="" type="checkbox"/> Boon Marc Lodewijk Ari	<input checked="" type="checkbox"/> Naylor David	<input checked="" type="checkbox"/> Weeks Roger Brian	<input checked="" type="checkbox"/> Savetta Matthew
<input checked="" type="checkbox"/> Fleming Rick Ray	<input checked="" type="checkbox"/> Tankard Leonard Arthur	<input checked="" type="checkbox"/> Ramchandran Rishiraj	<input checked="" type="checkbox"/> Mcgregor Murray Rowland
<input checked="" type="checkbox"/> Bradshaw Craig J	<input checked="" type="checkbox"/> Certeza Levi Basas	<input checked="" type="checkbox"/> Pinto Joe	<input checked="" type="checkbox"/> Darlington Mark
<input checked="" type="checkbox"/> Tibor Thomas James	<input checked="" type="checkbox"/> Hufano Ricardo Obong	<input checked="" type="checkbox"/> Heath Robert	<input checked="" type="checkbox"/> Mendoza Jr Constante
<input checked="" type="checkbox"/> Li Melissa Xiaowei	<input checked="" type="checkbox"/> Caisido Remegio Caisido	<input checked="" type="checkbox"/> Grimwood Bruce	<input checked="" type="checkbox"/> Morris Colin
<input checked="" type="checkbox"/> Tan Vivian Ping Khun	<input checked="" type="checkbox"/> Ross Stephen A	<input checked="" type="checkbox"/> Kjerrgard Kare	<input checked="" type="checkbox"/> Jarret Bret Malcolm
<input checked="" type="checkbox"/> Perkin Andrew John	<input checked="" type="checkbox"/> Goddard Graham	<input checked="" type="checkbox"/> Appel Tomiln	<input checked="" type="checkbox"/> Waugh Nathan Francis
<input checked="" type="checkbox"/> Collinge Neil Franklin	<input checked="" type="checkbox"/> Ellis Kristian John Curwen	<input checked="" type="checkbox"/> Andersen Odd Helge	<input checked="" type="checkbox"/> Danyluk David Michael
<input checked="" type="checkbox"/> Hales David Shane	<input checked="" type="checkbox"/> Chong Wee Chen	<input checked="" type="checkbox"/> Draper Dudley Drew	<input checked="" type="checkbox"/> Lambert Christopher Robert
<input checked="" type="checkbox"/> Francisco Richard Conce	<input checked="" type="checkbox"/> Flower Richard William	<input checked="" type="checkbox"/> Best James	<input checked="" type="checkbox"/> Li Michael Robert
<input checked="" type="checkbox"/> Dugdale Clive Bernard	<input checked="" type="checkbox"/> Barratt David Brian	<input checked="" type="checkbox"/> Graham Peter	<input checked="" type="checkbox"/> Clark Theodore Stanley
<input checked="" type="checkbox"/> Ollada Emmanuel Fabro	<input checked="" type="checkbox"/> Harrison Jeffrey William	<input checked="" type="checkbox"/> Laurence John	
<input checked="" type="checkbox"/> De Young David	<input checked="" type="checkbox"/> Ramos Romeo P	<input checked="" type="checkbox"/> May Errol	

Minutes:

Drill Details: Simulated Fire in Laundry

1245: Fire detection pre-alarm on bridge activated and Announced Fire in Laundry Crew to Emergency/Muster stations.

1248 Command team informs isolation of electrical power and vents to laundry room

1251 All heads present at muster station except first aid team reports 2nd cook missing

1251 Tech team confirms that electrical and ventilations to laundry room isolated

1253 Fire team 1 prepares to enter laundry room, Fire team 3 commences boundary cooling, Fire team 2 stand by as back up. Muster station control conducts search operation for the missing person.

1255 Fire team 1 reports casualty located in laundry room and evacuates

1256 Casualty brought out of the laundry room and hand over to first aid team

1257 Fire team 1 continue fighting the fire

1259 Fire team 1 reports fire extinguished and checks for any reignition, and fire team 3 and Engine room team confirms no sign of heat on bulkheads and deck heads and fire chief reports fire extinguished.

1300: Drill complete. Personnel dismissed.

1305 – 1315 Debriefing carried out on bridge

ANALYSIS

A good response by all involved and excellent coordination.

COMMENTS

Important to return to some of the basics of Emergency response. Aim is to deal with small situations to prevent them from developing into significant problems.

Drill Supervised by: Rishiraj Job Title: Chief Officer

Approved by Master: Capt Helm

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
04/24/2006
20323 --- Bream 3D

Meeting Type: Abandon Ship Drill

Attendees: <input checked="" type="checkbox"/> Mcnely Richard Morgan	<input checked="" type="checkbox"/> Haarmans Johan Michael	<input checked="" type="checkbox"/> Weeks Roger Brian	<input checked="" type="checkbox"/> Mcgregor Murray Rowland
<input checked="" type="checkbox"/> Boon Marc Lodewijk Ari	<input checked="" type="checkbox"/> Naylor David	<input checked="" type="checkbox"/> Ramchandran Rishiraj	<input checked="" type="checkbox"/> Darlington Mark
<input checked="" type="checkbox"/> Fleming Rick Ray	<input checked="" type="checkbox"/> Tankard Leonard Arthur	<input checked="" type="checkbox"/> Pinto Joe	<input checked="" type="checkbox"/> Mendoza Jr Constante
<input checked="" type="checkbox"/> Bradshaw Craig J	<input checked="" type="checkbox"/> Certeza Levi Basas	<input checked="" type="checkbox"/> Heath Robert	<input checked="" type="checkbox"/> Morris Colin
<input checked="" type="checkbox"/> Tibor Thomas James	<input checked="" type="checkbox"/> Hufano Ricardo Obong	<input checked="" type="checkbox"/> Grimwood Bruce	<input checked="" type="checkbox"/> Mustoe Simon
<input checked="" type="checkbox"/> Li Melissa Xiaowei	<input checked="" type="checkbox"/> Caisido Remegio Caisido	<input checked="" type="checkbox"/> Kjerrgard Kare	<input checked="" type="checkbox"/> Jarret Bret Malcolm
<input checked="" type="checkbox"/> Tan Vivian Ping Khun	<input checked="" type="checkbox"/> Ross Stephen A	<input checked="" type="checkbox"/> Appel Tomiln	<input checked="" type="checkbox"/> Waugh Nathan Francis
<input checked="" type="checkbox"/> Liang Alan Tan Eng	<input checked="" type="checkbox"/> Goddard Graham	<input checked="" type="checkbox"/> Andersen Odd Helge	<input checked="" type="checkbox"/> Danyluk David Michael
<input checked="" type="checkbox"/> Perkin Andrew John	<input checked="" type="checkbox"/> Ellis Kristian John Curwen	<input checked="" type="checkbox"/> Draper Dudley Drew	<input checked="" type="checkbox"/> Lambert Christopher Robert
<input checked="" type="checkbox"/> Collinge Neil Franklin	<input checked="" type="checkbox"/> Chong Wee Chen	<input checked="" type="checkbox"/> Best James	<input checked="" type="checkbox"/> Li Michael Robert
<input checked="" type="checkbox"/> Hales David Shane	<input checked="" type="checkbox"/> Flower Richard William	<input checked="" type="checkbox"/> Graham Peter	<input checked="" type="checkbox"/> Forrest Wayne Peter
<input checked="" type="checkbox"/> Francisco Richard Conce	<input checked="" type="checkbox"/> Barratt David Brian	<input checked="" type="checkbox"/> Laurence John	<input checked="" type="checkbox"/> Clark Theodore Stanley
<input checked="" type="checkbox"/> Dugdale Clive Bernard	<input checked="" type="checkbox"/> Harrison Jeffrey William	<input checked="" type="checkbox"/> May Errol	
<input checked="" type="checkbox"/> Ollada Emmanuel Fabro	<input checked="" type="checkbox"/> Ramos Romeo P	<input checked="" type="checkbox"/> Lee Robert	
<input checked="" type="checkbox"/> De Young David	<input checked="" type="checkbox"/> Saevik Helmik	<input checked="" type="checkbox"/> Savetta Matthew	

Minutes:

Drill Details:

1245 – Alarms sounded and all crew mustered

1250 – All hands present.

All new joining crew were briefed about Immersion Suits donning procedures,

Life Raft Launching and boarding procedures, Life boat boarding and launching procedures.

Uses of all Lifeboat equipments were also explained.

1317 – Drill completed

Analysis

A good response and familiarisation session.

Comments

All equipment worked well.

Drill Conducted by: Rishiraj Job Title: Chief Officer

Drill Supervised by: Helmik Saveik_ Job Title: Captain

Marine Acquisition
Audit Form
Veritas Viking2
04/23/2006
20323 --- Bream 3D

General Information:

Audit Type:	3rd Party Audit (arranged by Client or Veritas)	Conducted by:	PM Veritas-Viking2
Author:	PM Veritas-Viking2	Reference #:	AU-PV-0592

Audit Detail / Attachments:

Gentlemen,

Please find attached the 2nd draft SHE recommendation for the VVII amended after the wash-up meeting on board. The chronometer cal rec is removed. Two duplicates are also removed.

Added are recommendation resulting from Dr Jonathan Mushin's MOH review. These recs are included for convenience only. They will be documented in the MOH review/inspection issued by Jonathan in due course.

A complete draft report will be submitted to ExxonMobil for review and distribution after the inspection of the OMS Voyager.

Jackie / Mike - please would you distribute to other relevent Veritas and Eidesvik personnel for whom I don't have e-mail addresses.

Regards,

Dave Waters

David N Waters

DJX Ltd
The Stables, Hill Farm
Barrington, Ilminster
Somerset, TA19 0JP, UK



Tel/Fax +44 (0) 1460-249044) 2nd Draft Rec EM SHE Audit.doc

Marine Acquisition
Audit Form
Veritas Viking2
07/13/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Navigators
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0620
Audit Detail / Attachments:	Cross-Audit of Galley, Pantry, Freezers, Messroom Non-Comformities:- <ul style="list-style-type: none">● Freezer shelving broken - IR submitted.		

**Marine Acquisition
Audit Form
Veritas Viking2
07/13/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Observers
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0618
Audit Detail / Attachments:	Cross-Audit of Hospital and Medical Facilities Non-Comformities:- <ul style="list-style-type: none">● None Found		

Marine Acquisition
Audit Form
Veritas Viking2
07/13/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Observers
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0621
Audit Detail / Attachments:	Cross-Audit of Bridge and Safety Equipment Non-Comformities:- <ul style="list-style-type: none">● None Found		

**Marine Acquisition
Audit Form
Veritas Viking2
07/13/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Mechanics
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0619
Audit Detail / Attachments:	Cross-Audit of Deck Non-Comformities:- <ul style="list-style-type: none">● MSDS Data Sheets Missing - Now reprinted and back in place.		

**Marine Acquisition
Audit Form
Veritas Viking2
07/13/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Observers
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0622
Audit Detail / Attachments:	Cross-Audit of Engine Room Non-Comformities:- <ul style="list-style-type: none">● None Found		

**Marine Acquisition
Audit Form
Veritas Viking2
06/14/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Observers
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0606
Audit Detail / Attachments:	Cross-Audit of Hospital and Medical Facilities Non-Comformities:- <ul style="list-style-type: none">● None Found		

**Marine Acquisition
Audit Form
Veritas Viking2
06/14/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Observers
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0609
Audit Detail / Attachments:	Cross-Audit of Galley, Chiller, Freezers and Mess Room Non-Comformities:- <ul style="list-style-type: none">● None Found. Some points noted...● Dishwasher to be replaced in shipyard.		

Marine Acquisition
Audit Form
Veritas Viking2
06/14/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Navigators
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0607
Audit Detail / Attachments:	Cross-Audit of Top Deck Areas Non-Comformities:- <ul style="list-style-type: none">● None major. Some points of note below that will be looked into...● No gloves in checmical locker. Bridge informed.● Temporary arrangement of pumping oil from drums was noted.● Helicopter crash room locked. Informed that keys are on bridge ready for an emergency.		

Marine Acquisition
Audit Form
Veritas Viking2
06/14/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Navigators
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0611
Audit Detail / Attachments:	Cross-Audit of Vessel Electrical Systems Non-Comformities:- <ul style="list-style-type: none">● None Found		

Marine Acquisition
Audit Form
Veritas Viking2
06/14/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Tango
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0612
Audit Detail / Attachments:	Cross-Audit of Bridge and Safety Equipment Non-Comformities:- <ul style="list-style-type: none">● None Found		

Marine Acquisition
Audit Form
Veritas Viking2
06/14/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Mechanics
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0616
Audit Detail / Attachments:	Cross-Audit of Engine Room Non-Comformities:- <ul style="list-style-type: none">● None Found		

**Marine Acquisition
Audit Form
Veritas Viking2
05/28/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Navigator
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0604
Audit Detail / Attachments:	Cross Audit of Hospital and Medical facilities by navigator. No Deficiencies found		

**Marine Acquisition
Audit Form
Veritas Viking2
05/28/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Comp Mech
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0601
Audit Detail / Attachments:	Cross Audit of instrument room by Compressor Tech. Deficiencies found already the subject of IR		

**Marine Acquisition
Audit Form
Veritas Viking2
05/28/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Cable Tech
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0605
Audit Detail / Attachments:	Cross Audit of Tech Workshop by Cable Tech. All deficiencies were the result of work in progress or the subject of and IR. (Now closed)		

Marine Acquisition
Audit Form
Veritas Viking2
05/28/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Data Processor
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0602
Audit Detail / Attachments:	Cross Audiot of Bridge and Safety equipment by Data Processors. No deficiencies found.		

**Marine Acquisition
Audit Form
Veritas Viking2
05/28/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Observers
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0603
Audit Detail / Attachments:	Cross Audit of gun deck by Observers. No deficiencies found		

**Marine Acquisition
Audit Form
Veritas Viking2
05/24/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	Observers
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0598
Audit Detail / Attachments:	Cross Audit of top deck and open areas: Deficiencies found: Top deck oil spill kit obstructed - IR generated. Waste not sorted to correct bins - IR generated		

**Marine Acquisition
Audit Form
Veritas Viking2
04/26/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Cross Audit	Conducted by:	PM Veritas-Viking2
Author:	PM Veritas-Viking2	Reference #:	AU-PV-0593
Audit Detail / Attachments:	  medical cross audit.jpg medical cross audit02.jpg		

**Marine Acquisition
Audit Form
Veritas Viking2
07/13/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Mechanics
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0625
Audit Detail / Attachments:	Department Audit of Gun Deck Non-Comformities:- <ul style="list-style-type: none">● None Found		

**Marine Acquisition
Audit Form
Veritas Viking2
07/13/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Observers
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0626
Audit Detail / Attachments:	Department Audit of Streamer Deck Non-Comformities:- <ul style="list-style-type: none">● None Found		

**Marine Acquisition
Audit Form
Veritas Viking2
07/13/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Technician
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0628
Audit Detail / Attachments:	Department Audit of Technical Workshop Non-Comformities:- <ul style="list-style-type: none">● None Found		

Marine Acquisition
Audit Form
Veritas Viking2
07/13/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Navigators
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0627
Audit Detail / Attachments:	Department Audit of Recording Room / Rigging Store Non-Comformities:- <ul style="list-style-type: none">● None Found		

**Marine Acquisition
Audit Form
Veritas Viking2
07/13/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Navigators
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0623
Audit Detail / Attachments:	Department Audit of Open Decks Non-Comformities:- <ul style="list-style-type: none">● None Found		

Marine Acquisition
Audit Form
Veritas Viking2
07/13/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Cable Tech
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0624
Audit Detail / Attachments:	Department Audit of Cable Store / Workshop Non-Comformities:- <ul style="list-style-type: none">● None Found		

Marine Acquisition
Audit Form
Veritas Viking2
06/14/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Observers
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0610
Audit Detail / Attachments:	Self-Audit of Streamer Deck Non-Comformities:- <ul style="list-style-type: none">● Small amount of oil found near reel 8 leaking from hysdraulic pipes. IR generated. Cleaned up and to be fixed when vanes are back onboard.● Lighting not working on aft of vessel over reel 6, 4, 1. IR generated.		

**Marine Acquisition
Audit Form
Veritas Viking2
06/14/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Technician
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0608
Audit Detail / Attachments:	Self-Audit of Technical Workshop Non-Comformities:- <ul style="list-style-type: none">● None Found		

Marine Acquisition
Audit Form
Veritas Viking2
06/14/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Cable Tech
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0613
Audit Detail / Attachments:	Self-Audit of Cable Store and Workshop Non-Comformities:- <ul style="list-style-type: none">● Spider Reels loose. These were tightened down. IR generated.● Some sections on deck. Has been noted as necessary until cable repair workshop is built.		

Marine Acquisition
Audit Form
Veritas Viking2
06/14/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Mechanics
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0614
Audit Detail / Attachments:	Self-Audit of Gun Deck Non-Comformities:- <ul style="list-style-type: none">● Intercom not clear. Will get electrician to have a look.		

Marine Acquisition
Audit Form
Veritas Viking2
06/14/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Navigators
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0617
Audit Detail / Attachments:	Cross-Audit of Hospital and Medical Facilities Non-Comformities:- <ul style="list-style-type: none">● Some floor tiles loose. Floor requested to be looked at in Singapore Shipyard.● One smoked detector needed fixing.		

Marine Acquisition
Audit Form
Veritas Viking2
06/14/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Mechanics
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0615
Audit Detail / Attachments:	Self-Audit of Top Decks and Open Decks Non-Comformities:- <ul style="list-style-type: none">● None Found. Some points noted...● Port crane known to be waiting on new accumulators.● Some bags of trash stored on deck. Correctly stowed.		

**Marine Acquisition
Audit Form
Veritas Viking2
05/28/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Tech
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0600
Audit Detail / Attachments:	Self Audit of Tech Workshop. No deficiencies found		

Marine Acquisition
Audit Form
Veritas Viking2
05/28/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Cable Tech
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0599
Audit Detail / Attachments:	Self audit of Cable Store by Cable tech. No Deficiencies found		

Marine Acquisition
Audit Form
Veritas Viking2
05/23/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Medic
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0597
Audit Detail / Attachments:	Self Audit of Hospital and medical facilities. No Deficiencies Found		

**Marine Acquisition
Audit Form
Veritas Viking2
05/23/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Mechanics
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0594
Audit Detail / Attachments:	Self audit of gun deck by Mechanics:		
	No deficiencies found		

Marine Acquisition
Audit Form
Veritas Viking2
05/23/2006

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Cable Tech
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0596
Audit Detail / Attachments:	Self Audit of Cable Store by Cable Technician: All deficiencies due to work in progress and lack of storage space. No IR's generated from these deficiencies		

**Marine Acquisition
Audit Form
Veritas Viking2
05/23/2006**

20323 --- Greater Bream 3D 2006

General Information:			
Audit Type:	Inspection / Department Audit	Conducted by:	Technician
Author:	OS Veritas-Viking2	Reference #:	AU-OV-0595
Audit Detail / Attachments:	Self audit of Technical workshoop by Technician:		
	No deficiencies found		

**Marine Acquisition
HSE Daily Summary
Veritas Viking2**

06/20/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	3
3. Boat-to-Boat Transfers	1
4.	
5.	

Daily HSE Comments:

- 8 toolbox meeting held prior to shift change
- 1 toolbox meeting held prior to Supply Vessel coming alongside
- 1 toolbox meeting held prior to taking on fuel
- 1 toolbox meeting held prior to crane work
- 1 Boat to boat transfer of supplies between the V2 and Supply vessel

Abandon Ship Drill

**Marine Acquisition
HSE Daily Summary
Veritas Viking2**

06/05/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	3
3. Boat-to-Boat Transfers	1
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

2 x toolbox meetings conducted prior to recovery/ deployment of the source arrays - SOP and best practice discussed.

1 x toolbox meeting conducted prior to recovery/ deployment of streamer 5 - SOP and best practice discussed.

The supply vessel 'Lady Kari-Ann' made fast alongside for FO, stores and equipment transfer.

**Marine Acquisition
Committee Meeting Minutes
Veritas Viking2
20323 --- Greater Bream 3D 2006**

General Information:			
Status:	Submitted		
Meeting Date:	06/29/2006	Previous Date:	06/12/2006
Started at:	12:30 PM	Ended at:	01:00 PM
Meeting Chair: Cass Cassim			
Meeting Minutes Logged By: OS Veritas-Viking2			
Attendees:			
<input checked="" type="checkbox"/> Cassim Glenn Gordon	<input checked="" type="checkbox"/> Tibor Thomas James	<input checked="" type="checkbox"/> Francisco Richard Conce	
<input checked="" type="checkbox"/> Bell Michael Angus William	<input checked="" type="checkbox"/> Collinge Neil Franklin	<input checked="" type="checkbox"/> Hawkins Peter	

There were no previous Action Points changed at this meeting

There were no Action Points created at this meeting

General Meeting Minutes :		
<table border="1"> <thead> <tr> <th>General Meeting Minutes :</th> </tr> </thead> <tbody> <tr> <td> <p>AIM Committee Meeting</p> <p>A meeting was conducted to discuss the current AIM topics.</p> <p>Points raised during the meeting were as follows :-</p> <ol style="list-style-type: none"> 1. Old meeting minutes were discussed, with no new outcomes 2. The IR Manager showed the results of the analysis for the year so far in terms of seeing which AIM behaviors have been flagged on Incident Reports. The most outstanding issue flagged is "Condition of Tools and Equipment". We will continue to monitor this and see if this trend continues for the rest of the year, and at that time, will put plans in place to target this as an area that can be improved. 3. A requisition for the last AIM rewards was put in a few weeks ago. The delivery date of these items will be followed up. Action: <i>Chairperson</i> 4. 60 extra safety points are to be awarded to each person onboard as part of the normal Veritas Incentive Scheme . Wayne Enterprises and the office will be notified. Action: <i>Chairperson</i> 5. For the next round of awards starting in September, we will need to check with everyone what sort of things would be preferred, either single awards or a group award. Action: <i>Committee Members</i> 6. The winner for the best AIM observation was decided by the committee, given to Larry Tan for his observation in the cable store, which was closely followed by the observation by Galen Hieb on drum-slinging operation. Larry gets 5 extra safety points for his efforts. Action: <i>Rewards Administrator</i> <p>Finally...</p> <p>All crew members are encouraged to continue making observations, and remember that the observations are there to help both the observer and observee become more aware of and improve their own safety practices and performance . All crew are encouraged to take a couple of cards with them whenever they go out to do some work.</p> </td> </tr> </tbody> </table>	General Meeting Minutes :	<p>AIM Committee Meeting</p> <p>A meeting was conducted to discuss the current AIM topics.</p> <p>Points raised during the meeting were as follows :-</p> <ol style="list-style-type: none"> 1. Old meeting minutes were discussed, with no new outcomes 2. The IR Manager showed the results of the analysis for the year so far in terms of seeing which AIM behaviors have been flagged on Incident Reports. The most outstanding issue flagged is "Condition of Tools and Equipment". We will continue to monitor this and see if this trend continues for the rest of the year, and at that time, will put plans in place to target this as an area that can be improved. 3. A requisition for the last AIM rewards was put in a few weeks ago. The delivery date of these items will be followed up. Action: <i>Chairperson</i> 4. 60 extra safety points are to be awarded to each person onboard as part of the normal Veritas Incentive Scheme . Wayne Enterprises and the office will be notified. Action: <i>Chairperson</i> 5. For the next round of awards starting in September, we will need to check with everyone what sort of things would be preferred, either single awards or a group award. Action: <i>Committee Members</i> 6. The winner for the best AIM observation was decided by the committee, given to Larry Tan for his observation in the cable store, which was closely followed by the observation by Galen Hieb on drum-slinging operation. Larry gets 5 extra safety points for his efforts. Action: <i>Rewards Administrator</i> <p>Finally...</p> <p>All crew members are encouraged to continue making observations, and remember that the observations are there to help both the observer and observee become more aware of and improve their own safety practices and performance . All crew are encouraged to take a couple of cards with them whenever they go out to do some work.</p>
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**Marine Acquisition
Committee Meeting Minutes
Veritas Viking2
20323 --- Greater Bream 3D 2006**

General Information:			
Status:	Submitted		
Meeting Date:	06/13/2006	Previous Date:	05/25/2006
Started at:	01:00 PM	Ended at:	01:40 PM

Meeting Chair: Howie Grizaard

Meeting Minutes Logged By: Howie Grizaard

Attendees:			
<input checked="" type="checkbox"/> Grizaard Howard Peter	<input checked="" type="checkbox"/> Hayden Leslie William	<input checked="" type="checkbox"/> Hardy Paul	<input checked="" type="checkbox"/> Hockley Keith Robert
<input checked="" type="checkbox"/> Cassim Glenn Gordon	<input checked="" type="checkbox"/> Dyer Stephen	<input checked="" type="checkbox"/> Honiss Gerhard	<input checked="" type="checkbox"/> Manalang Fedelino
<input checked="" type="checkbox"/> Bell Michael Angus William	<input checked="" type="checkbox"/> Huseyn-Zada Urfan Turqud	<input checked="" type="checkbox"/> Farley Edward Roy	<input checked="" type="checkbox"/> Hutchings Colin Reginald
<input checked="" type="checkbox"/> Collins Jeremy N	<input checked="" type="checkbox"/> Knutsen Knut	<input checked="" type="checkbox"/> Hovland Bjorn Tore Gaard	<input checked="" type="checkbox"/> Kennard James Montrose

Action Points Changed at this Meeting

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	319
Party Responsible:	Captain / Eidesvik	Origin:	V2-IR-05-OSVV6DBVKR
Date Opened:	11/09/2005		
Est. Date Closed:	30/04/2006	Act. Date Closed:	
Non-Conformity:	Complete loss of power and propulsion		
Action to be taken:	Awaiting on parts and time to complete the enhancements of the electronic system to the Generators. Parts should arrive onboard the chase boat once we arrive in Australia.		

Action Point Following Meeting

Status:	Active	AP Ref Number:	319
Party Responsible:	Captain / Eidesvik	Origin:	V2-IR-05-OSVV6DBVKR
Date Opened:	11/09/2005		
Est Date Closed:	30/09/2006	Act. Date Closed:	
Non-Conformity:	Complete loss of power and propulsion		
Action to be taken:	Awaiting on parts and time to complete the enhancements of the electronic system to the Generators. Parts should arrive onboard the chase boat once we arrive in Australia.		

Change Summary:

Est Date Closed Changed: From 30/04/2006 02:00:00 To 30/09/2006

Comments: No change in status. Singapore dry dock work scope.

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	328
Party Responsible:	Chief Engineer	Origin:	APR
Date Opened:	23/12/2005		
Est. Date Closed:	23/04/2006	Act. Date Closed:	
Non-Conformity:	Air-conditioning on 1st deck inadequate. Cabin temperatures = 27°C, chief mechanic's office = 30°C.		
Action to be taken:	The engineers are to investigate and submit recommendations for repair. This is an ongoing issue. The engineers will inspect the evaporators and attempt modifications this week.		

Action Point Following Meeting

Status:	Active	AP Ref Number:	328
Party Responsible:	Chief Engineer	Origin:	APR
Date Opened:	23/12/2005		
Est Date Closed:	30/09/2006	Act. Date Closed:	
Non-Conformity:	Air-conditioning on 1st deck inadequate. Cabin temperatures = 27°C, chief mechanic's office = 30°C.		
Action to be taken:	The engineers are to investigate and submit recommendations for repair. This is an ongoing issue. The engineers will inspect the evaporators and attempt modifications this week.		

Change Summary:

Est Date Closed Changed: From 23/04/2006 02:00:00 To 30/09/2006

Comments: No change in status. This will need to be handled during the upcoming dry dock in Singapore, Sept '06, since it will require the AC to be shut down for, possibly, a few days. Added to the dry dock work scope.

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	333
Party Responsible:	Operations Supervisor	Origin:	V2-IR-06-PMVV6LPCV3
Date Opened:	17/02/2006		
Est. Date Closed:	17/04/2006	Act. Date Closed:	
Non-Conformity:	Missing signs to indicate required PPE prior to entering workboats/FRC whilst in davit		
Action to be taken:	Signs to state the required PPE will be ordered and hung from the safety chains blocking access to all small craft.		

Action Point Following Meeting

Status:	Active	AP Ref Number:	333
Party Responsible:	Operations Supervisor	Origin:	V2-IR-06-PMVV6LPCV3
Date Opened:	17/02/2006		
Est Date Closed:	31/07/2006	Act. Date Closed:	
Non-Conformity:	Missing signs to indicate required PPE prior to entering workboats/FRC whilst in davit		
Action to be taken:	Signs to state the required PPE will be ordered and hung from the safety chains blocking access to all small craft.		

Change Summary:

Est Date Closed Changed: From 17/04/2006 02:00:00 To 31/07/2006

Comments: No change in status. Still waiting on order. Signs will be received in Fremantle on completion of the ExxonMobil program.

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	334
Party Responsible:	Ch Off; Captain	Origin:	V2-IR-06-OSVV6L7ASE
Date Opened:	18/03/2006		
Est. Date Closed:	30/04/2006	Act. Date Closed:	
Non-Conformity:	Straps for securing hoses in some fire-hose cabinets are either missing or perished.		
Action to be taken:	New straps have been ordered by the bridge and once they are received and fitted, this AP will be closed.		

Action Point Following Meeting

Status:	Closed	AP Ref Number:	334
Party Responsible:	Ch Off; Captain	Origin:	V2-IR-06-OSVV6L7ASE
Date Opened:	18/03/2006		
Est Date Closed:	30/04/2006	Act. Date Closed:	13/06/2006
Non-Conformity:	Straps for securing hoses in some fire-hose cabinets are either missing or perished.		
Action to be taken:	New straps have been ordered by the bridge and once they are received and fitted, this AP will be closed.		

Change Summary:

Act Date Closed Changed: From Null To 13/06/2006

Status Changed: From Active To Closed

Comments: Fire hose storage box straps have been replaced/ repaired. AP considered closed.

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	336
Party Responsible:	OS; PM	Origin:	V2-IR-06-CVVG6MW7WF
Date Opened:	18/03/2006		
Est. Date Closed:	30/09/2006	Act. Date Closed:	
Non-Conformity:	Several tie down points on the streamer deck are showing signs of age. These tie down points are used for towing the streamer in a tow clamp during deployment/ troubleshooting.		
Action to be taken:	Tie down replacement and recertification will be added to the dry dock work scope/ list, scheduled for early September 2006. Temporary repairs will be made during the pending Bass Strait transit.		

Action Point Following Meeting

Status:	Active	AP Ref Number:	336
Party Responsible:	OS; PM	Origin:	V2-IR-06-CVVG6MW7WF
Date Opened:	18/03/2006		
Est Date Closed:	30/09/2006	Act. Date Closed:	
Non-Conformity:	Several tie down points on the streamer deck are showing signs of age. These tie down points are used for towing the streamer in a tow clamp during deployment/ troubleshooting.		
Action to be taken:	Tie down replacement and recertification will be added to the dry dock work scope/ list, scheduled for early September 2006. Temporary repairs will be made during the pending Bass Strait transit.		

Change Summary:

Comments: No change in status. Tie down points on the streamer deck will be replaced and recertified during the pending Singapore dry dock in September 2006.

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	338
Party Responsible:	Ch. Mechanic	Origin:	APR
Date Opened:	13/06/2006		

Est. Date Closed:	30/06/2006	Act. Date Closed:	
Non-Conformity:	Extinguisher 21 outside rigging store has bracket bent and hose is not secure		
Action to be taken:	New bracket to be fabricated		

Action Point Following Meeting

Status:	Active	AP Ref Number:	338
Party Responsible:	Ch. Mechanic	Origin:	APR
Date Opened:	13/06/2006		
Est Date Closed:	30/06/2006	Act. Date Closed:	
Non-Conformity:	Extinguisher 21 outside rigging store has bracket bent and hose is not secure		
Action to be taken:	New bracket to be fabricated		

Change Summary:

Comments: In hand. Onboard mechanics will fabricate required bracket and re-secure fire extinguisher 21. This will be done at the earliest convenience.

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	339
Party Responsible:	Tech/APM	Origin:	APR
Date Opened:	13/06/2006		
Est. Date Closed:	30/06/2006	Act. Date Closed:	
Non-Conformity:	Intercom system from back deck is very hard to make out in recording room		
Action to be taken:	New amplifier?		

Action Point Following Meeting

Status:	Active	AP Ref Number:	339
Party Responsible:	Tech/APM	Origin:	APR
Date Opened:	13/06/2006		
Est Date Closed:	30/06/2006	Act. Date Closed:	
Non-Conformity:	Intercom system from back deck is very hard to make out in recording room		
Action to be taken:	New amplifier?		

Change Summary:

Comments: Veritas technician investigating.

There were no Action Points created at this meeting

General Meeting Minutes :

1300 hrs: Meeting opened by Howie Grizaard.

Reviewed and discussed minutes from previous meeting, dated 25 May '06.

Reviewed and discussed open incident reports - 4 IRs closed and all remaining open IRs updated with current status.

Reviewed and discussed open action points - comments and status on above attached AP register.

1330 hrs: The floor was opened for new business.

Les Hayden (Chief Observer):

General reminder. The guard railings around the streamer winch motor housings have been removed for easier access. The railings have now been replaced with Dextron rope. These motors are subject to planned maintenance and until now have proved difficult to get to.

Fedelino Manalang (SOS Medic):

The internal door to the hospital is not wide enough to traverse a patient on a stretcher. A further request to widen the door was made. An IR and AP will be generated to ensure correct follow-up. Eidesvik are investigating.

Steve Dyer (Chief Mechanic):

The stbd aft streamer deck stairway railing leading to the gun deck has been repaired and is no longer bent.

Gerhard Honiss (Australian Chief Officer):

General reminder. The fire protection suits onboard are only Fire Proximity Suits and not full entry suits.

1340 hrs: Meeting closed.

**Marine Acquisition
Committee Meeting Minutes
Veritas Viking2
20323 --- Greater Bream 3D 2006**

General Information:			
Status:	Submitted		
Meeting Date:	06/09/2006	Previous Date:	05/30/2006
Started at:	12:30 PM	Ended at:	01:00 PM
Meeting Chair: Cass Cassim			
Meeting Minutes Logged By: OS Veritas-Viking2			
Attendees:			
<input checked="" type="checkbox"/> Cassim Glenn Gordon	<input checked="" type="checkbox"/> Collins Jeremy N	<input checked="" type="checkbox"/> Tankard Leonard Arthur	
<input checked="" type="checkbox"/> Bell Michael Angus William	<input checked="" type="checkbox"/> Shelley Neil Brad	<input checked="" type="checkbox"/> Jones Paul William	

There were no previous Action Points changed at this meeting

There were no Action Points created at this meeting

General Meeting Minutes :
<p>AIM Committee Meeting</p> <p>A meeting was conducted to discuss the current AIM topics.</p> <p>Points raised during the meeting were as follows :-</p> <ol style="list-style-type: none"> 1. Everyone who has had difficulty entering in their own AIM observations has been given instruction , and further instruction will be made available by committee members as necessary . 2. The Special Projects Manager has made a folder for presentations and will give instruction to new people to the vessel from now on. Three people are currently awaiting induction. 3. A requisition for the last AIM rewards to be followed up with instruction that AIM rewards should be made for the attention of the AIM Committee. Action: <i>Chairperson</i> 4. A poster showing who are the committee members will be placed on the AIM notice-board, and a reminder on how many points are accrued by people will be displayed by the end of this weekend, along with everyone's AIM totals. Action: <i>Chairperson</i> 5. Mark Cassellis will be contacted to see if he can fix the listing function that allows people to see what observations they have put in. Action: <i>Chairperson</i> 6. All committee members will help AIM advance further by encouraging everyone to walk around with AIM cards in their pockets. This will be promoted as the same as any piece of safety equipment, so that people have them whenever they go do an activity that might warrant an observation. A new sign will be placed on the exits to the back-deck reminding people to take a card with them. Action: <i>Committee Members</i> <p>Finally...</p> <p>All crew members are encouraged to continue making observations, and remember that the observations are there to help both the observer and observee become more aware of and improve their own safety practices and performance.</p>

**Marine Acquisition
Committee Meeting Minutes
Veritas Viking2
20323 --- Greater Bream 3D 2006**

General Information:

Status:	Submitted		
Meeting Date:	05/31/2006	Previous Date:	05/24/2006
Started at:	12:30 PM	Ended at:	12:55 PM

Meeting Chair:

Meeting Minutes Logged By: OS Veritas-Viking2

Attendees:

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> Cassim Glenn Gordon | <input checked="" type="checkbox"/> Collins Jeremy N | <input checked="" type="checkbox"/> Jones Paul William |
| <input checked="" type="checkbox"/> Bell Michael Angus William | <input checked="" type="checkbox"/> Tankard Leonard Arthur | |

There were no previous Action Points changed at this meeting

There were no Action Points created at this meeting

General Meeting Minutes:

AIM Committee Meeting

A meeting was conducted to discuss the current AIM topics.

Points raised during the meeting were as follows :-

1. The idea of getting everyone to enter in their own AIM observations into the system was discussed, and it was agreed that this is working fine. An email will be sent out with a few extra instructions to help people use the entry system. **Action:** *Chairperson*
2. The task of the Special Projects Manager (SPM) was further discussed, encompassing the main role of inducting new people onboard into the AIM system. The SPM will firstly fully familiarize themselves with the AIM entry system, and also become familiar with the AIM induction presentations. **Action:** *SPM*
3. The last incentive scheme rewards requisition will be checked into. **Action:** *Chairperson*
4. A poster showing who are the committee members will be placed on the AIM notice-board, and a reminder on how many points are accrued by people will be displayed, along with everyone's AIM totals. **Action:** *Chairperson*
5. It was decided by the committee that once per month, the committee will go through the incident reports to ascertain what are the behavior-causes to any of them, using this information to create some statistics that could point to areas that need special safety awareness, care and attention by those on board. The IRs will be collected by the IR Coordinator (aka *The Enforcer*). **Action:** *IR Coordinator/Committee Members*

Finally...

All crew members are encouraged to continue making observations, and remember that the observations are there to help both the observer and observee become more aware of and improve their own safety practices and performance.

Marine Acquisition
Committee Meeting Minutes
Veritas Viking2
20323 --- Greater Bream 3D 2006

General Information:			
Status:	Submitted		
Meeting Date:	05/25/2006	Previous Date:	05/22/2006
Started at:	01:00 PM	Ended at:	01:37 PM

Meeting Chair: Howie Grizaard

Meeting Minutes Logged By: Howie Grizaard

Attendees:			
<input checked="" type="checkbox"/> Grizaard Howard Peter	<input checked="" type="checkbox"/> Hayden Leslie William	<input checked="" type="checkbox"/> Weeks Roger Brian	<input checked="" type="checkbox"/> Darlington Mark
<input checked="" type="checkbox"/> Turpin Paul	<input checked="" type="checkbox"/> Dyer Stephen	<input checked="" type="checkbox"/> Aga Einar	<input checked="" type="checkbox"/> Manalang Fedelino
<input checked="" type="checkbox"/> Boon Marc Lodewijk Ari	<input checked="" type="checkbox"/> Huseyn-Zada Urfan Turqud	<input checked="" type="checkbox"/> Heath Robert	<input checked="" type="checkbox"/> Danyluk David Michael
<input checked="" type="checkbox"/> Collins Jeremy N	<input checked="" type="checkbox"/> Knutsen Knut	<input checked="" type="checkbox"/> Andersen Odd Helge	

Action Points Changed at this Meeting

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	319
Party Responsible:	Captain / Eidesvik	Origin:	V2-IR-05-OSVV6DBVKR
Date Opened:	11/09/2005		
Est. Date Closed:	30/04/2006	Act. Date Closed:	
Non-Conformity:	Complete loss of power and propulsion		
Action to be taken:	Awaiting on parts and time to complete the enhancements of the electronic system to the Generators. Parts should arrive onboard the chase boat once we arrive in Australia.		

Action Point Following Meeting

Status:	Active	AP Ref Number:	319
Party Responsible:	Captain / Eidesvik	Origin:	V2-IR-05-OSVV6DBVKR
Date Opened:	11/09/2005		
Est Date Closed:	30/04/2006	Act. Date Closed:	
Non-Conformity:	Complete loss of power and propulsion		
Action to be taken:	Awaiting on parts and time to complete the enhancements of the electronic system to the Generators. Parts should arrive onboard the chase boat once we arrive in Australia.		

Change Summary:

Comments: No change in status. Singapore dry dock work scope.

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	328
Party Responsible:	Chief Engineer	Origin:	APR
Date Opened:	23/12/2005		
Est. Date Closed:	23/04/2006	Act. Date Closed:	
Non-Conformity:	Air-conditioning on 1st deck inadequate. Cabin temperatures = 27°C, chief mechanic's office = 30°C.		
Action to be taken:	The engineers are to investigate and submit recommendations for repair. This is an ongoing issue. The engineers will inspect the evaporators and attempt modifications this week.		

Action Point Following Meeting

Status:	Active	AP Ref Number:	328
Party Responsible:	Chief Engineer	Origin:	APR
Date Opened:	23/12/2005		
Est Date Closed:	23/04/2006	Act. Date Closed:	
Non-Conformity:	Air-conditioning on 1st deck inadequate. Cabin temperatures = 27°C, chief mechanic's office = 30°C.		
Action to be taken:	The engineers are to investigate and submit recommendations for repair. This is an ongoing issue. The engineers will inspect the evaporators and attempt modifications this week.		

Change Summary:

Comments: No change in status. This will need to be handled during the upcoming dry dock in Singapore, Sept '06, since it will require the AC to be shut down for, possibly, a few days. Added to the dry dock work scope.

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	333
Party Responsible:	Operations Supervisor	Origin:	V2-IR-06-PMVV6LPCV3
Date Opened:	17/02/2006		
Est. Date Closed:	17/04/2006	Act. Date Closed:	
Non-Conformity:	Missing signs to indicate required PPE prior to entering workboats/FRC whilst in davit		
Action to be taken:	Signs to state the required PPE will be ordered and hung from the safety chains blocking access to all small craft.		

Action Point Following Meeting

Status:	Active	AP Ref Number:	333
Party Responsible:	Operations Supervisor	Origin:	V2-IR-06-PMVV6LPCV3
Date Opened:	17/02/2006		
Est Date Closed:	17/04/2006	Act. Date Closed:	
Non-Conformity:	Missing signs to indicate required PPE prior to entering workboats/FRC whilst in davit		
Action to be taken:	Signs to state the required PPE will be ordered and hung from the safety chains blocking access to all small craft.		

Change Summary:

Comments: No change in status. Req Number: VV2-Req-2993. Still waiting for signs to arrive onboard.

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	334
Party Responsible:	Ch Off; Captain	Origin:	V2-IR-06-OSVV6L7ASE
Date Opened:	18/03/2006		
Est. Date Closed:	30/04/2006	Act. Date Closed:	
Non-Conformity:	Straps for securing hoses in some fire-hose cabinets are either missing or perished.		
Action to be taken:	New straps have been ordered by the bridge and once they are received and fitted, this AP will be closed.		

Action Point Following Meeting

Status:	Active	AP Ref Number:	334
Party Responsible:	Ch Off; Captain	Origin:	V2-IR-06-OSVV6L7ASE
Date Opened:	18/03/2006		
Est Date Closed:	30/04/2006	Act. Date Closed:	
Non-Conformity:	Straps for securing hoses in some fire-hose cabinets are either missing or perished.		
Action to be taken:	New straps have been ordered by the bridge and once they are received and fitted, this AP will be closed.		

Change Summary:

Comments: No change in status. Eidesvik requisition number 68-0019-2006. Waiting for straps to arrive. When the items are received onboard and fitted, this AP and attached IR will be considered closed.

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	336
Party Responsible:	OS; PM	Origin:	V2-IR-06-CVVG6MW7WF
Date Opened:	18/03/2006		
Est. Date Closed:	30/09/2006	Act. Date Closed:	
Non-Conformity:	Several tie down points on the streamer deck are showing signs of age. These tie down points are used for towing the streamer in a tow clamp during deployment/ troubleshooting.		
Action to be taken:	Tie down replacement and recertification will be added to the dry dock work scope/ list, scheduled for early September 2006. Temporary repairs will be made during the pending Bass Strait transit.		

Action Point Following Meeting

Status:	Active	AP Ref Number:	336
Party Responsible:	OS; PM	Origin:	V2-IR-06-CVVG6MW7WF
Date Opened:	18/03/2006		
Est Date Closed:	30/09/2006	Act. Date Closed:	
Non-Conformity:	Several tie down points on the streamer deck are showing signs of age. These tie down points are used for towing the streamer in a tow clamp during deployment/ troubleshooting.		
Action to be taken:	Tie down replacement and recertification will be added to the dry dock work scope/ list, scheduled for early September 2006. Temporary repairs will be made during the pending Bass Strait transit.		

Change Summary:

Comments: No change in status. Tie down points on the streamer deck will be replaced and recertified during the pending Singapore dry dock in September 2006. Temporary repairs have been made.

Action Point Prior to Meeting

Status:	Active	AP Ref Number:	337
Party Responsible:	Electrician	Origin:	AU-OV-0580
Date Opened:	31/03/2006		
Est. Date Closed:	17/04/2006	Act. Date Closed:	
Non-Conformity:	Stern spotlights for reels 5 and 8 not working.		
Action to be taken:	Spotlight globes need changing by electrician		

Action Point Following Meeting

Status:	Closed	AP Ref Number:	337
Party Responsible:	Electrician	Origin:	AU-OV-0580
Date Opened:	31/03/2006		
Est Date Closed:	17/04/2006	Act. Date Closed:	25/05/2006
Non-Conformity:	Stern spotlights for reels 5 and 8 not working.		
Action to be taken:	Spotlight globes need changing by electrician		

Change Summary:

Act Date Closed Changed: From Null To 25/05/2006

Status Changed: From Active To Closed

Comments: Spotlight globes were replaced by the vessel's electrician in Fremantle, Apr 2006.

There were no Action Points created at this meeting

General Meeting Minutes :

1300 hrs: Meeting opened by Howie Grizaard.

Reviewed and discussed minutes from previous meeting, dated 13 Apr '06.

Reviewed and discussed open incident reports - 8 IRs closed and all remaining open IRs updated with current status.

Reviewed and discussed open action points - comments and status on above attached AP register.

1327 hrs: The floor was opened for new business.

Steve Dyer (Chief Mechanic):

General reminder. Remote unit valves for the stbd crane knuckle have been ordered. The knuckle currently only works with the manual auxiliary controls.

Les Hayden (Chief Observer):

General reminder. The guard railings around the streamer winch motor housings have been removed for easier access. The railings will be replaced with chain. These motors are subject to planned maintenance and until now have proved difficult to get to.

Fedelino Manalang (SOS Medic):

The internal door to the hospital is not wide enough to traverse a patient on a stretcher. A request to widen the door was made. This will be further investigated. An IR will be generated to ensure correct follow-up.

Dave Danyluk (Client Representative):

The stbd aft streamer deck stairway railing leading to the gun deck is bent. The onboard mechanics will further investigate and make repairs as necessary.

Roger Weeks (Australian Master):

General reminder. Crew were asked to show common courtesy when traversing the accommodation areas of the vessel. Keep noise to a minimum, do this by; keeping voices down and closing cabin doors gently. Numerous complaints made of slamming doors. The Australian Master will generate an IR to raise crew awareness.

1337 hrs: Meeting closed.

**Marine Acquisition
Committee Meeting Minutes
Veritas Viking2
20323 --- Greater Bream 3D 2006**

General Information:

Status:	Submitted		
Meeting Date:	05/23/2006	Previous Date:	04/12/2006
Started at:	12:30 PM	Ended at:	12:55 PM

Meeting Chair: Paul Turpin

Meeting Minutes Logged By: OS Veritas-Viking2

Attendees:

Turpin Paul Collins Jeremy N Jones Paul William Ellis Kristian John Curwen

There were no previous Action Points changed at this meeting

There were no Action Points created at this meeting

General Meeting Minutes:

Meeting Opened at 12:30 in Ships Library

Meeting opened with the reading of the previous minutes:

Items arising out of minutes.

- It was agreed that a trial of having people entering their own observations would be a good idea. The proposed start would be ASAP and a meeting would be held in the instrument room on the 24th May to inform the crew of the changes.
- Although people would be entering their own observations into Lotus Notes, the AIM card will still need to be used and submitted to the scribe as normal. This will be able to be changed if it proves impractical but for a start it was thought that it would allow the scribe to assess observations better this way.
- Monthly prize was also agreed to be a good thing. Melissa Li was selected as the outstanding observation for May for her Observation of deployment of a head-float.
- A Special Projects Person was discussed: Lenny Tankard was approach agreed to take on the position of his rotation duties to comprise of initial induction of new hires into AIM.

The reintroduction of causal charts for incident reports was discussed and agreed to, this would comprise analytical charts of immediate causes of all IR's submitted in since the last Committee meeting. It is hoped that by analysis of immediate causes of incidents, steps can be made to improve awareness in these areas.

Jeremy Collins was welcomed to the committee, Jeremy takes over Scribe duties from Paul Wilks. As this is Jeremy's second time on the AIM Committee, the traditional welcome afforded to Richard Francisco was not necessary.

The meeting closed at 12:55

Marine Acquisition Division

Meetings and Drills

Veritas Viking2

07/02/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Fire Drill

Attendees:

<input checked="" type="checkbox"/> Mcnelly Richard Morgan	<input checked="" type="checkbox"/> Cowie John	<input checked="" type="checkbox"/> Harrison Jeffrey William	<input checked="" type="checkbox"/> Graham Peter
<input checked="" type="checkbox"/> Cassim Glenn Gordon	<input checked="" type="checkbox"/> Francisco Richard Conce	<input checked="" type="checkbox"/> Ramos Romeo P	<input checked="" type="checkbox"/> Best James
<input checked="" type="checkbox"/> Bell Michael Angus William	<input checked="" type="checkbox"/> Anwar Abdul Rashid B	<input checked="" type="checkbox"/> Saevik Helmik	<input checked="" type="checkbox"/> Savetta Matthew
<input checked="" type="checkbox"/> Fleming Rick Ray	<input checked="" type="checkbox"/> Doyle Anthony Denis James	<input checked="" type="checkbox"/> Weeks Roger Brian	<input checked="" type="checkbox"/> Mccgregor Murray Rowland
<input checked="" type="checkbox"/> Quinlan Vera	<input checked="" type="checkbox"/> Tan Larry Hock Chye	<input checked="" type="checkbox"/> Ramchandran Rishiraj	<input checked="" type="checkbox"/> Lee Robert
<input checked="" type="checkbox"/> Tibor Thomas James	<input checked="" type="checkbox"/> Haarmans Johan Michael	<input checked="" type="checkbox"/> Ballantine Kenneth Gordon	<input checked="" type="checkbox"/> May Errol
<input checked="" type="checkbox"/> Fletcher Darryl Michael	<input checked="" type="checkbox"/> Certeza Levi Basas	<input checked="" type="checkbox"/> Kjerrgard Kare	<input checked="" type="checkbox"/> Mendoza Jr Constante
<input checked="" type="checkbox"/> Tan Alan Eng Liang	<input checked="" type="checkbox"/> Naylor David	<input checked="" type="checkbox"/> Heath Robert	<input checked="" type="checkbox"/> Macknight Fiona
<input checked="" type="checkbox"/> Tan Vivian Ping Khun	<input checked="" type="checkbox"/> Higgins Brett Andrew	<input checked="" type="checkbox"/> Grimwood Bruce	<input checked="" type="checkbox"/> Jackett Nigel Alexander
<input checked="" type="checkbox"/> Malofeev Mikhail	<input checked="" type="checkbox"/> Ross Stephen A	<input checked="" type="checkbox"/> Nonis P	<input checked="" type="checkbox"/> Ashworth Ryan
<input checked="" type="checkbox"/> Hewison Howard	<input checked="" type="checkbox"/> Hieb Galen Guy	<input checked="" type="checkbox"/> Darlington Mark	<input checked="" type="checkbox"/> Hutchings Colin Reginald
<input checked="" type="checkbox"/> Perkin Andrew John	<input checked="" type="checkbox"/> Hawkins Peter	<input checked="" type="checkbox"/> Hovland Bjorn Tore Gaard	<input checked="" type="checkbox"/> Barrow Herbert
<input checked="" type="checkbox"/> Campbell Gregory Gerard	<input checked="" type="checkbox"/> Chong Wee Chen	<input checked="" type="checkbox"/> Shelley Noel	<input checked="" type="checkbox"/> Kennard James Montrose
<input checked="" type="checkbox"/> Collinge Neil Franklin	<input checked="" type="checkbox"/> Lofts Alan	<input checked="" type="checkbox"/> Draper Dudley Drew	

Minutes:

Drill Details: Fire in Engine room

1245: Fire alarm on bridge activated, P.A. Announcement made.
1248: All Crew mustered and accounted for.
1248. All engine room vents closed, all engine room staff ordered to evacuate
1249. Chief engineer standby near co2 cabinet
1249. Hot spots checks being carried out and boundary cooling in progress
1253. Head count taken and confirmed no crew in the engine room
1254. Master instructs to deploy co2
1255. End of drill and crew stand down

ANALYSIS

Drill conducted in recognised high-risk zone

COMMENTS

Ship mustered quickly and initial response to fire very quick.
Good response to the need to shift muster station.

Marine Acquisition Division

Meetings and Drills

Veritas Viking2

06/25/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Fire Drill

Attendees:

<input checked="" type="checkbox"/> Mcnelly Richard Morgan	<input checked="" type="checkbox"/> Francisco Richard Conce	<input checked="" type="checkbox"/> Saevik Helmik	<input checked="" type="checkbox"/> Cooper Peter Terrence
<input checked="" type="checkbox"/> Cassim Glenn Gordon	<input checked="" type="checkbox"/> Anwar Abdul Rashid B	<input checked="" type="checkbox"/> Hardy Paul	<input checked="" type="checkbox"/> Diggle Mark Leslie
<input checked="" type="checkbox"/> Bell Michael Angus William	<input checked="" type="checkbox"/> Doyle Anthony Denis James	<input checked="" type="checkbox"/> Honiss Gerhard	<input checked="" type="checkbox"/> Cooks Andrew
<input checked="" type="checkbox"/> Fleming Rick Ray	<input checked="" type="checkbox"/> Tan Larry Hock Chye	<input checked="" type="checkbox"/> Ballantine Kenneth Gordon	<input checked="" type="checkbox"/> Miller Paul Anthony
<input checked="" type="checkbox"/> Quinlan Vera	<input checked="" type="checkbox"/> Haarmans Johan Michael	<input checked="" type="checkbox"/> Kjerrgard Kare	<input checked="" type="checkbox"/> Mendoza Jr Constante
<input checked="" type="checkbox"/> Tibor Thomas James	<input checked="" type="checkbox"/> Certeza Levi Basas	<input checked="" type="checkbox"/> Farley Edward Roy	<input checked="" type="checkbox"/> Macknight Fiona
<input checked="" type="checkbox"/> Fletcher Darryl Michael	<input checked="" type="checkbox"/> Naylor David	<input checked="" type="checkbox"/> Appel Tomiln	<input checked="" type="checkbox"/> Waugh Nathan Francis
<input checked="" type="checkbox"/> Tan Alan Eng Liang	<input checked="" type="checkbox"/> Higgins Brett Andrew	<input checked="" type="checkbox"/> Leach Peter Thomas	<input checked="" type="checkbox"/> Jackett Nigel Alexander
<input checked="" type="checkbox"/> Tan Vivian Ping Khun	<input checked="" type="checkbox"/> Ross Stephen A	<input checked="" type="checkbox"/> Hovland Bjorn Tore Gaard	<input checked="" type="checkbox"/> Hutchings Colin Reginald
<input checked="" type="checkbox"/> Malofeev Mikhail	<input checked="" type="checkbox"/> Hieb Galen Guy	<input checked="" type="checkbox"/> Hockley Keith Robert	<input checked="" type="checkbox"/> Barrow Herbert
<input checked="" type="checkbox"/> Hewison Howard	<input checked="" type="checkbox"/> Hawkins Peter	<input checked="" type="checkbox"/> Duffy Robert Andrew	<input checked="" type="checkbox"/> Kennard James Montrose
<input checked="" type="checkbox"/> Perkin Andrew John	<input checked="" type="checkbox"/> Chong Wee Chen	<input checked="" type="checkbox"/> Williams Paul Robert	<input checked="" type="checkbox"/> Chandler Emma Soili
<input checked="" type="checkbox"/> Campbell Gregory Gerard	<input checked="" type="checkbox"/> Lofts Alan	<input checked="" type="checkbox"/> Cavanagh Ronald	<input checked="" type="checkbox"/> Dousset Jaimee
<input checked="" type="checkbox"/> Collinge Neil Franklin	<input checked="" type="checkbox"/> Harrison Jeffrey William	<input checked="" type="checkbox"/> Fairbrother Cyra Louise	
<input checked="" type="checkbox"/> Cowie John	<input checked="" type="checkbox"/> Ramos Romeo P	<input checked="" type="checkbox"/> Gobel Brian William Keith	

Minutes:

Drill Details: Fire Muster and Briefing

1245: Fire alarm on bridge activated, P.A. Announcement made.

1254: Fire Teams all reported in

1256: All Crew mustered and accounted for.

1257: All crew relocate to focsle for safety briefing

1305: Exercise complete, all crew returned to normal duties.

ANALYSIS

To prove Emergency Station response times.

To familiarise crew with safety equipment and procedures onboard and instil confidence.

COMMENTS

Muster times slightly below target but overall good response with clear communication and no confusion.

Crew briefed on different types and uses of portable fire extinguishers and escape procedures from smoke and heat filled compartments

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
06/04/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Fire Drill

Attendees:

<input checked="" type="checkbox"/> Grizaard Howard Peter	<input checked="" type="checkbox"/> Tan Larry Hock Chye	<input checked="" type="checkbox"/> Honiss Gerhard	<input checked="" type="checkbox"/> Diggle Mark Leslie
<input checked="" type="checkbox"/> Cassim Glenn Gordon	<input checked="" type="checkbox"/> Dyer Stephen	<input checked="" type="checkbox"/> Ballantine Kenneth Gordon	<input checked="" type="checkbox"/> Cooks Andrew
<input checked="" type="checkbox"/> Bell Michael Angus William	<input checked="" type="checkbox"/> Tankard Leonard Arthur	<input checked="" type="checkbox"/> Trengereid Birger Kare	<input checked="" type="checkbox"/> Miller Paul Anthony
<input checked="" type="checkbox"/> Quinlan Vera	<input checked="" type="checkbox"/> Higgins Brett Andrew	<input checked="" type="checkbox"/> Farley Edward Roy	<input checked="" type="checkbox"/> Manalang Fedelino
<input checked="" type="checkbox"/> Harman Noel Edward	<input checked="" type="checkbox"/> Tambi Deris Ak	<input checked="" type="checkbox"/> Appel Tomiln	<input checked="" type="checkbox"/> Macknight Fiona
<input checked="" type="checkbox"/> Griffiths Sam Marc	<input checked="" type="checkbox"/> Strickland Anthony Wayne	<input checked="" type="checkbox"/> Leach Peter Thomas	<input checked="" type="checkbox"/> Waugh Nathan Francis
<input checked="" type="checkbox"/> Fletcher Darryl Michael	<input checked="" type="checkbox"/> Hieb Galen Guy	<input checked="" type="checkbox"/> Hovland Bjorn Tore Gaard	<input checked="" type="checkbox"/> Allen Simon James
<input checked="" type="checkbox"/> Malofeev Mikhail	<input checked="" type="checkbox"/> Jones Paul William	<input checked="" type="checkbox"/> Hockley Keith Robert	<input checked="" type="checkbox"/> Hutchings Colin Reginald
<input checked="" type="checkbox"/> Hewison Howard	<input checked="" type="checkbox"/> Chong Wee Chen	<input checked="" type="checkbox"/> Duffy Robert Andrew	<input checked="" type="checkbox"/> Barrow Herbert
<input checked="" type="checkbox"/> Shelley Neil Brad	<input checked="" type="checkbox"/> Lofts Alan	<input checked="" type="checkbox"/> Williams Paul Robert	<input checked="" type="checkbox"/> Kennard James Montrose
<input checked="" type="checkbox"/> Campbell Gregory Gerard	<input checked="" type="checkbox"/> Huseyn-Zada Urfan Turqud	<input checked="" type="checkbox"/> Cavanagh Ronald	<input checked="" type="checkbox"/> Tarin Jean-Guy
<input checked="" type="checkbox"/> Wells Mike John	<input checked="" type="checkbox"/> Papio Rommel Samson	<input checked="" type="checkbox"/> Fairbrother Cyra Louise	<input checked="" type="checkbox"/> Galloway Anna
<input checked="" type="checkbox"/> Anwar Abdul Rashid B	<input checked="" type="checkbox"/> Knutsen Knut	<input checked="" type="checkbox"/> Gobel Brian William Keith	<input checked="" type="checkbox"/> Danyluk David Michael
<input checked="" type="checkbox"/> Doyle Anthony Denis James	<input checked="" type="checkbox"/> Hardy Paul	<input checked="" type="checkbox"/> Cooper Peter Terrence	

Minutes:

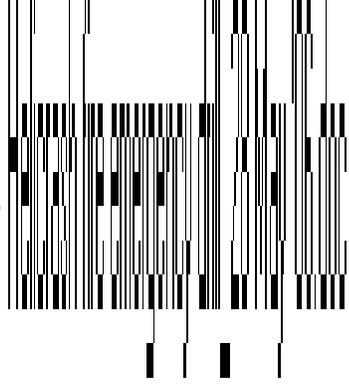


Fire emergency drill_04 Jun '06.doc

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
05/28/2006

20323 --- Greater Bream 3D 2006

eter	<input checked="" type="checkbox"/> Tambi Deris Ak	<input checked="" type="checkbox"/> Weeks Roger Brian	<input checked="" type="checkbox"/> Mcgregor Murray Rowland
	<input checked="" type="checkbox"/> Hufano Ricardo Obong	<input checked="" type="checkbox"/> Ramchandran Rishiraj	<input checked="" type="checkbox"/> Lee Robert
jk Ari	<input checked="" type="checkbox"/> Caisido Remegio Caisido	<input checked="" type="checkbox"/> Pinto Joe	<input checked="" type="checkbox"/> Miller Paul Anthony
	<input checked="" type="checkbox"/> Goddard Graham	<input checked="" type="checkbox"/> Aga Einar	<input checked="" type="checkbox"/> Laurence John
ard	<input checked="" type="checkbox"/> Strickland Anthony Wayne	<input checked="" type="checkbox"/> Heath Robert	<input checked="" type="checkbox"/> May Errol
	<input checked="" type="checkbox"/> Jones Paul William	<input checked="" type="checkbox"/> Grimwood Bruce	<input checked="" type="checkbox"/> Manalang Fedelino
	<input checked="" type="checkbox"/> Ellis Kristian John Curwen	<input checked="" type="checkbox"/> Wark David	<input checked="" type="checkbox"/> Jarret Bret Malcolm
	<input checked="" type="checkbox"/> Flower Richard William	<input checked="" type="checkbox"/> Andersen Odd Helge	<input checked="" type="checkbox"/> Donolly Dave
	<input checked="" type="checkbox"/> Barratt David Brian	<input checked="" type="checkbox"/> Darlington Mark	<input checked="" type="checkbox"/> Howard Adrian
Fabro	<input checked="" type="checkbox"/> Huseyn-Zada Urfan Turqud	<input checked="" type="checkbox"/> Graham Peter	<input checked="" type="checkbox"/> Danyluk David Michael
	<input checked="" type="checkbox"/> Papio Rommel Samson	<input checked="" type="checkbox"/> Savetta Matthew	<input checked="" type="checkbox"/> Lambert Christopher Robert
	<input checked="" type="checkbox"/> Shirley Michael Clark	<input checked="" type="checkbox"/> Draper Dudley Drew	<input checked="" type="checkbox"/> Li Michael Robert
Arthur	<input checked="" type="checkbox"/> Knutsen Knut	<input checked="" type="checkbox"/> Best James	



Marine Acquisition Division
Meetings and Drills
Veritas Viking2
05/18/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Fire Drill

Attendees:

<input checked="" type="checkbox"/> Grizaard Howard Peter	<input checked="" type="checkbox"/> Tambi Deris Ak	<input checked="" type="checkbox"/> Weeks Roger Brian	<input checked="" type="checkbox"/> Lee Robert
<input checked="" type="checkbox"/> Turpin Paul	<input checked="" type="checkbox"/> Hufano Ricardo Obong	<input checked="" type="checkbox"/> Ramchandran Rishiraj	<input checked="" type="checkbox"/> Miller Paul Anthony
<input checked="" type="checkbox"/> Boon Marc Lodewijk Ari	<input checked="" type="checkbox"/> Caisido Remegio Caisido	<input checked="" type="checkbox"/> Pinto Joe	<input checked="" type="checkbox"/> Laurence John
<input checked="" type="checkbox"/> Bradshaw Craig J	<input checked="" type="checkbox"/> Goddard Graham	<input checked="" type="checkbox"/> Aga Einar	<input checked="" type="checkbox"/> May Errol
<input checked="" type="checkbox"/> Harman Noel Edward	<input checked="" type="checkbox"/> Strickland Anthony Wayne	<input checked="" type="checkbox"/> Heath Robert	<input checked="" type="checkbox"/> Manalang Fedelino
<input checked="" type="checkbox"/> Li Melissa Xiaowei	<input checked="" type="checkbox"/> Jones Paul William	<input checked="" type="checkbox"/> Grimwood Bruce	<input checked="" type="checkbox"/> Jarret Bret Malcolm
<input checked="" type="checkbox"/> Griffiths Sam Marc	<input checked="" type="checkbox"/> Ellis Kristian John Curwen	<input checked="" type="checkbox"/> Andersen Odd Helge	<input checked="" type="checkbox"/> Donolly Dave
<input checked="" type="checkbox"/> Hales David Shane	<input checked="" type="checkbox"/> Flower Richard William	<input checked="" type="checkbox"/> Darlington Mark	<input checked="" type="checkbox"/> Howard Adrian
<input checked="" type="checkbox"/> Wells Mike John	<input checked="" type="checkbox"/> Barratt David Brian	<input checked="" type="checkbox"/> Graham Peter	<input checked="" type="checkbox"/> Danyluk David Michael
<input checked="" type="checkbox"/> Ollada Emmanuel Fabro	<input checked="" type="checkbox"/> Huseyn-Zada Urfan Turqud	<input checked="" type="checkbox"/> Savetta Matthew	<input checked="" type="checkbox"/> Lambert Christopher Robert
<input checked="" type="checkbox"/> De Young David	<input checked="" type="checkbox"/> Papio Rommel Samson	<input checked="" type="checkbox"/> Draper Dudley Drew	<input checked="" type="checkbox"/> Li Michael Robert
<input checked="" type="checkbox"/> Dyer Stephen	<input checked="" type="checkbox"/> Shirley Michael Clark	<input checked="" type="checkbox"/> Best James	
<input checked="" type="checkbox"/> Tankard Leonard Arthur	<input checked="" type="checkbox"/> Knutsen Knut	<input checked="" type="checkbox"/> Mcgregor Murray Rowland	

Minutes:



Fire emergency drill_18 May '06.doc

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
05/14/2006
20323 --- Greater Bream 3D 2006

Meeting Type: Fire Drill

Attendees:

<input checked="" type="checkbox"/> Grizaard Howard Peter	<input checked="" type="checkbox"/> Tambi Deris Ak	<input checked="" type="checkbox"/> Ramchandran Rishiraj	<input checked="" type="checkbox"/> Lee Robert
<input checked="" type="checkbox"/> Turpin Paul	<input checked="" type="checkbox"/> Hufano Ricardo Obong	<input checked="" type="checkbox"/> Pinto Joe	<input checked="" type="checkbox"/> Miller Paul Anthony
<input checked="" type="checkbox"/> Boon Marc Lodewijk Ari	<input checked="" type="checkbox"/> Caisido Remegio Caisido	<input checked="" type="checkbox"/> Aga Einar	<input checked="" type="checkbox"/> Laurence John
<input checked="" type="checkbox"/> Bradshaw Craig J	<input checked="" type="checkbox"/> Goddard Graham	<input checked="" type="checkbox"/> Heath Robert	<input checked="" type="checkbox"/> May Errol
<input checked="" type="checkbox"/> Harman Noel Edward	<input checked="" type="checkbox"/> Strickland Anthony Wayne	<input checked="" type="checkbox"/> Grimwood Bruce	<input checked="" type="checkbox"/> Manalang Fedelino
<input checked="" type="checkbox"/> Li Melissa Xiaowei	<input checked="" type="checkbox"/> Jones Paul William	<input checked="" type="checkbox"/> Wark David	<input checked="" type="checkbox"/> Jarret Bret Malcolm
<input checked="" type="checkbox"/> Griffiths Sam Marc	<input checked="" type="checkbox"/> Ellis Kristian John Curwen	<input checked="" type="checkbox"/> Andersen Odd Helge	<input checked="" type="checkbox"/> Donolly Dave
<input checked="" type="checkbox"/> Hales David Shane	<input checked="" type="checkbox"/> Flower Richard William	<input checked="" type="checkbox"/> Darlington Mark	<input checked="" type="checkbox"/> Howard Adrian
<input checked="" type="checkbox"/> Wells Mike John	<input checked="" type="checkbox"/> Barratt David Brian	<input checked="" type="checkbox"/> Graham Peter	<input checked="" type="checkbox"/> Danyluk David Michael
<input checked="" type="checkbox"/> Ollada Emmanuel Fabro	<input checked="" type="checkbox"/> Huseyn-Zada Urfan Turqud	<input checked="" type="checkbox"/> Savetta Matthew	<input checked="" type="checkbox"/> Lambert Christopher Robert
<input checked="" type="checkbox"/> De Young David	<input checked="" type="checkbox"/> Papio Rommel Samson	<input checked="" type="checkbox"/> Draper Dudley Drew	<input checked="" type="checkbox"/> Li Michael Robert
<input checked="" type="checkbox"/> Dyer Stephen	<input checked="" type="checkbox"/> Knutsen Knut	<input checked="" type="checkbox"/> Best James	
<input checked="" type="checkbox"/> Tankard Leonard Arthur	<input checked="" type="checkbox"/> Weeks Roger Brian	<input checked="" type="checkbox"/> Mcgregor Murray Rowland	

Minutes:

1245 hrs: Fire alarm on bridge activated. Crew to Emergency/ Muster stations.
1249 hrs: Fire teams reported in. Check all equipment. Fire teams briefed and exercised on correct use of SCBA including donning.
1250 hrs: All Crew mustered.
1257 hrs: Accommodation reported clear.
1259 hrs: Drill stood down.

Marine Acquisition
HSE Daily Summary
Veritas Viking2

07/04/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	4
3. Helicopter Landings	1
4.	
5.	

Daily HSE Comments:

- 8 Toolbox meeting held prior to shift change 1145/2345
 - 3 Toolbox meeting held prior to recovery of guns
 - 1 Toolbox meeting held prior to helicopter landing
 - 1 Helicopter Landing (Brett Higgins departs for bereavement reasons)
-
-

**Marine Acquisition
HSE Daily Summary**

Veritas Viking2

06/26/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	2
3. Helicopter Landings	3
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345

1 toolbox prior to helicopter arrival

1 toolbox meeting held prior to workboat launch

3 Helicopter landings for Marine crew change

Small Boat Launch 06:00:00 AM - 06:42:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/19/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	3
2. Safety Induction Briefings	4
3. Helicopter Landings	3
4. Toolbox Meetings	8
5.	

Daily HSE Comments:

- 8 Toolbox meeting held prior to shift change
 - 2 toolbox meeting held prior to helicopter landings
 - 1 toolbox meeting held prior to recovery of guns
 - 3 helicopter landings for crew change
 - 4 Safety induction briefings carried out for new persons onboard.
-
-

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/06/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	4
3. Helicopter Landings	1
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

2 x toolbox meetings conducted prior to recovery/ deployment of the source arrays - SOP and best practice discussed.

1 x toolbox meeting conducted prior to helicopter operations - JSA discussed.

1 x toolbox meeting conducted prior to stbd workboat operations - best practice discussed.

1 x helicopter landing for client representatives. Danyluk, Tarin and Galloway depart vessel.

Small Boat Launch 02:35:00 AM - 04:00:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/01/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings	
Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	4
3. Helicopter Landings	1
4. Safety Induction Briefings	3
5.	

Daily HSE Comments:

- 8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.
- 2 x toolbox meetings conducted prior to recovery/ deployment of the source arrays - SOP and best practise discussed.
- 1 x toolbox meeting conducted prior to helicopter operations - SOP and best practise discussed.
- 1 x toolbox meeting conducted prior to stbd workboat operations - JSA discussed.
- 1 x helicopter landing for client representative rotation change.
- 3 x safety induction briefings for new-to-vessel client representative personnel.

Small Boat Launch 04:53:00 AM - 05:14:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/29/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	4
3. Helicopter Landings	5
4. Safety Induction Briefings	7
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.
1 x toolbox meeting conducted prior to close pass undershoot sequences 056.
1 x toolbox meeting conducted prior to helicopter operations - SOP and best practise discussed.
1 x toolbox meeting conducted prior to recovery of the source arrays - SOP and best practise discussed.
1 x toolbox meeting conducted prior to recovery of streamer 3 - SOP and best practise discussed.
5 x helicopter landings for split seismic and maritime crew change. Boon's rotation off/ Bell's rotation on.
7 x safety induction briefings for new hire and contractor personnel.

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/15/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	6
3. Helicopter Landings	1
4. Safety Induction Briefings	1
5.	

Daily HSE Comments:

- 8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.
 - 2 x toolbox meetings conducted prior to recovery/ deployment of the source arrays. SOP and best practise discussed.
 - 2 x toolbox meetings conducted prior to recovery/ deployment of the PVs. SOP and best practise discussed.
 - 1 x toolbox meeting conducted prior to helicopter operations. SOP and best practise discussed.
 - 1 x toolbox meeting conducted prior to close pass sequence 017.
 - 1 x helicopter landing for personnel transfer. Morris and La Bouve depart vessel.
 - 1 x safety induction briefing for Veritas offshore trainer, Murphy La Bouve.
-
-

**Marine Acquisition
HSE Daily Summary**

Veritas Viking2

05/08/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings	
Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	6
3. Helicopter Landings	4
4. Safety Induction Briefings	2
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs.

4 x toolbox meetings conducted prior to deployment/ recovery of steamers 8, 6 and 1. SOP and best practice discussed.

1 x toolbox meeting conducted prior to deployment/ recovery of the source arrays. SOP and best practise discussed.

1 x toolbox meeting conducted prior to helicopter operations. SOP and best practice discussed.

4 x helicopter landings for split seismic crew change. McNelly's rotation off/ Grizaard's rotation on.

2 x safety induction briefings for new Australian maritime personnel.

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/04/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	12
3. Helicopter Landings	1
4.	
5.	

Daily HSE Comments:

8 toolbox meetings held prior to shift change 1145/2345
5 toolbox meeting held prior to deployment of tailbuoys
5 toolbox meeting held prior to deployment of headfloat
2 toolbox meeting held prior to deployment of vanes.
2 Helo landing to change out personnel.

Marine Acquisition
HSE Daily Summary
Veritas Viking2

04/28/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	4
3. Helicopter Landings	2
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345
1 toolbox meeting held prior to helicopter landing
1 toolbox meeting held prior to deployment of ADP and TS Dip
1 toolbox meeting held prior to deployment of Streamers.
1 toolbox meeting held prior to workboat launch.
2 Helicopter landings

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/03/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	3
3. Incident Investigations	1
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

2 x toolbox meetings conducted prior to recovery/ deployment of the source arrays - SOP and best practise discussed.

1 x toolbox meeting conducted prior to recovery of OTLs 4 and 5 to adjust cross-line separations - best practise discussed.

1 x incident investigation conducted by the engineering department to find the root cause of the vessel power failure, 02 Jun '06 UTC. Results pending.

Marine Acquisition
JSA/Procedure Review
Veritas Viking2
07/10/2006

20323 --- Greater Bream 3D 2006

I. JSA Information

1. JSA Title: Entering Streamer Reel Drum	2. JSA Location: Streamer deck
3. JSA No:	4. JSA Page No: Page 1 of 1
5. Date JSA Conducted: 07/10/2006	6. New Revision ?: Revised
7. Does a SOP already exist for this activity ? No	8. If Yes, then SOP Name / Number:
9. Title of Person who routinely does (or will do) the activity the JSA is being conducted for: Observers Dept/Technician	10. Department of Person in Step 9: Observers
11. JSA Conducted by: Neil Collinge	12. Supervisor: Jackie DeLaughter

II. JSA Sequence

A. No	B. SEQUENCE (Basic Task Steps Start to completion)	C. Potential HAZARDS	D. RISK (associated with the HAZARD)	E. RISK Mitigation (SOP / Actions proposed to render the risk ALARP)
1	Toolbox meeting			Clarify each person's task & identify what can be done to minimize the risks.
2	Obtain a 'confined space' work permit from Bridge.			
3	Prepare tools & provide adequate lighting.	Tools slipping.. Poor visibility.	Grazes/ cuts/ bumps. Being hit by moving or falling objects.	Personnel to don appropriate PPE. Ensure tools are in good condition. Use torch or portable lighting.
4	Disable energy supply to reel..	Accidental reel operation or incorrect reel being disabled leading to reel moving with person inside.	Serious injury.	Turn off the reel's hydraulic supply valve. Fit the 'lockout/tag out'. Use electrical cut out switches. Check reel cannot be moved manually or remotely before entering.
5	Turn streamer power off for reel.	Electric shock.	Burn. Electrocutation	Ensure power is off by checking the voltage meter on the front of cable power supply. Also move the power supply toggle switch to the disable position and tag it out.
6	Unbolt slip ring from reel drum	Cramped /awkward working conditions close to pipes.	Pulled muscles/ strains/ abrasions/ bumps	Position toolbox close to the reel being entered. Obtain assistance. Use the appropriate tool for the task.
7	Remove slip ring from reel drum	Overreaching, manual handling. Cramped working conditions	Muscular strains. Jammed fingers. Abrasions.	Obtain assistance for handling of the Slip ring.
8	Climb into reel drum	Awkward entry position. Slippery surfaces. Hot hydraulic pipes.	Body stressing. Slips. Falls. Abrasions. Bruising. Burns.	Stepback. Inspect entrance. Clean pipe work. Remove grease. Check proposed entry handholds.
	Carry out armour connection work.	High temperatures. Minimal ventilation. Confined space. Claustrophobia.	Heatstroke. Exhaustion. Claustrophobia. Panic.	Move & work slowly. Have a person assist you if necessary. Have water & portable fan available nearby. Have a person on stand-by outside reel.
	Exit reel drum.	Awkward exit position. Slippery surfaces. Hot hydraulic pipes.	Body stressing. Slips. Falls. Abrasions. Bruising. Burns.	Stepback. Inspect exit. Pass all tools & equipment out first. Check handholds you will use to exit. Obtain assistance.

III. JSA Acceptance of Risk Tolerability

A. Risk Score Prior to Mitigation: Moderate	B. Risk Score Post Mitigation: Low
C. Risk Tolerable: Yes	D. If No, describe actions:
E. JSA Accepted / Approved by: Cass Cassim	F. Job Title: Operations Supervisor
G. Date Accepted / Approved: 01/18/2006	

H. Comments:

I. Attachments:

Marine Acquisition
JSA/Procedure Review
Veritas Viking2
06/12/2006

20323 --- Greater Bream 3D 2006

I. JSA Information

1. JSA Title: Workboat section change out	2. JSA Location: Bass Straight, Australia
3. JSA No:	4. JSA Page No: Page 1 of 1
5. Date JSA Conducted: 06/12/2006	6. New Revision ?: Revised
7. Does a SOP already exist for this activity ? Yes	8. If Yes, then SOP Name / Number: No
9. Title of Person who routinely does (or will do) the activity the JSA is being conducted for: Seismic personnel	10. Department of Person in Step 9: Observers
11. JSA Conducted by: Observers	12. Supervisor: OS

II. JSA Sequence

A. No	B. SEQUENCE (Basic Task Steps Start to completion)	C. Potential HAZARDS	D. RISK (associated with the HAZARD)	E. RISK Mitigation (SOP / Actions proposed to render the risk ALARP)
1	When streamer is surfaced the mother vessel will reduce the water speed to approx. 3.0 - 4.0 knots and the workboat will locate the faulty section.	Running over streamer if not positioned properly or lost sight. Propellor cage catching on CMU's	Damage section/CMU's d/t dragging workboat. Workboat out of coxswains control.	Visual sighting confirmed of streamer. Coxswain to be informed of streamer position. Streamer can be brought to 3.0 mtrs for visual contact before surfacing.
2	Lift streamer up in retrieval arm. A Norwegian buoy will be placed on either side of the bad section. CMU's removed from bad section.	Workboat caught on CMU's during lifting operation. Hydraulic failure on lifting arm. Communication problems between the leader and coxswain. Overstretching to add tamps/Remove CMU's. Getting hands caught between workboat arm and floats/CMU's	Damage section/CMU's d/t being caught on workboat. Streamer/CMU damage Confusion leading to danger. MOB/Strains Crush injury	Choose clear area for lifting operation. Hydraulic back up system correctly working. Clear comms between leader and coxswain. Do not overreach. Keep hands clear of pinch points.
3	Attach streamer clamp / harness to section and bring harness under tow.	Communication problems between the leader and coxswain. Failure of clamp Overstretching to add clamp Getting hands caught between clamp and workboat.	Clamp flying about/injury Injury d/t being struck by equipment. MOB/Strains Crush injury	Clear comms between leader and coxswain. Ensure equipment is inspected and or replaced on a regular basis. Inspect clamp before use Do not overreach. Keep hands clear of pinch points.
4	Power down the streamer before disconnection.	High voltage.	Possibility of electric shock.	Verbal confirmation from mother vessel of power status is required before proceeding.
5	Disconnect section, work boat is moving forward. Deploying new section from reel.	Work boat crew positioned incorrectly (the wrong side of the streamer) during disconnection. Tailbouy tangle	MOB/Crush injury Unnecassary exposure to untangle.	Leader ensure of all correct procedures will be in use by work boat crew and communicate clearly. Synchronisation between reel driver and coxswain
6	Clamp off at head of new section, break head of bad section using manual handling and bring bad section under tow on port side of workboat.	Manual pulling on bad section to take strain. Loss of bad section	Back injury. Unneassary exposure to retrieve.	Correct pulling technique Crew members taking strain on section to be sure they are comfortable with the weight before the section is broken.
7	Install streamer into head of new section and test. Return tow to streamer and remove clamp.	High voltage when powering up streamer. Clamp hitting crew when quick released Overstretching to remove clamp	Possibility of electric shock if section has ground fault. Injury MOB/Strains	Crewmembers to be clear of section during power up. All crew to stand clear. Do not overreach

8	Remove Norwegian buoys/add CMU's. Free streamer by using lifting arm. Work boat clear of streamer.	Overstretching to remove tamps/add CMU's. Getting hands caught between workboat arm and floats/CMU's Workboat getting caught on CMU's whilst clearing cable.	MOB/Strains Crush injury Damage to streamer/CMU's. Workboat out of coxswains control.	Do not overreach. Keep hands clear of pinch points. Choose clear area for release operation

III. JSA Acceptance of Risk Tolerability

A. Risk Score Prior to Mitigation : 3.5	B. Risk Score Post Mitigation :
C. Risk Tolerable: Yes	D. If No, describe actions :
E. JSA Accepted / Approved by:	F. Job Title:
G. Date Accepted / Approved: 06/13/2006	

H. Comments:

I. Attachments:

Marine Acquisition
JSA/Procedure Review
Veritas Viking2
06/12/2006

20323 --- Greater Bream 3D 2006

I. JSA Information

1. JSA Title: Two Boat Turn	2. JSA Location:
3. JSA No:	4. JSA Page No: Page of
5. Date JSA Conducted: 06/12/2006	6. New Revision ?: New
7. Does a SOP already exist for this activity ? No	8. If Yes, then SOP Name / Number:
9. Title of Person who routinely does (or will do) the activity the JSA is being conducted for: Navigator	10. Department of Person in Step 9: Navigation
11. JSA Conducted by: Vera Quinlan, Noel Harman, Darryl Fletcher, Sam Griffiths, Mikhail Malofeev, Howard Hewison	12. Supervisor: Jeremy collins

II. JSA Sequence

A. No	B. SEQUENCE (Basic Task Steps Start to completion)	C. Potential HAZARDS	D. RISK (associated with the HAZARD)	E. RISK Mitigation (SOP / Actions proposed to render the risk ALARP)
1	<p>PLANNING TURN</p> <p>Confirm New Line information and communicate plan to Slave.</p> <p>Calculate Turn Path of Master/Slave Vessels.</p> <p>Calculate relative offsets needed at SOL for Bullseye position.</p> <p>Assess feather angle trend for start of next rig pass.</p>	<p>Collision</p> <p>Collision</p> <p>Streamer feathering towards rig</p>	<p>Personal Injury Equipment entanglement & damage to vessels.</p> <p>Personal Injury Equipment entanglement & damage to vessels.</p> <p>Equipment entanglement & damage</p>	<p>Communications Forward Planning Checking line information</p> <p>Communications Forward Planning Backup breakaway plan</p> <p>Assess trend in currents and/or tides, from previous passes. Utilise survopt.</p>
2	<p>DURING TURN</p> <p>If there is a requirement of slave vessel to be on opposite side of Master vessel, send slave across bow of Master Vessel.</p> <p>Hold pre-determined turn path</p> <p>Move Slave boat to correct relative offset position</p> <p>Provide Source Boat with End of turn co-ords. and arrival time of Master Boat.</p>	<p>Collision</p> <p>Vessels veering off course and colliding. Currents Weather Other Vessels Obstacles</p> <p>Vessels veering off course Other Vessels Obstacles</p> <p>Incorrect co-ordinate information being provided.</p>	<p>Personal Injury Equipment entanglement & damage to vessels.</p> <p>Personal Injury Equipment entanglement / damage</p> <p>POTENTIAL COLLISIONS Personal Injury Equipment entanglement / damage</p> <p>Vessel Collision</p>	<p>Communications Forward Planning Slave to pass in front of Master as soon as is safe. Adjust speeds.</p> <p>Monitor Nav aids Weather forecasts Follow Master vessel on turn path, monitor slave vessel.</p> <p>COMMUNICATIONS Determine if safe crossover point for slave to cross stern/bow Adjust bullseye to vessel relative Provide aim point for rendezvous if necessary Emergency breakaway steering plan</p> <p>Double check all data given and received on both vessels. Use all nav instruments to monitor both vessels during the turn</p>

3	EXIT TURN Ensure both vessels and their towing equipment will clear the obstacle.	Change of feather	Collision with Rig	Monitor front end compasses monitor ADCP COMMUNICATIONS Adjust bullseye position to line relative Bring slave vessel back into rotrack if not already Change Bullseye Offsets
		V		

III. JSA Acceptance of Risk Tolerability

A. Risk Score Prior to Mitigation : Low	B. Risk Score Post Mitigation : Low
C. Risk Tolerable: Yes	D. If No, describe actions:
E. JSA Accepted / Approved by:	F. Job Title: Navigator
G. Date Accepted / Approved:	

H. Comments:

I. Attachments:

**Marine Acquisition
JSA/Procedure Review
Veritas Viking2
06/12/2006**

20323 --- Greater Bream 3D 2006

I. JSA Information

1. JSA Title: Hydraulic Oil Purifier Operation	2. JSA Location: Hydraulic Room
3. JSA No:	4. JSA Page No: Page 1 of 1
5. Date JSA Conducted: 06/12/2006	6. New Revision ?: New
7. Does a SOP already exist for this activity ? No	8. If Yes, then SOP Name / Number:
9. Title of Person who routinely does (or will do) the activity the JSA is being conducted for: Compressor Mech.	10. Department of Person in Step 9: Compressor Mech
11. JSA Conducted by: Mechanics	12. Supervisor: Chief Mech.

II. JSA Sequence

A. No	B. SEQUENCE (Basic Task Steps Start to completion)	C. Potential HAZARDS	D. RISK (associated with the HAZARD)	E. RISK Mitigation (SOP / Actions proposed to render the risk ALARP)
1	Familiarization with equipment by reviewing service manual.	Incorrect operation	Personal injury and equipment damage.	Understand proper operation of equipment
2	Position equipment near hydraulic reservoir.	The purifier is quite heavy.	Personal injury if improper lifting or moving of purifier.	Plan the movements required of the purifier to the proper location. Have enough people to move the purifier safely. Use of proper PPE
3	Have electrician connect power to the purifier	High voltage	Electric shock	Insure the electrician is familiar with equipment electric requirements. Use of proper PPE
4	Remove the breathers from top of reservoir.	Design of hydraulic power pack.	Slipping while climbing up to the top of the reservoir.	Insure 3 points of contact at all times. Use of proper PPE. Insure there is no oil in the positions you will use for foot placement.
5	Connect inlet and outlet hoses to purifier.	Connection are close together.	Possibility of pinching fingers between fittings.	Use proper PPE (Gloves), use of proper tools. Offset the JIC fittings to make connection easier.
6	Put standpipe end of the hoses into reservoir thru the breather openings.	Design of hydraulic power pack.	Slipping while climbing up to the top of the reservoir.	Insure 3 points of contact at all times. Insure there is no oil in the positions you will use for foot placement. Have someone pass the hose ends to you after you are positioned on top of the reservoir. Use of proper PPE.
7	Prepare purifier for operation.	Understand the operation of purifier.	Equipment damage.	Read and understand the operating instructions.

III. JSA Acceptance of Risk Tolerability

A. Risk Score Prior to Mitigation : 22	B. Risk Score Post Mitigation : 10
C. Risk Tolerable: Yes	D. If No, describe actions:
E. JSA Accepted / Approved by: Cass Cassim	F. Job Title: Operations Supervisor
G. Date Accepted / Approved: 06/17/2006	

H. Comments:

I. Attachments:

Marine Acquisition
JSA/Procedure Review
Veritas Viking2
06/12/2006

20323 --- Greater Bream 3D 2006

I. JSA Information

1. JSA Title: Changing Lithium Acoustic Battery	2. JSA Location: MV Veritas Viking II
3. JSA No:	4. JSA Page No: Page 1 of 1
5. Date JSA Conducted : 06/12/2006	6. New Revision ?: New
7. Does a SOP already exist for this activity ? No	8. If Yes, then SOP Name / Number:
9. Title of Person who routinely does (or will do) the activity the JSA is being conducted for: Chief Observer, Senior Observer, Observer	10. Department of Person in Step 9: Observer
11. JSA Conducted by: Rashid Anwar/Tony Doyle	12. Supervisor: OS

II. JSA Sequence

A. No	B. SEQUENCE (Basic Task Steps Start to completion)	C. Potential HAZARDS	D. RISK (associated with the HAZARD)	E. RISK Mitigation (SOP / Actions proposed to render the risk ALARP)
1	Remove lithium battery from battery storage lockers and packaging	Body stressing Sharp Blades	Personnel injury due to improper lifting techniques when moving heavy boxes Personnel injury caused by cutting when opening packaging	Lift boxes correctly, bending at knees not at back Train personnel on the correct lifting techniques to avoid body stressing Obtain assistance Ensure correct tools are used for task - sharp knife Always cut away from self Wear gloves
2	Condition battery	Heat, radiation, electricity, chemicals and other substances	Explosion, electrocution, burns caused by battery becoming wet Faulty conditioner Damaged battery wiring	Ensure that working area is dry Conditioners becomes very hot after multiple uses and therefore allow to cool between batteries Inspect wiring prior to connecting conditioner
3	Remove CMX acoustic nose cone	Incorrect and poor condition of hand tools Possible venting of battery or water ingress Flying nose cone at high speed due to pressure buildup within CMX acoustic	Damage to personnel as well as equipment Explosion Self injury and other personnel nearby	Inspect all tools prior to use. Use correct tools for the job. Wear Lithium PPE and remove unit in open areas when sense that CMX nosecone is under pressure Always point nose cone away from self and other personnel
4	Insert conditioned battery into CMX acoustic and connect electrical terminals	Passing wiring through the centre of battery	Pinching and damaging of wiring leading to possible non operation of battery.	Take extra caution when passing of wire
5	Replace CMX acoustic nose cone and secure	Incorrect and poor condition of hand tools	Damage to personnel as well as equipment	Inspect all tools prior to use Use correct tools for the job Obtain assistance if required
6	Return prepared acoustic to storage rack ready for deployment	Body stressing Hitting objects with part of the body	Personnel injury due to improper lifting techniques when moving CMX acoustics Storage rack has other unit on, when adding unit can knock other units with arm	Train personnel on the correct lifting techniques to avoid body stressing Obtain assistance if required

III. JSA Acceptance of Risk Tolerability

A. Risk Score Prior to Mitigation :	B. Risk Score Post Mitigation :
C. Risk Tolerable: Yes	D. If No, describe actions :
E. JSA Accepted / Approved by: Cass Cassim	F. Job Title: Operations Supervisor

G. Date Accepted / Approved:

H. Comments:

I. Attachments:

Marine Acquisition JSA/Procedure Review

Veritas Viking2

06/04/2006

20323 --- Greater Bream 3D 2006

I. JSA Information

1. JSA Title: Transferring bad section from streamer reel onto storage reel. Transferring new section from crane deck to streamer reel.	2. JSA Location: Cable deck and crane deck
3. JSA No:	4. JSA Page No: Page 1 of 1
5. Date JSA Conducted: 06/04/2006	6. New Revision?: New
7. Does a SOP already exist for this activity? No	8. If Yes, then SOP Name / Number:
9. Title of Person who routinely does (or will do) the activity the JSA is being conducted for: Seismic Crew	10. Department of Person in Step 9:
11. JSA Conducted by: Observers	12. Supervisor: Jackie Delaughter

II. JSA Sequence

A. No	B. SEQUENCE (Basic Task Steps Start to completion)	C. Potential HAZARDS	D. RISK (associated with the HAZARD)	E. RISK Mitigation (SOP / Actions proposed to render the risk ALARP)
	Section chained off and under tension on towing clamp.	Clamp or harness failure Dropping towing harness. Trapping fingers in towing clamp. Trips and slips while working around towing harness and cable tools on deck.	Injury to body. Loss of streamer. Bruising, abrasions, broken bones Pinched fingers Muscle strain, Bruising, broken bones.	Always inspect towing clamp thoroughly before use. Obtain assistance if required. Use correct lifting techniques, straight back and bend knees. Keep fingers clear of pinch points. Slow down and take care while working around the tow clamp. Follow good housekeeping practices with tools on deck.
2	Power down streamer	High voltage	Possibility of electric shock	Correct communications with instrument room before disconnecting.
3	Streamer disconnected - Section end placed around " Pizza " wheel.	Clamp or harness failure.	Injury to body. Loss of streamer.	Do not straddle streamer whilst disconnecting. Use "pizza" wheels for directional changes to preserve bend radius.
4	Section spooled from streamer reel onto spares reel.	Non synchronized speed between streamer and spares reel can result in section becoming slack on spares reel and looping. Similarly by becoming too tight this may cause damage to section by passing over obstructions.	Damage to sections. Injury if hit by loose section becoming tight.	Ensure all personnel stay clear from the "line of fire". Good communication/line of sight required by personnel operating winches.
5	Disconnect bad section from the tail of the last good section on the cable deck.	Lifting/pulling equipment. Section dropped to deck once disconnected.	Personal injury. Equipment damage.	Obtain assistance when lifting equipment.
6	Connect new section from crane deck to streamer deck	Trip hazard. Lifting/pulling equipment. Potential cuts to hands. Exceeding bend radius of section. Skin damage to section.	Personal injury. Equipment damage.	Obtain assistance when moving equipment. Correct PPE worn when performing the task. Ensure clear path of section run.
7	Transfer new section from crane deck reel to streamer reel .	Non synchronized speed between streamer and crane deck reels can result in section becoming slack on deck and looping resulting in exceeding the minimum bend radius or catching around obstacles. Similarly by becoming too tight this may cause damage to section by passing over obstructions.	Irreparable damage to sections, potential core damage resulting in the possible scrapping of section as opposed to repair.	Ensure all personnel stay clear from the "line of fire". Good communication/line of sight required by personnel operating winches. Use "pizza" wheels for directional changes to preserve bend radius.
8	Connect new section to the module in the cable clamp.	Trip hazard. Lifting/pulling equipment. Strops on cable clamp fail under tension. Damage to end connector of section when connecting up.	Personal injury. Equipment damage/loss.	Be aware of the tension on the cable clamp and do not straddle the new section when connecting it. Inspect cable clamp and strops prior to use. Ensure personnel

				know how to correctly connect a section up, (locating pins/new 'o'-rings etc).

III. JSA Acceptance of Risk Tolerability

A. Risk Score Prior to Mitigation :	B. Risk Score Post Mitigation :
C. Risk Tolerable: No	D. If No, describe actions :
E. JSA Accepted / Approved by:	F. Job Title:
G. Date Accepted / Approved:	

H. Comments:

I. Attachments:

Marine Acquisition
JSA/Procedure Review
Veritas Viking2
05/23/2006

20323 --- Greater Bream 3D 2006

I. JSA Information

1. JSA Title: Hang Gun Separation Slider onto A.T.L	2. JSA Location: Streamer Deck
3. JSA No:	4. JSA Page No: Page 1 of 1
5. Date JSA Conducted: 05/23/2006	6. New Revision ?: Revised
7. Does a SOP already exist for this activity ? No	8. If Yes, then SOP Name / Number:
9. Title of Person who routinely does (or will do) the activity the JSA is being conducted for: Observer	10. Department of Person in Step 9: Observation
11. JSA Conducted by: Mechanic	12. Supervisor: Jackie Delaughter

II. JSA Sequence

A. No	B. SEQUENCE (Basic Task Steps Start to completion)	C. Potential HAZARDS	D. RISK (associated with the HAZARD)	E. RISK Mitigation (SOP / Actions proposed to render the risk ALARP)
1	Lower tugger winch from cable deck down to gun deck	Pinch points, hook swinging about at gun deck level	Pinching/trapping by winch rope impact injury from swinging hook	Only experienced personnel should operate any winch equipment. Radio contact between cable and gun decks. Full P.P.E
2	Attach tugger onto gun slider	Pinch points	Pinching/trapping by spring clip on tugger rope hook	Good communication between decks. Full P.P.E
3	Gently heave on tugger winch and lift slider up onto cable deck	Pinch points, swinging hook and slider	Pinching/trapping by winch rope impact injury from swinging hook and slider	Good communication between decks. experienced personnel operating winch control. Full P.P.E
4	Lift/carry step-up platform, place below centre lead-in	Lifting/straining, trip/fall	Body stress/strain, fall/trip injury	Obtain assistance, correct lifting procedures adhered to
5	Step up onto platform pass slider over centre lead-in to 2nd crew, they place safely on deck	Trip/fall, lifting, stretching	Fall injury, body stress/strain	Use step-up platform, obtain assistance, take care when passing slider over lead-in
6	Move step-up platform below mid lead-in	Lifting/carrying, trip/fall	Body stress/strain, fall/trip injury	Obtain assistance, adopt correct lifting procedures
7	Step up onto platform, place slider onto mid lead-in, close latching plate and secure locking clip	Trip/fall, lifting, stretching, pinch point	Fall injury, body stress/strain, Pinch/trapping by latching plate, locking clip	Use step-up platform, take care closing slider latching plate and locking clip
8	Gun slider ready for deployment	Pinch point, equipment loss or damage	Pinching/trapping by slider Loss damage of slider and or separation rope	Check both ends of separation rope are connected correctly onto slider and umbilical Yale grip, check slider is free to move down lead-in

III. JSA Acceptance of Risk Tolerability

A. Risk Score Prior to Mitigation: 41.4	B. Risk Score Post Mitigation: 8.2
C. Risk Tolerable: Yes	D. If No, describe actions:
E. JSA Accepted / Approved by: Paul Turpin	F. Job Title: Operations Supervisor
G. Date Accepted / Approved: 05/28/2006	

H. Comments:

Attachment of the gun/lead-in separation rope slider should only be performed by experienced crew, trainees can be allowed to help after a toolbox meeting has been held and they fully understand the task, but they must be closely watched at all times.

I. Attachments:



Risk Score Prior & Post & .doc

Marine Acquisition
JSA/Procedure Review
Veritas Viking2
05/21/2006

20323 --- Greater Bream 3D 2006

I. JSA Information

1. JSA Title: Single line preparation during rig undershoot survey	2. JSA Location:
3. JSA No:	4. JSA Page No: Page of
5. Date JSA Conducted: 05/21/2006	6. New Revision?: New
7. Does a SOP already exist for this activity? No	8. If Yes, then SOP Name / Number:
9. Title of Person who routinely does (or will do) the activity the JSA is being conducted for: PM/OS/Chief Nav	10. Department of Person in Step 9:
11. JSA Conducted by: C. Bradshaw/Melissa LI	12. Supervisor: ChNav/OS

II. JSA Sequence

A. No	B. SEQUENCE (Basic Task Steps Start to completion)	C. Potential HAZARDS	D. RISK (associated with the HAZARD)	E. RISK Mitigation (SOP / Actions proposed to render the risk ALARP)
	Select Line	Wrong Line shot	Production lost	The selected line will be based on the required coverage.
	Select and check coverage	Wrong coverage selected	Production lost	Vessel offsets will be figured out to determine how the coverage can be acquired. If either of the vessels will be within the close pass requirements of the obstruction.
	Check the predicted feather angle to ensure it is safe to proceed	Gear approached Rig	Damage to gear	Use current prediction software, tidal charts, tide tables, and ADCP data to determine the currents at the time of the close pass. Use this information to determine the vessel offsets in relation to the coverage.
	Plan escape route	Gear approaches Rig	Damage to gear	If the vessel offsets warrant a close pass, the ChNav/PM/OS must be consulted to make sure a Close Pass Request has been made and approved.
	Approach to line	Gear approaches Rig	Damage to in water gear.	Monitor Streamer compasses and ADCP current profiles on line change.
	Monitor Streamer compasses and ADCP	Currents are not as predicted	Damage to in water gear	During run-in to line, monitor the streamer compasses and ADCP data to confirm the currents are as predicted.
	Monitor Weather	Adverse weather conditions	Damage to in water gear	Monitor the weather during the line change. If the weather is deteriorating it may be necessary to call off the close approach. Predetermined limits will have to be checked against the current weather.
	Start of Line	Gear approached Rig	Damage to in water gear	As the line is started, continue to monitor streamer compasses and ADCP.
	Monitor currents	Wrong currents	Damage to in water gear	If the currents are as predicted proceed to the close pass JSA.
	Abort line if currents are going to bring the equipment into the Rig	Gear approaches Rig	Damage to in water gear	If the currents are not as predicted, and the in water gear poses a risk of striking the obstruction, abort the line.
	Confirm escape route coincides with the currents	Gear approaches Rig	Damage to in water gear	Confirm with PM or OS as to the best escape route from obstruction to allow safe passage of trailing equipment.

III. JSA Acceptance of Risk Tolerability

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A. Risk Score Prior to Mitigation :	B. Risk Score Post Mitigation :
C. Risk Tolerable: No	D. If No, describe actions :
E. JSA Accepted / Approved by:	F. Job Title:
G. Date Accepted / Approved:	

H. Comments:

I. Attachments:

Marine Acquisition
JSA/Procedure Review
Veritas Viking2
05/20/2006

20323 --- Greater Bream 3D 2006

I. JSA Information

1. JSA Title: Streamer Cleaning From STBD Workboat - Ammended from Port Workboat Procedure.	2. JSA Location: Workboat
3. JSA No:	4. JSA Page No: Page 1 of 1
5. Date JSA Conducted: 05/20/2006	6. New Revision ?: Revised
7. Does a SOP already exist for this activity ? No	8. If Yes, then SOP Name / Number: Streamer Cleaning from Workboat
9. Title of Person who routinely does (or will do) the activity the JSA is being conducted for: All	10. Department of Person in Step 9: All
11. JSA Conducted by: Andy Perkin, Manny Ollada, Mike Wells	12. Supervisor: Paul Turpin

II. JSA Sequence

A. No	B. SEQUENCE (Basic Task Steps Start to completion)	C. Potential HAZARDS	D. RISK (associated with the HAZARD)	E. RISK Mitigation (SOP / Actions proposed to render the risk ALARP)
1	Toolbox Meeting Locating the streamer - Follow instructions given by Navigation to bring the W/B into a position where the streamer is visible. - All W/B personnel watching for streamer.	Confusion among as to personnel task W/B drives over streamer causing damage	Danger in operation Damage to streamer	Hold toolbox with all members present Instrument room should not to bring streamer shallower than 3m until W/B has visually located streamer. Navigation to regularly update the W/B with information on their position relative to the Streamer (distance off etc) Navigation and Workboat via radio linked Buoy link display to maintain constant observation on range and bearing to proposed target. Constant radio contact between Instrument room and workboat un updates in position changes.
2	Streamer sighted - Coxswain maintains a course which is parallel to the streamer and matches speed	Coxswain loses sight of streamer and crosses over / collides with streamer.	Damage to streamer	Instrument room not to bring streamer shallower than 3m until W/B reports that they are in a safe position alongside the streamer. All W/B personnel to keep watching the streamer at all times and advise coxswain if getting too close.
3	Streamer surfaced - W/B sends instruction to Instrument that streamer is on the surface	Coxswain loses sight of streamer and crosses over / collides with streamer	Damage to streamer	All W/B personnel to keep watching the streamer at all times and advise coxswain if getting too close.
4	Streamer taken into cleaning tray using hydraulic lifting arm. -	1) Coxswain loses sight of streamer and crosses over / collides with streamer 2) Failure to maintain matching speeds 3) Failure of lifting arm during retrieval	1) Damage to streamer 2. Damage/loss of CMU 3) Unable to pick up or release streamer	1) Once arm operator confirms they are ready to lower arm and retrieve streamer and coxswains agrees they are ready coxswain manoeuvres workboat towards streamer whilst continuing to match speeds. Lifting arm operator to guide coxswain to suitable position so that streamer can be retrieved safely, constantly advising coxswain of streamer position relative to workboat and lifting arm. 2. All other personnel apart from lifting arm operator to maintain visual on the streamer and advise of proximity of nearest CMU - Appropriate instruction given to coxswain as to either speed up or slow down. 3) Lifting arm tested prior to use. All crew personnel

				Informed of the use of the emergency roller release mechanism
5	Streamer secured in tray	Loss of W/B engine power	W/B unable to maneuver on streamer	One crew member positioned at tray at all times so that streamer can be jettisoned in emergency.
6	Cleaning of streamer - W/B moves forward along streamer while crew clean it	<p>1) Loss of W/B engine power</p> <p>2) Cleaning rope gets caught on kink in streamer skin</p> <p>3) CMU caught in roller</p> <p>4) Algae on streamer</p> <p>5) Slippery surfaces and deck in W/B</p> <p>6) Incorrect rope used for cleaning Rope becoming caught on weight/ module/ connector jacket & does not break under the increased tension.</p> <p>7) Rope travelling fast through hands, sharp barnacles</p> <p>8) Being hit by flying objects (barnacles)</p>	<p>1) W/B unable to maneuver on streamer</p> <p>2) Damage to streamer</p> <p>3) Damage to streamer and/or CMU</p> <p>4) Skin contact with Algae causing adverse reactions</p> <p>5) Slip hazards</p> <p>6) Damage to Streamer - risk to boat stability.</p> <p>7) Cut to hands, burns, Skin Infections</p> <p>8) Eye infections / Facial abrasions</p>	<p>1) One crew member positioned at roller at all times so that streamer can be jettisoned in emergency</p> <p>2) Continuous communication between Coxswain and crewman at roller so that upcoming hazards are spotted early and W/B speed adjusted as needed. Low breaking strength polyprop rope to be used</p> <p>3) Continuous communication between Coxswain and crewman at roller so that upcoming hazards are spotted early and W/B speed adjusted as needed</p> <p>4) Application of Sun-block helps prevent rashes d/t contact with algae</p> <p>5) Crew should try to keep slime and barnacles from building up in the work area of the boat.</p> <p>6) Only polypropylene rope with a low breaking strain to be used. Plexus or Dextron brands must NOT be used, or any type of rope which has a tendency to 'pinch' on a section, get caught on weights etc & is unable to break due to a very high breaking strain. Coxswain informed of any potential snagging areas as they approach - workboat speed adjusted to compensate for possible snagging. Crew members to keep constant communication with coxswain as problem areas pass through cleaning rope.</p> <p>7) All crew must wear gloves at all times during cleaning process</p> <p>All crew must wear safety glasses at all times</p>
7	Releasing Streamer	<p>1) Cleaning rope removed from streamer. Lifting arm operator raises and swings arm to release position.</p> <p>2) Weight of streamer prevents it from sliding off and over the lip on the side of the tray.</p>	<p>1) Damage to Streamer - risk to boat stability.</p> <p>2) Streamer unable to be released - Damage to streamer, risk of boat instability.</p>	<p>1) All crew confirm that cleaning rope has been removed. and equipment has been stowed clear of streamer. Lifting arm operator informs coxswain he is ready to position arm for release - Coxswain confirms he is also ready.</p> <p>2) Suitable forward and port movement employed to ensure the streamer pulls clear of the W/B. At heavier parts of the streamer, i.e towards the head of the streamers emergency quick release mechanism to be used. All crew members informed of quick release mechanism. Coxswain to be kept informed</p>

				of streamer position during release and if quick release is required.
8	Maneuver clear - W/B moves a safe distance from streamer	1) Coxswain loses sight of streamer and crosses over / collides with streamer 2) Other streamers on surface to Port of the W/B	1) Damage to streamer 2) Damage to streamer	1) All W/B personnel to maintain visual on streamer until workboat is well away from the streamer 2) W/B to inform / confirm with instrument room that there are no other streamers near the surface to the port side of the workboat before maneuvering to next objective / returning to VII
9				

III. JSA Acceptance of Risk Tolerability

A. Risk Score Prior to Mitigation : 49	B. Risk Score Post Mitigation : 20
C. Risk Tolerable: Yes	D. If No, describe actions:
E. JSA Accepted / Approved by: Paul Turpin	F. Job Title: Operations supervisor
G. Date Accepted / Approved: 05/20/2006	

H. Comments:

I. Attachments:

Marine Acquisition Division

Meetings and Drills

Veritas Viking2

06/18/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Man Overboard Drill

Attendees:

<input checked="" type="checkbox"/> Grizaard Howard Peter	<input checked="" type="checkbox"/> Doyle Anthony Denis James	<input checked="" type="checkbox"/> Knutsen Knut	<input checked="" type="checkbox"/> Fairbrother Cyra Louise
<input checked="" type="checkbox"/> Cassim Glenn Gordon	<input checked="" type="checkbox"/> Tan Larry Hock Chye	<input checked="" type="checkbox"/> Hardy Paul	<input checked="" type="checkbox"/> Gobel Brian William Keith
<input checked="" type="checkbox"/> Bell Michael Angus William	<input checked="" type="checkbox"/> Dyer Stephen	<input checked="" type="checkbox"/> Honiss Gerhard	<input checked="" type="checkbox"/> Cooper Peter Terrence
<input checked="" type="checkbox"/> Quinlan Vera	<input checked="" type="checkbox"/> Tankard Leonard Arthur	<input checked="" type="checkbox"/> Ballantine Kenneth Gordon	<input checked="" type="checkbox"/> Diggle Mark Leslie
<input checked="" type="checkbox"/> Harman Noel Edward	<input checked="" type="checkbox"/> Higgins Brett Andrew	<input checked="" type="checkbox"/> Trengereid Birger Kare	<input checked="" type="checkbox"/> Cooks Andrew
<input checked="" type="checkbox"/> Griffiths Sam Marc	<input checked="" type="checkbox"/> Tambi Deris Ak	<input checked="" type="checkbox"/> Farley Edward Roy	<input checked="" type="checkbox"/> Miller Paul Anthony
<input checked="" type="checkbox"/> Fletcher Darryl Michael	<input checked="" type="checkbox"/> Strickland Anthony Wayne	<input checked="" type="checkbox"/> Appel Tomiln	<input checked="" type="checkbox"/> Manalang Fedelino
<input checked="" type="checkbox"/> Malofeev Mikhail	<input checked="" type="checkbox"/> Hieb Galen Guy	<input checked="" type="checkbox"/> Leach Peter Thomas	<input checked="" type="checkbox"/> Macknight Fiona
<input checked="" type="checkbox"/> Hewison Howard	<input checked="" type="checkbox"/> Jones Paul William	<input checked="" type="checkbox"/> Hovland Bjorn Tore Gaard	<input checked="" type="checkbox"/> Waugh Nathan Francis
<input checked="" type="checkbox"/> Hayden Leslie William	<input checked="" type="checkbox"/> Chong Wee Chen	<input checked="" type="checkbox"/> Hockley Keith Robert	<input checked="" type="checkbox"/> Allen Simon James
<input checked="" type="checkbox"/> Shelley Neil Brad	<input checked="" type="checkbox"/> Lofts Alan	<input checked="" type="checkbox"/> Duffy Robert Andrew	<input checked="" type="checkbox"/> Hutchings Colin Reginald
<input checked="" type="checkbox"/> Wells Mike John	<input checked="" type="checkbox"/> Huseyn-Zada Urfan Turqud	<input checked="" type="checkbox"/> Williams Paul Robert	<input checked="" type="checkbox"/> Barrow Herbert
<input checked="" type="checkbox"/> Anwar Abdul Rashid B	<input checked="" type="checkbox"/> Papio Rommel Samson	<input checked="" type="checkbox"/> Cavanagh Ronald	<input checked="" type="checkbox"/> Kennard James Montrose

Minutes:



MOB_drill_18 Jun '06.doc

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
05/21/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Man Overboard Drill

Attendees: <input checked="" type="checkbox"/> Grizaard Howard Peter	<input checked="" type="checkbox"/> Tambi Deris Ak	<input checked="" type="checkbox"/> Weeks Roger Brian	<input checked="" type="checkbox"/> Mcgregor Murray Rowland
<input checked="" type="checkbox"/> Turpin Paul	<input checked="" type="checkbox"/> Hufano Ricardo Obong	<input checked="" type="checkbox"/> Ramchandran Rishiraj	<input checked="" type="checkbox"/> Lee Robert
<input checked="" type="checkbox"/> Boon Marc Lodewijk Ari	<input checked="" type="checkbox"/> Caisido Remegio Caisido	<input checked="" type="checkbox"/> Pinto Joe	<input checked="" type="checkbox"/> Miller Paul Anthony
<input checked="" type="checkbox"/> Bradshaw Craig J	<input checked="" type="checkbox"/> Goddard Graham	<input checked="" type="checkbox"/> Aga Einar	<input checked="" type="checkbox"/> Laurence John
<input checked="" type="checkbox"/> Harman Noel Edward	<input checked="" type="checkbox"/> Strickland Anthony Wayne	<input checked="" type="checkbox"/> Heath Robert	<input checked="" type="checkbox"/> May Errol
<input checked="" type="checkbox"/> Li Melissa Xiaowei	<input checked="" type="checkbox"/> Jones Paul William	<input checked="" type="checkbox"/> Grimwood Bruce	<input checked="" type="checkbox"/> Manalang Fedelino
<input checked="" type="checkbox"/> Griffiths Sam Marc	<input checked="" type="checkbox"/> Ellis Kristian John Curwen	<input checked="" type="checkbox"/> Wark David	<input checked="" type="checkbox"/> Jarret Bret Malcolm
<input checked="" type="checkbox"/> Hales David Shane	<input checked="" type="checkbox"/> Flower Richard William	<input checked="" type="checkbox"/> Andersen Odd Helge	<input checked="" type="checkbox"/> Donolly Dave
<input checked="" type="checkbox"/> Wells Mike John	<input checked="" type="checkbox"/> Barratt David Brian	<input checked="" type="checkbox"/> Darlington Mark	<input checked="" type="checkbox"/> Howard Adrian
<input checked="" type="checkbox"/> Ollada Emmanuel Fabro	<input checked="" type="checkbox"/> Huseyn-Zada Urfan Turqud	<input checked="" type="checkbox"/> Graham Peter	<input checked="" type="checkbox"/> Danyluk David Michael
<input checked="" type="checkbox"/> De Young David	<input checked="" type="checkbox"/> Papio Rommel Samson	<input checked="" type="checkbox"/> Savetta Matthew	<input checked="" type="checkbox"/> Lambert Christopher Robert
<input checked="" type="checkbox"/> Dyer Stephen	<input checked="" type="checkbox"/> Shirley Michael Clark	<input checked="" type="checkbox"/> Draper Dudley Drew	<input checked="" type="checkbox"/> Li Michael Robert
<input checked="" type="checkbox"/> Tankard Leonard Arthur	<input checked="" type="checkbox"/> Knutsen Knut	<input checked="" type="checkbox"/> Best James	

Minutes:

Drill Details:

1245 hrs: MOB alarm sounded, public announcement made.
1247 hrs: Crew mustered on helideck and all accounted for. Crew maintaining lookout from helideck.
1248 hrs: First aid team reports in position.
1250 hrs: FRC crew ready for launch. FRC in position - not deployed due to adverse wind and sea conditions.
1255 hrs: Drill stood down.

Marine Acquisition
Veritas Viking2
Proposed
06/19/2006
20323 --- Greater Bream 3D 2006

Initiation

Initiation	
	Reference No: MOC-V2-PMVV6QVU56
Originator: PM Veritas-Viking2	Area of operation: Bass Strait, Australia
Project: Greater Bream 3D	Nature of change: Equipment
Type of change: Temporary	
Description of change :	
Replacement of usual support vessel to perform at sea refuelling for Veritas Viking II. Usual support vessel is OMV Voyager, replacement vessel is Lady Kari-Ann.	
Justification of change :	
OMV Voyager will be undergoing essential maintenance when refuelling of the Viking II is required. To minimise disruption to the survey a replacement vessel is required in order to eliminate the need for the Viking II to make a port call for refuelling.	
Potential consequences of change (positive and negative):	
+ve Downtime for refuelling reduced. +ve Crew are experienced performing refuelling at sea.	
Mitigation steps and special precautions :	
Lady Kari-Ann has been audited by and is working for ExxonMobil. Refuelling at Sea procedures reviewed by Lady Kari-Ann Officers and Crew. Connections are dry break couplings. Fuel hoses to be used are new and certified, onboard the Viking II.	
Is training required: No	
Describe Training:	
Cost:	
Does change increase risk: No	

Pre-mitigation Risk Score

Probability:	Exposure:	Consequence:	Risk Score
Conceivable (but very unlikely)	Infrequent	Serious Injury	8 = Low Risk

Comments and attachments :

Attached are the Lady Kari-Ann specifications and Veritas Viking2 offshore vessel-to-vessel transfer procedures, JSA's and risk analysis.



Lady Kari-Ann.pdf Offshore Vessel to Vessel Transfer Procedures.pdf

Reviews

[Add Review Comment](#)

Date	Author	Comments

Marine Acquisition
Veritas Viking2
Proposed
05/30/2006
20323 --- Greater Bream 3D 2006

Initiation

Initiation	
	Reference No: MOC-V2-MVIK6QA9E8
Originator: Mike Vink	Area of operation: Bass Strait, Australia
Project: Greater Bream 3D	Nature of change: Equipment
Type of change: Temporary	
Description of change :	
Replacement of usual support vessel to perform at sea refuelling for Veritas Viking II. Usual support vessel is OMV Voyager, replacement vessel is Lady Kari-Ann.	
Justification of change :	
OMV Voyager will be undergoing essential maintenance when refuelling of the Viking II is required. To minimise disruption to the survey a replacement vessel is required in order to eliminate the need for the Viking II to make a port call for refuelling.	
Potential consequences of change (positive and negative):	
+ve Downtime for refuelling reduced. +ve Crew are experienced performing refuelling at sea. -ve Vessel not previously practiced refuelling the Viking II.	
Mitigation steps and special precautions : Lady Kari-Ann has been audited by and is working for ExxonMobil. Refuelling at Sea procedures to be reviewed by Lady Kari-Ann Officers and Crew. Connections are dry break couplings. Fuel hoses to be used are new, onboard the Viking II.	
Is training required: No	
Describe Training:	
Cost:	
Does change increase risk : No	

Pre-mitigation Risk Score

Probability:	Exposure:	Consequence:	Risk Score
Conceivable (but very unlikely)	Infrequent	Serious Injury	8 = Low Risk

Comments and attachments :

Attached is the Lady Kari-Ann specifications sheet.



Lady Kari-Ann.pdf

Reviews

[Add Review Comment](#)

Date	Author	Comments

Marine Acquisition
Veritas Viking2
Proposed
05/19/2006
20323 --- Greater Bream 3D 2006

Initiation

Reference No: MOC-V2-OSVV6PXCQZ	
Originator: OS Veritas-Viking2	Area of operation: Bass Straight
Project: Greater Bream 3D Job No.20323	Nature of change: Personnel
Type of change: Permanent	
Description of change :	
Listed in the EAPL Greater Bream 3D Marine Seismic Survey Bridging Document. / SIMOPS / Manning Levels / 1.	
The Captain, Officer on watch, EAPL Onboard Representative and Party Chief will be on the bridge at the time the vessel is 1500 metre from the point of entry into the 500 metre zone They will remain the bridge until the vessel and all trailing in-water equipment is clear of the 500 metre zone.	
The proposed change is:	
Either Norwegian or Australian Captain, Officer on watch, EAPL Onboard Representative and either Party Chief or Operations Supervisor / APM will be on the bridge at the time the vessel is 1500 metre from the point of entry into the 500 metre zone They will remain the bridge until the vessel and all trailing in-water equipment is clear of the 500 metre zone.	
Justification of change :	
Due to the amount of close passes in any 24 hour period, fatigue will prevent any one person (ie Captain and Party Chief) from being present at every close pass.	
Potential consequences of change (positive and negative):	
Captain and Party chief will not suffer undue fatigue through sleep deprivation. Party Chief and Captain will still be available at short notice if needed.	
Mitigation steps and special precautions : Thorough hand-overs and overlapping of shifts between both Norwegian and Australian Captains and the Party Chief and Operations supervisor / APM.	
Is training required: No	
Describe Training:	
Cost: Nil	
Does change increase risk : No	

Pre-mitigation Risk Score

Probability:	Exposure:	Consequence:	Risk Score
Unusual but Possible	Frequent	Important	25 = Moderate Risk

Comments and attachments :

Reviews

[Add Review Comment](#)

Date	Author	Comments
05/25/2006	Jackie DeLaughter	Mitigation measures are satisfactory.

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
07/09/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Oil Recovery Drill

Attendees: Saevik Helmik Kjerrgard Kare Darlington Mark Lee Robert
 Weeks Roger Brian Heath Robert Hovland Bjorn Tore Gaard May Errol
 Ramchandran Rishiraj Nonis P Shelley Noel

Minutes:

1245 All engine and deck crew mustered in engine control room.

1246 discussed the Fuel transfer procedures at sea, considered the risk assessment.

1252 Crew were briefed with the various spill control techniques and duties of all personnel were explained. Company Policies and bunker checklist were discussed

1300 Drill complete

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
06/11/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Oil Recovery Drill

Attendees: Cassim Glenn Gordon Ballantine Kenneth Gordon Hovland Bjorn Tore Gaard Miller Paul Anthony
 Knutsen Knut Trengereid Birger Kare Cooper Peter Terrence
 Hardy Paul Farley Edward Roy Diggle Mark Leslie
 Honiss Gerhard Leach Peter Thomas Cooks Andrew

Minutes:



SOPEP and collision drill_11 Jun '06.doc

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
05/07/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Oil Recovery Drill

Attendees: Saevik Helmik Heath Robert Kjerrgard Kare May Errol
 Ramchandran Rishiraj Grimwood Bruce Appel Tomiln Lee Robert

Minutes:

Drill Details:

1245: all engine and deck crew mustered. Discussed Fuel transfer at sea, considered Risk Assessment. All SOPEP Lockers inspected and condition of equipment checked. Crew was briefed with various spill control techniques.
1300: Drill Concluded

Analysis

Good response by all crew to instruction.

Comments

Nil

Drill conducted by: Rishiraj

Job Title: Chief Officer

Drill Supervised by: Helmik Saevik

Job Title: Captain

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
07/09/2006
20323 --- Greater Bream 3D 2006

Meeting Type: Other

Attendees: Saevik Helmik Ramchandran Rishiraj Kjerrgard Kare Grimwood Bruce
 Weeks Roger Brian Ballantine Kenneth Gordon Heath Robert Nonis P

Minutes:

Emergency Steering Drill

1300 - Simulate Manoeuvring Emergency.

Master initiates emergency manoeuvring from toggles on the Bridge

Chief Engineer take control of Emergency manoeuvring toggles in Engine Room.

1305 - Emergency manoeuvring station tested successfully

Chief Engineer and Chief Mate instructed to proceed to the Steering Room and establish communications and act on instructions for emergency steering

1310 Communication established

Port rudder activated 10 degrees port and starboard using # 1 pump

Port rudder activated 10 degrees port and starboard using #2 pump

Starboard rudder activated 10 degrees port and starboard using # 3 pump

Starboard rudder activated 10 degrees port and starboard using # 4 pump

1315 Steering control returned to bridge.

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
05/14/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Other

Attendees: Grizaard Howard Peter Ramchandran Rishiraj Lee Robert Danyluk David Michael
 Knutsen Knut Aga Einar Miller Paul Anthony
 Weeks Roger Brian Heath Robert Laurence John

Minutes:

Emergency Vessel-To-Vessel Tow Exercise :

2241 hrs local: Drill start.
2243 hrs local: Azimuth thruster locked down and engaged.
2245 hrs local: Tow rope made ready.
2254 hrs local: Chase/ support vessel 'Marimba' in position ready to take-up tow.
2254 hrs local: Drill stood down and considered complete.

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
05/12/2006
20323 --- Greater Bream 3D 2006

Meeting Type: Other

Attendees: Grizaard Howard Peter Weeks Roger Brian Lee Robert Danyluk David Michael
 Turpin Paul Ramchandran Rishiraj Miller Paul Anthony
 Boon Marc Lodewijk Ari Pinto Joe Laurence John
 Knutsen Knut Heath Robert May Errol

Minutes:

Emergency Vessel-To-Vessel Tow Exercise :

1628 hrs local: Drill start.
1630 hrs local: Azimuth thruster locked down and engaged.
1631 hrs local: Tow rope made ready.
1632 hrs local: Chase/ support vessel 'Swissco 168' in position ready to take-up tow.
1637 hrs local: Drill stood down and considered complete.

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
04/27/2006
20323 --- Greater Bream 3D 2006

Meeting Type: Other

Attendees: Saevik Helmik Grimwood Bruce Laurence John Danyluk David Michael
 Weeks Roger Brian Kjerrgard Kare May Errol
 Pinto Joe Appel Tomiln Lee Robert
 Heath Robert Andersen Odd Helge Darlington Mark

Minutes:

Type of Drill: Blackout, Emergency steering and Manouvering

Drill Details:

1245 -- Bridge informe Marine crew total black out of Vessel.
1245 -- Crew commence deployment of tow line
1250 -- Azimuth Thruster deployed
1252 -- Chief Mate informs towline ready for use
1252 -- Azimuth Thruster in operation
1257 -- Emergency steering in operation
1300 -- Drill Complete

1315 -- 1322 -- Emergency power pack for azimuth Thruster tested and found satisfactory.

Analysis

Good response from all crew. All equipment in good working order

Drill Supervised by Chief Mate -- Rishiraj Ramchandran

Approved by Master -- Captatin Helmik Saevik

Marine Acquisition
HSE Daily Summary
Veritas Viking2

07/13/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Port Calls	1
2.	
3.	
4.	
5.	

Daily HSE Comments:

Cross Audit
Cross Audit
Cross Audit
Cross Audit
Cross Audit
Inspection / Department Audit
Inspection / Department Audit
Inspection / Department Audit
Inspection / Department Audit

**Marine Acquisition
HSE Daily Summary
Veritas Viking2**

06/27/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings	Frequency
Event	
1. Toolbox Meetings	8
2. Toolbox Meetings	2
3. Safety Induction Briefings	3
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345
1 toolbox meeting held prior to recovery of guns
1 toolbox meeting held prior to deployment of Workboat
3 safety induction briefings for new personnel

Abandon Ship Drill

Safety Meeting

Small Boat Launch 10:23:00 PM - 11:45:00 PM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/06/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings	
Event	Frequency
1. Toolbox Meetings	8
2. Safety Induction Briefings	2
3. Toolbox Meetings	5
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345
2 toolbox meeting held prior to deployment/recovery of guns.
1 toolbox meeting held prior to recovery of streamer 6
2 toolbox meeting held prior to recovery/ deployment of headfloat.

Small Boat Launch 11:35:00 PM - 02:06:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2
04/23/2006
20323 --- Bream 3D

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Safety Induction Briefings	6
3. Safety Induction Briefings	4
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345
10 Safety Inductions Briefings carried out

3rd Party Audit (arranged by Client or Veritas)

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
06/27/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Safety Meeting

<input checked="" type="checkbox"/> Mcnelly Richard Morgan	<input checked="" type="checkbox"/> Cowie John	<input checked="" type="checkbox"/> Harrison Jeffrey William	<input checked="" type="checkbox"/> Graham Peter
<input checked="" type="checkbox"/> Cassim Glenn Gordon	<input checked="" type="checkbox"/> Francisco Richard Conce	<input checked="" type="checkbox"/> Ramos Romeo P	<input checked="" type="checkbox"/> Best James
<input checked="" type="checkbox"/> Bell Michael Angus William	<input checked="" type="checkbox"/> Anwar Abdul Rashid B	<input checked="" type="checkbox"/> Saevik Helmik	<input checked="" type="checkbox"/> Savetta Matthew
<input checked="" type="checkbox"/> Fleming Rick Ray	<input checked="" type="checkbox"/> Doyle Anthony Denis James	<input checked="" type="checkbox"/> Weeks Roger Brian	<input checked="" type="checkbox"/> Mcgregor Murray Rowland
<input checked="" type="checkbox"/> Quinlan Vera	<input checked="" type="checkbox"/> Tan Larry Hock Chye	<input checked="" type="checkbox"/> Ramchandran Rishiraj	<input checked="" type="checkbox"/> Lee Robert
<input checked="" type="checkbox"/> Tibor Thomas James	<input checked="" type="checkbox"/> Haarmans Johan Michael	<input checked="" type="checkbox"/> Ballantine Kenneth Gordon	<input checked="" type="checkbox"/> May Errol
<input checked="" type="checkbox"/> Fletcher Darryl Michael	<input checked="" type="checkbox"/> Certeza Levi Basas	<input checked="" type="checkbox"/> Kjerrgard Kare	<input checked="" type="checkbox"/> Mendoza Jr Constante
<input checked="" type="checkbox"/> Tan Alan Eng Liang	<input checked="" type="checkbox"/> Naylor David	<input checked="" type="checkbox"/> Heath Robert	<input checked="" type="checkbox"/> Macknight Fiona
<input checked="" type="checkbox"/> Tan Vivian Ping Khun	<input checked="" type="checkbox"/> Higgins Brett Andrew	<input checked="" type="checkbox"/> Grimwood Bruce	<input checked="" type="checkbox"/> Jackett Nigel Alexander
<input checked="" type="checkbox"/> Malofeev Mikhail	<input checked="" type="checkbox"/> Ross Stephen A	<input checked="" type="checkbox"/> Nonis P	<input checked="" type="checkbox"/> Ashworth Ryan
<input checked="" type="checkbox"/> Hewison Howard	<input checked="" type="checkbox"/> Hieb Galen Guy	<input checked="" type="checkbox"/> Darlington Mark	<input checked="" type="checkbox"/> Hutchings Colin Reginald
<input checked="" type="checkbox"/> Perkin Andrew John	<input checked="" type="checkbox"/> Hawkins Peter	<input checked="" type="checkbox"/> Hovland Bjorn Tore Gaard	<input checked="" type="checkbox"/> Barrow Herbert
<input checked="" type="checkbox"/> Campbell Gregory Gerard	<input checked="" type="checkbox"/> Chong Wee Chen	<input checked="" type="checkbox"/> Shelley Noel	<input checked="" type="checkbox"/> Kennard James Montrose
<input checked="" type="checkbox"/> Collinge Neil Franklin	<input checked="" type="checkbox"/> Lofts Alan	<input checked="" type="checkbox"/> Draper Dudley Drew	

Minutes:

General Crew Safety Meeting .

General crew safety meeting was called in the instrument room - Client representatives and ships bridge crew also present.
Meeting commenced @ 12:15PM Local

Previous meeting's minutes were read to the crew highlighting new AIM procedures and baggage control during Helo operations .

New issues raised :

Drill PPE

Correct PPE for PRE planned drills - Recent confusion over hats vs hard hats for drills . Crew informed that as of today correct PPE for all Pre Planned drills was to be Long Sleeved coveralls , covered shoes or steel toed boots and a hard hat . For all "real" drills crew were informed that it is recommended to keep a pair of coveralls in their cabins and a hat of some description , baseball cap , beanie etc , and that under no circumstance were they to go below to retrieve a hard hat . If coveralls were not close at hand any long sleeved , long pants would be sufficient .

Communal Toilet Use.

Due to problems with the vacuum toilet system on the vessel , some communal toilets were out of action and that due to the large number of personnel onboard using a reduced number of toilets that all were requested to maintain a high standard of hygiene .

Health:

Newly arrived rotation informed of cholesterol and blood pressure tests being conducted by onboard medic for all those interested . Take up of this has been good .

Gymnasium.

Crew informed that running machine was out of use until new part arrives and that the machine should not be used until such time .
Crew also reminded of good housekeeping in the gym and that all weights should be replaced after use .

VGO

Crew informed off deadlines for VGO benefit forms and that individuals could either send these themselves or see Ch.Obs or OS who would scan and send on their behalf .

Safety:

Captain announced new onboard fire fighting training DVD open for all to watch and participate in with a self test exam .
Crew reminded to maintain vigil on new hires to the boat especially during the upcoming end of job retrieval and transit .

Meeting closed at 12:30PM Local

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
06/10/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Safety Meeting

Attendees: Grizaard Howard Peter Trengereid Birger Kare Duffy Robert Andrew Diggle Mark Leslie
 Cassim Glenn Gordon Farley Edward Roy Williams Paul Robert Cooks Andrew
 Knutsen Knut Appel Tomiln Cavanagh Ronald Miller Paul Anthony
 Hardy Paul Leach Peter Thomas Fairbrother Cyra Louise
 Honiss Gerhard Hovland Bjorn Tore Gaard Gobel Brian William Keith
 Ballantine Kenneth Gordon Hockley Keith Robert Cooper Peter Terrence

Minutes:



Safety and Environment meeting_10 Jun '06.doc

Marine Acquisition Division

Meetings and Drills

Veritas Viking2

05/24/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Safety Meeting

Attendees: Grizaard Howard Peter Hayden Leslie William Hufano Ricardo Obong Huseyn-Zada Urfan Turqud
 Turpin Paul Hales David Shane Caisido Remegio Caisido Papio Rommel Samson
 Boon Marc Lodewijk Ari Wells Mike John Goddard Graham Shirley Michael Clark
 Collins Jeremy N Ollada Emmanuel Fabro Strickland Anthony Wayne Manalang Fedelino
 Bradshaw Craig J De Young David Jones Paul William Danyluk David Michael
 Harman Noel Edward Dyer Stephen Ellis Kristian John Curwen Lambert Christopher Robert
 Li Melissa Xiaowei Tankard Leonard Arthur Flower Richard William
 Griffiths Sam Marc Tambi Deris Ak Barratt David Brian

Minutes:

A general meeting was called in the Instrument room to discuss changes to AIM observation procedures and also to advise of changes to crew change Helo procedures.

The meeting was opened at 12:30.

The first item was to advise people that a trial was to commence whereby individuals would submit their own observations to Lotus Notes. AIM cards will still need to be used and submitted in the usual manner, but the actual submission to Notes would be by the individual.

This will allow the Scribe a little more time as sometimes, with large numbers of observations the Scribe can get quite bogged down. The scribe will still need to read all observations as it is the Scribe who selects the six best observations for the month that the best observation for the month is selected from.

Melissa Li was awarded the best observation for May for her observation of a headfloat deployment. EAPL Client kindly supplied an ESSO watch as this months prize.

All crew were told that if they had any problems entering their observation into Notes to see a Senior or a member of the AIM Committee and they would be given help.

A question was raised regarding space for feedback on the AIM form, It was explained that the feedback sections on the back of the card serves for both observers and the person being observed comments.

It was also explained by the OS that for this Crew Change, flight cards would be issued to individuals as well as baggage tags, as flights may be in quick succession. All flight cards will need to be collected by the Heli Marshal prior to the flight boarding and announcements will be made as to which flight is landing next.

There are also dedicated baggage areas numbered by flight on the deck. All baggage is to be placed into its respective area prior to the first flight landing.

EAPL Client Rep, Mr Dave Danyluk also presented an ESSO watch to Jun Manalang as this weeks outstanding contributor to safety onboard the V2.

Meeting Closed at 12:37

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
05/19/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Safety Meeting

Attendees: Grizaard Howard Peter Hales David Shane Goddard Graham Weeks Roger Brian
 Turpin Paul Wells Mike John Strickland Anthony Wayne Ramchandran Rishiraj
 Boon Marc Lodewijk Ari Ollada Emmanuel Fabro Jones Paul William Manalang Fedelino
 Collins Jeremy N De Young David Ellis Kristian John Curwen Danyluk David Michael
 Bradshaw Craig J Dyer Stephen Flower Richard William Lambert Christopher Robert
 Harman Noel Edward Tankard Leonard Arthur Barratt David Brian Li Michael Robert
 Li Melissa Xiaowei Tambi Deris Ak Huseyn-Zada Urfan Turqud
 Griffiths Sam Marc Hufano Ricardo Obong Papio Rommel Samson
 Hayden Leslie William Caisido Remegio Caisido Shirley Michael Clark

Minutes:

Meeting opened at 12:40 in the instrument room:

The meeting, held in the Instrument room was primarily to discuss QHSES issues that may arise during the upcoming 2 boat undershoot of Bream Platforms A and B.

Mike Shirley explained the basic procedure as well as outlining hazards that are unique to 2 boat operations.

Mike also explained that if at any time anyone saw anything that seemed to be out of the ordinary, not to hesitate but to contact Either himself, The PM, OS, GS, Ch Observer or Ch Navigator. Mike further explained that this was a safety first operation both to the trailing equipment, vessel and most importantly personnel.

Dave Danyluk, lead client made a presentation on behalf of EAPL to Lenny Tankard for his continuing efforts in QHSES.

The meeting was then closed with the Operations Supervisor again reiterating the need for safety of equipment and personnel to remain at the forefront of priorities for the survey.

Meeting Closed at 12:55

Marine Acquisition Division
Meetings and Drills
Veritas Viking2
04/27/2006

20323 --- Greater Bream 3D 2006

Meeting Type: Safety Meeting

Attendees: <input checked="" type="checkbox"/> Mcnelly Richard Morgan	<input checked="" type="checkbox"/> Collinge Neil Franklin	<input checked="" type="checkbox"/> Certeza Levi Basas	<input checked="" type="checkbox"/> Harrison Jeffrey William
<input checked="" type="checkbox"/> Boon Marc Lodewijk Ari	<input checked="" type="checkbox"/> Hales David Shane	<input checked="" type="checkbox"/> Hufano Ricardo Obong	<input checked="" type="checkbox"/> Ramos Romeo P
<input checked="" type="checkbox"/> Fleming Rick Ray	<input checked="" type="checkbox"/> Francisco Richard Conce	<input checked="" type="checkbox"/> Caisido Remegio Caisido	<input checked="" type="checkbox"/> Mendoza Jr Constante
<input checked="" type="checkbox"/> Bradshaw Craig J	<input checked="" type="checkbox"/> Dugdale Clive Bernard	<input checked="" type="checkbox"/> Ross Stephen A	<input checked="" type="checkbox"/> Morris Colin
<input checked="" type="checkbox"/> Tibor Thomas James	<input checked="" type="checkbox"/> Ollada Emmanuel Fabro	<input checked="" type="checkbox"/> Goddard Graham	<input checked="" type="checkbox"/> Danyluk David Michael
<input checked="" type="checkbox"/> Li Melissa Xiaowei	<input checked="" type="checkbox"/> De Young David	<input checked="" type="checkbox"/> Ellis Kristian John Curwen	<input checked="" type="checkbox"/> Lambert Christopher Robert
<input checked="" type="checkbox"/> Tan Vivian Ping Khun	<input checked="" type="checkbox"/> Haarmans Johan Michael	<input checked="" type="checkbox"/> Chong Wee Chen	<input checked="" type="checkbox"/> Forrest Wayne Peter
<input checked="" type="checkbox"/> Liang Alan Tan Eng	<input checked="" type="checkbox"/> Naylor David	<input checked="" type="checkbox"/> Flower Richard William	<input checked="" type="checkbox"/> Clark Theodore Stanley
<input checked="" type="checkbox"/> Perkin Andrew John	<input checked="" type="checkbox"/> Tankard Leonard Arthur	<input checked="" type="checkbox"/> Barratt David Brian	

Minutes:

General Safety Meeting:

Prior to Esso Aus Pty Greater Bream Survey

Issues Highlighted:

Chief Observer reminded crew of safe working practices when conducting manual activities in light of recent incidents onboard - Reaffirmed need for two people to carry objects that may be deemed as " heavy" especially in rolling seas.

Crew reminded of house keeping practices in light of recent incidents involving incorrectly strapped items on top deck area as well as keeping work areas clear of trip hazards.

PPE highlighted for upcoming deployment for Esso Aus Pty Greater Bream Survey and the need for senior personnel to maintain a vigil on the large numbers of new hires currently onboard.

PM Announcements:

PM informed all seismic crew of the importance of PPE and safe working practices especially in the current area where wind and sea conditions can be expected to be considerable.

Informed crew of upcoming helicopter deck audit to be conducted on Friday morning and personnel who would be departing vessel .

Client Comments:

Esso head client Dave Danyluk expressed Esso policy on HSE and standards and the importance to ensure that the survey was conducted in accordance with Esso vision - " No one gets hurt "

Open Floor:

Chief mechanic, Mike Haarmans highlighted correct procedures for removing and replacing gate on stern chute when retrieving and deploying tailbuoys and headfloats - Reminded all members involved to replace gate when the chute was not in use and to ensure safely lines were correctly secured if entering onto the chute.

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
07/05/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 07/05/2006	2. Time of Launch: 04:06 AM 3. Time of Retrieval: 04:25 AM Total Deployment Time: 19 Minutes
4. Number of People on board: 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
07/02/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 07/02/2006	2. Time of Launch: 11:20 PM 3. Time of Retrieval: 12:53 AM Total Deployment Time: -1347 Minutes
4. Number of People on board : 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/29/2006
20323 --- Greater Bream 3D 2006

1. Launch Date : 06/29/2006	2. Time of Launch : 10:54 PM 3. Time of Retrieval : 12:16 AM Total Deployment Time : -1358 Minutes
4. Number of People on board : 4	5. Reason for Launch : In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/28/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/28/2006	2. Time of Launch: 12:16 AM 3. Time of Retrieval: 12:28 AM Total Deployment Time: 12 Minutes
4. Number of People on board: 3	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/27/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/27/2006	2. Time of Launch: 10:23 PM 3. Time of Retrieval: 11:45 PM Total Deployment Time: 82 Minutes
4. Number of People on board: 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/26/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/26/2006	2. Time of Launch: 06:00 AM 3. Time of Retrieval: 06:42 AM Total Deployment Time: 42 Minutes
4. Number of People on board: 3	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/18/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/18/2006	2. Time of Launch: 02:51 AM 3. Time of Retrieval: 03:09 AM Total Deployment Time: 18 Minutes
4. Number of People on board: 4	5. Reason for Launch: Other Other Explanation: MOB drill.

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/18/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/18/2006	2. Time of Launch: 12:00 AM 3. Time of Retrieval: 12:14 AM Total Deployment Time: 14 Minutes
4. Number of People on board : 4	5. Reason for Launch: Other Other Explanation: Inwater CMU maintenance and TS-dip analysis (water velocity profile).

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/18/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/18/2006	2. Time of Launch: 03:12 AM 3. Time of Retrieval: 03:34 AM Total Deployment Time: 22 Minutes
4. Number of People on board : 4	5. Reason for Launch: Other Other Explanation: Coxswain training.

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/17/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/17/2006	2. Time of Launch: 10:22 PM 3. Time of Retrieval: 11:59 PM Total Deployment Time: 97 Minutes
4. Number of People on board : 4	5. Reason for Launch: Other Other Explanation: Inwater CMU maintenance and TS-dip analysis (water velocity profile).

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/10/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/10/2006	2. Time of Launch: 12:00 AM 3. Time of Retrieval: 12:13 AM Total Deployment Time: 13 Minutes
4. Number of People on board : 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/09/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/09/2006	2. Time of Launch: 11:33 PM 3. Time of Retrieval: 11:59 PM Total Deployment Time: 26 Minutes
4. Number of People on board : 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/08/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/08/2006	2. Time of Launch: 04:05 AM 3. Time of Retrieval: 04:30 AM Total Deployment Time: 25 Minutes
4. Number of People on board: 4	5. Reason for Launch: Other Other Explanation: Inwater front-end geometry inspection.

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/08/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/08/2006	2. Time of Launch: 10:23 PM
	3. Time of Retrieval: 11:30 PM
	Total Deployment Time: 67 Minutes
4. Number of People on board: 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/07/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/07/2006	2. Time of Launch: 12:04 AM 3. Time of Retrieval: 01:02 AM Total Deployment Time: 58 Minutes
4. Number of People on board : 4	5. Reason for Launch: Other Other Explanation: Inwater CMU maintenance and TS-dip analysis.

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/06/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/06/2006	2. Time of Launch: 02:35 AM
	3. Time of Retrieval: 04:00 AM
	Total Deployment Time: 85 Minutes
4. Number of People on board: 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
06/01/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 06/01/2006	2. Time of Launch: 04:53 AM 3. Time of Retrieval: 05:14 AM Total Deployment Time: 21 Minutes
4. Number of People on board : 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
05/31/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 05/31/2006	2. Time of Launch: 01:20 AM 3. Time of Retrieval: 02:42 AM Total Deployment Time: 82 Minutes
4. Number of People on board: 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
05/30/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 05/30/2006	2. Time of Launch: 09:04 PM 3. Time of Retrieval: 11:44 PM Total Deployment Time: 160 Minutes
4. Number of People on board : 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
05/27/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 05/27/2006	2. Time of Launch: 12:01 AM 3. Time of Retrieval: 03:00 AM Total Deployment Time: 179 Minutes
4. Number of People on board: 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
05/27/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 05/27/2006	2. Time of Launch: 04:26 AM 3. Time of Retrieval: 05:09 AM Total Deployment Time: 43 Minutes
4. Number of People on board: 4	5. Reason for Launch: Other Other Explanation: TS-dip analysis and equipment transfer with Pacific Sword.

Marine Acquisition
Small Boat Launch Form
Veritas Viking2

05/22/2006

20323 --- Greater Bream 3D 2006

1. Launch Date: 05/22/2006	2. Time of Launch: 12:00 AM 3. Time of Retrieval: 12:25 AM Total Deployment Time: 25 Minutes
4. Number of People on board : 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
05/18/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 05/18/2006	2. Time of Launch: 01:50 AM
	3. Time of Retrieval: 04:35 AM
	Total Deployment Time: 165 Minutes
4. Number of People on board: 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
05/18/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 05/18/2006	2. Time of Launch: 09:38 PM 3. Time of Retrieval: 10:14 PM Total Deployment Time: 36 Minutes
4. Number of People on board : 4	5. Reason for Launch: Personnel and Equipment Transfer

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
05/16/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 05/16/2006	2. Time of Launch: 01:52 AM 3. Time of Retrieval: 05:20 AM Total Deployment Time: 208 Minutes
4. Number of People on board: 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
05/14/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 05/14/2006	2. Time of Launch: 05:03 AM
	3. Time of Retrieval: 06:56 AM
	Total Deployment Time: 113 Minutes
4. Number of People on board: 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
05/14/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 05/14/2006	2. Time of Launch: 03:53 AM
	3. Time of Retrieval: 04:22 AM
	Total Deployment Time: 29 Minutes
4. Number of People on board: 6	5. Reason for Launch: Personnel and Equipment Transfer

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
05/11/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 05/11/2006	2. Time of Launch: 05:49 AM 3. Time of Retrieval: 07:20 AM Total Deployment Time: 91 Minutes
4. Number of People on board : 4	5. Reason for Launch: Other Other Explanation: Platform position verification.

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
05/11/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 05/11/2006	2. Time of Launch: 02:35 AM
	3. Time of Retrieval: 04:12 AM
	Total Deployment Time: 97 Minutes
4. Number of People on board: 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
05/06/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 05/06/2006	2. Time of Launch: 11:35 PM 3. Time of Retrieval: 02:06 AM Total Deployment Time: -1289 Minutes
4. Number of People on board: 4	5. Reason for Launch: In Sea Work

Marine Acquisition
Small Boat Launch Form
Veritas Viking2
04/29/2006
20323 --- Greater Bream 3D 2006

1. Launch Date: 04/29/2006	2. Time of Launch: 12:08 AM 3. Time of Retrieval: 01:17 AM Total Deployment Time: 69 Minutes
4. Number of People on board: 4	5. Reason for Launch: In Sea Work

Marine Acquisition
HSE Daily Summary
Veritas Viking2

07/07/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Stepback	2
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meetings held prior to shift change 1145/2345

2 Stepback carried out while reconfiguring strm on reel deck due to weather.

Marine Acquisition
HSE Daily Summary
Veritas Viking2

07/06/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	9
3. Toolbox Meetings	5
4. Toolbox Meetings	7
5. Stepback	1
6. Toolbox Meetings	2
7.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345
8 toolbox meeting held prior to recovery of headfloat's
8 toolbox meeting held prior to recovery of tailbuoys
4 toolbox meeting held prior to removal of tap-cans from streamers.
2 toolbox meeting held prior to recovery of vanes
1 toolbox meeting held prior to recovery of ADCP pole
1 stepback on reel deck (Slippery deck caused by algae)

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/22/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	3
3. Stepback	1
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

1 x toolbox meeting conducted prior to stbd workboat operations - SOP and best practice discussed.

1 x stepback initiative conducted during stbd workboat operations. Workboat mission aborted due increasing wind and sea conditions.

1 x toolbox meeting conducted prior to recovery/ deployment of the source arrays - SOP and best practice discussed.

1 x toolbox meeting conducted prior to recovery/ deployment of streamer 4 - SOP and best practice discussed.

Small Boat Launch 12:00:00 AM - 12:25:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

07/12/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	2
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345

1 toolbox meeting held prior bringing the pilot onboard.

1 toolbox meeting prior to tying the V2 up to dock.

Marine Acquisition
HSE Daily Summary
Veritas Viking2

07/11/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2.	
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345

Marine Acquisition
HSE Daily Summary
Veritas Viking2

07/10/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2.	
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345

Job Safety Analysis (Entering Streamer Reel Drum)

Marine Acquisition
HSE Daily Summary
Veritas Viking2

07/09/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2.	
3.	
4.	
5.	

Daily HSE Comments:

8 Toolbox meeting held prior to shift change 1145/2345

Oil Recovery Drill

Other

**Marine Acquisition
HSE Daily Summary**

Veritas Viking2
07/08/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2.	
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345

Marine Acquisition
HSE Daily Summary
Veritas Viking2

07/05/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	3
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345

1 toolbox meeting held prior to workboat launch

1 toolbox meeting held prior to recovery of guns

1 toolbox meeting held prior to recovery of streamers.

Small Boat Launch 04:06:00 AM - 04:25:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

07/03/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	9
2.	
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change, 1145/2345

1 toolbox meeting held for prior to chopper landing

Marine Acquisition

HSE Daily Summary

Veritas Viking2

07/02/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2.	
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meetings held prior to shift change 1145/2345

Fire Drill

Small Boat Launch 11:20:00 PM - 12:53:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

07/01/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	2
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345

1 toolbox meeting held prior to recovery of guns

1 toolbox meeting held prior to deployment of workboat

**Marine Acquisition
HSE Daily Summary
Veritas Viking2**

06/30/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	1
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345

1 toolbox meeting held prior to recovery of guns

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/29/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	2
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change 1145/2345
2 toolbox meeting held prior to recovery of guns

Committee Meeting

Small Boat Launch 10:54:00 PM - 12:16:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/28/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	3
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting prior to shift change 1145/2345
2 toolbox meeting held prior to recovery of guns.
1 toolbox meeting held prior to Workboat launch

Small Boat Launch 12:16:00 AM - 12:28:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/25/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2.	
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meetings held prior to shift change 1145/2345

Fire Drill

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/24/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	1
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change

1 toolbox meeting held prior to recovery of guns

**Marine Acquisition
HSE Daily Summary
Veritas Viking2**

06/23/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	1
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change

1 toolbox meeting held prior to recovery of guns

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/22/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	3
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meetings held prior to shift change

2 toolbox meeting held prior to recovery of guns

1 toolbox meeting carried out before trouble shooting acoustics

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/21/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	9
2.	
3.	
4.	
5.	

Daily HSE Comments:

8 toolbox meeting held prior to shift change

1 toolbox meeting held prior to disconnecting the supply vessel from the V2

2 JSA carried out prior to taking fuel from the supply vessel (1 on bridge and 1 in engine room)

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/18/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings	Frequency
Event	
1. Toolbox Meetings	8
2. Toolbox Meetings	1
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

1 x toolbox meeting conducted prior to stbd workboat operations - SOP and best practice discussed.

Man Overboard Drill

Small Boat Launch 02:51:00 AM - 03:09:00 AM

Small Boat Launch 03:12:00 AM - 03:34:00 AM

Small Boat Launch 12:00:00 AM - 12:14:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/17/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	1
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

1 x toolbox meeting conducted prior to stbd workboat operations - SOP and best practice discussed.

Small Boat Launch 10:22:00 PM - 11:59:00 PM

**Marine Acquisition
HSE Daily Summary
Veritas Viking2**

06/16/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	1
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

1 x toolbox meeting conducted prior to deployment of the source arrays - SOP and best practice discussed.

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/15/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	1
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

1 x toolbox meeting conducted prior to recovery of the source arrays - SOP and best practice discussed.

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/14/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	1
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

1 x toolbox meeting conducted prior to recovery/ deployment of the source arrays - SOP and best practice discussed.

Cross Audit

Cross Audit

Cross Audit

Cross Audit

Cross Audit

Cross Audit

Inspection / Department Audit

Inspection / Department Audit

Inspection / Department Audit

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/13/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	4
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

3 x toolbox meetings conducted prior to recovery/ deployment of the source arrays - SOP and best practice discussed.

1 x toolbox meeting conducted prior recover of OTL 4 - best practice discussed.

Committee Meeting

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/12/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	2
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

2 x toolbox meetings conducted prior to recovery/ deployment of the source arrays - SOP and best practice discussed.

Job Safety Analysis (Changing Lithium Acoustic Battery)
Job Safety Analysis (Hydraulic Oil Purifier Operation)
Job Safety Analysis (Two Boat Turn)
Job Safety Analysis (Workboat section change out)

**Marine Acquisition
HSE Daily Summary
Veritas Viking2**

06/11/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2.	
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

Oil Recovery Drill

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/10/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	2
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

2 x toolbox meetings conducted prior to recovery/ deployment of the source arrays - SOP and best practice discussed.

Safety Meeting

Small Boat Launch 12:00:00 AM - 12:13:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/09/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	2
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

1 x toolbox meeting conducted prior to recovery/ deployment of the source arrays - SOP and best practice discussed.

1 x toolbox meeting conducted prior to stbd workboat operations - best practice discussed.

Committee Meeting

Small Boat Launch 11:33:00 PM - 11:59:00 PM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/08/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	2
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

2 x toolbox meetings conducted prior to stbd workboat operations - best practice discussed.

Small Boat Launch 04:05:00 AM - 04:30:00 AM

Small Boat Launch 10:23:00 PM - 11:30:00 PM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/07/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	4
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

3 x toolbox meetings conducted prior to recovery/ deployment of the source arrays - SOP and best practice discussed.

1 x toolbox meeting conducted prior to stbd workboat operations - best practice discussed.

Small Boat Launch 12:04:00 AM - 01:02:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/04/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	5
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

2 x toolbox meetings conducted prior to recovery/ deployment of the source arrays - SOP and best practice discussed.

2 x toolbox meetings conducted prior to vessel-to-vessel transfer operations - FO and cargo transfer discussed.

1 x toolbox meeting conducted by the maritime crew prior to deploying fender arrangement for resupply operations - best practice discussed.

Fire Drill

Job Safety Analysis (Transferring bad section from streamer reel onto storage reel. Transferring new section from crane deck to streamer reel.)

Marine Acquisition
HSE Daily Summary
Veritas Viking2

06/02/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	4
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

2 x toolbox meetings conducted prior to recovery/ deployment of the source arrays - SOP and best practise discussed.

1 x toolbox meeting conducted prior to recovery/ deployment of streamer 5 - SOP and best practise discussed.

1 x toolbox meeting conducted prior to recovery/ deployment of streamer 4 - SOP and best practise discussed.

Abandon Ship Drill

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/31/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	1
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

1 x toolbox meeting conducted prior to stbd workboat operations - SOP and best practise discussed.

Committee Meeting

Small Boat Launch 01:20:00 AM - 02:42:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/30/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	4
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.
2 x toolbox meetings conducted prior to recovery/ deployment of the source arrays - SOP and best practise discussed.
1 x toolbox meeting conducted prior to deployment of streamer 3 - SOP and best practise discussed.
1 x toolbox meeting conducted prior to close pass undershoot sequence 057.
1 x toolbox meeting conducted prior to stbd workboat operations - SOP and best practise discussed.

Small Boat Launch 09:04:00 PM - 11:44:00 PM

Marine Acquisition

HSE Daily Summary

Veritas Viking2

05/28/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings	Frequency
Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	2
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

1 x toolbox meeting conducted prior to close pass sequences 055.

1 x toolbox meeting conducted prior to recovery/ deployment of the source arrays. SOP and best practise discussed.

Cross Audit

Cross Audit

Cross Audit

Cross Audit

Cross Audit

Fire Drill

Inspection / Department Audit

Inspection / Department Audit

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/27/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	3
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

2 x toolbox meetings conducted prior to stbd workboat operations - SOP and best practice discussed.

1 x toolbox meeting conducted prior to close pass undershoot sequence 049.

Small Boat Launch 04:26:00 AM - 05:09:00 AM

Small Boat Launch 12:01:00 AM - 03:00:00 AM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/26/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	6
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.
5 x toolbox meetings conducted prior to close pass undershoot sequences 044-048.
1 x toolbox meeting conducted prior to recovery/ deployment of the source arrays.

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/25/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	1
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

1 x toolbox meeting conducted prior to deployment of the source arrays - SOP and best practice discussed.

Committee Meeting

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/24/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2.	
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

Cross Audit

Safety Meeting

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/23/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	2
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

1 x toolbox meeting conducted prior to close pass undershoot sequences 044.

1 x toolbox meeting conducted prior to recovery of the source arrays - SOP and best practice discussed.

Committee Meeting

Inspection / Department Audit

Inspection / Department Audit

Inspection / Department Audit

Inspection / Department Audit

Job Safety Analysis (Hang Gun Separation Slider onto A.T.L)

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/21/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	3
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.
3 x toolbox meetings conducted prior to close pass undershoot sequences 040-042.

Job Safety Analysis (Single line preparation during rig undershoot survey)

Man Overboard Drill

**Marine Acquisition
HSE Daily Summary
Veritas Viking2**

05/20/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	7
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

5 x toolbox meetings conducted prior to close pass sequences 035-039.

1 x toolbox meeting conducted prior to recovery/ deployment of the source arrays. SOP and best practise discussed.

1 x toolbox meeting held to discuss best practise when transferring streamer sections from the streamer store to the top deck.

Job Safety Analysis (Streamer Cleaning From STBD Workboat -
Amended from Port Workboat Procedure.)

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/19/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	5
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

4 x toolbox meetings conducted prior to close pass sequences 031-034.

1 x toolbox meeting conducted prior to recovery/ deployment of the source arrays. SOP and best practise discussed.

Safety Meeting

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/18/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	8
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

3 x toolbox meetings conducted prior to close pass sequences 027, 028 and 030.

3 x toolbox meetings conducted prior to recovery/ deployment of the source arrays. SOP and best practise discussed.

2 x toolbox meetings conducted prior to stbd workboat operations. SOP and best practise discussed.

Fire Drill

Small Boat Launch 01:50:00 AM - 04:35:00 AM

Small Boat Launch 09:38:00 PM - 10:14:00 PM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/18/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	9
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

4 x toolbox meetings conducted prior to close pass sequences 027-030.

3 x toolbox meetings conducted prior to recovery/ deployment of the source arrays. SOP and best practise discussed.

2 x toolbox meetings conducted prior to stbd workboat operations. SOP and best practise discussed.

Fire Drill

Small Boat Launch 01:50:00 AM - 04:35:00 AM

Small Boat Launch 09:38:00 PM - 10:14:00 PM

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/17/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	7
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

5 x toolbox meetings conducted prior to close pass sequences 023-027.

2 x toolbox meetings conducted prior to recovery/ deployment of the source arrays. SOP and best practise discussed.

Marine Acquisition
HSE Daily Summary
Veritas Viking2

05/16/2006

20323 --- Greater Bream 3D 2006

Drills/Meetings Event	Frequency
1. Toolbox Meetings	8
2. Toolbox Meetings	8
3.	
4.	
5.	

Daily HSE Comments:

8 x toolbox meetings conducted prior to shift change 1145 hrs and 2345 hrs local.

5 x toolbox meetings conducted prior to close pass sequences 018-022.

2 x toolbox meetings conducted prior to recovery/ deployment of the source arrays. SOP and best practise discussed.

1 x toolbox meeting conducted prior to stbd workboat operations. SOP and best practise discussed.

Small Boat Launch 01:52:00 AM - 05:20:00 AM



**Marine Acquisition Division
Incident Report - Hazard
Pacific Sword
-- Closed --**

PW-IR-06-MPSD6QJ5VJ

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Broken glass light lens found on deck	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): An outside walkway light lens (portside) was noticed lying on the deck. All light lenses along the walkway were present. It appears to have been an old lens which had been replaced during drydock and left resting on the deck above. The lens had fallen to the deck below leaving a small amount of broken glass.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: S.Hainsworth	

Recommendation and Actions				
Immediate causes: Bad housekeeping				
Immediate actions to prevent recurrence : Remove the broken glass, checked other lights were safe.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Area clean-up				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: Jun/07/2006	Date of incident: Jun/05/2006
Report completed by: S.Hainsworth	Local time of incident: 10:00 AM
Incident identified by: Veritas	Document author: Mech Pacific-Sword
Activity at time of incident: Transit None None	Where observed: Open deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Pacific Sword
-- Closed --**

PW-IR-06-OPSD6QE9GJ

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Light not working	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While conducting a department audit it was noticed that one of the lights above the port side cable deck was not working. With only one light working on this deck the area will be very dark during night-time cable work.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Obs	

Recommendation and Actions				
Immediate causes: Light will need to be tested.				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Equipment repairs/replacements				

Followup
Follow-up by whom: Marine department
Date corrective action taken :

General Incident Information	
Date of report: Jun/03/2006	Date of incident: Jun/03/2006
Report completed by: Obs Pacific-Sword	Local time of incident: 04:21 PM
Incident identified by: Veritas	Document author: Obs Pacific-Sword
Activity at time of incident: Mobilization Handling equipment None	Where observed: Streamer deck
Potential outcome: Moderate Risk	Recurrence potential: Medium

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Pacific Sword
-- Closed --**

PW-IR-06-OPSD6QD6S5

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description
Brief description: Decking on cable deck not replaced properly after dry-dock causing trip hazard
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): When the vessel was in dry-dock the steel support structure for the port and stbd side cable decking was replaced due to corrosion. The original deck plating was then placed back down with edges overlapping, screws not secured, and gaps where there were no gaps before. The steel deck plate had fitted perfectly before dry-dock. Now it will need to be lifted and replaced properly.
    
Breakdown agency: Machinery & mainly fixed equipment (plant) None
Witnessed by: Observers

Recommendation and Actions
Immediate causes: Shoddy workmanship
Immediate actions to prevent recurrence : Lift and replace deck plate
AIM categories: Tools & Equipment/Condition of tools & equipment
AIM behaviors:

TapRoot:

	Category	Base Cause	Near Root Cause	Root Cause
1				

Corrective action plan / request:

Followup
Follow-up by whom: Obs
Date corrective action taken : Jun/03/2006

General Incident Information	
Date of report: Jun/02/2006	Date of incident: Jun/02/2006
Report completed by: Obs Pacific-Sword	Local time of incident: 02:03 PM
Incident identified by: Veritas	Document author: Obs Pacific-Sword
Activity at time of incident: Mobilization Handling equipment None	Where observed: Streamer deck
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)



**Marine Acquisition Division
Incident Report - Hazard
Pacific Sword
-- Closed --**

PW-IR-06-OPSD6QD6DQ

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Top step stbd side gundeck boarding ladder broken	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While the pilot boat was alongside the vessel in Portland. The gundeck boarding ladder top rung became lodged under the bow of the boat causing the rubber step to brake	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Observer	

Recommendation and Actions				
Immediate causes: Pilot boat movement up and down with the sea swell.				
Immediate actions to prevent recurrence: Ladder removed.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup	
Follow-up by whom: Chief Mate	
Date corrective action taken: Jun/01/2006	

General Incident Information	
Date of report: Jun/02/2006	Date of incident: Jun/02/2006
Report completed by: Obs PSword	Local time of incident: 09:00 AM
Incident identified by: Veritas	Document author: Obs Pacific-Sword
Activity at time of incident: Personnel transfer At sea None	Where observed: Gun deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	0 C to 14 C	Clear	3 - Gentle breeze	0.1 m to 0.9 m	NE	0.1 m to 0.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Not Work Related
Pacific Sword
-- Closed --**

PW-IR-06-PMPS6QE6U3

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Sea sick.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Patient reported to the medic suffering from sea sickness. He had just joined the vessel.	
Breakdown agency: Environmental agencies None	
Witnessed by: Medic	

Recommendation and Actions			
Immediate causes: Rough seas			
Immediate actions to prevent recurrence : Motion sickness tablets prescribed.			
AIM categories:			
AIM behaviors:			
TapRoot:			
Category	Base Cause	Near Root Cause	Root Cause
1			
Corrective action plan / request: Other			

Followup	
Follow-up by whom: Medic	
Date corrective action taken : Jun/02/2006	

General Incident Information	
Date of report: Jun/02/2006	Date of incident: Jun/02/2006
Report completed by: PM Pacific-Sword	Local time of incident: 02:00 PM
Incident identified by: Veritas	Document author: PM Pacific-Sword
Activity at time of incident: Transit None None	Where observed: Engine room
Outcome: Illness	Recurrence potential: Low
Potential outcome: Illness	

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Pacific Sword
-- Closed --**

PW-IR-06-PMPS6QC5PY

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Deck support in wrong position.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams):	
When carrying out tests on launch and recovery of vanes it was observed that a support under the mesh decking on the starboard side was in a position that caused the starboard vane rope to rub as it is hauled in or let out. Some of these supports were replaced in the dry dock and this may have been installed in the wrong place.	
 100_0150.jpg	
Breakdown agency: Other & unspecified None	
Witnessed by: Gun Mechanic	

Recommendation and Actions				
Immediate causes: Possibly put back in wrong position when replaced. Ship yard welder put it back in the center supporting join's without realizing that the vane rope would rub when moved in and out.				
Immediate actions to prevent recurrence : Compressor Mechanic will cut out and move to better position.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Equipment modifications				

Followup
Follow-up by whom: Compressor Mechanic.
Date corrective action taken : Jun/08/2006

General Incident Information	
Date of report: Jun/01/2006	Date of incident: Jun/01/2006
Report completed by: PM Pacific-Sword	Local time of incident: 05:00 PM
Incident identified by: Veritas	Document author: PM Pacific-Sword
Activity at time of incident: Deployment / recovery Handling equipment None	Where observed: Open deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Medium

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospheric	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)



**Marine Acquisition Division
Incident Report - Hazard
Pacific Sword
-- Closed --**

PW-IR-06-PMPS6QC5LZ

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Mic on top deck not working.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While deploying the vanes for testing the PM tried to use the mic on the aft top deck to pass on instructions to the bridge. The mic did not work. PM went to the bridge and passed on instructions.	
Breakdown agency: Powered tools appliances & equipment None	
Witnessed by: PM	

Recommendation and Actions				
Immediate causes: The main wiring feed was faulty.				
Immediate actions to prevent recurrence: Technician has completed the repairs.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Equipment repairs/replacements				

Followup
Follow-up by whom: Tech
Date corrective action taken: Jun/09/2006

General Incident Information	
Date of report: Jun/01/2006	Date of incident: Jun/01/2006
Report completed by: PM Pacific-Sword	Local time of incident: 04:35 PM
Incident identified by: Veritas	Document author: PM Pacific-Sword
Activity at time of incident: Deployment / recovery Handling equipment None	Where observed: Open deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Pacific Sword
-- Closed --**

PW-IR-06-PMPS6QC5HZ

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Flood light brackets broken.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While deploying the vanes for tests it was noticed that both the port and starboard vane flood lights on the top deck were taped to the support pole. The brackets were rusted through. This should have been repaired in the dry dock.	
  100_0148.jpg 100_0147.jpg	
Breakdown agency: Materials & substances None	
Witnessed by: Gun Mechanic, PM.	

Recommendation and Actions				
Immediate causes: rusted through due to age.				
Immediate actions to prevent recurrence : Will try to have new brackets made onboard.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Equipment repairs/replacements				

Followup
Follow-up by whom: Compressor Mechanic.
Date corrective action taken :

General Incident Information	
Date of report: Jun/01/2006	Date of incident: Jun/01/2006
Report completed by: PM Pacific-Sword	Local time of incident: 04:30 PM
Incident identified by: Veritas	Document author: PM Pacific-Sword
Activity at time of incident: Deployment / recovery Handling equipment None	Where observed: Open deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Pacific Sword
-- Closed --**

PW-IR-06-PMPS6QA3P2

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description

Brief description: Mess table top not secured.

Describe in detail how the event occurred (attach any relevant documents / images / diagrams):

Alterations to a table in the Mess during the recent dry dock has not been completed.
The table top was cut to allow easier access around the table. The off-cut has been used as a new table top for food storage during meal hours.
This top is not secured in any way to a permanent structure.
Due to a tank inspection point and sounding pipe being directly below this new position for the table, it has been made removable with nothing attaching it to the vessel.
Other alteration's discussed prior to the dry dock for this area would have given access to the sounding pipe with the bench permanently fitted.
Smaller chairs were also meant to be supplied to make easier access for uses.
The hole in the top of the bench was not covered. At the moment a biscuit container covers the hole.



000_0018[1].jpg 000_0021[1].jpg 000_0019[1].jpg

Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: PM	

Recommendation and Actions

Immediate causes: Drydock alterations were not completed.

Immediate actions to prevent recurrence : Follow up by SPO and the alterations completed to a safe standard.

AIM categories:

AIM behaviors:

TapRoot:

	Category	Base Cause	Near Root Cause	Root Cause
1				

Corrective action plan / request: Equipment repairs/replacements

Followup

Follow-up by whom: Captain

Date corrective action taken :

General Incident Information

Date of report: May/30/2006	Date of incident: May/30/2006
Report completed by: PM Pacific-Sword	Local time of incident: 11:24 AM
Incident identified by: Veritas	Document author: PM Pacific-Sword

Activity at time of incident: Transit None None	Where observed: Galley / mess
--	--------------------------------------

Potential outcome: Low/Acceptable Risk	Recurrence potential: Low
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Environmental Conditions

<u>Light Conditions</u>	<u>Temperature (C)</u>	<u>Precipitation / Atmospherics</u>	<u>Air Movement (Beaufort Scale)</u>	<u>Environment Sea State</u>		
				<u>Wave Height (m)</u>	<u>Swell Direction</u>	<u>Swell Height (m)</u>

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Not Work Related
Pacific Sword
-- Closed --**

PW-IR-06-PMPS6QE73L

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Cold sores on lower lip.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Patient approached medic and asked the lesions on his lower lip be examined	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Medic	

Recommendation and Actions			
Immediate causes: Possible viral recurrence.			
Immediate actions to prevent recurrence : Anti-viral cream supplied to patient.			
AIM categories:			
AIM behaviors:			
TapRoot:			
Category	Base Cause	Near Root Cause	Root Cause
1			
Corrective action plan / request: Other			

Followup	
Follow-up by whom: Medic	
Date corrective action taken : May/29/2006	

General Incident Information	
Date of report: May/30/2006	Date of incident: May/30/2006
Report completed by: PM Pacific-Sword	Local time of incident: 11:00 AM
Incident identified by: Veritas	Document author: PM Pacific-Sword
Activity at time of incident: Recording At sea None	Where observed: Galley / mess
Outcome: Illness	Recurrence potential: Low
Potential outcome: Illness	

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Not Work Related
Pacific Sword
-- Closed --**

PW-IR-06-PMPS6QE6WS

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Chipped tooth	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): The patient advised the medic that he had a chipped tooth. The tooth just broke off. No problems are associated with the break at this time. No discomfort.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Medic	

Recommendation and Actions				
Immediate causes: Tooth decay.				
Immediate actions to prevent recurrence : No treatment required at this time, however it would be best to have the patient visit a dentist on arrival in Bali on the 12th June as the vessel will be heading to Vietnam for 3 weeks.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Other				

Followup	
Follow-up by whom: Jasbir Singh, PM	
Date corrective action taken :	

General Incident Information	
Date of report: May/30/2006	Date of incident: May/30/2006
Report completed by: PM Pacific-Sword	Local time of incident: 08:00 PM
Incident identified by: Veritas	Document author: PM Pacific-Sword
Activity at time of incident: Recording At sea None	Where observed: Gun deck
Outcome: Illness	Recurrence potential: Low
Potential outcome: Illness	

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospheric	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Not Work Related
Pacific Sword
-- Closed --**

PW-IR-06-PMPS6QE75L

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Nasal congestion with some bleeding	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): The patient report to the medic complaining of blood coming from nose when he blew due to nasal congestion.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Medic	

Recommendation and Actions				
Immediate causes: Nasal congestion and blowing to forcefully may have caused the bleeding.				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Other				

Followup
Follow-up by whom: Medic
Date corrective action taken : May/29/2006

General Incident Information	
Date of report: Jun/03/2006	Date of incident: May/29/2006
Report completed by: PM Pacific-Sword	Local time of incident: 09:45 PM
Incident identified by: Veritas	Document author: PM Pacific-Sword
Activity at time of incident: Recording At sea None	Where observed: Recording room
Outcome: Illness	Recurrence potential: Low
Potential outcome: Illness	

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Pacific Sword
-- Closed --**

PW-IR-06-PMPS6Q788J

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Mold growing in TV room	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams):	
<p>An IR noticed mold growing on the furniture in the TV container on the top deck. When he checked around the room mold was seen on most items including growing in the aircon system.</p> <p>He informed the Master and then showed the PM.</p> <div style="text-align: center;">    </div> <p>Photo's showing the mold are attached. 100_0120.JPG 100_0118.JPG 100_0119.JPG</p> <p>Moisture is collecting around the door ways intering the TV room, Paper store and Gym.</p> <p>The Marine crew informed the PM that they had smelt a moldy smell for some time.</p>	
Breakdown agency: Environmental agencies None	
Witnessed by: IR	

Recommendation and Actions			
Immediate causes: Lack of circulated Air?			
Immediate actions to prevent recurrence : The Mold has been cleaned away and the door to the TV has been left open during daylight hours.			
AIM categories:			
AIM behaviors:			
TapRoot:			
Category	Base Cause	Near Root Cause	Root Cause
1			
Corrective action plan / request: Equipment modifications			

Followup
Follow-up by whom: Dick Watson
Date corrective action taken :

General Incident Information	
Date of report: May/27/2006	Date of incident: May/27/2006
Report completed by: PM Pacific-Sword	Local time of incident: 12:17 PM
Incident identified by: Veritas	Document author: PM Pacific-Sword
Activity at time of incident: Recording At sea None	Where observed: Recreation area
Potential outcome: Low/Acceptable Risk	Recurrence potential: High

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)



**Marine Acquisition Division
Incident Report - Near Miss
Pacific Sword
-- Closed --**

PW-IR-06-PMPS6Q6AVC

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jasbir Singh	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description

Brief description: Money and Camera stolen.

Describe in detail how the event occurred (attach any relevant documents / images / diagrams):

While staying in a hotel in Melbourne on the way to the vessel for crew change on the 25th May my room was entered by a person who had picked the lock of a door which lead to an adjoining room.

I was in the shower at 06:55 when I heard a noise form my room. I jumped out and put a towel around myself before going into the main room. At this time I saw a man leaving the room through the door to the adjoining room. I tried to get to him before he closed the door but I was not able to reach him.

I called the reception and asked for a security guard as someone had just been in my room and taken some cash.

I then put some jeans on before going out to check the next room. As I left my room I saw a mans head sticking out of a hatch in the front wall of the next room. I ran over before he could close it and told him to give my money back. He denied taking it and tried to close the hatch. I hit the hatch open and told him to give me the cash. He gave some coins back and said sorry. I told him there was more and he gave me the note back as well.

While this was happening I was also looking for the security guard so I could enter the room and see if any other belongings had been stolen.

I kept the front door to my room open and called reception again telling them the guy was still in the room next to mine and he had taken cash from me. I then went back to the front of the room and waiting outside the next-door room.

After 15 minutes I looked over the balcony and saw a guy standing below. He asked me which room I was from. He then said he was the security guard. He asked if the guy was still in the room and I told him no-one had come from the front door.

After another 20 minutes another guard arrived. He went into my room and tried to open the internal door. He asked if it was left open and they had made a mistake. I always check that any internal doors are secure if there is one in my hotel room.

He them emptied my bag and asked me to check if anything else was missing. I told him my Camera was gone.

He went to the reception and got another key to the next door room.

He entered the room and found two men but no camera.

The police had been called at 07:05 but did not arrive until 07:55.

They asked for details of the man I had seen. When they came back they informed me the man was not their but there was two other men who were well know criminals from another area of Melbourne. They had been staying in the room over night.

The police searched for my camera but found nothing. They said there was not much hope of finding it and that they were going to let the men go.

I gave the police the operating manual for the camera, which was only 3 weeks old in case they find it at a later date.

Breakdown agency: Other & unspecified None	
Witnessed by: Ray Hales	

Recommendation and Actions

Immediate causes: Theft

Immediate actions to prevent recurrence :
Where possible rooms without doors to adjoining rooms should be used.
Possibly insist that dead bolts be fitted to internal doors between rooms.

Near miss type: Safety of people Environmental Involved assets

AIM categories: Conditions & Housekeeping (work area)/Work areas
free of slip & trip hazards
AIM behaviors: New Category/Behav

TapRoot data is required due to the type and severity of this report

TapRoot:

Category	Base Cause	Near Root Cause	Root Cause
1 | Other			

2.1	No further classifications	No further classifications	No further classifications
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Corrective action plan / request: Other

Followup

Follow-up by whom: Jasbir Singh

Date corrective action taken :

General Incident Information

Date of report: May/26/2006

Report completed by: PM Pacific-Sword

Incident identified by: Veritas

Date of incident: May/26/2006

Local time of incident: 06:55 AM

Document author: PM Pacific-Sword

Activity at time of incident: Personnel transfer
On land
None

Where observed: Other

Outcome: Very High Risk

Recurrence potential: High

Potential outcome: Very High Risk

Environmental Conditions

Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Environment Sea State		
				Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Injury
Veritas Viking2
-- Closed --**

V2-IR-06-OSVV6RMJXJ

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Lower back soreness	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While helping to lift some boxes, the crewmember felt some pain in his lower back. Patient went to see medic and was given some massage and non-prescription strength Ibuprofen and Paracetamol.	
Breakdown agency: Other & unspecified None	Breakdown mechanism: Body stressing
Witnessed by: Constante Mendoza	

Recommendation and Actions	
Immediate causes: Lifting strain	
Immediate actions to prevent recurrence :	
AIM categories:	Body Position/Ergonomics/Body mechanics when lifting
AIM behaviors:	carrying reaching or pulling

TapRoot:

Category	Base Cause	Near Root Cause	Root Cause
1			

Corrective action plan / request:

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: Jul/13/2006	Date of incident: Jul/13/2006
Report completed by: OS Veritas-Viking2	Local time of incident: 08:00 AM
Incident identified by: Veritas	Document author: OS Veritas-Viking2
Activity at time of incident: Other Handling equipment None	Where observed: Other
Outcome: First Aid	Recurrence potential: Low
Potential outcome: First Aid	

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Clear	5 - Fresh breeze	0.1 m to 0.9 m	SE	1.0 m to 1.9 m

Casualty & Injury Details	
Employed by: Veritas	
Job Position: Observer	Name of Treating Facility: Onboard Medic

Experience in Position: 1 to 5 Months Time on Tour (days): 40 Hours on Shift: 6	Address: City: State / Province: Contact Number: Name of Attending Physician : Address: City: State / Province: Contact Numbers :
Nature of Injury: Sprains and strains	Part of Body Injured : Trunk (Back - upper or lower / Lower)
Treatment Administered : Ibruprofen 1-2 Tablets (200 mg/tablet), Paracetamol 1-2 tablets (500 mg/tablet), Warm comperss and massage.	

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-NVVG6RKM8L

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: food burning in microwave	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Walking into the galley noticed smoke coming out of the microwave. Upon opening found a meat pie that was being cooked until burning. Removed pie and placed in water to prevent smoke alarms from going off.	
Breakdown agency: Other & unspecified None	
Witnessed by: Navigator	

Recommendation and Actions				
Immediate causes: carelessness				
Immediate actions to prevent recurrence : People need to pay more attention to what they are doing.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Safety alert				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: Jul/11/2006	Date of incident: Jul/11/2006
Report completed by: Nav Veritas-Viking2	Local time of incident: 11:00 PM
Incident identified by: Veritas	Document author: Nav Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Galley / mess
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dark	15 C to 29 C	Drizzle	8 - Fresh gale	> 4.5 m	SW	> 4.5 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CSVV6RKUY3

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Portside tailbuoy strap loose.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During routine inspection on the gun deck, found that the tailbuoy on portside was moving and the ratchet strap turn loose. Reposition the ratchet strap and tighten up. Add another ratchet strap on top of the other tailbuoys.	
Breakdown agency: Non-powered hand tools appliances & equipment None	
Witnessed by: Levi Certeza	

Recommendation and Actions				
Immediate causes: Rough weather				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken : Jul/13/2006

General Incident Information	
Date of report: Jul/11/2006	Date of incident: Jul/11/2006
Report completed by: CableShop Veritas-Viking2	Local time of incident: 08:59 AM
Incident identified by: Veritas	Document author: CableShop Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Gun deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospheric	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Near Miss
Veritas Viking2
-- Closed --**

V2-IR-06-CSVV6RKT4

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Ceiling plate fell off	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Upon entering gravity room, discovered that one of the ceiling pannel is on the floor, the screw holding the pannel must have been loosened due to boat movement. The ceiling pannel were reinstalled and proper size of the screw were fitted. IR considered closed	
Breakdown agency: Other & unspecified None	
Witnessed by: Romeo Ramos and Levi Certeza	

Recommendation and Actions											
Immediate causes: rough weather											
Immediate actions to prevent recurrence :											
Near miss type: <input checked="" type="radio"/> Safety of people <input type="radio"/> Environmental <input type="radio"/> Involved assets											
AIM categories:	New Category/Behav										
AIM behaviors:											
TapRoot:											
<table border="1"> <thead> <tr> <th></th> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Category	Base Cause	Near Root Cause	Root Cause	1					
	Category	Base Cause	Near Root Cause	Root Cause							
1											
Corrective action plan / request: Other											

Followup
Follow-up by whom:
Date corrective action taken : Jul/11/2006

General Incident Information	
Date of report: Jul/11/2006	Date of incident: Jul/11/2006
Report completed by: CableShop Veritas-Viking2	Local time of incident: 06:00 AM
Incident identified by: Veritas	Document author: CableShop Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Other
Outcome: Low/Acceptable Risk	Recurrence potential: Low
Potential outcome: Low/Acceptable Risk	

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-SVVG6RKBWJ

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: SOPEP drum lose.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While on the bridge I noticed that an empty SOPEP drum had worked lose in the bad weather and was rolling around on top of the herli-locker, both drums have now been secured.	
Breakdown agency: Non-powered hand tools appliances & equipment None	
Witnessed by: Alan Lofts	

Recommendation and Actions			
Immediate causes: House Keeping			
Immediate actions to prevent recurrence :			
AIM categories:	Conditions & Housekeeping (work area)/Fire & emergency equipment		
AIM behaviors:			
TapRoot:			
Category	Base Cause	Near Root Cause	Root Cause
1			
Corrective action plan / request:			

Followup
Follow-up by whom:
Date corrective action taken : Jul/10/2006

General Incident Information	
Date of report: Jul/10/2006	Date of incident: Jul/10/2006
Report completed by: Sprint Veritas-Viking2	Local time of incident: 03:00 PM
Incident identified by: Veritas	Document author: Sprint Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Open deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	0 C to 14 C	Overcast	8 - Fresh gale	3.0 m to 3.9 m	SW	3.0 m to 3.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6RKAGB

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Sheets of metal unsecured by str reel #8	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): It was observed that the sheets of metal that are stowed underneath str reel 8, located between the mounting pillars of the reel and the gun deck bulkhead, were unsecured. There was a ratchet strap in place but it was undone which allowed slight movement of the stored items. The ratchet strap was repositioned and tightened. All items are now fully secure.	
Breakdown agency: Non-powered hand tools appliances & equipment None	
Witnessed by: Greg Campbell	

Recommendation and Actions				
Immediate causes: -				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Other				

Followup
Follow-up by whom: OS
Date corrective action taken : Jul/10/2006

General Incident Information	
Date of report: Jul/10/2006	Date of incident: Jul/10/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 02:30 PM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Gun deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6RKA9Z

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: 3590 drives sliding back and forth	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): The retaining screws belonging to the tray which secures both tape drives 0 and 1 were found to be loose and thereby allowing the 2 tape drives to slide back and forth. The 4 retaining screws were tightened back up and the other tape drive bays were checked to ensure that their were no other loose connectors.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Greg Campbell	

Recommendation and Actions											
Immediate causes: -											
Immediate actions to prevent recurrence : Tightened screws											
AIM categories:											
AIM behaviors:											
TapRoot:											
<table border="1"> <thead> <tr> <th></th> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Category	Base Cause	Near Root Cause	Root Cause	1					
	Category	Base Cause	Near Root Cause	Root Cause							
1											
Corrective action plan / request:											

Followup	
Follow-up by whom: Chief Obs, Tech	
Date corrective action taken : Jul/10/2006	

General Incident Information	
Date of report: Jul/10/2006	Date of incident: Jul/10/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 02:00 PM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Recording room
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6RK4TJ

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie De Laughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: During cross audit in the hospital, discovered bracket supporting basket stretcher almost coming off on one side	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Discovered bracket supporting basket stretcher almost coming off on one side due to recent rough weather	
Breakdown agency: Other & unspecified None	
Witnessed by: Rashid Anwar	

Recommendation and Actions				
Immediate causes: Rough weather				
Immediate actions to prevent recurrence : Medic requested Mech to install new bracket				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup	
Follow-up by whom: Levi Carteza (Mech)	
Date corrective action taken : Jul/17/2006	

General Incident Information	
Date of report: Jul/10/2006	Date of incident: Jul/10/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 08:45 AM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Other
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Clear	7 - Moderate gale	3.0 m to 3.9 m	SE	> 4.5 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-NVVG6RJ4KX

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Broken shelving in deep freezer rm 407	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Discovered during cross audit,	
Breakdown agency: Other & unspecified None	
Witnessed by: Howard Hewison and cooks	

Recommendation and Actions			
Immediate causes: Design limitation can't handle rough weather			
Immediate actions to prevent recurrence :			
AIM categories:		Tools & Equipment/Condition of tools & equipment	
AIM behaviors:			
TapRoot:			
	Category	Base Cause	Near Root Cause
1			
Corrective action plan / request: Equipment modifications			

Followup
Follow-up by whom: Captain and chef cook
Date corrective action taken : Jul/19/2006

General Incident Information	
Date of report: Jul/09/2006	Date of incident: Jul/09/2006
Report completed by: Nav Veritas-Viking2	Local time of incident: 09:30 AM
Incident identified by: Veritas	Document author: Nav Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Galley / mess
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Artificial	-1 C to -14 C	Inside	6 - Strong breeze	1.0 m to 1.9 m	NW	4.0 m to 4.5 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CMVV6RHU55

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: J. DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Loose pin	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While inspecting the Odin towpoints during streamer retrieval, it was noticed that the pivot eye pin on unit # 7 had backed out approx 10mm. The split pin that holds the pivot eye pin in place was also missing. If left in this condition the pin could have backed out all the way causing the towpoint to drop to the deck. Pivot eye pin and split pin have been reinstalled, and all other units checked; this IR is considered closed.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Comp mech	

Recommendation and Actions				
Immediate causes: Split pin must have popped out as pin rotated.				
Immediate actions to prevent recurrence : Stopped retrieval operation, dropped towpoint down, pushed pin in to it's proper depth and installed another split pin. Used a different type split pin.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken : Jul/07/2006

General Incident Information	
Date of report: Jul/09/2006	Date of incident: Jul/09/2006
Report completed by: CompMech Veritas-Viking2	Local time of incident: 01:00 AM
Incident identified by: Veritas	Document author: CompMech Veritas-Viking2
Activity at time of incident: Deployment / recovery Streamer None	Where observed: Streamer deck
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --

V2-IR-06-OVVG6RGSBS

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Aft streamer deck floodlight intermittent	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During the recent retrieval it was noted that the aft floodlight above spooling block 6 was intermittent.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Neil Collinge	

Recommendation and Actions			
Immediate causes: Faulty wiring or lamp			
Immediate actions to prevent recurrence : Inspect & repair when vessel is alongside in Fremantle			
AIM categories:		Tools & Equipment/Condition of tools & equipment	
AIM behaviors:			
TapRoot:			
	Category	Base Cause	Near Root Cause
1			
Corrective action plan / request: Equipment repairs/replacements			

Followup
Follow-up by whom: Electrician
Date corrective action taken : Jul/25/2006

General Incident Information	
Date of report: Jul/08/2006	Date of incident: Jul/08/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 12:15 AM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Deployment / recovery Streamer None	Where observed: Streamer deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CSVV6RGTSB

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Two step ladder use for plugging electric on gun reels defective.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): About to disconnect electric plugs on the gun reels, found the two steps ladder in bad condition and cannot be use.	
Breakdown agency: Non-powered hand tools appliances & equipment None	
Witnessed by: Levi Certeza	

Recommendation and Actions	
Immediate causes: Wear and tears	
Immediate actions to prevent recurrence : Placed the old ladder in the scrap bin and replaced it with a new one. This IR is considered closed.	
AIM categories:	Tools & Equipment/Condition of tools & equipment
AIM behaviors:	

TapRoot:

Category	Base Cause	Near Root Cause	Root Cause
1			

Corrective action plan / request:

Followup	
Follow-up by whom:	
Date corrective action taken :	

General Incident Information	
Date of report: Jul/08/2006 Report completed by: CableShop Veritas-Viking2 Incident identified by: Veritas	Date of incident: Jul/08/2006 Local time of incident: 08:30 AM Document author: CableShop Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Gun deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-NVVG6RG2CE

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie de Laughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Sea Grass brought on with Tailbuoys make gun deck slippery	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): As the tailbuoys came onboard a lot of sea grass came on with them. As I pushed the tailbuoys to the side I found the gun deck very slippery because of the sea grass.	
Breakdown agency: Environmental agencies None	
Witnessed by: Alan Tan	

Recommendation and Actions				
Immediate causes: Sea grass on deck				
Immediate actions to prevent recurrence : Throw sea grass back into sea				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: Jul/07/2006	Date of incident: Jul/07/2006
Report completed by: Nav Veritas-Viking2	Local time of incident: 08:16 AM
Incident identified by: Veritas	Document author: Nav Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Gun deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Submitted --**

V2-IR-06-NVVG6RG265

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie de Laughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Birds and SRD's blocking stairwell	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): As I was storing birds I noticed that a pile of birds and SRD's were blocking the stairwell. I removed these promptly, however there is a lack of secure storage space when all the gear is onboard, this means that in rough weather the devices that are left on the deck may move again towards the stairwell.	
Breakdown agency: Other & unspecified None	
Witnessed by: Howard Hewison	

Recommendation and Actions				
Immediate causes: Poor storage when all gear onboard				
Immediate actions to prevent recurrence : Look into methods of storage systems to improve situation				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom: OS, Chobs
Date corrective action taken : Jul/07/2006

General Incident Information	
Date of report: Jul/07/2006	Date of incident: Jul/07/2006
Report completed by: Nav Veritas-Viking2	Local time of incident: 08:06 AM
Incident identified by: Veritas	Document author: Nav Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Streamer deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: High

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-NVVG6RFW3H

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie de Laughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Tailbuoys not secured properly	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): After recovery of all in water equipment, we checked the area to make sure all equipment was secure. Found two tailbuoys poorly secured.	
Breakdown agency: Other & unspecified None	
Witnessed by: Vivian Tan, Alan Tan, Vera Quinlan	

Recommendation and Actions				
Immediate causes: Haste, Carelessness				
Immediate actions to prevent recurrence : Communicate to all importance of securing equipment for rough weather.				
AIM categories:		New Category/Behav		
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Other				

Followup
Follow-up by whom: n/a
Date corrective action taken : Jul/07/2006

General Incident Information	
Date of report: Jul/07/2006	Date of incident: Jul/07/2006
Report completed by: Nav Veritas-Viking2	Local time of incident: 08:00 AM
Incident identified by: Veritas	Document author: Nav Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Gun deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-NVVG6RFUQE

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie de Laughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Icy cold water comes gushing down from top deck onto Navigator below on Tailbuoy!	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): I was securing tailbuoys for rough weather. While on top of one of the tailbuoys some icy fishy smelling water was swept along the top deck making its way through the open grating and onto the tailbuoys on the port side. I was at this time on a tail buoy and had to rapidly move for fear of the icy smelly water soaking me.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Vera Quinlan	

Recommendation and Actions				
Immediate causes: Observers cleaning the streamer deck with water after retrieval				
Immediate actions to prevent recurrence : Wait until the top deck is cleaned before going under the grate				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: Jul/07/2006	Date of incident: Jul/07/2006
Report completed by: Nav Veritas-Viking2	Local time of incident: 08:46 AM
Incident identified by: Veritas	Document author: Nav Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Gun deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospheric	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OSVV6RFSU6

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Algae coming of streamer sections causing slip hazard.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While recovering streamers, algae/sea-water dripping from spooling blocks caused the decks to become slippery.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Seismic Crew	

Recommendation and Actions				
Immediate causes: Natural algae growth from long term sea exposure.				
Immediate actions to prevent recurrence : Placed some oil-spill recovery soak pads beneath each block to rectify problem.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: Jul/07/2006	Date of incident: Jul/06/2006
Report completed by: OS Veritas-Viking2	Local time of incident: 10:00 AM
Incident identified by: Veritas	Document author: OS Veritas-Viking2
Activity at time of incident: Deployment / recovery Streamer None	Where observed: Streamer deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Overcast	7 - Moderate gale	2.0 m to 2.9 m	W	2.0 m to 2.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OSVV6RF2J8

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Empty streamer section bobbin on top deck moving around.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): An observation from the bridge noted that one of the streamer section bobbins on the top deck was moving a little. On investigation, it was found that the bobbin had shifted slightly, causing the tie-downs to loosen up.	
Breakdown agency: Other & unspecified None	
Witnessed by: Robbie Lee, Andy Perkin, Cass Cassim	

Recommendation and Actions									
Immediate causes: Weather, movement of vessel									
Immediate actions to prevent recurrence : The bobbin was re-shifted back into place, new chocks were placed, and the tie-downs were tightened up.									
AIM categories:									
AIM behaviors:									
TapRoot:									
	<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1			
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request:									

Followup	
Follow-up by whom:	
Date corrective action taken :	

General Incident Information	
Date of report: Jul/06/2006	Date of incident: Jul/06/2006
Report completed by: OS Veritas-Viking2	Local time of incident: 08:00 AM
Incident identified by: Veritas	Document author: OS Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Open deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospheric	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Overcast	5 - Fresh breeze	1.0 m to 1.9 m	SW	2.0 m to 2.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-TVVG6RRQ7E

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Whilst packing away the hydraulic arm in the workboat, it was noticed that the quick-release handle was jammed.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Whilst out in the Starboard Workboat doing some cable work, it was noticed that the quick release on the hydraulic arm was jammed. Upon completion of the work the hydraulic arm was packed away, whilst removing the cable tray and folding down the horizontal arm, the release handle was jammed in the locked position, it took a pair of pliers and a screw driver to free it. This handle is used as the quick release incase the streamer needs to be released in an emergency.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Pete Hawkins	

Recommendation and Actions									
Immediate causes: Locating pin was slightly bent and forced into position at the start of the job									
Immediate actions to prevent recurrence : Quick release pin and handle were examined by the mechanics and myself. The problem was found and the relevant personnel were informed. If the pin is inserted correctly when setting up then it releases fine.									
AIM categories:	Tools & Equipment/Condition of tools & equipment								
AIM behaviors:									
TapRoot:									
	<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1			
Category	Base Cause	Near Root Cause	Root Cause						
1									

Corrective action plan / request:
--

Followup	
Follow-up by whom: Galen Hieb, Bret Higgins	
Date corrective action taken : Jul/07/2006	

General Incident Information	
Date of report: Jul/17/2006	Date of incident: Jul/05/2006
Report completed by: Tango Veritas-Viking2	Local time of incident: 09:15 AM
Incident identified by: Veritas	Document author: Tango Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Utility craft
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	0 C to 14 C	Clear	2 - Light breeze	0.1 m to 0.9 m	SE	0.1 m to 0.9 m

Action Points and Comments :

[Add/Email Comments](#)



Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --

V2-IR-06-OVVG6RBETN

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Light in tape store flickering	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Noticed light flickering, informed electrician who replaced tube and starter. IR closed	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Anthony Doyle	

Recommendation and Actions				
Immediate causes: Normal wear and tear				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom: Electrician
Date corrective action taken : Jul/02/2006

General Incident Information	
Date of report: Jul/02/2006	Date of incident: Jul/02/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 06:15 PM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Storage area
Potential outcome: Low/Acceptable Risk	Recurrence potential: Medium

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CVVG6RB94S

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie De Laughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Trip hazard	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Door mat in entrance foyer folded over at one corner creating a trip hazard.	
Breakdown agency: Other & unspecified None	
Witnessed by: M.Haarmans.	

Recommendation and Actions									
Immediate causes: Unknown									
Immediate actions to prevent recurrence : Rolled out mat and smoothed down.									
AIM categories:	Conditions & Housekeeping (work area)/Work areas free of slip & trip hazards								
AIM behaviors:									
TapRoot:									
	<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1			
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request: Area clean-up									

Followup	
Follow-up by whom: M.Haarmans.	
Date corrective action taken : Jul/01/2006	

General Incident Information	
Date of report: Jul/02/2006	Date of incident: Jul/02/2006
Report completed by: Chmech Veritas-Viking2	Local time of incident: 11:00 AM
Incident identified by: Veritas	Document author: Chmech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Quarters
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Not Work Related
Veritas Viking2
-- Closed --**

V2-IR-06-OSVV6RCCEH

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Crew-Member Suffering from Swollen Elbow	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Patient complained of swelling at the elbow, with some pain and restricted movement. Patient said that there had been no injury and no task that would have brought on the pain. Patient does have some history of arthritic complaints.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Medic Constante Mendoza	

Recommendation and Actions				
Immediate causes: Possible gout / mild arthritis.				
Immediate actions to prevent recurrence : Non-prescription Ibruprofen 1-2 tablets (200 mg / tablet) three times per day given, plus Voltaren gel to help reduce pain and swelling. Patient's own medicine for arthritis (Colchicine 500mcg 3/day) taken as needed. Patient advised to see their physician when they get off the vessel for their next break.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom: Patient and medic.
Date corrective action taken :

General Incident Information	
Date of report: Jul/03/2006	Date of incident: Jul/01/2006
Report completed by: OS Veritas-Viking2	Local time of incident: 12:00 PM
Incident identified by: Veritas	Document author: OS Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Recording room
Outcome: Illness	Recurrence potential: Low
Potential outcome: Illness	

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Artificial	15 C to 29 C	Inside	3 - Gentle breeze	0.1 m to 0.9 m	W	0.1 m to 0.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6R9FVU

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Disposable ear protection station in cable store empty	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): The disposable ear plug station in cable store was found to have been empty of ear plugs. Restocked the ear plug station and reminded those who use this area to replenish supplies when or before they run out. IR can be considered closed!!	
Breakdown agency: Non-powered hand tools appliances & equipment None	
Witnessed by: Greg Campbell	

Recommendation and Actions				
Immediate causes: No consideration for others who may require hearing protection.				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Other				

Followup
Follow-up by whom: N/A
Date corrective action taken : Jun/29/2006

General Incident Information	
Date of report: Jun/30/2006	Date of incident: Jun/30/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 07:00 PM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Workshop
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6R8PJW

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Floor board in recording room not aligned	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Noticed floor board near Obs station misaligned and unstable when stepped on.	
Breakdown agency: Other & unspecified None	
Witnessed by: Larry Tan	

Recommendation and Actions									
Immediate causes: Floor board not aligned properly on steel frames beneath.									
Immediate actions to prevent recurrence : Re-aligned floor board on to steel frames to stabilize it. IR can be considered closed.									
AIM categories:	Work Conditions/Housekeeping/Work areas free of slip & trip hazards								
AIM behaviors:									
TapRoot:									
	<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1			
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request:									

Followup	
Follow-up by whom: Larry Tan	
Date corrective action taken : Jun/30/2006	

General Incident Information	
Date of report: Jun/30/2006	Date of incident: Jun/30/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 02:22 AM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Recording room
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dark	15 C to 29 C	Clear	1 - Light air	0.1 m to 0.9 m	N	1.0 m to 1.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6R4FZ7

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Portside fire hose near crane was laid out to the deck this can cause tripping hazards.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During routine check on the top deck, saw a fire hose laid out near portside crane deck. This can cause tripping hazards.	
Breakdown agency: Powered tools appliances & equipment None	
Witnessed by: Richard Francisco	

Recommendation and Actions									
Immediate causes: Immediately took the fire hose and coiled it beside the fire hydrant.									
Immediate actions to prevent recurrence :									
AIM categories:	Conditions & Housekeeping (work area)/Work areas free of slip & trip hazards								
AIM behaviors:									
TapRoot:									
	<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1			
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request: Other									

Followup	
Follow-up by whom: Chief Mate	
Date corrective action taken : Jun/30/2006	

General Incident Information	
Date of report: Jun/25/2006	Date of incident: Jun/25/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 08:15 PM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Open deck cranes
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dark	15 C to 29 C	Clear	4 - Moderate breeze	1.0 m to 1.9 m	E	1.0 m to 1.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CVVG6RAKRQ

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie De Laughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Cigarette butt in paper towel bin	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): I went into the port toilet near the recording room and saw a cigarette butt in the paper towel bin. I could smell cigarette smoke and on looking up to the vent it was noted that it is yellowing with nicotine. The smoking room is only approximately 5 meters further along the corridor.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: M. Malofeev	

Recommendation and Actions				
Immediate causes: Smoking in the toilet				
Immediate actions to prevent recurrence: Remind crew where smoking area is.				
AIM categories: New Category/Behav				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Review at safety meeting				

Followup
Follow-up by whom: Os, Pm
Date corrective action taken:

General Incident Information	
Date of report: Jul/02/2006	Date of incident: Jun/24/2006
Report completed by: Chnav Veritas-Viking2	Local time of incident: 03:00 PM
Incident identified by: Veritas	Document author: Chnav Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Recreation area
Potential outcome: Moderate Risk	Recurrence potential: Medium

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6QZKXA

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Reel 7 move by it self	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During run-out of line of seq 133, I open the valve of reel 7 to move it out, but it move by it self. Then I immediately went to the valve and close it again and it stop.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Richard Francisco	

Recommendation and Actions									
Immediate causes: Investigate.									
Immediate actions to prevent recurrence :									
AIM categories:	Tools & Equipment/Condition of tools & equipment								
AIM behaviors:									
TapRoot:									
	<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1			
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request: Other									

Followup	
Follow-up by whom: Chief Mech	
Date corrective action taken : Jun/30/2006	

General Incident Information	
Date of report: Jun/22/2006	Date of incident: Jun/22/2006
Report completed by: Richard Francisco	Local time of incident: 09:30 PM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Streamer deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Medium

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dark	15 C to 29 C	Inside	4 - Moderate breeze	2.0 m to 2.9 m	W	2.0 m to 2.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6QYUV3

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: During routine safety inspection, discovered oil residue (Approx 100ml) on crane deck port side	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During routine safety inspection, discovered oil residue (Approx 100ml) on crane deck port side presumably from garbage bags during transfer of rubbish. Cleaned up with oil spill pads and IR considered close	
Breakdown agency: Materials & substances None	
Witnessed by: Rashid Anwar	

Recommendation and Actions				
Immediate causes: During routine safety inspection, discovered oil residue (Approx 100ml) on crane deck port side				
Immediate actions to prevent recurrence: Wipe the oil residue with oil spill pads and IR considered close				
AIM categories:		Conditions & Housekeeping (work area)/Work areas free of slip & trip hazards		
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken:

General Incident Information	
Date of report: Jun/22/2006	Date of incident: Jun/22/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 06:45 AM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Open deck cranes
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dawn	15 C to 29 C	Clear	5 - Fresh breeze	1.0 m to 1.9 m	NE	2.0 m to 2.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CVVG6QV6MK

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: FRC starter inoperable/emergency starter very slow and engine or linkage squeaking when bucket adjusted under low/medium RPM.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During today's MOB drill it was noticed that the FRC took too long to start, even for a cold engine. The regular ignition would not work at all, with no response and the engine would not turn over. The emergency starter was used but this only worked after a few tries (approx 30 seconds). There seems to be an electrical problem somewhere. Squeaking noise like a slipping fan belt was heard when the bucket was adjusted at medium/low RPM. Apart from that the boat ran really well.	
Breakdown agency: Transport Water transport	
Witnessed by: L Hayden/P Cooper	

Recommendation and Actions									
Immediate causes: Possible short on ignition panel, loose linkage									
Immediate actions to prevent recurrence: Would like an electrician/engineer to look at and possibly come out in the FRC at some stage and see if there is a problem.									
AIM categories:									
AIM behaviors:									
TapRoot:									
	<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1			
Category	Base Cause	Near Root Cause	Root Cause						
1									

Corrective action plan / request: Review at safety meeting

Followup	
Follow-up by whom: OS/PM/Captain	
Date corrective action taken: Jul/25/2006	

General Incident Information	
Date of report: Jun/18/2006	Date of incident: Jun/18/2006
Report completed by: Chobs Veritas-Viking2	Local time of incident: 12:56 PM
Incident identified by: Veritas	Document author: Chobs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Utility craft
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CVVG6QV2QD

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Stbd workboat painter line brought inboard and put underneath light fitting.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Doing coxswains pre-launch checks I noticed the bowline painter was inboard. The painter had been brought inboard on the 03 accommodation deck and put underneath a floodlight fitting for some reason. If the workboat had been launched like this the painter line may have been damaged and parted, the light fitting been ripped out, or worst case, the boat flipped over. The davit operator was informed and he immediately freed the painter line. IR can be closed.	
Breakdown agency: Transport Water transport	
Witnessed by: Les Hayden/Lenny Tankard	

Recommendation and Actions	
Immediate causes: Lazyness/Forgetfulness/Failure to inform other crew of actions.	
Immediate actions to prevent recurrence : Freed the painter/This report	
AIM categories:	Conditions & Housekeeping (work area)/Communications
AIM behaviors:	

TapRoot:

Category	Base Cause	Near Root Cause	Root Cause
1			

Corrective action plan / request:

Followup
Follow-up by whom: None
Date corrective action taken :

General Incident Information	
Date of report: Jun/18/2006	Date of incident: Jun/18/2006
Report completed by: Chobs Veritas-Viking2	Local time of incident: 08:20 AM
Incident identified by: Veritas	Document author: Chobs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Utility craft
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Overcast	2 - Light breeze	1.0 m to 1.9 m	SW	1.0 m to 1.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-VVIG6QU2Q6

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Strong "fishy" odor in the cable shop	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While doing weekly inspection of the first-aid kits and eye wash stations, strong "fishy" odor smelled upon entering the cable shop. The odor is also smelled in the hydraulic room.	
Breakdown agency: Materials & substances None	
Witnessed by: R. Papio, L. Tan, Medic	

Recommendation and Actions				
Immediate causes: Cause is unknown whether coming from chemical or from something.				
Immediate actions to prevent recurrence : Inform the cable tech to investigate further. Made this IR for the information of person concern. Advised the cable tech to take fresh air once in a while and not to stay in the cable shop for longer period.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom: Cable tech, Chief Obs. OS
Date corrective action taken :

General Incident Information	
Date of report: Jun/17/2006	Date of incident: Jun/17/2006
Report completed by: Medic Onboard Veritas-Viking2	Local time of incident: 09:30 AM
Incident identified by: Contractor	Document author: Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Other
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CVVG6QUATX

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Small hydraulic leak.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): A small hydraulic leak of approximately 1 litre of oil (all contained on the vessel) was coming from a loose fitting on Streamer Reel# 1. Fitting was tightened up, all other fittings were checked and area was cleaned up. IR considered closed.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Mechanics	

Recommendation and Actions				
Immediate causes: Loose fitting.				
Immediate actions to prevent recurrence : All fittings on Streamer Reel have been checked and tightened if needed.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom: Mechanics
Date corrective action taken : Jun/16/2006

General Incident Information	
Date of report: Jun/17/2006	Date of incident: Jun/17/2006
Report completed by: Chmech Veritas-Viking2	Local time of incident: 02:45 PM
Incident identified by: Veritas	Document author: Chmech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Streamer deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



Marine Acquisition Division
Incident Report - Equipment Loss/Damage
Veritas Viking2
-- Closed --

V2-IR-06-OVVG6QR3YS

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: S4C18 Lost at sea	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While untangling Port outer gunstring from Str. 4, compass 18 got ripped off the streamer and lost at sea.	
Breakdown agency: Other & unspecified None	
Witnessed by: Neil Shelley, Mike Wells, Steve Dyer, Lenny Tankard	

Recommendation and Actions				
Immediate causes: Port outer gunstring tangled in streamer				
Immediate actions to prevent recurrence: If possible, try to keep guns in front of streamer or try and get the birds deeper.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Equipment repairs/replacements				

Followup
Follow-up by whom: Neil Shelley
Date corrective action taken: Jun/14/2006

General Incident Information	
Date of report: Jun/14/2006	Date of incident: Jun/14/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 04:30 AM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Deployment / recovery Streamer None	Where observed: Streamer deck
Outcome: Minor	Recurrence potential: Low
Potential outcome: Minor	

Environmental Conditions				Environment Sea State		
<u>Light Conditions</u>	<u>Temperature (C)</u>	<u>Precipitation / Atmospherics</u>	<u>Air Movement (Beaufort Scale)</u>	<u>Wave Height (m)</u>	<u>Swell Direction</u>	<u>Swell Height (m)</u>
Dark	0 C to 14 C	Overcast	6 - Strong breeze	1.0 m to 1.9 m	W	2.0 m to 2.9 m

Equipment Loss / Damage	
Equipment is: <input checked="" type="radio"/> Lost <input type="radio"/> Damaged	
Asset/Unit Number: 26658	Pool Number:
Object/Equipment Involved: 5011 compass bird	Estimated Cost of Loss /Damage: \$8000.00
Nature of Damage: Lost at Sea	Substance Involved:
Person(s) Involved: Neil Shelley, Steve Dyer, Lenny Tankard, Mike Wells	

Loss Occurred At:

Longitude:	147° 56' 58"E	Latitude:	38° 30' 21"S	Water Depth:	60m
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Action Points and Comments :

[Add/Email Comments](#)



Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --

V2-IR-06-CMVV6QRDF5

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Tripping hazard near crane deck hatchway	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams):	
Mooring rope lying on deck near hatchway/doorway leading from rigging store deck to crane deck. This is a tripping hazard for anyone walking from below deck to the crane deck. Moved mooring rope further aft of the hatchway to insure it is easily seen by people using this hatchway.	
Breakdown agency: Other & unspecified None	
Witnessed by: G. Hieb	

Recommendation and Actions	
Immediate causes: unaware of hazard	
Immediate actions to prevent recurrence : Informed bridge crew of hazard and moved the rope. Hazard has been removed, ir considered closed.	
AIM categories:	Conditions & Housekeeping (work area)/Work areas free of slip & trip hazards
AIM behaviors:	

TapRoot:

Category	Base Cause	Near Root Cause	Root Cause
1			

Corrective action plan / request:

Followup	
Follow-up by whom:	
Date corrective action taken :	

General Incident Information	
Date of report: Jun/14/2006	Date of incident: Jun/14/2006
Report completed by: CompMech Veritas-Viking2	Local time of incident: 07:44 PM
Incident identified by: Veritas	Document author: CompMech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Open deck
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dark	30 C to 45 C	Clear	1 - Light air			

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Injury
Veritas Viking2
-- Closed --**

V2-IR-06-VVIG6QR9AH

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Pinched left middle finger	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams):	
Patient stated that whilst trying to remove a sheet of steel grating from a rack of sheet steel, the stack moved after heavy ship roll and pinched the tip of the middle finger of the mate as he was trying to handle the grating.	
Time of Incident : 1045 hours(local) Place of Incident : Embarkation area portside Date of Incident : 14 June 2006 Time Examined : 1050 hours(local)	
Injury Sustained:	
Small cut at left middle finger just above the nailbed (+) Slight swelling and bruising Good range of motion of the affected finger	
 SAFIR 24-06.doc	
Breakdown agency: Other & unspecified None	Breakdown mechanism: Being hit by moving objects
Witnessed by: G. Honiss, D. Tambi, Medic	

Recommendation and Actions											
Immediate causes: Please see SAFIR											
Immediate actions to prevent recurrence :											
AIM categories:	Body Position/Ergonomics/Clear of pinch points										
AIM behaviors:											
TapRoot:											
<table border="1"> <thead> <tr> <th></th> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Category	Base Cause	Near Root Cause	Root Cause	1					
	Category	Base Cause	Near Root Cause	Root Cause							
1											
Corrective action plan / request:											

Followup	
Follow-up by whom: Medic	
Date corrective action taken :	

General Incident Information	
Date of report: Jun/14/2006	Date of incident: Jun/14/2006
Report completed by: Medic Onboard Veritas-Viking2	Local time of incident: 10:45 AM
Incident identified by: Contractor	Document author: Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Gun deck
Outcome: First Aid	Recurrence potential: Low
Potential outcome: First Aid	

Environmental Conditions					
Light	Temperature (C)	Precipitation /	Air Movement	Environment Sea State	
				Wave	Swell
					Swell

<u>Conditions</u>		<u>Atmospherics</u>	<u>(Beaufort Scale)</u>	<u>Height (m)</u>	<u>Direction</u>	<u>Height (m)</u>
Daylight	15 C to 29 C	Clear	3 - Gentle breeze	1.0 m to 1.9 m	SW	1.0 m to 1.9 m

Casualty & Injury Details

Employed by: Contractor	Company Name: OMS
Job Position: Officer Experience in Position: More Than 5 Years Time on Tour (days): 17 Hours on Shift: 6	Name of Treating Facility: Ship's hospital Address: City: State / Province: Contact Number: Name of Attending Physician: Address: City: State / Province: Contact Numbers:
Nature of Injury: Contusion with intact skin surface and crushing injury	Part of Body Injured: Upper Limbs (Upper limb unspecified / None)
Treatment Administered: Treatment Done:	
<ul style="list-style-type: none"> Ø Ice compress applied to affected finger Ø Cleaning and dressing of wound with Band aid strip Ø Ibuprofen 200mg tab 2 tabs 2x a day if needed for pain and inflammation Ø Advised to come back at the hospital for follow-up. 	

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-VVIG6QQ88L

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Untidy Gym	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During the Health and Hygiene inspection, it was found out that the gym is very untidy. Weights are scattered on the floor, benches stinking, and the garbage bin is overflowing. Signs were already in place to keep the place tidy and to put the weights on their proper storage.	
Breakdown agency: Other & unspecified None	
Witnessed by: medic, chief steward	

Recommendation and Actions				
Immediate causes: User doesnt care enough to tidy the gym after use.				
Immediate actions to prevent recurrence : Remind the crew on the next safety meeting.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup	
Follow-up by whom: Captain, PM	
Date corrective action taken : Jul/10/2006	

General Incident Information	
Date of report: Jun/13/2006	Date of incident: Jun/13/2006
Report completed by: Medic Onboard Veritas-Viking2	Local time of incident: 10:15 AM
Incident identified by: Contractor	Document author: Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Other
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-VVIG6QQ79J

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: The internal door of the hospital is not wide enough to traverse a stretcher with a patient on it	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During a drill (extrication of casualty from a confined space), it was found out that the internal door of the hospital is not wide enough to traverse a stretcher with a patient on it.	
Breakdown agency: Other & unspecified None	
Witnessed by: I/R's , mates, Australian captain, medic	

Recommendation and Actions				
Immediate causes: Ship's design				
Immediate actions to prevent recurrence : Request to widen the internal door was made and subject for investigation.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup	
Follow-up by whom: Captain, PM	
Date corrective action taken : Jul/25/2006	

General Incident Information	
Date of report: Jun/13/2006	Date of incident: Jun/13/2006
Report completed by: Medic Onboard Veritas-Viking2	Local time of incident: 12:45 PM
Incident identified by: Contractor	Document author: Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Other
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-TVVG6QQ9RA

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Plotter lid open and unattended, falling heavily.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During plotter roll change out, the plotter head was raised, old roll removed, and plotter left unattended with lid left in the open (raised), position. The lid fell heavily due to vessel motion. This could have damaged the equipment or more seriously, inflicted injury if hands were in the way. The support rams on this particular plotter no longer have the capacity to hold the lid open in anything but calm seas. Technician will replace rams with onboard spares.	
Breakdown agency: Powered tools appliances & equipment None	
Witnessed by: P Jones	

Recommendation and Actions				
Immediate causes: failure to appreciate weight of lid, and it's inherent instability.				
Immediate actions to prevent recurrence : advised individual of need to support lid or leave in down position when unattended.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: Jun/13/2006	Date of incident: Jun/13/2006
Report completed by: Tango Veritas-Viking2	Local time of incident: 02:15 PM
Incident identified by: Veritas	Document author: Tango Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Recording room
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6QPEUM

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Slip hazard, oil on deck	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Observed small amount of hydraulic oil on streamer deck just aft of reel 8. Cleaned up oil using absorbent mats. Oil was leaking from a connection in the hyd pipe supplying port vane winch.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Observers	

Recommendation and Actions				
Immediate causes: Slow oil leak from connection in pipe supplying hyd oil to port vane winch				
Immediate actions to prevent recurrence: After cleaning up oil and leaving absorbent mat in place to catch further drips, discussed problem with Ch Mech. Maintenance cannot be carried out until port vane has been retrieved onboard. Problem will continue to be monitored until repairs take place.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Equipment repairs/replacements				

Followup
Follow-up by whom: Ch Mech
Date corrective action taken: Jul/14/2006

General Incident Information	
Date of report: Jun/12/2006 Report completed by: Obs Veritas-Viking2 Incident identified by: Veritas	Date of incident: Jun/12/2006 Local time of incident: 05:00 PM Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Streamer deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dusk	0 C to 14 C	Overcast	6 - Strong breeze	0.1 m to 0.9 m	SE	2.0 m to 2.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6QPCY9

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Spot lights not working aft of streamer deck	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During routine inspection of streamer deck discovered that 3 spot lights on the stern overlooking the streamers, were not working. Lights affected were in line with reels # 1, 4 and 6.	
Breakdown agency: Powered tools appliances & equipment None	
Witnessed by: Observers	

Recommendation and Actions				
Immediate causes: Unknown at this stage. More than likely blown light bulb				
Immediate actions to prevent recurrence: Report to ship electrician electrician				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Equipment repairs/replacements				

Followup	
Follow-up by whom: Ships electrician	
Date corrective action taken: Jul/17/2006	

General Incident Information	
Date of report: Jun/12/2006	Date of incident: Jun/12/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 05:00 PM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Streamer deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dusk	0 C to 14 C	Overcast	6 - Strong breeze	0.1 m to 0.9 m		2.0 m to 2.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6QNR8Y

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Splinter in hand	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While sweeping instrument room floor observer got a splinter in his hand. Upon further investigation of the handle it was noticed that a section of the handle was damaged. The damaged handle was replaced with a spare one and the old one placed in the appropriate skip on top deck. IR can be considered closed.	
Breakdown agency: Other & unspecified None	
Witnessed by: Neil Shelley, Larry Tan	

Recommendation and Actions											
Immediate causes: Damaged broom handle											
Immediate actions to prevent recurrence : Replace damaged broom handle											
AIM categories:	Tools & Equipment/Condition of tools & equipment										
AIM behaviors:											
TapRoot:											
<table border="1"> <thead> <tr> <th></th> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Category	Base Cause	Near Root Cause	Root Cause	1					
	Category	Base Cause	Near Root Cause	Root Cause							
1											
Corrective action plan / request: Equipment repairs/replacements											

Followup	
Follow-up by whom: Neil Shelley	
Date corrective action taken : Jun/12/2006	

General Incident Information	
Date of report: Jun/12/2006	Date of incident: Jun/12/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 02:30 AM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Recording room
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospheric	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Artificial	15 C to 29 C	Inside	4 - Moderate breeze	2.0 m to 2.9 m	NW	3.0 m to 3.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-MVVG6QP65Q

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Spot light not working	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Performing gun deck safety audit, upon testing it was found that the aft spot light was not working	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: L. Tankard	

Recommendation and Actions				
Immediate causes: Unknown at present, most likely blown bulb as light was working late last week				
Immediate actions to prevent recurrence : Report to ships electrician				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Equipment repairs/replacements				

Followup
Follow-up by whom: Ships electrician
Date corrective action taken : Jun/12/2006

General Incident Information	
Date of report: Jun/12/2006	Date of incident: Jun/12/2006
Report completed by: Mech Veritas-Viking2	Local time of incident: 10:30 AM
Incident identified by: Veritas	Document author: Mech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Gun deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-MVVG6QP5RQ

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Talk boxes faulty	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Performing gun deck safety audit, all three talk boxes could not be heard clearly in the instrument room, the volume so low speech was inaudible, although button clicking was both loud and clear	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: L. Tankard	

Recommendation and Actions				
Immediate causes: Unknown at present				
Immediate actions to prevent recurrence: Report fault to technician				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Equipment repairs/replacements				

Followup
Follow-up by whom: Technician
Date corrective action taken: Jun/12/2006

General Incident Information	
Date of report: Jun/12/2006	Date of incident: Jun/12/2006
Report completed by: Mech Veritas-Viking2	Local time of incident: 10:30 AM
Incident identified by: Veritas	Document author: Mech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Gun deck
Potential outcome: Moderate Risk	Recurrence potential: Medium

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CSVV6QP5A8

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Spider reels with 150m section not secured properly	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Spider reels with 150m section were noticed not secured properly in the cable store causing them to move. Reels were secured. IR considered closed.	
Breakdown agency: Other & unspecified None	
Witnessed by: Rommel Papio	

Recommendation and Actions				
Immediate causes: Boat movements. Reel not secured properly when last moved.				
Immediate actions to prevent recurrence: Secured spider reels. Use more wooden chok.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken:

General Incident Information	
Date of report: Jun/12/2006	Date of incident: Jun/12/2006
Report completed by: CableShop Veritas-Viking2	Local time of incident: 12:46 PM
Incident identified by: Veritas	Document author: CableShop Veritas-Viking2
Activity at time of incident: Repair Onboard Streamer	Where observed: Storage area
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Not Work Related
Veritas Viking2
-- Closed --**

V2-IR-06-VVIG6QR25L

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: toothache	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Patient was first seen 11 June with the above complaint. No swelling on the surrounding of the affected tooth noticed. Patient was given Ibuprofen 400mg BID for pain; Clove oil to apply with cotton applicator as needed; advised warm saline gargle. Follow-up is being done to the patient daily. This morning (14 June), the patient was seen with the same complaint. On examination, slight swelling is noted on the surrounding gums of the affected tooth; tenderness especially when pressed and pain radiating on the left lower jaw.	
Breakdown agency: Other & unspecified None	
Witnessed by: Medic	

Recommendation and Actions				
Immediate causes: unknown				
Immediate actions to prevent recurrence : Pain and anti-inflammatory tabs given with instructions.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Other				

Followup	
Follow-up by whom: Medic	
Date corrective action taken :	

General Incident Information	
Date of report: Jun/14/2006	Date of incident: Jun/11/2006
Report completed by: Medic Onboard Veritas-Viking2	Local time of incident: 07:15 PM
Incident identified by: Contractor	Document author: Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Quarters
Outcome: Illness	Recurrence potential: Low
Potential outcome: Illness	

Environmental Conditions						
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Environment Sea State		
				Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CVVG6QM4ND

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Beacon battery not secured well in workboat bow.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): The battery for the workboat beacon was not secured well and moving around during the mission , it could have swung and hit somebody in the leg.	
Breakdown agency: Transport Water transport	
Witnessed by: L Hayden/M Wells	

Recommendation and Actions	
Immediate causes: Haste/inadequete lashing	
Immediate actions to prevent recurrence : Upon return we lashed down the battery properly to the workboat rail and also did a general tidy up in the bow area whilst we where about it.	
AIM categories:	Tools & Equipment/Selection & use of tools & equipment
AIM behaviors:	

TapRoot:

Category	Base Cause	Near Root Cause	Root Cause
1			

Corrective action plan / request:

Followup
Follow-up by whom: None
Date corrective action taken : Jun/10/2006

General Incident Information	
Date of report: Jun/10/2006	Date of incident: Jun/10/2006
Report completed by: Chobs Veritas-Viking2	Local time of incident: 09:14 AM
Incident identified by: Veritas	Document author: Chobs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Utility craft
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Overcast	3 - Gentle breeze	1.0 m to 1.9 m	SW	1.0 m to 1.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-TVVG6QKR94

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Excess lint in dryer filter	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Before using dryer, checked filter. It was found to be thick with lint - clearly not having been cleaned off for several drying cycles.	
Breakdown agency: Powered tools appliances & equipment None	
Witnessed by: P Jones	

Recommendation and Actions				
Immediate causes: Failure to appreciate fire hazard due to build up of lint in dryer filters. Laziness / rushing, by crew members when using dryers.				
Immediate actions to prevent recurrence: Cleaned filter. Raise point at next crew safety meeting.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom: PM / OS
Date corrective action taken:

General Incident Information	
Date of report: Jun/09/2006	Date of incident: Jun/09/2006
Report completed by: Tango Veritas-Viking2	Local time of incident: 03:45 AM
Incident identified by: Veritas	Document author: Tango Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Quarters
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CVVG6QJW25

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Painter lines on port and stbd embarkation liferings in disarray.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Found painter lines on liferings at both embarkation doors in disarray, would tangle if used. Stbd embarkation door painter was also a trip hazard. There is apparently ongoing chipping taking place at the stbd door but there is no need to leave a piece of emergency equipment in this state.	
   <p>Stbd before.jpg Port before.jpg After.jpg</p>	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: L Hayden	

Recommendation and Actions	
Immediate causes: Lack of housekeeping/respect for emergency equipment.	
Immediate actions to prevent recurrence : Coiled and stowed painter lines properly so they are out the way and will not tangle if used.	
AIM categories:	Conditions & Housekeeping (work area)/Fire & emergency equipment
AIM behaviors:	

TapRoot:

	Category	Base Cause	Near Root Cause	Root Cause
1				

Corrective action plan / request:

Followup	
Follow-up by whom:	
Date corrective action taken :	

General Incident Information	
Date of report: Jun/08/2006	Date of incident: Jun/08/2006
Report completed by: Chobs Veritas-Viking2	Local time of incident: 09:38 AM
Incident identified by: Veritas	Document author: Chobs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Gun deck
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CVVG6QEGTH

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Bench grinder wheel was damaged	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Whilst walking past the bench grinder it was noticed that the grinding wheel had been chipped by something causing damage to the wheel.	
Breakdown agency: Powered tools appliances & equipment None	
Witnessed by: Steve Dyer	

Recommendation and Actions				
Immediate causes: Haste, lack of attention				
Immediate actions to prevent recurrence : Bench grinding disk was replaced, more care and attention is needed when carrying equipment around the vessel. IR considered closed.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: Jun/03/2006 Report completed by: Chmech Veritas-Viking2 Incident identified by: Veritas	Date of incident: Jun/03/2006 Local time of incident: 04:00 PM Document author: Chmech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Gun deck
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CMVV6QEGDN

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Port seawater suction valve partially closed on Strb. workboat.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While doing daily checks on the strb. workboat, it was noticed the port side seawater suction valve had been partial closed. Opened the valve and informed relevant people, care must be taken while working in the engine room to prevent accidentally closing this valve. This ir can be considered closed.	
Breakdown agency: Transport Water transport	
Witnessed by: G. Hieb	

Recommendation and Actions				
Immediate causes: Accidentally closing				
Immediate actions to prevent recurrence : Opened valve and informed relevant people.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup	
Follow-up by whom:	
Date corrective action taken :	

General Incident Information	
Date of report: Jun/03/2006	Date of incident: Jun/03/2006
Report completed by: CompMech Veritas-Viking2	Local time of incident: 10:15 PM
Incident identified by: Veritas	Document author: CompMech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Utility craft
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospheric	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dark	15 C to 29 C	Clear	4 - Moderate breeze			

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Near Miss
Veritas Viking2
-- Closed --**

V2-IR-06-PMVV6QF72P

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Vessel blackout.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams):	
During routine TM Master planned maintenance, the battery charger to battery DC3 was turned off for electrical testing, resulting in loss of supply power and subsequent blackout for 12 minutes.	
Vessel propulsion unaffected, however, no indication on bridge that the port ME was serviceable. Azimuth thruster locked down and engaged as a precaution. Chase/ support vessel 'Swissco 168' in position to take-up tow.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Chief engineer	

Recommendation and Actions				
Immediate causes: Loss of power to switchboard electronics, tripping breakers.				
Immediate actions to prevent recurrence : Notices have been placed advising personnel not to switch off battery chargers.				
Near miss type: <input type="radio"/> Safety of people <input type="radio"/> Environmental <input checked="" type="radio"/> Involved assets				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1	Equipment difficulty	Design	Design specifications	Specifications need improvement
2	Equipment difficulty	Design	Design specifications	Problem not anticipated
3				
Corrective action plan / request: Equipment modifications				

Followup	
Follow-up by whom: Chief engineer	
Date corrective action taken :	

General Incident Information	
Date of report: Jun/04/2006	Date of incident: Jun/03/2006
Report completed by: PM Veritas-Viking2	Local time of incident: 07:11 AM
Incident identified by: Veritas	Document author: PM Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Engine room
Outcome: Substantial Risk	Recurrence potential: Low
Potential outcome: Substantial Risk	

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-GSVV6QB3NS

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Safety Chains unsecured	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Whilst observing the return of a workboat mission, it was noticed that the safety chains at the top of the enclosed ladder from 500 deck down to 400 deck had been left unsecured.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Dave Danyluk	

Recommendation and Actions									
Immediate causes: haste/forgetfulness									
Immediate actions to prevent recurrence : The chains were immediately secured and a reminder to personnel issued.									
AIM categories:	Conditions & Housekeeping (work area)/Signs & barricading								
AIM behaviors:									
TapRoot:									
<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1				
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request:									

Followup	
Follow-up by whom: onboard management	
Date corrective action taken : May/31/2006	

General Incident Information	
Date of report: May/31/2006	Date of incident: May/31/2006
Report completed by: GS Veritas-Viking2	Local time of incident: 10:00 AM
Incident identified by: Client	Document author: GS Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Open deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	0 C to 14 C	Overcast	2 - Light breeze	0.1 m to 0.9 m	SW	0.1 m to 0.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-PMVV6QB3EY

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Aerosol can in refuse.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During a burn in the incinerator, a loud popping noise was heard. On inspecting the contents of the ash the remains of an 'AEROSOL' can was found.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Chief engineer	

Recommendation and Actions			
Immediate causes: Failure to follow correct refuse segregation procedures.			
Immediate actions to prevent recurrence: All personnel advised to dispose of aerosol cans in the appropriate waste unit. New notices circulated.			
AIM categories:			
AIM behaviors:			
TapRoot:			
Category	Base Cause	Near Root Cause	Root Cause
1			
Corrective action plan / request: Review at safety meeting			

Followup
Follow-up by whom: Master and PM
Date corrective action taken:

General Incident Information	
Date of report: May/31/2006	Date of incident: May/30/2006
Report completed by: PM Veritas-Viking2	Local time of incident: 12:00 PM
Incident identified by: Contractor	Document author: PM Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Other
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6Q&JRB

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Razor knife	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During the cleaning of Streamer deck tool boxes a Razor knife was found. The knife was disposed of in the sharp's bin Incident report can be considered closed.	
Breakdown agency: Other & unspecified None	
Witnessed by: David de Young	

Recommendation and Actions				
Immediate causes: Poor housekeeping				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: May/28/2006	Date of incident: May/28/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 07:00 PM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Streamer deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dark	15 C to 29 C	Raining	7 - Moderate gale			1.0 m to 1.9 m

Action Points and Comments :

[Add/Email Comments](#)



Marine Acquisition Division
Good News Report
Veritas Viking2
-- Closed --

V2-GNR-06-0039

Job Information	
Job Number: 20323	Client Name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job Name: Greater Bream 3D 2006
Area of Operation: Gippsland Basin, offshore Australia	Region: APAC
General Incident Information	
Date of report: May/28/2006	Date of observation: May/26/2006
Report completed by: Paul Jones	Local time observed: 10:00 AM
Document author: Tango Veritas-Viking2	
Activity at time of incident: Recording At sea None	Where observed: Recording room
Commendation received from:	
Good News Description	
Description of why this form is being completed (Excellence / best practice): 3590 drive bays fitted with new doors improving environment for drives, and users.	
Describe in detail what happened , who was involved (attach any written commendations , letters, reports, citations, relevant documents / images / diagrams): Our onboard technician, through his own initiative, researched the option of fitting our 3590 drive bays with alternative doors, sourced necessary parts, and fitted them. This was not simply a swap out of doors, but a complete remounting of the drives in the bays, with some degree of modification involved. The resulting bays are now entirely enclosed - the new doors close fully and provide a comprehensive barrier to the ingress of dust. They also keep the temperature inside far colder than previously, this is apparent with every tape removed from the drives! Furthermore, the improvement also noticeably reduces noise from the drives, making for a quieter work area.	
 New3590Doors.jpg	
Recommendations	
The name of the Individual recommended for a VIMS Excellence Award : Urfan Huseyn Zada	
Your recommendations for recognition of these events :	
Any other comments :	



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CVVG6Q5KDU

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Bent handrail.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Handrail on Stbd side & Port side stairway leading from cable deck to gun deck had been bent.	
Breakdown agency: Other & unspecified None	
Witnessed by: Client	

Recommendation and Actions				
Immediate causes: Wear & Tear				
Immediate actions to prevent recurrence : Handrail was straightened by onboard mechanics, IR considered closed.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: May/25/2006	Date of incident: May/25/2006
Report completed by: Chmech Veritas-Viking2	Local time of incident: 12:15 PM
Incident identified by: Veritas	Document author: Chmech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Gun deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --

V2-IR-06-CSVV6Q3TDW

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Bad workbench fluorescent light	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Bad workbench fluorescent light was seen during cross audit of the Tech Workshop. It is blinking.	
Breakdown agency: Powered tools appliances & equipment None	
Witnessed by: Rommel Papio	

Recommendation and Actions				
Immediate causes: Age				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Equipment repairs/replacements				

Followup
Follow-up by whom: Electrician, Tech
Date corrective action taken :

General Incident Information	
Date of report: May/24/2006	Date of incident: May/24/2006
Report completed by: CableShop Veritas-Viking2	Local time of incident: 07:30 AM
Incident identified by: Veritas	Document author: CableShop Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Workshop
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CMVV6Q56T3

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: J DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Old Tape Drive Case Units Left On Floor	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During cross audit of recording room several old discarded tape drive cases and associated metal plates are freely lying around the tango work area.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: G Goddard	

Recommendation and Actions				
Immediate causes: Poor housekeeping even though this is possibly "work in progress".				
Immediate actions to prevent recurrence: All offending equipment to be removed from area and stowed in rigging room.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Area clean-up				

Followup
Follow-up by whom: Observers/Tango
Date corrective action taken:

General Incident Information	
Date of report: May/25/2006	Date of incident: May/24/2006
Report completed by: CompMech Veritas-Viking2	Local time of incident: 07:30 PM
Incident identified by: Veritas	Document author: CompMech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Recording room
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CMVV6Q56JA

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: J deLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Flouro Tubes Unclipped From Light Fittings	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During a cross audit of the recording room the light tubes above the observers station were found to be unclipped from the fittings and as such were free to vibrate around, possibility of arcing out. The reason given for this was, the observers get a headache if the light is on.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: G Goddard	

Recommendation and Actions				
Immediate causes: Laziness to remove the light grille and store the tubes, and also the fitting still looks normal at first glance				
Immediate actions to prevent recurrence : Re-Installed tubes into fittings. The ship electrician will install a local switch for this light enabling it to be switched off independently from the others in the circuit.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Equipment modifications				

Followup
Follow-up by whom: Electrician
Date corrective action taken :

General Incident Information	
Date of report: May/25/2006	Date of incident: May/24/2006
Report completed by: CompMech Veritas-Viking2	Local time of incident: 07:15 PM
Incident identified by: Veritas	Document author: CompMech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Recording room
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CMVV6Q56D6

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: J DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Discarded Towel and Cleaning Chemical on Floor By Nav Station	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During a cross audit of the recording room; a used towel and a bottle of cleaning chemical was found laying on the floor by the nav station and was a potential trip hazard	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: G Goddard	

Recommendation and Actions				
Immediate causes: Poor Housekeeping				
Immediate actions to prevent recurrence: Removed towel and cleaner from area and disposed of correctly				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Area clean-up				

Followup
Follow-up by whom:
Date corrective action taken: May/24/2006

General Incident Information	
Date of report: May/25/2006	Date of incident: May/24/2006
Report completed by: CompMech Veritas-Viking2	Local time of incident: 07:30 PM
Incident identified by: Veritas	Document author: CompMech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Recording room
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6Q4CMC

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: No batteries in Instrument room emergency flashlight	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): The emergency flashlight in the instrument was picked up and on inspection found not to have any batteries. Batteries were inserted immediately. IR considered closed.	
Breakdown agency: Other & unspecified None	
Witnessed by: Recording room personnel, Client Representative, Party Manager	

Recommendation and Actions				
Immediate causes: Haste / forgetfulness				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom: Chief Navigator
Date corrective action taken : May/22/2006

General Incident Information	
Date of report: May/24/2006	Date of incident: May/22/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 08:30 PM
Incident identified by: Client	Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Recording room
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Artificial	15 C to 29 C	Inside	6 - Strong breeze	1.0 m to 1.9 m		3.0 m to 3.9 m

Action Points and Comments :

[Add/Email Comments](#)



Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --

V2-IR-06-OVVG6Q39JV

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Waste not correctly sorted.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Kevlar rope had been incorrectly disposed in waste for incineration. Refuse was sorted and placed in the appropriate bin for removal onshore. Incident considered closed.	
Breakdown agency: Other & unspecified None	
Witnessed by: David de Young	

Recommendation and Actions				
Immediate causes: Human behaviour				
Immediate actions to prevent recurrence: Re-labelled storage bin.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken:

General Incident Information	
Date of report: May/23/2006	Date of incident: May/21/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 03:00 PM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Streamer deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Clear	5 - Fresh breeze			1.0 m to 1.9 m

Action Points and Comments :

[Add/Email Comments](#)



Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --

V2-IR-06-OVVG6Q37PM

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Oil Spill kit pathway is obstructed	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During an audit it was witnessed access to the Top Deck Oil Spill kit was obstructed. The pathway was blocked by oil cointainers and entry could not be gained.	
Breakdown agency: Other & unspecified None	
Witnessed by: David de Young	

Recommendation and Actions				
Immediate causes: Human behaviour				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Area clean-up				

Followup	
Follow-up by whom: Chief Officer	
Date corrective action taken :	

General Incident Information	
Date of report: May/23/2006	Date of incident: May/21/2006
Report completed by: Obs Veritas-Viking2	Local time of incident: 03:00 PM
Incident identified by: Veritas	Document author: Obs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Open deck
Potential outcome: Moderate Risk	Recurrence potential: Medium

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Clear	5 - Fresh breeze			1.0 m to 1.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-NVVG6PYUX6

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Half empty drinking cups are being left around recording room	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Several half empty drinking cups were left around the recording room. These cups were disposed of in the proper disposal bins. Individuals should not leave half empty cups around as they can spill and cause a slip hazard.	
IR considered closed	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: C. Bradshaw	

Recommendation and Actions				
Immediate causes: forgetfulness				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: May/21/2006 Report completed by: Nav Veritas-Viking2 Incident identified by: Veritas	Date of incident: May/21/2006 Local time of incident: 02:30 AM Document author: Nav Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Recording room
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
- Closed -**

V2-IR-06-VVIG6PY2FZ

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Burn Kit not in its proper place	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During weekly inspection, noticed burn kit not in its usual place in the engine control room. The burn kit was found on the bookshelf. Emergency kit like this should always be accessible and easily be seen. Placed and secure it on the wall near the First Aid kit and Eye wash station where everyone could see. IR considered closed	
Breakdown agency: Other & unspecified None	
Witnessed by: Jun Manalang, Einar Aga	

Recommendation and Actions				
Immediate causes: Lack of thought, perhaps				
Immediate actions to prevent recurrence : Placed and secure it on the wall near the First Aid kit and Eye wash station where everyone could see.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: May/20/2006 Report completed by: Veritas-Viking2 Incident identified by: Contractor	Date of incident: May/20/2006 Local time of incident: 09:00 AM Document author: Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Engine room
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-MVVG6PXGER

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Work boat life jackets repacked incorrectly	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams):	
<p>Whilst performing monthly life jacket inspection and 8 hr air integrity test it was found work boat #8 jacket's whistle was not fastened into the jacket correctly, the whistle had been tied off onto the top (neck) bladder retaining strap with a cord only 100 mm long, this made it impossible to achieve oral inflation should the need arise.</p> <p>Life jacket WB #2 was also packed incorrectly, the fault being oral inflation tube trapped under breast strap, this would make oral inflation if not impossible extremely difficult to say the least. Life jacket #2 was also one of several jackets having the wrong bladder number fitted into the jacket, in this case WB bladder #6, up until this test we have always kept the jacket's and bladder's as a unit, this helps maintain our records giving us accurate information on initial put into service dates, once tested all the bladders will be returned into their correct number jacket.</p>	
Breakdown agency: Non-powered hand tools appliances & equipment	None
Witnessed by: L. Tankard	

Recommendation and Actions			
Immediate causes: Not fully understanding the test procedure, inexperience, haste.			
Immediate actions to prevent recurrence : Whistle was remove, fitted with a new longer lanyard and reattached in the correct position. Inflation tube was freed from under strap and bladder removed with all incorrectly fitted ones all to be matched back with corresponding jackets upon completion of testing.			
AIM categories:			
AIM behaviors:			
TapRoot:			
Category	Base Cause	Near Root Cause	Root Cause
1			
Corrective action plan / request: Remedial training			

Followup	
Follow-up by whom: Cheif mech, Snr mech's	
Date corrective action taken : May/20/2006	

General Incident Information	
Date of report: May/20/2006	Date of incident: May/20/2006
Report completed by: Mech Veritas-Viking2	Local time of incident: 02:00 AM
Incident identified by: Veritas	Document author: Mech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Workshop
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dark	15 C to 29 C	Overcast	2 - Light breeze	0.1 m to 0.9 m	SW	0.1 m to 0.9 m



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CVVG6PXVSV

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Expired flares found in port workboat.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Checking the hand held flares in the workboats we found some in the port boat that where past their expiry date. Flares replaced with a new batch that had recently come onboard.	
Breakdown agency: Transport Water transport	
Witnessed by: Hayden/Ollada	

Recommendation and Actions	
Immediate causes: Not checked often enough.	
Immediate actions to prevent recurrence : An item to check expiry date of flares has been added to WB monthly safety equipment checklist.	
AIM categories:	Tools & Equipment/Condition of tools & equipment
AIM behaviors:	

TapRoot:

	Category	Base Cause	Near Root Cause	Root Cause
1				

Corrective action plan / request: Other

Followup	
Follow-up by whom: OS/Chief Observer/Coxswains	
Date corrective action taken : May/20/2006	

General Incident Information	
Date of report: May/20/2006	Date of incident: May/20/2006
Report completed by: Chobs Veritas-Viking2	Local time of incident: 09:27 AM
Incident identified by: Veritas	Document author: Chobs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Utility craft
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CSVV6RV2KJ

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Used eyewash bottle found on the workbench	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Used eyewash bottle half filled was found on the workbench. Informed the medic and eyewash bottle was thrown away. IR considered closed.	
Breakdown agency: Other & unspecified None	
Witnessed by: Rommel Papio	

Recommendation and Actions				
Immediate causes: Not dispose off after use.				
Immediate actions to prevent recurrence : Used eyewash bottle was thrown away and Medic was informed.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: May/20/2006	Date of incident: May/20/2006
Report completed by: CableShop Veritas-Viking2	Local time of incident: 10:15 AM
Incident identified by: Veritas	Document author: CableShop Veritas-Viking2
Activity at time of incident: Repair Onboard Streamer	Where observed: Workshop
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-TVVG6PX68D

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: No warning signs or barricading to alert personnel of steep stairway leading from cable repair store to engine room	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During an AIMs observation it was noted that no warning signs or physical barricading were in place to prevent personnel from potentially falling down the steep stairway leading from the cable repair store to the engine room / hydraulic pump room.	
Breakdown agency: Other & unspecified None	
Witnessed by: Kris Ellis, Rommel Papio	

Recommendation and Actions	
Immediate causes: Lack of warning signs and barricading leading to potential to fall down stairs during rough weather	
Immediate actions to prevent recurrence : Temporary physical barrier put in place - awaiting permanent installation (requires a chain or gate)	
AIM categories:	Work Conditions/Housekeeping/Signs & barricading
AIM behaviors:	

TapRoot:

	Category	Base Cause	Near Root Cause	Root Cause
1				

Corrective action plan / request:

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: May/19/2006	Date of incident: May/19/2006
Report completed by: Tango Veritas-Viking2	Local time of incident: 01:15 PM
Incident identified by: Veritas	Document author: Tango Veritas-Viking2
Activity at time of incident: Repair Onboard Streamer	Where observed: Workshop
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-NVVG6PY2A9

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Tools left lying on helideck	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): After the recent helicopter crew change, the tools used to erect the helideck netting were left on the helideck. Causing a trip hazard. Tools were returned to the proper storage area. IR considered closed	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: C Bradshaw	

Recommendation and Actions				
Immediate causes: Picked up tools and put in their proper storage				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: May/20/2006	Date of incident: May/19/2006
Report completed by: Nav Veritas-Viking2	Local time of incident: 01:30 PM
Incident identified by: Veritas	Document author: Nav Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Open deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-MVVG6PVVC8

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Hose keys missing	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Whilst performing a fire drill, fire team 3 was instructed to initiate boundary cooling, the Stbd muster station hose and the Stbd crane deck hoses were removed from their storage boxes, it was then noticed that the two hose keys required for connection were missing from the Stbd crane deck box, hose keys from the muster station box had to be passed over and the hose was then assembled. This box is a brand new replacement for one damaged on the resent transit.	
Breakdown agency: Non-powered hand tools appliances & equipment None	
Witnessed by: L. Tankard	

Recommendation and Actions	
Immediate causes: Keys have not been replaced into the new box when fitted ?, although Marine crew have assured me that both keys had been stowed with the hose and nozzle.	
Immediate actions to prevent recurrence : Marine crew are to source and replace keys	
AIM categories:	Tools & Equipment/Condition of tools & equipment
AIM behaviors:	

TapRoot:

Category	Base Cause	Near Root Cause	Root Cause
1			

Corrective action plan / request:

Followup
Follow-up by whom: Marine crew
Date corrective action taken : May/18/2006

General Incident Information	
Date of report: May/18/2006	Date of incident: May/18/2006
Report completed by: Mech Veritas-Viking2	Local time of incident: 01:00 PM
Incident identified by: Veritas	Document author: Mech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Open deck cranes
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Overcast	2 - Light breeze	0.1 m to 0.9 m	SW	0.1 m to 0.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CVVG6PWB3Q

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie De Laughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Equipment tied off to spare OTL winch.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): The large cable guide from thr helideck hatch had been tied off with rope to the centre spare OTL winch. Equipment should never be tied off to winches in case the winch moves or is moved inadvertently. Untied the equipment from the winch and lashed it down to the tray it was sitting in. Report can be closed.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Hayden	

Recommendation and Actions									
Immediate causes: Haste?									
Immediate actions to prevent recurrence : This report.									
AIM categories:	Tools & Equipment/Selection & use of tools & equipment								
AIM behaviors:									
TapRoot:									
	<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1			
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request:									

Followup
Follow-up by whom:
Date corrective action taken :

General Incident Information	
Date of report: May/18/2006	Date of incident: May/18/2006
Report completed by: Chobs Veritas-Viking2	Local time of incident: 05:28 PM
Incident identified by: Veritas	Document author: Chobs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Open deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CSVV6PUBEL

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Twisted lifevest	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Before going out in the workboat, crew member was noticed wearing twisted lifevest. He was told about it and immediately undone his lifevest and worn it properly. This IR can be closed.	
Breakdown agency: Other & unspecified None	
Witnessed by: Rommel Papio, Kris Ellis	

Recommendation and Actions				
Immediate causes: Haste				
Immediate actions to prevent recurrence :				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom:
Date corrective action taken : May/16/2006

General Incident Information	
Date of report: May/16/2006	Date of incident: May/16/2006
Report completed by: CableShop Veritas-Viking2	Local time of incident: 12:00 AM
Incident identified by: Veritas	Document author: CableShop Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Utility craft
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CVVG6PT5J8

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie De Laughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Streamer reels 8 & 7 moving independently during streamer operations.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Streamer 2 was being disconnected from streamer 1 whilst stacking streamers. I suddenly noticed there was too much slack in streamer 1 (reel 8). A crewmember immediately pointed out that streamer 1 was deploying slowly by itself we all moved clear of the area whilst the remote box was recovered and the tension was again taken up on the streamer reel. Streamer reel 7 has also been seen to creep in by itself recently.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Hayden,Ollada,Wells,Papio,Flower	

Recommendation and Actions	
Immediate causes: Defective reels mechanism (possibly sticky handles).	
Immediate actions to prevent recurrence : Reels are being watched closely whilst in use. The hydraulic valve for both reels is now being closed every time the reels are not in use preventing movement. The manual hydraulic handles will be stripped and inspected as soon as the current streamer work is complete.	
AIM categories:	Tools & Equipment/Condition of tools & equipment
AIM behaviors:	

TapRoot:

Category	Base Cause	Near Root Cause	Root Cause
1			

Corrective action plan / request: Equipment repairs/replacements

Followup
Follow-up by whom: Chief Observer/Chief Mechanic
Date corrective action taken :

General Incident Information	
Date of report: May/15/2006	Date of incident: May/15/2006
Report completed by: Chobs Veritas-Viking2	Local time of incident: 10:14 AM
Incident identified by: Veritas	Document author: Chobs Veritas-Viking2
Activity at time of incident: Deployment / recovery Streamer None	Where observed: Streamer deck
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Overcast	2 - Light breeze	0.1 m to 0.9 m	SW	1.0 m to 1.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
- Closed -**

V2-IR-06-CVVG6PSEJH

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie De Laughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Crewmember standing outboard of streamer in WB during connection of section.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During a section change it was noted a crewmember was standing outboard of the streamer during connection whilst the streamer was in the clamp, this is a danger area. Informed all workboat crewmembers of the need to stay inboard of the streamer during attachment of a section and the chance of going over the side or becoming trapped if standing outboard. Report can be closed.	
Breakdown agency: Transport Water transport	
Witnessed by: L Hayden	

Recommendation and Actions									
Immediate causes: Lack of training.									
Immediate actions to prevent recurrence : Danger area made clear to all.									
AIM categories:	Body Position/Ergonomics/Clear of sharp edges								
AIM behaviors:									
TapRoot:									
	<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1			
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request:									

Followup	
Follow-up by whom: None	
Date corrective action taken :	

General Incident Information	
Date of report: May/14/2006	Date of incident: May/14/2006
Report completed by: Chobs Veritas-Viking2	Local time of incident: 04:00 PM
Incident identified by: Veritas	Document author: Chobs Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Utility craft
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospheric	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Overcast	3 - Gentle breeze	0.1 m to 0.9 m	SW	1.0 m to 1.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OSVV6PP9QG

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description
Brief description: henriksen hook
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): After completion of streamer work in the starboard workboat the lifting frame was returned to its centre position. At this time it was noticed that the Henriksen hook would not stand upright but fall over to port. Investigation confirmed that the internal spring that hold the hook upright had broken and would allow the hook to fall to port but would still stop the hook falling to starboard. The hook was lashed to stay upright and the boat recovered without further incident. A replacement hook will be ordered ASAP.
Breakdown agency: Transport Water transport
Witnessed by: Paul Turpin

Recommendation and Actions										
Immediate causes: Mechanical failure										
Immediate actions to prevent recurrence :										
AIM categories:										
AIM behaviors:										
TapRoot:										
<table border="1"> <thead> <tr> <th></th> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Category	Base Cause	Near Root Cause	Root Cause	1				
	Category	Base Cause	Near Root Cause	Root Cause						
1										
Corrective action plan / request: Equipment repairs/replacements										

Followup
Follow-up by whom: OS
Date corrective action taken : Jul/25/2006

General Incident Information	
Date of report: May/11/2006	Date of incident: May/11/2006
Report completed by: OS Veritas-Viking2	Local time of incident: 01:45 PM
Incident identified by: Veritas	Document author: OS Veritas-Viking2
Activity at time of incident: Repair In water Streamer	Where observed: Utility craft
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Near Miss
Veritas Viking2
-- Closed --**

V2-IR-06-MVVG6PNS8D

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Defective cutting disc in chapsaw.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Ships crew asked could they borrow the chapsaw, they had only taken the saw to the Gun deck hot work area to set-up and had not as yet used it, I was asked to look at the condition of the abrasive cutting disc fitted onto the saw, whomever had previously used the saw had severely damaged the cutting disc, it had a large piece missing from the cutting edge that became a slot in the disc running for approximately 90mm around the disc and 20mm in from the cutting edge, whoever damaged the disc should have at the very least removed it from the saw, if used in this condition chances are it would have burst and possibly cause injury to the operator.	
Breakdown agency: Powered tools appliances & equipment None	
Witnessed by: L. Tankard	

Recommendation and Actions	
Immediate causes: Haste, lack of attention, disregard for safety	
Immediate actions to prevent recurrence : The disc was removed and replaced with a new one	
Near miss type: <input checked="" type="radio"/> Safety of people <input type="radio"/> Environmental <input type="radio"/> Involved assets	
AIM categories:	New Category/Behav
AIM behaviors:	

TapRoot:				
Category	Base Cause	Near Root Cause	Root Cause	
Corrective action plan / request: Other				

Followup	
Follow-up by whom: I have shown the damaged disc to PM, OS and GS, a notice will be posted on the notice board and in the store room above the chapsaw reminding all crew who use the saw to remove any damaged disc before stowing	
Date corrective action taken : May/11/2006	

General Incident Information	
Date of report: May/11/2006	Date of incident: May/11/2006
Report completed by: Mech Veritas-Viking2	Local time of incident: 09:30 AM
Incident identified by: Third Party	Document author: Mech Veritas-Viking2
Activity at time of incident: Recording At sea None	Where observed: Gun deck
Outcome: Substantial Risk	Recurrence potential: Low
Potential outcome: Substantial Risk	

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-PMVV6PN7ZR

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Incorrect vessel position sent to heliport.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During the recent split seismic crew change on the 08 May, an incorrect vessel position was sent to the helicopter operations office. The heliport contacted the vessel and a correct position was established.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Dave Danyluk, Howie Grizaard	

Recommendation and Actions				
Immediate causes: Haste. Carelessness. Error thought to be a 'typo'.				
Immediate actions to prevent recurrence: The importance of sending accurate information was stressed to the maritime OOTW.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request:				

Followup
Follow-up by whom: Master
Date corrective action taken: May/10/2006

General Incident Information	
Date of report: May/10/2006	Date of incident: May/08/2006
Report completed by: PM Veritas-Viking2	Local time of incident: 09:00 AM
Incident identified by: Veritas	Document author: PM Veritas-Viking2
Activity at time of incident: Deployment / recovery Streamer None	Where observed: Bridge
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OSVV6PL9JV

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Missing passenger	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams):	
<p>During todays crew change, a passenger who was scheduled to fly missed his flight. The helicopter was contacted and it returned to collect him.</p> <p>It seems as though the passenger was confused as to which helicopter was on deck and which helicopter he should have been on , despite the posting of the passenger lists and being told verbally.</p> <p>There were several factors which allowed this to occur;</p> <p>The manifests were changed close to the flight times due to the possibility of a 2 day crew change.</p> <p>The vessel was only given 8 minutes notice of the helicopters arrival by Esso heliops.</p> <p>The flights were very close together.</p>	
Breakdown agency: Other & unspecified None	
Witnessed by: Dave Danyluk, Howie Grizaard	

Recommendation and Actions									
Immediate causes: The pilot and Helimarshal failed to properly check the passenger head count against the manifest.									
Immediate actions to prevent recurrence : Helimarshal to check passengers to the printed manifest and to notify the bridge if any passengers are missing									
AIM categories:	Communications/Communications								
AIM behaviors:									
TapRoot:									
	<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1			
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request: Remedial training									

Followup	
Follow-up by whom: PM	
Date corrective action taken : May/08/2006	

General Incident Information	
Date of report: May/08/2006	Date of incident: May/08/2006
Report completed by: OS Veritas-Viking2	Local time of incident: 03:00 PM
Incident identified by: Veritas	Document author: OS Veritas-Viking2
Activity at time of incident: Personnel transfer At sea None	Where observed: Other
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-MVVG6PKNK5

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Styrofoam cup on bin	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Every morning after breakfast a crew member is discarding a styrofoam cup partially filled with ice cubes atop of the paper hand towel bin in the locker area, this is a tiled floor area and thus ice cubes would be a potential slip hazard if the cup fell off	
Breakdown agency: Other & unspecified None	
Witnessed by: L. Tankard	

Recommendation and Actions	
Immediate causes: Haste, sloppy practice	
Immediate actions to prevent recurrence : Remove cup everyday, empty ice into sink and dispose of cup in mess bin This IR	
AIM categories:	Conditions & Housekeeping (work area)/Work areas free of slip & trip hazards
AIM behaviors:	

TapRoot:

Category	Base Cause	Near Root Cause	Root Cause
1			

Corrective action plan / request: Review at safety meeting

Followup
Follow-up by whom: PM
Date corrective action taken : May/08/2006

General Incident Information	
Date of report: May/08/2006 Report completed by: Mech Veritas-Viking2 Incident identified by: Veritas	Date of incident: May/08/2006 Local time of incident: 06:15 AM Document author: Mech Veritas-Viking2
Activity at time of incident: Deployment / recovery Streamer None	Where observed: Other
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dark	15 C to 29 C	Inside	7 - Moderate gale	2.0 m to 2.9 m	W	2.0 m to 2.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CMVV6PHN7W

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Barrier chain left unfastened	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Port work boat embarkation barrier chain left unfastened. Chain installed, this IR considered closed.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Comp mech	

Recommendation and Actions				
Immediate causes: Haste, laziness, inattentivess				
Immediate actions to prevent recurrence : Installed chain				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Review at safety meeting				

Followup
Follow-up by whom:
Date corrective action taken : May/06/2006

General Incident Information	
Date of report: May/06/2006	Date of incident: May/06/2006
Report completed by: CompMech Veritas-Viking2	Local time of incident: 01:00 AM
Incident identified by: Veritas	Document author: CompMech Veritas-Viking2
Activity at time of incident: Deployment / recovery Streamer None	Where observed: Open deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: High

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-MVVG6PEURM

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: 2x fluorescent tubes in paper bin	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Upon opening the wheely bin located at the bottom of the stair way by the wash basin in the locker area I observed the ends of 2x 600mm fluorescent light tubes discarded in the bin provided for the disposal of paper hand towel.	
Breakdown agency: Materials & substances None	
Witnessed by: L. Tankard	

Recommendation and Actions			
Immediate causes: There is a specified bin for the disposal of fluorescent tubes within 15m of the paper bin, whomever placed the tubes in the paper bin was either unaware of this or chose to use the incorrect bin even though the lid that must be lifted is clearly labelled paper and cardboard only.			
Immediate actions to prevent recurrence : Removed the tubes and placed them in the correct bin			
AIM categories:		Work Conditions/Housekeeping/Communication	
AIM behaviors:			
TapRoot:			
Category	Base Cause	Near Root Cause	Root Cause
1			
Corrective action plan / request: Review at safety meeting			

Followup
Follow-up by whom:
Date corrective action taken : May/03/2006

General Incident Information	
Date of report: May/03/2006 Report completed by: Mech Veritas-Viking2 Incident identified by: Veritas	Date of incident: May/03/2006 Local time of incident: 03:30 AM Document author: Mech Veritas-Viking2
Activity at time of incident: Mobilization Handling equipment None	Where observed: Other
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dark	0 C to 14 C	Inside	7 - Moderate gale	2.0 m to 2.9 m	SW	3.0 m to 3.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CMVV6PBMU8

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie DeLaughter	Job name: Greater Bream 3D 2006
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Puncture hazard	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Protective boards off new Sercel section reels left on deck haphazardly with staples exposed. These could easily puncture personnel's workboot causing injury to foot. Staples were bent over and boards stored properly. This IR considered closed.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Comp mech	

Recommendation and Actions				
Immediate causes: Laziness, haste, inattentiveness				
Immediate actions to prevent recurrence: Staples bent over and boards stored properly.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Review at safety meeting				

Followup
Follow-up by whom:
Date corrective action taken: Apr/30/2006

General Incident Information	
Date of report: Apr/30/2006	Date of incident: Apr/30/2006
Report completed by: CompMech Veritas-Viking2	Local time of incident: 02:54 AM
Incident identified by: Veritas	Document author: CompMech Veritas-Viking2
Activity at time of incident: Deployment / recovery Streamer None	Where observed: Open deck
Potential outcome: Moderate Risk	Recurrence potential: High

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CMVV6P8NPU

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Bream 3D
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Improper storage	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): A hydraulic motor was left at the bottom of a set of stairs leading to the compressor room; no personnel were around. Not sure where this item is stored but at the bottom of stairs is probably not the place. Moved motor out of the way until the proper storage area can be located. Since motor has been moved out of the passageway this IR can be considered closed.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Comp mech	

Recommendation and Actions									
Immediate causes: Haste, laziness, inattentiveness									
Immediate actions to prevent recurrence : Moved motor out of the passageway and will endeavor to found out where/what department it belongs to.									
AIM categories:									
AIM behaviors:									
TapRoot:									
	<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1			
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request: Area clean-up									

Followup	
Follow-up by whom:	
Date corrective action taken : Apr/27/2006	

General Incident Information	
Date of report: Apr/27/2006	Date of incident: Apr/27/2006
Report completed by: CompMech Veritas-Viking2	Local time of incident: 04:00 AM
Incident identified by: Veritas	Document author: CompMech Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Compressor room
Potential outcome: Low/Acceptable Risk	Recurrence potential: Medium

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CMVV6P8NBX

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Bream 3D
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Water leaking into compressor room	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): Water is leaking into the compressor room from the gundeck to comp room hatch. Hatch is not being dogged down tight enough after use. This is a constant ongoing problem and possibly needs to be addressed at the upcoming drydock with a design change ie ..move dogs to top side with recesses. Since dogs have been tightened, this IR is considered closed.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Comp mech	

Recommendation and Actions									
Immediate causes: Haste, laziness, inattentiveness									
Immediate actions to prevent recurrence : Tightened down dogs.									
AIM categories:									
AIM behaviors:									
TapRoot:									
	<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1			
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request: Change to induction training									

Followup
Follow-up by whom: PM
Date corrective action taken : Apr/27/2006

General Incident Information	
Date of report: Apr/27/2006	Date of incident: Apr/27/2006
Report completed by: CompMech Veritas-Viking2	Local time of incident: 03:00 AM
Incident identified by: Veritas	Document author: CompMech Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Compressor room
Potential outcome: Low/Acceptable Risk	Recurrence potential: High

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



Marine Acquisition Division
Incident Report - Injury
Veritas Viking2
-- Closed --

V2-IR-06-PMVV6P77VC

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Bream 3D
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Bruised right hand	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): After carrying out work on a SRD individual tripped over a set of PMI rods causing the individuals hand to be caught between the SRD and the end of the bird rack thus bruising the back of the right hand	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	Breakdown mechanism: Falls slips trips of a person
Witnessed by: Clive Dugdale	

Recommendation and Actions	
Immediate causes: Lack of Attention,	
Immediate actions to prevent recurrence: Remind individuals to keep an eye on work and path	
AIM categories:	Body Position/Ergonomics/Eyes on work or path
AIM behaviors:	Body Position/Ergonomics/Body mechanics when lifting carrying reaching or pulling

TapRoot:

Category	Base Cause	Near Root Cause	Root Cause
1			

Corrective action plan / request: Review at safety meeting

Followup
Follow-up by whom: Ch Observer
Date corrective action taken: Apr/27/2006

General Incident Information	
Date of report: Apr/25/2006	Date of incident: Apr/25/2006
Report completed by: PM Veritas-Viking2	Local time of incident: 07:30 AM
Incident identified by: Veritas	Document author: PM Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Streamer deck
Outcome: First Aid	Recurrence potential: Low
Potential outcome: First Aid	

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Clear	5 - Fresh breeze	0.1 m to 0.9 m	E	2.0 m to 2.9 m

Casualty & Injury Details	
Employed by: Veritas	

Job Position: Observer Experience in Position: More Than 5 Years Time on Tour (days): 29 Hours on Shift: 7	Name of Treating Facility: Address: City: State / Province: Contact Number: Name of Attending Physician: Address: City: State / Province: Contact Numbers:
Nature of Injury: Contusion with intact skin surface and crushing injury	Part of Body Injured: Upper Limbs (Hand finger & thumb / Hand)
Treatment Administered: A cold compact was placed on the back of the hand. Hand was elevated to help with swelling. 200 mg Ibuprofen tablets were given with instruction of "2 tablets with a full stomach as needed for pain and swelling" Nurofen pain relieving gel applied over the injured right hand.	

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-OVVG6P68TL

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Bream 3D
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Slippery crane deck due to small leak from stbd crane.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): After crane usage small amount of hydraulic oil leaking mixing with rain water on deck creating a very slippery surface .	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: C.Dugdale	

Recommendation and Actions									
Immediate causes: Maintenance repairs by contractors @ recent port call, after which small leak has been seen.									
Immediate actions to prevent recurrence : Area degreased and high pressure hosed, informed bridge of small leak seen from stbd deck crane.									
AIM categories:	Work Conditions/Housekeeping/Work areas free of slip & trip hazards								
AIM behaviors:									
TapRoot:									
<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1				
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request: Equipment repairs/replacements									

Followup
Follow-up by whom: Marine crew.
Date corrective action taken : Apr/24/2006

General Incident Information	
Date of report: Apr/24/2006 Report completed by: Obs Veritas-Viking2 Incident identified by: Veritas	Date of incident: Apr/24/2006 Local time of incident: 11:15 AM Document author: Obs Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Open deck cranes
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Overcast	4 - Moderate breeze	0.1 m to 0.9 m	SW	1.0 m to 1.9 m

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CMVV6P5QTW

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Bream 3D
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Personnel smoking while refueling operation was going on.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During the recent portcall numerous contract personnel were observed smoking in various locations on /off the vessel during the refueling operation. This included on the quayside. Personnel were informed about the refueling operation and stopped smoking. Contract personnel need to be informed of Veritas policies and hazards BEFORE coming onto the vessel, and in this particular instance where they can safely smoke while refueling. This IR considered closed.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Comp mech	

Recommendation and Actions									
Immediate causes: Stopped personnel from smoking.									
Immediate actions to prevent recurrence : Informed personnel of the refueling operation and the reason smoking is not allowed while refueling. Inform all contractors of Veritas policies before they come onboard.									
AIM categories:									
AIM behaviors:									
TapRoot:									
<table border="1"> <thead> <tr> <th>Category</th> <th>Base Cause</th> <th>Near Root Cause</th> <th>Root Cause</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category	Base Cause	Near Root Cause	Root Cause	1				
Category	Base Cause	Near Root Cause	Root Cause						
1									
Corrective action plan / request: Change to induction training									

Followup
Follow-up by whom:
Date corrective action taken : Apr/21/2006

General Incident Information	
Date of report: Apr/24/2006	Date of incident: Apr/24/2006
Report completed by: CompMech Veritas-Viking2	Local time of incident: 12:00 PM
Incident identified by: Veritas	Document author: CompMech Veritas-Viking2
Activity at time of incident: Resupply Dockside Fuel / lube	Where observed: Open deck
Potential outcome: Moderate Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-CMVV6P5QNK

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Bream 3D
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: PPE not being utilised	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During the recent portcall several contract personnel were seen without hard hats while crane ops were being conducted . Personnel were told they needed hard hats while these types of operations are going on. Contract personnel need to be aware of Veritas policies BEFORE coming onto vessel. This IR considered closed.	
Breakdown agency: Animal human & biologic agencies None	
Witnessed by: Comp mech	

Recommendation and Actions				
Immediate causes: Laziness, not aware of company policies.				
Immediate actions to prevent recurrence : Informed personnel of the danger.				
AIM categories:				
AIM behaviors:				
TapRoot:				
	Category	Base Cause	Near Root Cause	Root Cause
1				
Corrective action plan / request: Change to induction training				

Followup
Follow-up by whom:
Date corrective action taken : Apr/21/2006

General Incident Information	
Date of report: Apr/24/2006	Date of incident: Apr/24/2006
Report completed by: CompMech Veritas-Viking2	Local time of incident: 12:00 PM
Incident identified by: Veritas	Document author: CompMech Veritas-Viking2
Activity at time of incident: Resupply Dockside Crane operations	Where observed: Open deck cranes
Potential outcome: Low/Acceptable Risk	Recurrence potential: Medium

Environmental Conditions						
				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Injury
Veritas Viking2
-- Closed --**

V2-IR-06-PMVV6P77DT

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Bream 3D
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Sprain to right wrist	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): While installing a new umbilical onto umbilical reel individual strained his right wrist.	
Breakdown agency: Mobile equipment (plant) None	Breakdown mechanism: Body stressing
Witnessed by: Ricardo Hufano, Mike Haarmans	

Recommendation and Actions	
Immediate causes: Bad body mechanics/gain assistance	
Immediate actions to prevent recurrence : Seek assistance when moving heavy equipment around on deck.	
AIM categories:	Body Position/Ergonomics/Body mechanics when lifting
AIM behaviors:	carrying reaching or pulling

TapRoot:

	Category	Base Cause	Near Root Cause	Root Cause
1				

Corrective action plan / request:

Followup
Follow-up by whom: PM, Medic, Ch Mech
Date corrective action taken :

General Incident Information	
Date of report: Apr/25/2006	Date of incident: Apr/24/2006
Report completed by: PM Veritas-Viking2	Local time of incident: 08:00 PM
Incident identified by: Veritas	Document author: PM Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Gun deck
Outcome: First Aid	Recurrence potential: Low
Potential outcome: First Aid	

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Artificial	15 C to 29 C	Overcast	5 - Fresh breeze	1.0 m to 1.9 m	E	2.0 m to 2.9 m

Casualty & Injury Details	
Employed by: Veritas	
Job Position: Mechanic	Name of Treating Facility:
Experience in Position: More Than 5 Years	Address:

Time on Tour (days): 28 Hours on Shift: 8	City: State / Province: Contact Number: Name of Attending Physician : Address: City: State / Province: Contact Numbers:
Nature of Injury: Sprains and strains	Part of Body Injured: Upper Limbs (Wrist / None)
Treatment Administered : 200mg/tablets Ibuprofen. 2 tablets with full stomach as needed for pain and swelling. Nurofen pain relieving gel applied over the injured area.	

Action Points and Comments :

[Add/Email Comments](#)



Marine Acquisition Division
Incident Report - Equipment Loss/Damage
Veritas Viking2
-- Closed --

V2-IR-06-CVVG6P55T9

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Bream 3D
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Loose umbilical bobbin.	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams):	
During rough weather a ratchet strap used for securing a wooden bobbin containing a umbilical broke free . The bobbin rolled across the deck and crushed the foam pump remote switching control box and smashed fire hose box #8.	
To prevent further movement the bobbin was wedged with wooden blocks and further secured using chains and load binder .	
 MVC-679F.JPG	
Breakdown agency: Environmental agencies None	
Witnessed by: Neil Collinge, Manny Ollada.	

Recommendation and Actions			
Immediate causes: Ratchet strap breaking.			
Immediate actions to prevent recurrence : Bobbin chained down.			
AIM categories:		Tools & Equipment/Selection & use of tools & equipment	
AIM behaviors:			
TapRoot:			
Category	Base Cause	Near Root Cause	Root Cause
1			
Corrective action plan / request: Equipment repairs/replacements			

Followup
Follow-up by whom: Chmech
Date corrective action taken : Apr/30/2006

General Incident Information	
Date of report: Apr/23/2006	Date of incident: Apr/23/2006
Report completed by: M.Haarmans.	Local time of incident: 04:00 AM
Incident identified by: Veritas	Document author: Chmech Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Open deck
Outcome: Slight	Recurrence potential: Low
Potential outcome: Local	

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Dark	0 C to 14 C	Raining	5 - Fresh breeze	1.0 m to 1.9 m	SW	4.0 m to 4.5 m

Equipment Loss / DamageEquipment is: Lost Damaged

Asset/Unit Number:

Pool Number:

Object/Equipment Involved: Remote foam pump control enclosure.
F/Glass fire hose storage box.

Estimated Cost of Loss /Damage: \$800.-

Nature of Damage: Crushed.

Substance Involved:

Person(s) Involved: Capt-Eidesvik Veritas-Viking/Marine, Chmech Veritas-Viking/Marine

Action Points and Comments :

[Add/Email Comments](#)



**Marine Acquisition Division
Incident Report - Hazard
Veritas Viking2
-- Closed --**

V2-IR-06-PMVV6P73MR

Job information (Job Information is auto-filled if a DCS Daily if found matching the Date of Incident)	
Job number: 20323	Client name: Esso Australia Pty Ltd
Supervisor: Jackie Delaughter	Job name: Bream 3D
Area of operation: Gippsland Basin, offshore Australia	

Event Description	
Brief description: Securing brackets exposed	
Describe in detail how the event occurred (attach any relevant documents / images / diagrams): During Tropical Cyclone Hubert the Swimming Pool on the fore peek collapsed. The Pool was damaged beyond repair and was removed while in Fremantle. Once the Pool was removed the securing brackets were exposed causing a trip hazard.	
Breakdown agency: Machinery & mainly fixed equipment (plant) None	
Witnessed by: Morgan McNelly, Helmik Saevik and Dave Danyluk	

Recommendation and Actions	
Immediate causes: Haste/no follow through by crew members	
Immediate actions to prevent recurrence : Short Term = Barricade the area to restrict traffic. Long Term = Brackets to be ground off at earliest opportunity	
AIM categories:	Conditions & Housekeeping (work area)/Work areas free of slip & trip hazards
AIM behaviors:	Conditions & Housekeeping (work area)/Signs & barricading

TapRoot:

Category	Base Cause	Near Root Cause	Root Cause
1			

Corrective action plan / request: Area clean-up

Followup
Follow-up by whom: Captain, Party Manager, Bosun
Date corrective action taken : Apr/25/2006

General Incident Information	
Date of report: Apr/25/2006	Date of incident: Apr/22/2006
Report completed by: PM Veritas-Viking2	Local time of incident: 09:22 AM
Incident identified by: Veritas	Document author: PM Veritas-Viking2
Activity at time of incident: Transit None None	Where observed: Open deck
Potential outcome: Low/Acceptable Risk	Recurrence potential: Low

Environmental Conditions				Environment Sea State		
Light Conditions	Temperature (C)	Precipitation / Atmospherics	Air Movement (Beaufort Scale)	Wave Height (m)	Swell Direction	Swell Height (m)
Daylight	15 C to 29 C	Clear	5 - Fresh breeze	0.1 m to 0.9 m	E	2.0 m to 2.9 m

Action Points and Comments :

[Add/Email Comments](#)

Marine VIMS Report

Job #: 20323
Vessel(s): SR/V Veritas Viking2
Date Range: 4/22/06 to 7/13/06

Incidents

Type	Veritas	Contractor	Third Party	Client	Total
Injury--Fatality	0	0	0	0	0
Injury--Lost Time	0	0	0	0	0
Injury--Restricted Work	0	0	0	0	0
Injury--Medical Treatment	0	0	0	0	0
Injury--First Aid	3	1	0	0	4
Environmental	0	0	0	0	0
Hazard	89	0	0	0	89
Near Miss	4	0	0	0	4
Not Work Related	6	0	0	0	6
Occupational Illness	0	0	0	0	0
Equipment Loss/Damage	2	0	0	0	2

Exposure Hours

	Veritas	Contractor	Third Party	Client	Total
Exposure Hours	56,376	37,032	18,072	7,320	118,800

Events

Event	Frequency
Audits / Inspections	
Cross Audit	18
Management Audit	0
Inspection / Department Audit	18
3rd Party Audit (arranged by Client or Veritas)	1
VIMS System Audit	0
Drills	
Abandon Ship Drill	6
Fire Drill	6
Man Overboard Drill	2
Oil Recovery Drill	3
Meetings	
Toolbox Meetings	933
Safety Meeting	5
Committee Meeting	6
Transportation	
Boat-to-Boat Transfers	2
Helicopter Landings	22
Port Calls	1
Small Boat Launch	31
Environmental	
Environmental Concerns	0
Oil Spills	0
Other Events	
Safety Induction Briefings	32
Stepback	4
Incident Investigations	1
Job Safety Analysis	9
Other Events Not Chosen in Reporting Template	
Confined Space Entry	0
Other Events Not Chosen in Reporting Template	
Other	4
Other Events Not Chosen in Reporting Template	
Ship Security (ISPS)	0
Other Events Not Chosen in Reporting Template	
Water Testing	0

Marine VIMS Report

Job #: 20324
Vessel(s): M/V Pacific Sword
Date Range: 4/25/06 to 6/11/06

Incidents

Type	Veritas	Contractor	Third Party	Client	Total
Injury--Fatality	0	0	0	0	0
Injury--Lost Time	0	0	0	0	0
Injury--Restricted Work	0	0	0	0	0
Injury--Medical Treatment	0	0	0	0	0
Injury--First Aid	0	3	0	0	3
Environmental	0	0	0	0	0
Hazard	13	0	0	0	13
Near Miss	0	0	0	0	0
Not Work Related	12	0	0	0	12
Occupational Illness	0	0	0	0	0
Equipment Loss/Damage	1	0	0	0	1

Exposure Hours

	Veritas	Contractor	Third Party	Client	Total
Exposure Hours	19,008	16,128	1,248	0	36,384

Events

Event	Frequency
Audits / Inspections	
Cross Audit	6
Management Audit	0
Inspection / Department Audit	14
3rd Party Audit (arranged by Client or Veritas)	0
VIMS System Audit	0
Drills	
Abandon Ship Drill	4
Fire Drill	2
Man Overboard Drill	0
Oil Recovery Drill	0
Meetings	
Toolbox Meetings	112
Safety Meeting	2
Committee Meeting	4
Transportation	
Boat-to-Boat Transfers	19
Helicopter Landings	0
Port Calls	2
Small Boat Launch	0
Environmental	
Environmental Concerns	0
Oil Spills	0
Other Events	
Safety Induction Briefings	8
Stepback	0
Incident Investigations	6
Job Safety Analysis	0
Other Events Not Chosen in Reporting Template	
Confined Space Entry	0
Other Events Not Chosen in Reporting Template	
Other	1
Other Events Not Chosen in Reporting Template	
Ship Security (ISPS)	1
Other Events Not Chosen in Reporting Template	
Water Testing	0



VERITAS
Geophysical Integrity



SR/V VERITAS VIKING II SAFETY CASE

Prepared By;
Veritas DGC Asia Pacific Ltd
Marine Acquisition Department
Revision 4 December 2005

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1.0 Operation Descriptions & Listings

1.1 Introduction

This Safety Case document is prepared for and by the crew of the geophysical survey vessel Veritas Viking II and is approved by the Management of Veritas Marine Acquisition. It contains information on the management structure and responsibilities of Veritas Marine Acquisition, procedures and instructions for emergencies, safety critical procedures for general offshore activities and geophysical operations and a register of possible hazards that would be encountered during normal operations. This document also contains a Bridging Document between Veritas and Eidesvik the vessel owners and operators, of Bergen, Norway.

A supplement to this document, the Project Specific HSE Plan, is prepared for each new project and will detail local conditions, area obstructions or additional hazards, communication procedures and available support resources. Additional equipment or procedures will be detailed in this document.

All employees and management are responsible to act according to the company safety systems, with a view to safe and successful operations and quality assurance, however should international conventions, codes, rules or regulations differ, then this document and the systems and procedures contained within shall yield place. This would also be the case with Eidesvik Shipping or the Master of the vessel, if in their opinion a threat was posed to the safe operation of the ship.

Other manuals to be referenced:

Veritas Marine Acquisition	:	Veritas Viking II Hazard Register
Veritas Marine Acquisition	:	Project Specific HSE Plan
Veritas DGC	:	Crisis Management Plan
Veritas DGC	:	Policy Guidebook
Eidesvik & Co.	:	Main Manual
Eidesvik & Co.	:	Main Manual Vessel
Eidesvik & Co.	:	Vessel Safety Manual Quality Assurance
Eidesvik & Co.	:	Contingency Plan
IAGC	:	Marine Geophysical Operations Safety Manual
OGP	:	Guidelines for Marine Geophysical Operations
SOS Int. Assistance	:	Access Service Guide

1.2 Vessel Description

The Veritas Viking II is a purpose built, multi element seismic research vessel, rigged to acquire multiple lines of 3-D marine seismic data. The vessel is owned by Eidesvik & Co. AS and on long-term charter to Veritas Marine Acquisition, and crewed by marine personnel in the employ of the vessel owners.

The vessel is equipped with advanced integrated geophysical and navigation data acquisition systems, full quality assurance capabilities and onboard navigation and seismic data processing.

The vessel, travels along predetermined seismic lines, towing as many as 8 streamers up to 8,000m in length, and also deploys and tows various arrays of high pressure Air Guns used to generate the seismic pulse. The energy generated by the Air Guns is reflected from the sub-surface strata and the data is gathered through the Hydrophone groups, which are spaced equidistantly along the entire length of each towed streamer, and systematically transmitted to the recording systems onboard the vessel.

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Vessel

Name : SR/V Veritas Viking II
Owner : Eidesvik A/S
Port of Registry : Haugesund, Norway
Date Built : May 1999
Official Number : 9189512
Call Sign : LMIE

Classifications

Flag : Norway
Class: : DNV +A1 SF EO HELDK.DK +S BM

Dimensions

Length : 93.35 meters
Beam : 22.00 meters
Draft : 7.05 meters
GRT : 7,764 tons (gross registered tonnage)
NRT : 2,329 tons (net registered tonnage)

Machinery

Main Engines : 2 x MAK 9m 32
Main Drive Power : 2 x 4320 Kw (2 x 5832 bhp)
Bow Thruster : 1 x KaMaWa 1200 Kw Azimuth Thruster
1 x Brunvoll 1200 Kw Tunnel Thruster
Stern Thruster : 1 Brunvoll 736 Kw Tunnel Thruster
Generators : 2 x AVK DSG 114K1-6W Shaft Generators
2 x 2950 KVA, 3 x 440 Volt, 60 Hz
Rated 360 KW
2 x 2950 KVA, 3 x 440 Volt, 60 Hz
Auxilliary-1 Mitsubishi S6R-MPTA-525kW
Emergency -1 Mitsubishi S6B3-MPTK
Pitch : 2 x Variable

Capacities

Fuel Oil Capacity : 2,040 cubic meters
Fresh Water Capacity : 421 cubic meters
Water Maker : 33 cubic meters/day
Cruising Speed : 14 knots
Range : 18,960NM @ 10 knots
Endurance : 79 days

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Electronics

Radar	:	2 ARPA Furono FAR-28355/FAR-28255
Standard Compass	:	Bergen Nautic, Model # BN35PL
Gyro Compass	:	2x Sg Brown Meridion
Depth Sounder	:	Skipper GDS 101, 38 kHz
Communication	:	GMDSS Class, Satcon "B"

Extras

Radio Direction Finder	:	Tayio TD-L1550A
Helideck	:	Up to AS232L Super Puma
Hospital	:	1 with 2 beds

1.3 Safety Equipment

Lifeboats	:	1 x Schat Harding, 60 person, enclosed, self righting fiber glass lifeboat, secured on gravity davit, situated at mid-ship on the starboard side of the vessel. The engine is an electric start 29 hp diesel engine. Launching of the boat and releasing from hook can be operated from inside the craft. The boat is fitted with inventory in accordance with the Norwegian Ships Control Rules and also according to IMO rules. A sprinkler system and Emergency air system are fitted to protect the lifeboat and it's occupants from fire on the sea surface or from hazardous gasses.
Liferafts	:	4 x 20 and 4 x 25 persons inflatable rafts and 1 man-overboard liferaft with a capacity of 6 persons. The rafts can be either manually launched or launched with the crane davits, they are also fitted with automatic hydrostatic release gear.
Rescue Craft	:	1 x Norsafe Magnum 750, 7.50m Fast Rescue Craft, situated on the port side, aft of the stack. The engine is a Yanmar 200 hp diesel, with a Hamilton Waterjet type propulsion unit giving a speed of 26 knots. The boat is launched via a GMC Knuckleboom type crane.
Lifejackets/Belts	:	120 x Sunmore Livbeltefabrikk. 65 jackets are located in containers on the Boat Deck; the remainder are distributed amongst the berths around the vessel. Sospender type, self-inflating Work Vests are located at various positions for exposed deck and FRC operations.
Survival Suits	:	62 x Hely Hansen Survival suits ,60 on the boat deck (muster station) and 2 on the bridge.
Survival Work Suits	:	8x Helly Hansen , 7x Typhoon work suits , in warm climates these are stored away , in colder climates these can be found by the FRC changing area (outside dirty mess).
Lifebuoys	:	14 x Ring Buoys, (with smoke float and signal light).
Smoke Floats	:	6x Smoke floats located 2 on the bridge wings , 2 on acc.deck 03 and 2 on the 1st deck.
Line Throwing	:	1 Kit (4 Rockets & 4 lines).

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- Distress Signals** : 12
- Radio Safety Equipment** : This vessel is equipped with a GMDSS radio station.
2 x Tron-Sart-Jotron Radar Transponders 9GHz.
3 X Portable VHF Radio.
5 x Portable UHF Radio.
1 x Tron, type 30S Class 2, 406 MHz
- Foam Systems** : The following areas are protected by Foam Fire Fighting System:
Helideck Port & Starboard.
Main & Spare Streamer Reels
- CO2 System** : The following areas are protected by CO2 Fire Fighting System:
Engine Room Galley Seismic Chemical Store
Compressor Room Bow Thruster Room
Cable repair store /cable store Incinerator Room
- Fire Extinguishers** : Portable Fire Extinguishers are located at various areas around the ship. The ship's Fire & Safety Plan detail the location and type.
- Fireman's Equipment** : 3x Firemans lockers , one top stbd side top deck (by lifeboat)
one fore castle storage area acc. deck 02, one outside the rigging store by the steps that lead up to the crane deck
Flashlight
Breathing Apparatus (with 3 spare bottles)
Set of Protective Clothing
Two Pairs of Boots
Fireman's Helmet
Axe and Belt Holster
Lifeline
A high pressure air compressor is installed in the in the fire store (which is situated in front of the muster station stbd side). In addition we have 2 BA sets in the Emergency Helicopter room.
Total onboard: 8 x BA sets and 8 spare bottles
- Fire Axes** : There are 4 axes in the corridors ,in addition there are 6 axes in the smoke divers lockers ,as well as the axes in the Emergency helicopter room -see inventory below
- Fire Hoses & Hydrants** : 38 x Fire Hydrants each with 15m hoses. Each hose is stored in labeled containers with hose nozzles and quick connectors.
- Fire Pumps** : 3 x Allweiler
Capacity - 35,000 gal/hr.

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The pumps can be remotely operated from the Bridge, Engine Control Room, Fire Fighting Stations Streamer Deck & Gun Deck.

Fire Detection System : The vessel is equipped with a heat and smoke detection system. Detectors are installed in all Cabins, Dayrooms, Corridors, Engine Room and all Store compartments. All detectors and manual Alarm Buttons are connected to a central control panel located on the Bridge. The alarm system is audible through the alarm bell system.

Helideck Rescue Equip. : 1 x complete kit, contained in locker forward of helideck



Helicopter Emergency Equip.

Oxygen Set : 1 x Unitor, located on Accommodation deck 5B.

Emergency Generator : 1 x 450 KVA Generator.

The Generator automatically starts upon failure of the main electrical power, and supplies 440, 220 & 110 V AC. This generator powers and recharges the emergency lights, the Engine Room and Emergency Controls and navigation Systems.

Medical Locker : There are various First-Aid kits, which are stocked with supplies from the ship's Hospital. These kits are located in the Galley, Recording Room, Gunshack and Engine Room. In addition there are 2 first aid kits on the bridge, one of these contains a defibrillator and oxygen

Watertight Doors : 4

1.4 Vessel Orientation

Upon Arrival

Upon arrival at any Veritas Marine Acquisition operated vessel, the ship's Chief Officer or Operations Supervisor will give new personnel a brief induction. This will include showing them their cabin, the emergency muster station, life raft locations, as well as any extra duties they may have to perform. These could include extra responsibilities during man overboard drills and helicopter transfers. A comprehensive tour of the vessel and all safety systems will be given within the first 24 hours of joining the vessel.

This vessel carries a large complement of both marine and seismic crew, along with various guests and support personnel; therefore most of the cabins will be occupied.

There will be a life jacket stored at each berth onboard. All personnel are required to familiarize themselves with this equipment at the earliest opportunity. Each person should ensure the life jacket has an emergency light and whistle. In the event that these items are needed each person should be able to use them confidently. An actual emergency is not the situation that personnel should want to try them on for the first time. All personnel will be assigned a life raft during an actual emergency. There is one life boat situated on the starboard side for all personnel. Any missing or defective items are to be reported to the First Officer immediately.

All personnel should take time to learn all possible escape routes from their berth and their work area. At least two different ways of escape to the Muster Station should be identified from each area.

Each person should make time to get to know the ship. Emergency situations can be confused, with less than ideal conditions. There could be smoke, fire, darkness, heavy seas, etc., so ease of

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escape is enhanced by thorough knowledge of all exits. In the event of an emergency, all personnel, no matter where they sleep or work, should have the knowledge and confidence to proceed to their Muster Station by the safest and quickest route. Each cabin has a framed notice showing the location of your cabin on the vessel, and the quickest escape route.

Safety Hints

A ship is unlike a work place on land, in that this work place can be fairly unpredictable when it comes to stability. All personnel must ensure that their belongings are properly stowed **BEFORE** the ship sails, and not wait for rough weather to secure their gear. All personnel should review their work area before leaving port. Take special note that heavy items that are not secured can move about dangerously in heavy seas.

Personnel are required to advise fellow workers where they are going to be located when working by themselves, a requirement known as the "buddy system", especially important during heavy weather

A permit system is in operation on all Veritas Marine Acquisition vessels. This system covers hot work (cutting or welding), electrical repairs, heavy lift with a crane or hoist, FRC launchings, entry to an enclosed space, and working aloft. The purpose of the permit system is to ensure all hazards have been identified and controls are in place to minimize risk and that all safeguards are adhered to. It is a requirement for all personnel to use these permits as they make the task safer for you and others.

Personal Protective Equipment (PPE) is available to all personnel. Basic PPE, i.e. Steel Toe Boots, Hard Hat, Coveralls, Hearing Protection and Gloves will be issued to personnel where appropriate. Additional or replacement PPE should be sought from the Chief Officer or Operations Supervisor. There are a number of areas on these vessels where it is mandatory to wear certain safety items.

STREAMER DECK : Steel toed footwear, hard hat. Work vest if servicing blocks at the stern. Eye protection.

GUN DECK : Steel toed footwear, hard hat, ear protection, workvest, and lifebelt connected to the safety line, if working aft of the marked area on the deck. Eye protection.

CRANE DECK : Steel toed footwear and hard hat.

All personnel are required to take exceptional care of all safety equipment used, as it could one day save a life. Report any defects to the Chief Officer or Operations Supervisor immediately.

Housekeeping is particularly important on any vessel. All personnel are required to leave their work area clean and clear. This includes putting away tools and cleaning up any grease or oil spills. Of equal importance are the recreational areas used while Off-Shift.

Any ship makes unpredictable movements, therefore an important rule for all to remember: -

"ONE HAND FOR YOU, ONE HAND FOR THE SHIP"

Always use the handrails while using the stairways.

All personnel should be familiar with the fire fighting appliances around the ship. Regular and varied drills are conducted to show personnel of the various operating techniques. The first response to any fire incident is to raise the alarm, before any attempt is made to extinguish the fire.

Shipboard Emergencies and Signals

There are three important emergency signals that could be sounded on these vessels, of which all personnel should be aware, and able to respond.

Note that these can be "rings" on the ships bell, or "blasts" on the ships whistle.

INTERMITTENT RINGING

FIRE / EMERGENCY

CONTINUOUS RINGING, 7 SHORT RINGS, 1 LONG RING

ABANDON SHIP

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CONTINUOUS RINGING

MAN OVERBOARD

(3 Short Rings indicates dismissal from emergency stations.)

FIRE / EMERGENCY

Upon hearing the fire/emergency alarm, all personnel are required to don a life jacket, and proceed directly to the muster point. Life jackets are located in each cabin, and in float free lockers at the Muster Point. Survival Suits if located at your work area or cabin, should also be carried to the Muster Point. The vessel carries a sufficient number of life jackets in the lockers at the Muster Point for all personnel, it is preferred that personnel proceed directly to the Muster Point for the life jackets instead of their cabins.

NO PERSONAL ITEMS SHOULD BE BROUGHT TO THE MUSTER POINT AND ALL PERSONNEL ARE REQUIRED TO REMAIN THERE UNTIL THE ALL CLEAR HAS BEEN GIVEN.

Personnel assigned to an attack/response team, should report to their attack/response team duties, life jackets are available at the muster point for these personnel. Clothes recommended for wearing to the muster station are long sleeves and long pants, shoes or boots (no open shoes) and a hat. These should also be worn to drills. A Survival Suit is applicable to all regions of low ambient water temperature, but recommended for use during any abandonment. Survival suits will be issued at the Muster point.

ABANDON SHIP

Upon hearing the abandon ship signal, all personnel should don a life jacket and proceed calmly and directly to the Muster Point, and await further instructions. Be familiar with your Survival Suit, and be ready use it when instructed.

When the order is given to abandon the ship, the Life Boat, FRC's and all rafts will be launched by the marine crew, all personnel should give assistance where required. Follow the instructions of the lifeboat or life raft commander. Remain calm and if possible, dry. UNDER NO CIRCUMSTANCES ARE YOU TO JUMP ON TOP OF LIFE RAFTS.

Lifejackets

When responding to an emergency alarm, proceed directly to the Muster Point, where you will be issued a Lifejacket, equipped with a light, whistle and retro-reflective tape.

The Lifejackets on the Viking can only be worn one way. Ensure your arms pass through the loops at each shoulder, snap strap into buckle at side and tighten strap. The Lifejacket is designed to give you a stable floating position with face up and body inclined backwards. A loose Lifejacket will become very uncomfortable in the water, and it will be difficult to adjust when wet. Instructions for donning your Lifejacket are posted around the ship, and this should be practiced regularly

In the event that you have to jump from the ship into the sea, try to get as close to the water as possible. Jump in, feet first, with you legs and body straight. Press your elbows to your sides, cross your arms at your chest, and hold the top edges of you jacket firmly, this will stop the Lifejacket from loosening when you enter the water. Swimming with a Lifejacket is best performed using backstroke.

Survival Suits

When responding to an emergency alarm, proceed directly to the Muster Point, where you will be issued a Survival Suit.

Put on the suit as you would a pair of coveralls. The suit is insulated, but the use of warm clothing underneath will increase survival time. Put the hood over you head and try to expel all the air from the suit as you close the zipper. If you jump into the sea, the air in the suit will be pressed out

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through the face lining and water may enter the suit. Therefore it is important to press as much air out of the suit prior to entering the water, as well as ensuring the chin flap is tight. If the face lining feels uncomfortably tight, it is a consolation to know that this is necessary to ensure water tightness.

If the suit becomes damaged or swamped, it will still render protection as a wet suit. It may however be virtually impossible to enter a survival craft with a water-filled suit, even if assisted. In this instance try to remove the suit, or cut it in a way to allow water to drain from the legs.

The suit will float a person on their back and swimming is best performed by using a backstroke. The suit will be equipped with a light, whistle and retro-reflective tape, and a lifting strap at the front to facilitate retrieval.

MAN OVERBOARD (MOB)

There are set tasks to follow in the event of a Man Overboard (MOB). These are as follows:

- 1) Inform the bridge so that the position can be marked and the guns stopped,
- 2) Do not lose visual contact with them, **as their life depends on it,**
- 3) Throw them as many flotation devices as you can, including the MOB Raft.

FRC crew will launch the rescue craft while all other personnel proceed to the muster station, maintain lookout and await instructions. Chase Boat and other vessels in the vicinity will be advised to maintain a lookout and assist where necessary.

SHIPBOARD ROUTINES

Emergency Drills will be held once a week to increase the preparedness and skills of the ships emergency teams. These drills should be varied and not looked upon as an inconvenience as something new can be learnt each week. All persons should show enthusiasm and ask questions whenever possible. A well-drilled crew could mean the difference between saving the vessel, or sitting in a crowded life raft awaiting rescue.

The day and time of all drills will normally be posted in advance, but are usually held on Sundays, weather and operations permitting, alternating between late mornings and early afternoons, from week to week.

New personnel are required to fill out a brief medical history to aid in organizing treatment, for illness or accident causing serious injury. All personnel are required to inform the Captain or Medic (if onboard) of any prescription medication in use when joining the vessel.

Medical supplies for minor ailments will be available, located in cabinets throughout the ship. Additional or prescription medicines should be requisitioned from the Master and/or Medic where required.

An accident causing injury, no matter how slight, should always be reported to the Master, Party Manager and Operations Supervisor. This will allow the injury to be treated correctly and, if there are complications (infections etc.), the reports will aid personnel performing further treatment.

Veritas Marine Acquisition has a "Near Miss" reporting system in place. If an incident occurs that could have caused injury, it should be reported through this system. This will alert the rest of the crew to the potential danger of a certain area or task, until the situation can be rectified. Personnel are encouraged to complete these forms, as they help make the vessel a safer place to work.

There are washing machines and dryers on the vessel, with washing powder provided. You are expected to do your own laundry, making sure you leave the area clean when you leave. Please remove your laundry from the machines promptly so that others can use them. The ship provides bed linen and towels, and these should be changed once a week.

Each cabin has a separate bathroom. It is required that you keep your cabin and bathroom neat and tidy at all times.

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Meal Times

Meals are normally served in the mess between at the following times:

Breakfast:	0530 - 0630
Lunch	1130 - 1230
Dinner	1730 - 1830

All personnel are required to wear shirts and appropriate footwear during meals; work clothes and boots are not permitted in these areas. There are no special seating arrangements. After finishing your meal, take your plate and cutlery to the galley to be washed.

Recreation areas are provided on this vessel for your comfort and convenience. Work clothes and boots are not permitted in these areas. TV's and VCR's are located in the recreation areas and available for all personnel to use, but treat everything with respect and note that dirty work clothes and boots are not permitted in these areas. Please leave all recreation areas clean and tidy.

When viewing videos brought onboard by individuals, due consideration is to be given to ensuring the material shown does not give offense to anyone present. Similar care is to be taken with "artistic material" displayed in public areas.

This is a 24-hour operation so at any given time there are as many people sleeping as there are working. For this reason, all personnel are to be considerate of others and be quiet when moving around the passageways.

ABSOLUTELY NO ALCOHOL, UNPRESCRIBED DRUGS OR FIREARMS ARE PERMITTED ON THIS VESSEL.

Depending on the severity of the offense, termination can result.

Certain areas are designated NON SMOKING. All personnel should be familiar with these areas, and under no circumstances is smoking permitted in any area designated as such.

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2.0 Policy

2.1 Introduction to Policies

The policies contained herein have been developed to provide clear guidance in the application of the safety policies and standards of Veritas Marine Acquisition, our clients, and various authorities who have jurisdiction over areas of our operation.

All Veritas Marine Acquisition employees, contractors, sub-contractors and representatives of other organizations are reminded that they are required to fully adhere to all of Veritas Marine Acquisition's policies while engaged on the Veritas Viking II.

Veritas Marine Acquisition prohibits the possession or use of alcohol, drugs or controlled substances that affect job performance. Random testing of all personnel can be carried out, at any time, without notice. Veritas Marine Acquisition is committed to preventing the use and/or presence of these substances in the workplace and failure to adhere to the company's policies on alcohol or substance abuse will result in disciplinary action up to and including termination of employment.

Various areas on the vessel are designated as "Non-Smoking" areas for safety reasons, due to combustible substances contained within these areas. Designated smoking areas are available to all personnel.

All Veritas DGC policies are available in various languages and are available electronically as such throughout the Veritas Integrity Management System (VIMS). For the purpose of this document all such policies will be displayed in English.

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2.2 Health, Safety & Environmental Policy Statement

Veritas DGC is committed to achieving and maintaining excellence in all aspects of its operations. Veritas DGC recognizes and accepts the mandate to conduct its activities in a responsible manner. Veritas DGC will, so far as it is reasonably practicable, provide a system of work that protects the health and safety of its own employees, visitors, contractors and the public and at the same time minimizes the impact of its activities on the environment. Veritas DGC recognizes that all injuries are preventable.

The accountability for achieving these objectives is vested in the appropriate level of Operating Manager. To achieve excellence in our business and work environment, the commitment and cooperation of all management, staff, contractors and visitors is essential.

In order to support this policy Veritas DGC will:

- Develop, implement and maintain the Veritas Integrity Management System (VIMS);
- Promote and maintain high awareness of workplace hazards, the risks associated with them and the techniques to render risks as low as reasonably practicable;
- Encourage the development, implementation and use of industry best practice;
- Ensure that employees are competent to conduct their specified tasks;
- Specify proactive Key Performance Indicators, set objectives, regularly review performance and recognize excellence;
- Maintain an incident reporting system that allows analysis of losses or potential losses and facilitates dissemination of the recommendations to prevent recurrence across the Company;
- Conduct regular audits and inspections of company, and where applicable, contractor facilities;
- Conduct its business operations to ensure minimal impact on the environment through prevention and conservation and by continuously improving best practices. This can be achieved in part by firstly reducing, reusing and recycling then by treating and disposing of waste in an environmentally friendly manner;
- Demonstrate continuous improvement.

All employees and contractors for their part will be required to:

- Comply with or exceed relevant standards specified by statute, industry or the Veritas Integrity Management System (VIMS);
- Contribute to the planning process, actively participate in assisting the company in achieving its stated goals and targets;
- Actively participate in the reporting and subsequent investigation of all accidents, incidents, hazards and near misses that have the potential to impact on Veritas DGC operations;
- Proactively propose innovative processes or methods to further minimize risk and communicate these methods as appropriate;
- Accept responsibility for protecting themselves, visitors and members of the public who may be affected by their activities;
- Maintain a consistently high level of environment impact awareness and to conduct themselves in a manner which ensures their actions have a negligible impact on the environment.

Thierry PILENKO
Chief Executive Officer

Tim WELLS
President & Chief Operating Officer

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2.3 Environmental Protection Policy Statement

Veritas accepts the responsibility to operate its businesses in such a way as to eliminate or minimize the impact of its activities on the environment. This responsibility extends beyond conformance to local laws and regulations and includes striving to achieve best practice in environmental protection performance. This policy and these responsibilities apply to all Veritas personnel, in all operations, regardless of jurisdiction or remoteness.

To meet this responsibility, Veritas will:

- Eliminate or minimize the impact of our operations on the environment through prevention and conservation and by continually improving our best practices;
- Adopt the practices of reduction, reuse and recycling;
- Treat and dispose of waste generated by our activities in an environmentally acceptable manner;
- Prevent, reduce or control pollution, through management of our activities so as to minimize adverse impacts on the environment;
- Respect the rights of indigenous peoples in areas where we may be working;
- Respect and safeguard the integrity of archaeological sites which may be encountered;
- Comply with recommended conservation practices when working in environmentally sensitive zones or where endangered species are present;
- Monitor compliance with applicable local statutes and internal standards and procedures through periodic reviews and external audits;
- Conduct Environmental Impact Assessments as applicable;
- Report and monitor our environmental impact performance, set targets for improvement and demonstrate compliance in achieving these targets;
- Continuously improve our environmental impact performance and demonstrate compliance with the Veritas Integrity Management System (VIMS) and ISO 14001.

Individuals for their part will:

- Maintain high levels of awareness related to the effect of their activities on the environment and continually strive to minimize these effects;
- Report environmental incidents, sightings of protected or designated fauna and encounters with indigenous people (as appropriate) through the VIMS reporting system;
- Proactively discuss environmental issues and suggest and participate in measures to reduce the impact of our activities on the environment.

Thierry PILENKO
Chief Executive Officer

Tim WELLS
President & Chief Operating Officer

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2.4 Substance Abuse Policy Statement

Veritas DGC is committed to maintaining a safe and productive workplace and to promoting an environment that is free from substance abuse. Substance abuse may come about through the use of alcohol and illicit drugs and the inappropriate use of prescription and over-the-counter medicines or any other substance, which may result in impairment to health, behavior, judgement or job performance. Veritas DGC recognizes that substance abuse will impair the ability of employees to perform capably and will have potentially serious adverse effects on the safety, efficiency and productivity of an individual, other employees and the company as a whole.

The responsibility to be fit for work rests with the employee and Veritas DGC recognizes substance dependency as a treatable condition. Employees who suspect they have a substance dependence problem are encouraged to seek advice and appropriate treatment through the Veritas DGC Employee Assistance Program (EAP). Being unfit for work because of substance abuse is grounds for action up to and including termination of employment. This policy is intended to apply to all forms of misuse of substances affecting the central nervous system, including alcohol, legal and illegal drugs. Veritas DGC prohibits the unlawful manufacture, distribution, dispensation, presence or use of, alcohol, drugs or other controlled substances on its property or worksites, and is committed to instituting and maintaining a drug free workplace, to this end Veritas DGC will:

- Provide clear guidelines and consistent procedures for the use of alcohol or other substances:
- Provide substance abuse prevention education and supervisory training:
- Subject employees to a drug testing program (where local statutes support such an action) to help administer this policy and to ensure that all employees conform to state, federal and international regulations and laws:
- Subject employees violating this prohibition to discipline up to and including termination:
- Offer assistance to employees and family members in resolving problems related to substance abuse:

Veritas DGC recognizes that drug and alcohol issues can be sensitive and will undertake to assist employees through the provision of confidential and expert counseling / assistance services and further:

- No employee with alcohol or drug dependency will be terminated due to the request for help in overcoming their dependency or because of involvement in rehabilitation:
- An employee who has a substance abuse problem will not be permitted to work in designated positions identified by management as being critical to the safety and well being of employees, contractors, the public or Veritas DGC:
- Any employee returning from rehabilitation will be required to participate in a Veritas DGC approved after-care program.

Thierry PILENKO
Chief Executive Officer

Tim WELLS
President & Chief Operating Officer

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2.5 Alcohol Policy

General

Consuming or being under the influence of alcoholic beverages while on Company business on Company premises, in a Company vehicle or while on the job site of a client, is prohibited.

Marine Crews

A zero-tolerance alcohol policy will apply to all employees working offshore for a period commencing 12 hours prior to joining a Company vessel, until discharged by vessel management from offshore duties on completion of the work rotation, unless otherwise approved by vessel management.

Failure to adhere to the Company's policy on alcohol will result in disciplinary action up to and including termination of employment.

2.6 Substance Abuse Policy & Procedures

PURPOSE AND APPLICATION

This policy is designed to protect the safety of Veritas DGC employees, clients, sub-contractors, suppliers and the general public. It is not intended to constitute an unwarranted intrusion into the private lives of employees nor is it intended to detect matters unrelated to the safety and efficiency of our workplace. This policy applies to all employees of Veritas DGC and its domestic affiliates.

THIS POLICY AND THE REVISIONS CONTAINED HEREIN SUPERSEDE ANY DRUG TESTING POLICY DATED PRIOR TO JANUARY 2000.

POLICY

The use, possession, transportation, sale, purchase, manufacture or transfer of illegal drugs, controlled substances, or drug paraphernalia by any employee while on company premises or on any job site of a customer is prohibited. The term "company premises" as used in this policy includes all property, facilities, land, buildings, structures, fixtures, equipment, installation, boats, ships, aircraft, vehicles, automobiles, trucks owned, leased or used by the Company, and all other locations where Company business is conducted.

OFF-DUTY DRUG USE

You are expressly forbidden, as a condition of employment, to use unlawful drugs or controlled substances at any time. If a drug screen indicates the unlawful use of drugs by their presence in your system, you will be terminated. If you are convicted of unlawful drug use you will be terminated. You are also prohibited from abusing legitimately prescribed drugs at any time.

SUSPECTED DRUG ABUSE

When an employee is involved in a workplace accident or when there is a reasonable suspicion that an employee is under the influence of a controlled substance while on the job, the Company can require the employee to submit to an alcohol and drug test.

The Employee will be temporarily suspended until the alcohol and drug test results are received.

If the test results are positive the employee will be subject to immediate discharge. If an employee refuses to take the test, the employee will be discharged. If, on the other hand, the test results are negative, the employee will be paid for any wages lost as a result of the temporary suspension.

Reporting to work under the influence of controlled substances is prohibited. The only exception shall be for properly documented prescription drugs, which are being used as prescribed by a licensed physician as medication for the employee. Any employee taking prescription drugs, as prescribed by a licensed physician, that could influence his/her ability to conduct his/her job duties in a safe manner, should advise their supervisor or the Human Resources department.

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ADHERENCE TO POLICY

Any violation of this policy will lead to disciplinary action, up to and including termination.

RANDOM SEARCH AND TESTING

In order to properly administer and ensure compliance with this policy, the Company reserves the right to request, carry out and/or participate in reasonable searches of employee's personal effects when employees are on duty, on company premises, or on any job site of a customer. Personal effects of employees include, but are not limited to, personal vehicles, purses, wallets, clothing pockets, baggage, toolboxes, lunch pails and briefcases. No search of personal effects will take place unless the employee is first notified and is given the opportunity to be present at the search. Searches by authorized outside personnel under contract to the Company will be conducted in the presence of a Company representative.

Searches of Company owned or controlled property (including, but not limited to, offices, desks, lockers, toolboxes, ships, vehicles, and similar items) may be initiated without prior notice and conducted at times as deemed appropriate by the Company.

Employees will be required without prior notice to submit to a urinalysis drug test at random intervals, at the request of clients, for reasonable cause, as outlined by Federal regulations, and at any other time deemed necessary by the Company.

CONTROLLED SUBSTANCES TESTED FOR

As of the date of this policy, the five drugs tested for include:

- Marijuana (THC Metabolite)
- Cocaine
- Opiates (including heroin)
- Amphetamines
- Phencyclidine (PCP)

The detection "cut off levels" for the controlled substances subject to drug screening are those set forth in 40 C.F.R. § 40.29 (e) for initial immunoassay screening and in 29 C.F.R. § 40.29(f) for confirmatory GC/MS testing.

TESTING PROCEDURES

A split urine sample is taken from an employee and analyzed for the presence of marijuana (THC Metabolite), cocaine, opiates, phencyclidine, and amphetamines. Any trace above the threshold limit is considered a positive result. If an employee's initial urinalysis test is positive for the presence of controlled substances, a Gas Chromatography/Mass Spectrometry (GC/MS) confirmation test of the original specimen will be performed to confirm the results.

An independent medical facility, certified for drug and alcohol testing by the U.S. Department of Health and Human Services will conduct the tests, analyzes the results, and counsels employees regarding the outcome of the test(s). Further, the medical facility's Medical Review Officer (MRO) must be certified as a substance abuse professional. The Company will rely on the independent medical facility/MRO to provide appropriate documented data and testimony if the test results in an adverse personnel action or a grievance.

REPORTING PROCEDURES

If the confirming GC/MS test reflects that controlled substances are present in the employee's sample in a detectable amount, the medical facility's Medical Review Officer (MRO) shall contact the employee tested and explore with him/her possible causes for the presence of those substances. If the MRO determines, after such discussion, that no alcohol or drug use has occurred which violates this policy, no further action will be taken.

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If, however, the MRO determines that the explanation is not satisfactory, he/she will notify the Company and thereafter the following will occur:

1. Any conditional offer of employment made to an applicant shall be withdrawn and such person shall not be considered any further for employment with the Company.
2. Employees whose GC/MS test reflects that illegal or illicitly used substances are present in a detectable amount will be immediately terminated.
3. Persons subject to testing who are in the employment of an independent contractor providing services to the Company will not be permitted to remain on or to enter the premises of the Company or to perform work on the contract between the Company and the independent contractor. The independent contractor will be asked to reassign its employee to some other project in which the Company is not involved.

DISCIPLINARY ACTION

Discovery of Prohibited Articles

If, during any search, articles or substances prohibited by this policy are found, any employee in possession of such articles or substances will be subject to immediate termination without eligibility for rehire.

Sale or Transfer of Prohibited Articles

Any employee involved in the sale or transfer of prohibited articles or substances will be subject to immediate termination without eligibility for rehire.

Refusal of Consent

Drug testing and searches as outlined in this policy are terms and conditions of employment. Refusing to consent to either testing or searches will be subject to immediate termination.

Sample Alteration

Any employee who tampers, substitutes, or alters any urine sample will be subject to immediate termination without eligibility for rehire.

Positive Test Results

Any employee whose GC/MS test results are positive for illegal or illicitly used substances will be subject to immediate termination.

ELIGIBILITY FOR REHIRE

An employee who terminates for refusal of consent or positive test results will be eligible for rehire only if the following conditions are met:

1. The employee must notify the Human Resources Manager that he/she wants to be considered for rehire. This request must be written and received in the Human Resources Offices within ten (10) calendar days after the date of discharge.
2. One Company paid drug test will be administered in Houston. All other expenses will be the responsibility of the terminated employee, including travel expenses. The drug test must be administered under the same terms and conditions of drug tests given current employees.
3. The drug test must be administered within thirty (30) calendar days of the termination date. The terminated employee and the Human Resources Manager will mutually decide the date.
4. The drug test must result in a negative report, proof of which will be contained in the terminated employee's drug testing file.
5. The terminated employee will then be eligible for rehire.

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NOTE: ELIGIBILITY FOR REHIRE NEITHER GUARANTEES REHIRE AT ANY TIME FOR ANY POSITION NOR GUARANTEES REINSTATMENT TO POSITION HELD WITH THE COMPANY PRIOR TO DISCHARGE.

REHIRE

An employee who is rehired after termination for refusal of consent or a positive result may be subject to more frequent testing on a random basis for a period of two (2) years. ANY OTHER POSITIVE RESULTS OR REFUSAL OF SUBSEQUENT TESTING WILL RESULT IN IMMEDIATE TERMINATION WITHOUT ELIGIBILITY FOR REHIRE.

In the event that a client insists the Company have a different standard than the one defined in this policy, the Company and its employees will adhere to the standards imposed by the client.

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2.7 Personal Protective Equipment - PPE

Veritas Marine Acquisition

Personal Protective Equipment (PPE) Policy

Veritas' Marine Acquisition Division prescribes the use of designated Personal Protective Equipment (PPE) in an effort to prevent injuries in our work places. The company encourages all crew members to work in a safe manner and assist fellow crew members in the correct use of PPE. Safe work practices will include the use of PPE by all personnel, including contractors, where prescribed by written procedure and where visual media has been posted.

Training in the correct use and application of PPE is the responsibility of the Department Chief. It is included in the formal indoctrination process for new crew members.

Willful PPE violations are incidents or near misses where crew members deliberately use inadequate or inappropriate PPE in areas, or tasks, where PPE is prescribed. These areas include, but are not restricted to, gun decks, streamer decks, crane decks, helicopter decks, and machinery spaces. Specific tasks such as grinding, burning, working aloft, crane operations, and small boat operations also require prescribed PPE.

The following procedure will be followed for all instances of willful PPE violations:

Incident reports documenting willful violations of prescribed PPE will be submitted via VIMS. The crew member who is in willful violation will be issued with a verbal warning at the time of the incident. Records of verbal warnings will be maintained onboard by the Party Manager in a secure file. Names will not be entered on the report submitted to VIMS.

Persistent willful PPE violations, defined as two reported incidents within a 6 month period, will result in a written warning for submission to Human Resources. Also, the crew member will not be considered for promotion, and will be ineligible for any bonus for a 6 month period following the second violation.

A third willful violation of the prescribed PPE within one year will result in disciplinary action, up to and including termination.

Superior teamwork on our vessels will minimise instances of PPE violations and lead to lower injury rates. Crew members are encouraged to submit Good News Reports in VIMS when assisting fellow crew members in PPE use.

Version 1.0

Approved by C. Richard Price
President, Veritas Marine Acquisition

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2.8 Smoke Free Workplace Policy Statement - Marine

SMOKING POLICY - MARINE

The Company recognizes that cigarette smoking represents health and safety hazards and accordingly, the Company strongly encourages personnel not to smoke.

The Company also recognizes, however, that the decision to smoke is a personal one. While the Company does not wish to interfere with that decision, it does want to protect those who have chosen not to smoke.

Therefore, the Company mandates the following controls effective immediately:

- Smoking is only allowed in areas that are specifically designated and clearly marked as smoking areas (includes offices, vessels and any other Company facility). All other areas are non-smoking. There is absolutely no smoking in vessel cabins, common lavatories, elevators, hallways, medical areas, or stairways.

All meetings will be non-smoking events.

Designated smoking areas will be adequately ventilated and will have approved ashtrays and fire fighting equipment.

The Company encourages staff to become non-smokers and may provide reimbursement for reasonable costs for approved smoking cessation aids. Please see your immediate supervisor or Human Resources representative for details.

Refer to VIMS Management Procedure MP-OH-10

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3.0 Health Safety & Environmental Management System

3.1 Purpose of HSE System

HSE Commitment

Veritas DGC is committed to provide HSE proactive processes to mitigate and eliminate accidents and injuries to persons and damage to the environment, and regards the management of HSE as an integral part of its business activities.

Objectives

Main Objective

The objective of the Veritas VIMS System is to provide processes (tools) to eliminate occupational accidents, injuries, and illnesses. The principles of HSE Management Systems stress the importance of the identification, elimination and correction of hazards and near misses (unsafe acts/conditions) before accidents occur. The following are fundamental to proactive safety processes:

Eliminate - hazards from the work place

Control - hazards that cannot be eliminated

Train - personnel to recognize hazards and implement procedures to avoid accidents.

Prescribe - approved personal protective equipment, control devices or procedures

Additionally, the improvement process incorporates continual review through audits to identify strengths and weaknesses in the safety system. Recommendations are made to improve any identified concerns.

A successful, effective safety program must have strong support, commitment, and involvement from top management. First-line managers have an especially critical role in safety and health protection, as they are immediately responsible for personnel and the work they perform. They have an added advantage of having daily contact with persons and this gives first line managers a greater opportunity to correct unsafe conditions or practices.

Most importantly, we rely on our fellow personnel. It is the commitment and cooperation of this partnership that helps prevent accidents.

3.2 Veritas Integrity Management System (VIMS) – System Description

Veritas has implemented an Integrity Management System called VIMS with an initial focus on Health, Safety and Environment (HSE).

VIMS is based on a model management structure of **Plan–Do–Measure–Review** with the driver being Continuous Improvement. VIMS is a globally networked, structured, hierarchical, electronically distributed and controlled method of sharing Policy, Procedures and Practices cross all operating sites and units within Veritas DGC Inc.

The system uses Lotus Notes® to distribute and update information with VIMS being available on every desk-top and portable personal computer in Veritas. Scheduled replication of databases facilitates the rapid (and document controlled) two way flow of information from corporate and divisional offices to vessels, field crews and office sites—from the field staff to line managers to supervisors, divisional presidents to COO /CEO. Information flow is transparent, two-way and intra-divisional. Users can subscribe to the types and levels of reports that they wish to be notified about and once a report is posted in VIMS, emails are sent to all subscribers. VIMS provides linkages to the web for such applications as Veritas Web Site Employee Advisories, Chemwatch and SOS International. Posting of VIMS/HSE related reports onto the web site also permits customers (through a time expiration password) and other interested parties to access VIMS / HSE information related to a particular project.

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VIMS facilitates statistical analysis and reporting. VIMS can generate a comparison of established Key Performance Indicators (KPI's) by individual sites and also the traditional reactive statistical performance measures such as Lost Time Injury Frequency Rate (**Figure 1**). All users have the ability to generate reports that they wish to see from the system, when they need them.

VIMS describes the organizational; structure, standards, planning, responsibilities, procedures, practices, processes and resources for developing, implementing, achieving reviewing and maintaining the Corporation's Policies.

VIMS is the way that we demonstrate that we do what we say we do.

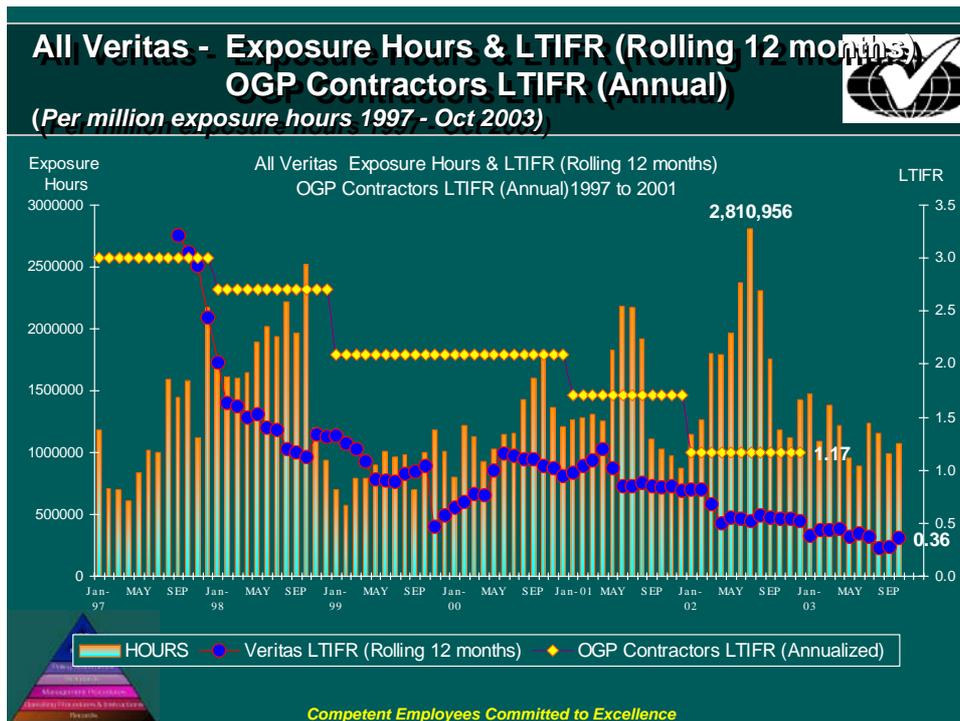


Figure 1 Lost Time Injury Frequency rate

An Overview of Integrity Management

Veritas' approach to Integrity Management is based on thorough identification of hazards and assessment and control of risks through:

- High standards for equipment, engineering and maintenance;
- Comprehensive VIMS procedures and operating instructions (sustained systems of work);
- Accountability for VIMS / HSE performance at the top levels of management;
- Responsibility for VIMS / HSE performance devolved and communicated to operating managers;
- Clear expectations and objectives for operating managers and employees;
- Programs to help employees anticipate potential incidents and to encourage personal action to minimize risks.

This approach effectively combines the awareness to reduce risks arising from the work environment (hardware) with the way activities are performed (behavior).

Veritas has developed a VIMS Vision and Mission, Policy Statements, Standards and management Procedures to provide the foundation required for sustained high standards of performance throughout the Veritas operations and activities world-wide.

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Veritas' strategy for improving performance uses a balanced application of people, procedural measures and facilities to manage the potential risks arising from its business operations (**Figure 2**).

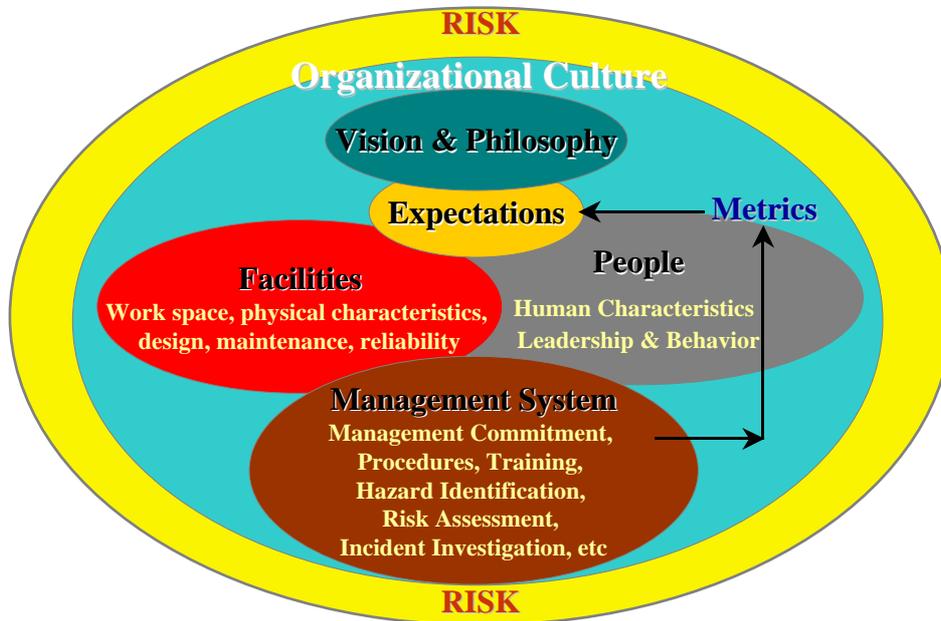


Figure 2 People, Facilities Management System, Expectations and Risk

Integrity Management Organization

Operating Managers are responsible for providing leadership and for development and implementation of VIMS management plans for their areas of responsibility.

Direction and guidance is provided at three levels within Veritas:

Level 1 Corporate Executive Team

Level 2 Division/Product Line General Management Team

Level 3 Site/Business Management Team

The Corporate HSE function provides technical policy support and advice to the Executive Team.

The VIMS Steering Committee provides the medium for communication between the Executive Team, the General Management Team for the various divisions, groups and product lines within Veritas and the Site / Business Management Teams. The VIMS Steering Committee seeks to develop, implement and maintain VIMS, share best practices and propagate the process of continuous improvement.

Activities include:

- Recommending policies and standards to address individual business and corporate VIMS issues;
- Determining strategies for the implementation of policies and standards;
- Providing a mechanism for raising business VIMS /HSE issues;
- Providing a forum for sharing best practices across the divisions / product lines;
- Identifying emerging trends to be reflected in medium and long term planning.

Site and Business Management Teams are supported by site / business based VIMS Committee Representatives who provide representation for site workgroups.

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THE VERITAS INTEGRITY MANAGEMENT SYSTEM

An Overview of VIMS

VIMS comprises a comprehensive set of Standards and Management Procedures which focus, at least initially, on the management of occupational health, safety and environmental issues. The system has been developed and is regularly updated to include requirements from:

- Statutory requirements from various countries in which Veritas operates worldwide;
- Industry best practice;
- Codes of Practice considered to be applicable and relevant to Veritas operations;
- ISO 14001.

The system draws from Veritas worldwide experience in the identification and control of risks. The system is continually being developed to reflect newly identified best practices within Veritas operations, from the ongoing sharing of information with the Veritas divisions and product lines and from benchmarking studies with other industry companies.

Hierarchy of Documents

VIMS provides the basis for a hierarchy of documents which form a comprehensive management process. These documents link together, starting with the expression of a clear vision and mission for VIMS and then describes corporate policies to guide the company's operations.

- Vision & Mission
- Policies
- Standards
- Management Procedures
- Site Operating Procedures
- Records & Reports

The Veritas Vision and Mission, the Policy Statements and the VIMS Standards have been created and reviewed by the VIMS Steering Committee and have been approved with the authority of the Veritas Chairman and Chief Executive and the President and Chief Operating Officer.

The Management Procedures and their key requirements have been developed and reviewed by the VIMS Steering Committee in consultation and approved by the President and Chief Operating Officer.

Vision and Mission

The commitment by Veritas to VIMS/HSE management stems from its Vision and Mission. The company Vision is supported by a VIMS Vision of "Competent Employees Committed to Excellence". The VIMS Mission is:

Veritas DGC, in its processes and activities, is committed to the pursuit of excellence. Excellence will be achieved through the commitment and cooperation of dedicated, responsive and competent employees. The standards, procedures, plans, and responsibilities, goals and targets described in the Veritas Integrity Management System (VIMS) and the contents of the Veritas Health Safety and Environment Policy, define the structures that enables us to conduct our activities to an agreed standard. The Veritas Integrity Management System provides the framework to identify hazards, mitigate risk and audit and review our activities. VIMS processes facilitate continuous improvement and promote ongoing excellence in all aspects of our business.

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Policy and Standards

Policy statements as well as the twenty VIMS standards are available on our website at www.veritasdgc.com.

The standards are listed here:

01. Health and Safety Commitment
02. Management and Resources
03. Risk Management
04. Environmental Management
05. Communication and Consultation
06. Personnel Competency & Training
07. Management of Change
08. Contractors and Suppliers
09. Auditing
10. Performance & Reporting
11. Emergency Plans
12. Systems of Work
13. HSE Assurance
14. Transportation
15. Material Hazards
16. Product Stewardship
17. New Plant, Equipment and Process Design
18. Acquisitions and Divestments
19. Strategic Quality Management (SQM)
20. Security

Management Procedures

Veritas developed the concept of Management Procedures in recognition that individual sites, product lines and divisions may have difficulty maintaining sufficient resources and the necessary expertise to develop and maintain the procedures required to manage the expanding range of risks faced by many organizations. The Management Procedures identify issues relating to each topic and describe practical controls to be applied. Inputs to the Management Procedures come from a variety of sources, some of which are shown in **Figure 3**.

The system also encourages the development of local or Site Specific Operating Procedures (SOP's). The Management Procedures are supported by audit checklists, standard forms and attached examples as applicable and appropriate.

Compliance with the VIMS Standards and the Key Requirements of all Management Procedures is mandatory throughout Veritas. Veritas Divisions / product lines / sites use a combination of the Management Procedures, customized local Standard Operating Procedures (SOP's) and work instructions to manage their risks and comply with corporate and other requirements.

Compliance with the management systems and other requirements is continually assessed through a combination of internal and external audits.

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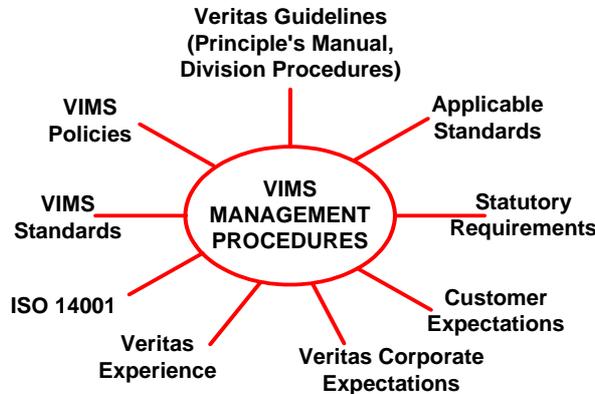


Figure 3 VIMS Management Procedure Inputs

While compliance with the Key Requirements of all Management Procedures is mandatory, Veritas businesses focus additional management attention on the HSE procedures, which control significant risks, and for which a high level of compliance needs to be assured. For the purpose of establishing the level of customization, training and auditing warranted the Management Procedures can be allocated into three categories:

Critical Procedures

Procedures that control significant risks and involve a number of people, work groups with significant staff turnover or otherwise require higher levels of management attention to assure the required level of compliance.

Critical Procedures usually require customization to meet local needs, widespread training of personnel and in depth internal and external auditing.

Typical field acquisition sites identify 20-30 Critical Procedures dependent on the nature of their operations and associated hazards. Lower risk sites, such as offices, may only identify a few Critical Procedures.

Regular Procedures

Procedures for which a lower level of management attention is needed to achieve the required level of assurance. Regular Procedures typically involve a smaller number of people and/or involve a lower level of risk. Regular procedures may still require customization to meet local needs. Training is usually restricted to the people directly affected, the frequency of internal auditing is often reduced to two to three yearly and the depth of internal auditing is reduced to verification that the key requirements have been met, with minimal auditing of the processes used to meet them.

Reference Procedures

Procedures that describe functions, which do not apply or are not required for normal operation. Training for Reference Procedures is limited to that required to ensure relevant people are aware of their existence. Auditing is limited to verification whether the activity has been required and, if so, were the Key Requirements met.

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The VIMS structure, shown in **Figure 4**, together with the Letters of Assurance and system audit reports provides the basis for demonstration that “due diligence” has been exercised in the control of risks throughout Veritas.

Feedback from the Letters of Assurance, audit reports and local implementation monitoring is analyzed to identify common weaknesses and areas to target for VIMS continuous improvement.

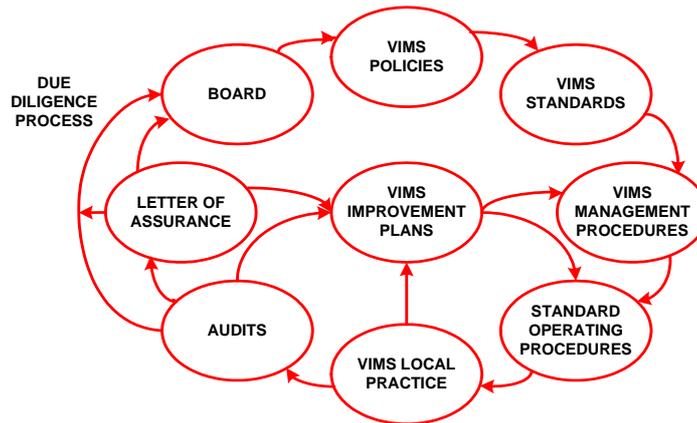


Figure 4 VIMS Documentation and process relationships including “Due Dilligence”

Document: VIMS Management Procedures	Version: MP-SG-020C
Custodian: Corporate HSE Manager	Date Issue: 03/01/2000
Approved: COO	Date Printed: 08/30/2000
Title: EMERGENCY RESPONSE PLANS	Page 1 of 16

Figure 5 An example of a document control header from MP-SG-020C Emergency Response Plans

Distribution

The Veritas Integrity Management System is distributed to users in a Lotus Notes® database. Document control is maintained by an electronic system, with page numbering, document title, date of issue, date of printing and version code as shown in **Figure 5**.

The most up to date versions of all documents are stored electronically. Every printed document is considered to be uncontrolled and each printed page of the document has an advisory, inserted as a footer that it may not be the latest version. Documents are formatted to print on Letter or A4 paper and can be printed by every user within Veritas as required. Veritas users, including remote site users, can synchronize the VIMS databases from their own servers to individual PC’s through the internet, or via modem using satellite or land telephone lines world- wide. Regular synchronization ensures that the latest document version is always available to the end user.

All Veritas employees can access VIMS by using their own desktop computers through the Global VIMS Icon as shown in **Figure 6**.



Figure 6 Global VIMS Home Page

Date	Status
Committee Members	
Members	
Next Committee Meeting	
Next Meeting→01/14/2004	
Committee Meeting Minutes	
12/03/2003	Submitted
11/19/2003	Submitted
10/16/2003	Submitted
09/10/2003	Submitted
08/06/2003	Submitted
07/09/2003	Submitted
06/11/2003	Submitted
05/07/2003	Submitted
04/09/2003	Submitted
03/05/2003	Submitted
02/12/2003	Submitted
01/08/2003	Submitted

Figure 7 Houston Committee Meetings held

Improvement Process

The Veritas Integrity Management System includes an in-built mechanism to continuously improve the performance of system users and to reduce costs through regular improvements to make the system more efficient and easier to use. (Figure 7) Implicit in this concept is the recognition that no system can ever be deemed to be perfect and that improvement is an ongoing process.

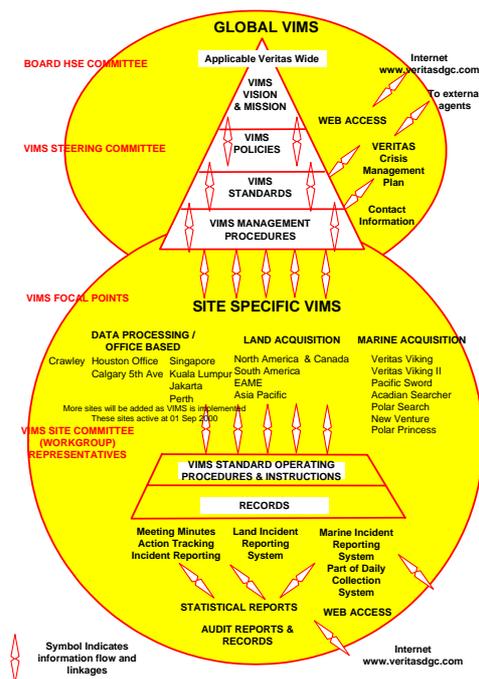


Figure 8 Electronic VIMS and Global and Site VIMS Communication Structure

Electronic VIMS

Electronic VIMS is represented in **Figure 8**. It comprises a series of Lotus Notes® databases interconnected and linked electronically. Lotus Notes® provides a reliable infrastructure to keep information up to date in all Veritas operations and is the corporate standard used to disseminate email, addresses, phone numbers and a variety of other global databases. This information is replicated to local servers at all Veritas sites. Remote locations such as vessels use satellite technology to permit replication. Local users access their site servers to replicate to their own desk or lap tops as required.

Provided replication is carried out regularly, the most up to date version of all VIMS documentation is always available.

At a local level, the VIMS site committee utilizes the Action Tracking Register (**Figure 9**) to record non- conformances arising specifically at their workplaces, the actions required and the person responsible for completion. This provides an auditable trail of actions completed and allows the setting of positive performance indicators such as the percentage of action items completed versus those raised and outstanding, committee meetings held etc. (**Figure 10**).

Exit Print View/Print Action Point Report Online Help

Houston Home Office Action Point Register

#	Date Opened/ Closed	Est Date Closed	Party Responsible	Non Conformity	Action To Be Taken
Active					
▶ 360	11/20/2003	01/05/2004	Troy Roach	MSDS Manuals are not up to date. Some personnel in the shop areas are not familiar with the use of MSDSs.	Verify that all substances currently in use in the shop areas have an MSDS sheet in the manuals. In addition, all MSDSs for other substances not found in the shop areas should be removed from the MSDS books. Instruct employees in MSDS use.
▶ 356	10/29/2003	01/05/2004	Breck Young	Currently no inspection checklist available in HHO audit portion	For Breck to insert the Tape Library inspection checklist and the Technology Services inspection checklist in HHO audits portion where those two documents can be imported, comments made and Action Points created.
▼ 353	10/06/2003	01/05/2004	Ken Dooley, Preston Delaney	No proximity sensor	Install a sensor to warn people of the possibility of someone opening the door.
Comments: 10/28/2003 Tom Patterson-->Electronic Sensor Company was informed of this concern today and are supposed to return to install the sensor.					
Comments: 11/07/2003 Ken Dooley-->The sensor was backordered and latest delivery indicates it will be installed by November 15.					

Figure 9 Action Point Register for Houston

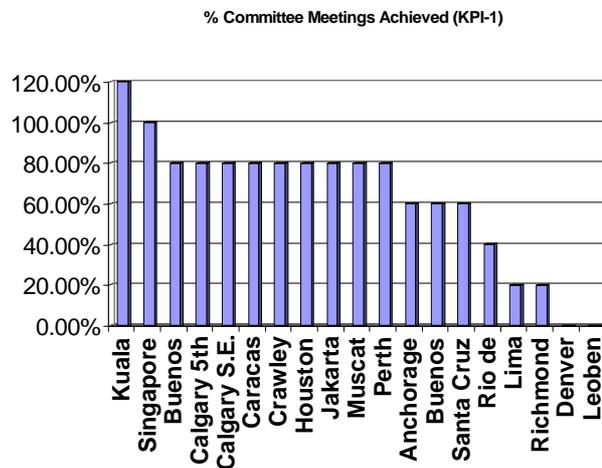


Figure 10 Committee Meetings July to November 03

All employees at every site have access to a common format Incident Reporting system. This database allows five major types of incident (Hazard / Near Miss, Occupational Injury, Property Damage, environmental Loss, Not Work Related) each with five or more types of outcome or potential outcome to be reported. Emails are sent on receipt of the report to subscribers who have indicated that they wish to know whenever these incidents are reported.

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Reporting

For our field acquisition sites, VIMS is proving to be a valuable repository for "organizational learning" in the HSE area.

Conclusions

The full use of the potential capabilities of VIMS will take some time. Even at this stage of development VIMS promises to be a system that will add value to the status of the learning organization which is Veritas. VIMS will improve the dissemination of information including incident reports; it will permit a forum for employee involvement through committee meetings; it will provide a more formal structure for auditing and inspections and allow tracking of action points; finally VIMS will provide a more structured approach to the identification of hazards (in all of our work environments) and the assessment and control of risk. This will ultimately result in fewer losses thereby improving productivity and the bottom line.

3.3 Health Safety & Environmental Proactive Processes

Responsibility

Management Responsibility

While senior management has the ultimate responsibility for safety, it delegates authority throughout all management levels. The local manager has total responsibility for implementation, operation and improvement of the Veritas VIMS System within his area.

Line management are the key people in an HSE program because they are in daily contact with employees. Line managers are responsible for maintaining safe working conditions and directly implementing the HSE Program.

Alliance

HSE Alliances

HSE alliances can provide a closer long-term relationship for implementing preventative actions to avoid accidents, injuries and occupational illnesses. Permanent HSE improvement will not be accomplished through a relative HSE program. HSE alliances allow the customer / contractor the opportunity to implement proactive processes for continual improvement.

Hazard Identification And Risk Control

Identification

Recognizing and eliminating hazards is the basis of proactive HSE accident prevention and a key element of VIMS. Hazard identification highlights deficiencies, allowing guidelines to be implemented to improve existing work practices and control HSE aspects of the operations.

All field personnel shall be involved in the process of hazard identification, which is an individuals basic responsibility and condition of employment, and shall report unsafe conditions or practices, thereby bringing to management's attention, hazards, which may have been unobserved or not reported previously.

All identified hazards will be assessed for risk and added to the facility Hazard Register.

Unsafe Acts / Conditions

When unsafe acts or conditions are identified they shall be reported and corrected using the VIMS Incident Report format. Details of the unsafe act or conditions and the corrective measures shall be discussed in the Safety Committee meetings. Corrective measures not implemented shall be added to the tracking register.

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Near Misses

Near misses shall be reported using the VIMS Incident Report format

A successful safety program is directed at preventing, not correcting accidents. It is extremely important to report and correct near misses and eliminate them.

A near miss is defined as an unexpected, undesired event, which happens without any physical damage or injuries resulting from the event (but has the potential for loss).

All personnel shall be encouraged to report near misses and be actively involved in the analysis and corrective measures implemented. Near misses have high potential to become accidents. By correcting near misses, accidents can be prevented.

Hazard Notification

All recognized and reported near misses (which provide potential for loss) and accidents shall be investigated and analyzed to prevent recurrence. Details of all near miss/accidents shall be reported on the VIMS Incident Report format.

An investigation is an account of an event based on a conscientious examination of all contributory factual information about the event.

An analysis can produce information that leads to elimination or reduction of accidents and injuries. The actual results of an accident might be minor, but the potential loss could be major. Positive investigation is a vital part of effective accident and loss control.

Each Occurrence / Accident has two causes:

1. Immediate Causes
2. Basic or Root Causes

The immediate cause is usually the most apparent and "closest" to the near miss/accident. By proper investigation, the basic personal or job factors cause can be identified and the best corrective action taken to prevent recurrence.

A simple example of the immediate cause might be as follows:

Event: Worker slips on spilled oil. The immediate cause is that the oil was spilled on the floor. To determine the basic cause, the question of WHY the oil was spilled should be asked. Then by further investigation, the basic cause can be determined and corrected.

Job Safety Analysis

The ultimate goal is to eliminate hazards out of the working environment. All personnel shall use the Job Safety Analysis Forms and the Hazard Register to identify health and safety design improvements for equipment and chemicals for action where necessary.

Job Safety Analysis consists of six steps

1. **Select the process to be analyzed**
2. **Break the process down into steps**
3. **Determine where there are potential hazards, and eliminate where possible**
4. **Develop controls for those hazards (that cannot be eliminated)**
5. **Complete the form**
6. **Develop safe processes using the results**

HSE Physical Audits

HSE Physical audits are conducted on buildings, equipment, machinery and tools to identify hazards.

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HSE Audits shall be performed annually by a qualified line manager or delegated personnel or 3rd party.

Personal Protective Equipment

The correct personal protective equipment shall be provided and worn by all personnel whenever required in designated areas, or when performing specific functions. Line management shall be responsible for ensuring adequate and quality PPE products are utilized by the personnel under their control.

HSE Education And Training

HSE Training

HSE training shall be based, as a minimum, on the recommendations specified by the IAGC, OGP, OSHA or other agencies. Also they may be in conformance with ISO 9001. HSE training requirements for each job classification are specified in the OGP guidelines.

All managers shall be responsible for ensuring that all their staff are properly trained in the methods and skills required to perform their tasks, and have adequate "in field" emergency response training to suit their working environment

Safety training for all personnel shall be conducted using the programs approved by Veritas Marine Acquisition Management. Additional safety training shall be given if required by local rules and regulations, or to benefit the advancement of an individual to a standard that is an additional asset to the Company or facility.

Orientation / Induction Training

Orientation training for new personnel shall include HSE training as required by industry guidelines. All personnel joining a crew shall be given a comprehensive, full facility induction within the first 24 hours of joining the crew.

HSE Records

All HSE training of personnel shall be recorded and documented. These records will be as required by Veritas Marine Acquisition Management.

Engineering And Construction

HSE Design

Correct design and construction of equipment, components and assemblies are basic requirements for a safe operation. All equipment shall be considered not suitable for use unless certified according to a specific standard as determined by the regulatory body governing the items manufacture.

Assessment of suitability of any product is carried out by the department manager utilizing the expertise of the Acquisition Technology Group; Operations or Field Service and an assessment for risk shall be undertaken with the assistance of the HSE department.

When the design, construction and application of any item is approved, correct measures shall be implemented to ensure personnel are trained in the operation and maintenance of the new product, and will be responsible for the correct commissioning of the product into the operation, incorporating the formulation of written procedures and Job Safety Analysis.

Inspections of existing equipment designs and applications shall be carried out to ensure that equipment and components are utilized within their safety critical limits, and evaluations made on redesign of applications based on field experience or different techniques.

Preventative Maintenance

A sound, efficient, maintenance program is essential. When machinery, equipment and tools are

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properly maintained, they are easier to work with, and employees tend to work safely. A good program will keep equipment, tools and machinery in good condition and will be reflected in the safety record. A documented preventative maintenance program will be established and maintained for review and approval by line management.

HSE Publicity / Motivation

Posters, Banners, Bulletins

Health, Safety and Environmental guidelines, hazard warnings, and other health and safety information shall be communicated to all personnel, using poster, banners, and bulletins, or other appropriate methods.

Safety Awards and Incentives

An internal system shall be developed to monitor HSE related performance of field personnel with a view to providing an Award/Incentives scheme to provide recognition to personnel for accident-free working hours and safe conduct during all operations.

Management HSE Meetings

Health, Safety and Environmental meetings are an excellent means of communicating needs, problems and objectives. Health, Safety and Environmental meetings allow personnel to have a voice in safety by sharing concerns and recommending ways to improve the safety program.

Line management shall hold Health, Safety and Environmental meetings each month, or more frequently as required. Local line management will always be present at these Health, Safety and Environmental meetings, which ensures that all management personnel are involved in the discussion of HSE matters and the review and analysis of incidents, accidents or emergencies that have occurred in the preceding period. This forum will allow all persons present the opportunity of expressing concerns or opinions on necessary corrective actions and help promote HSE awareness.

Personnel Involvement

HSE Meetings

Crew HSE meetings shall be held on a bimonthly basis. These meetings will be attended by (a minimum) all senior personnel from the Geophysical and Marine crews, along with Client and Contractor representatives and will be known as the Safety Committee. Weekly activities, ongoing projects and tasks, concerns and incidents will be discussed in detail, and action points added to a

Tracking Register. Minutes of these meetings will be taken and entered into the VIMS reporting system.

While it shall be the goal to have all personnel attend each Health, Safety and Environment meeting, this may not always be possible during regular operations. Line management shall distribute all relevant information discussed during the Health, Safety and Environment meetings to absent personnel.

General safety meetings with all facility personnel in attendance shall be conducted monthly and at the start of all new survey operations.

On-site pre-job HSE meetings, i.e. toolbox meetings, shall be conducted and recorded prior to new operations or when a task, outside of the normal operations is required. The task will be assessed for risk, and responsibilities clearly delegated.

Emergency Response Drills

Regular drills give personnel a better ability to respond to emergency situations that may develop at their worksite.

Emergency response drills for field crews shall be performed weekly, and as a minimum, these

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drills shall include fire and emergency evacuation. Drills should be detailed and organized practical demonstrations, with minutes taken. Line management shall ensure that the drills are held at the required frequency and that the content is applicable to the working environment.

Line management should ensure that drills are varied in their content and scenarios to help develop and encourage increased safety awareness.

Responsibilities for Working Safely

All personnel shall be responsible for performing their jobs safely. Safety is a full time responsibility both on and off the job.

Environmental

Environmental Protection Responsibilities

Veritas DGC Management recognizes their responsibilities to protect the environment. Our business will only be conducted in consultation with regulatory bodies in order to minimize the potential of any permanent damage to the environment.

Personnel Health Protection Responsibilities

Veritas DGC Management recognizes its responsibilities to protect the health of its personnel, and shall continuously strive to improve our products, services and processes to protect the health of our personnel.

Field conditions shall be monitored to ensure hygiene, sanitation and ergonomic standards are maintained to a suitable standard.

HSE Contingency Planning

Project Specific HSE Plan

A Project Specific HSE Plan shall be developed for all operations, defining the specific safety practices, resources, and sequence of safety activities relevant to a particular service contract, project, or product not covered by the HSE Management System or facility Safety Case.

Management and Group Leaders of each facility are responsible for evaluating any change in standard operating practices, and formulate the plan that shall clearly define amendments required to the facility's procedures and will detail any known hazards, formalities, requirements and conditions that may be encountered during a project, and procedures to follow when particular incidents are encountered.

Emergency Response and Crisis Management Planning

Planning for unpredictable and potentially catastrophic events outside of the normal operating boundaries of a particular business unit can assist field crews and line management to be better prepared for such an event.

Corporate management shall appoint Crisis Management Officers at each company facility and develop a set of procedures to be followed during a crisis.

Contractor HSE

HSE Procedures

Contractors and subcontractors performing work for Veritas DGC shall conduct their work to a standard that is no less than the minimum required by Veritas DGC as detailed in this document, and in accordance with the requirements of the management and regulatory bodies by which the contractor operates.

All local rules and regulations concerning HSE requirements will be strictly adhered to and documented for review by Veritas DGC line management, to ensure standards are maintained to a satisfactory level.

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Reporting

HSE related reports, in compliance with policies and procedures in place, shall be a requirement throughout all levels of the Company. Reports will be directed through all levels of line management for appropriate review and action, with analysis and management review being undertaken by the HSE department.

Reporting from all field facilities shall include the following:

Accidents, incident, damage or near miss reports

Inspection and audit reports

Tracking registers, progress reports and risk analysis

Minutes of all meetings

Statistics

Personnel evaluations and training

4.0 HSE Management Organization & Responsibilities

4.1 Management HSE Organization & Responsibilities

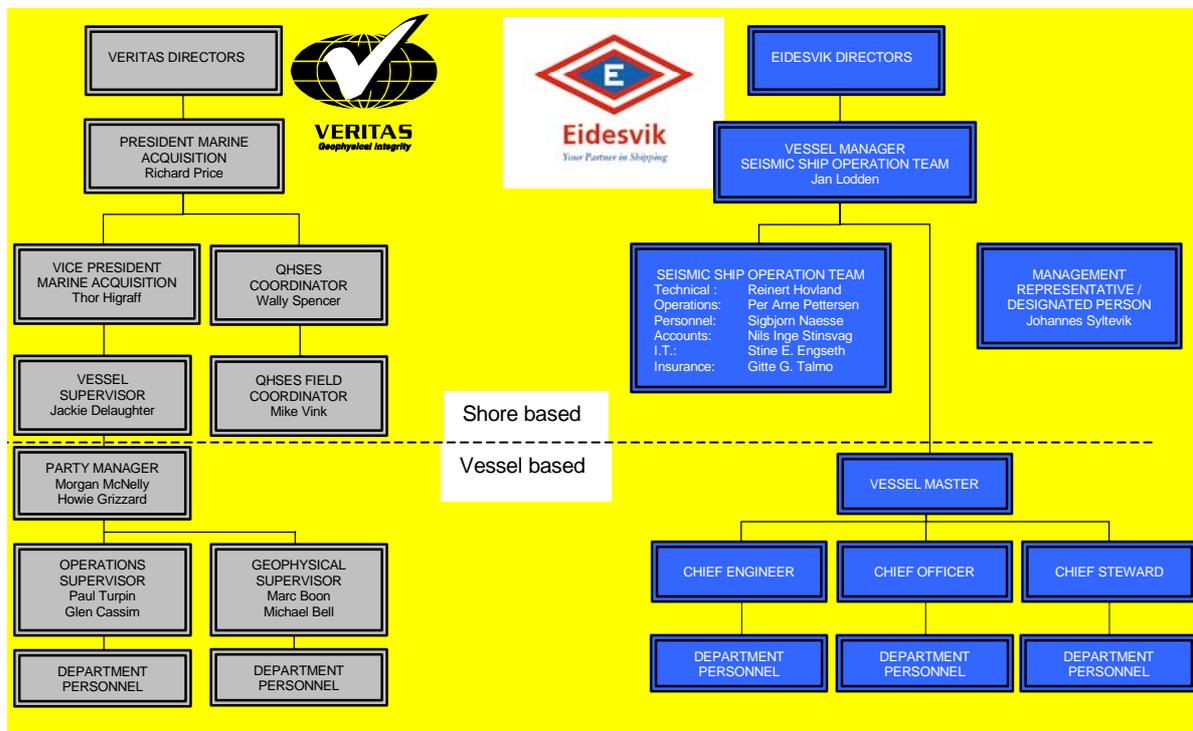


Figure 11 HSE Management Organizational Chart

(Note: The personnel assigned to the above positions may change, as operations require. For the current names of onboard personnel please refer to the Veritas electronic Document Collection System (DCS) crew list database.)

SAFETY POLICY ORGANIZATION AND RESPONSIBILITIES

President & Chief Operating Officer

The President & Chief Operating Officer is responsible to the Board of Directors of Veritas DGC and Veritas Marine Acquisition for the implementation of the Health, Safety and Environmental policies, throughout the company.

The President is at the top of the Safety Management chain and is committed to safety at all levels of the company's operations.

President of Marine Acquisition

Authority for the implementation of the Health, Safety and Environmental policies is delegated by the President to various executives responsible for individual areas of operations.

It shall be the specific responsibilities of these executives to:

- ensure that the specific responsibilities for implementation of the health, safety and environmental policies are properly defined and delegated;
- ensure that the effectiveness of the policy is regularly reviewed and revised as and when necessary;
- ensure that the appropriate company resources are allocated to meet the requirements of the policy;
- promote and support VIMS (Veritas Integrity Management System) through its direction by the VP of HSE.

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VP Health Safety Environment

The VP of HSE is responsible for advising the Chief Executive, Executive Directors, Departmental Manager and all other company personnel on matter relating to health, safety and the protection of the environment. The VP of HSE:

- assist company management in establishing the necessary health, safety and environment standards, procedures and training required in the policy;
- coordinate the implementation of the safety policy and establish Enhanced Safety Management programs within the company.
- review all reports on accidents, incidents, and near misses and in consultation with the Department Manager, the Insurance Department and the Head of Legal Affairs, ensure that a full investigation is carried out and appropriate remedial action is recommended to company management.
- advise company management on procedures to ensure that all operations, vessels and offices as well as all other premises and facilities operated by the company, comply with policy.
- conduct independent health, safety and environmental inspections and audits of all company operations, vessels, facilities, offices and other premises and prepare the necessary reports for company management review.
- provide technical assistance to all departments on issues relating to health, safety and the protection of the environment and encourage the development of a high level of health, safety and environmental "awareness" at all levels of the company.
- ensure that all of the company operations and all associated equipment are of such a design and construction and are so maintained, as to minimize the risk to health, safety, and the environment.
- ensure that procedures are established and implemented to provide company personnel with the necessary information, instruction and training to enable them to carry out their duties in a safe manner and without detriment to health and the environment.
- encourage health, safety and protection of the environment "awareness" within all areas of operation.
- liaise with all relevant concerns on company matters pertaining to health, safety and the environment.
- in conjunction with company management, ensure that the company's views and endeavors on health, safety and the protection of the environment are considered and recognized by interested parties through contract terms and conditions.

Department Managers, Vessel Supervisors, Party Managers

All Department Managers are responsible for ensuring that all company personnel, for whom they are responsible, know that as Veritas Marine Acquisition employees they are required to adhere at all times to the safety policies and its supporting standards and procedures. In addition, each Department Manager will:

- ensure that the arrangements for implementation of the safety policies and standards are met, carried out and enforced;
- review and place into action, all recommendations from the Safety Department for improving the standards of health, safety and the protection of the environment, within their area of responsibility;

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- ensure that all company operated facilities, vessels equipment, offices and other premises, so far as is reasonably practicable, are safe and without risks to the health and safety of the employees and the environment;
- ensure that routine maintenance programs of all company operated facilities, vessels, equipment, offices and other premises, under their control, are established and implemented in accordance with company standards, recognized industry practices and applicable legislation.
- make arrangements for all company personnel under their control to be thoroughly briefed on each job, prior to commencement of the work, so that they fully understand what is required of them, together with any precautions that need to be taken;
- encourage all company personnel to promptly report potential hazards, unsafe conditions, unsafe acts and near misses to the appropriate Department Manager. The Department Manager shall take or ensure that immediate appropriate action is taken to deal with these and advise the Safety manager of the actions taken.
- ensure that regular inspections are carried out to identify potential hazards, unsafe conditions or unsafe acts and take appropriate remedial action;
- encourage company personnel, if a situation warrants, to report unsafe situations directly and in confidence to either the VP of HSE or ultimately to the Executive Directors or the Chief Directors or the Chief Executive;
- in conjunction with the QHSES Coordinator, ensure that additional procedures are developed to cater to special risks and circumstances arising in the course of the company's business;
- ensure in all work areas, that a safe work system is operated. Where potentially hazardous situation exist, a "Permit to Work" procedure shall be used, if appropriate;
- ensure that emergency procedures are maintained and cover all potential incidents relevant to the particular location. Where appropriate, these or relevant parts of these should be displayed on notice boards throughout each location. Alarms and the procedures amended and additional training given to personnel.

All company personnel must familiarize themselves with the emergency alarms and procedures applicable to the location where they are employed.

Company Personnel

It is the statutory responsibility of all company personnel to take reasonable care of the health and safety of themselves and of other persons who may be affected by their acts or omissions at work. All company personnel will;

- familiarize themselves with the provisions of the policy and any specific rules or procedures relating to health and safety at work and environmental protection;
- comply with the policy and its supporting rules or procedures;
- promptly report any near misses, accidents, incidents or dangerous occurrences to their manager and cooperate fully in any investigation;
- cooperate with company management on matters relating to health, safety and the protection of the environment and, where appropriate, discuss with and/or assist their manager in resolving matters relating to health, safety and the environment;
- ensure that any company equipment issued to them, or for which they may be responsible, is correctly used and properly maintained;
- wear protective equipment whenever instructed or it is recommended to do so;

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- be responsible for good housekeeping in the area in which they are working;
- immediately report any potential health, safety and environmental hazard to their manager.

VERITAS DGC HSE

Training

Company health, safety and environmental training standards shall be developed and maintained by the Corporate HSE Manager. Each Department Manager shall identify the health, safety and environmental training needs of their subordinates and make appropriate arrangements for training to be conducted with the Vessel Supervisor and QHSES Coordinator.

Training programs include, but not limited to:

- 1) Offshore survival.
- 2) Helicopter Underwater Escape (HUET).
- 3) Helicopter Landing Officer (HLO).
- 4) Fast Rescue Craft Coxswain (FRC).
- 5) Fire-Fighting.
- 6) Advanced First Aid and AED training.
- 7) TapRoot - root cause analysis training.

Awareness Programs

Where appropriate, the QHSES Coordinator in conjunction with Departmental Managers shall introduce programs to raise the profile of key health, safety and environmental issues and to encourage and maintain a high level of health, safety and environmental awareness of all personnel.

Systems currently in use include, but not limited to:

- 1) Regular meetings.
- 2) Use of safety awareness media throughout the ship.
- 3) Use of supervisory structure to promote safe working practice.
- 4) Safety award program.

Protective Equipment

The HSE Department, the QHSES Coordinator and each Departmental Manager shall ensure that protective equipment is provided, where it is evident that the person's job requires it. All equipment should conform to a relevant standard or equivalent or, in the absence of such a standard, a company policy standard.

Accident Investigation and Reporting

All accidents, incidents and near misses must be reported to the responsible Departmental Manager and QHSES Coordinator, who will copy the reports to the President of Marine Acquisition and the Insurance Department. The QHSES Coordinator, in conjunction with the Departmental Managers, shall develop and implement procedures to ensure that all accidents, incidents and near misses are properly reported, investigated and appropriate remedial action taken.

Employee Health Monitoring

Each Departmental Manager shall ensure that where potential health hazards to company personnel exist, these are identified and, as far as is reasonably practicable, minimized. All company personnel in potential health risk areas of employment shall be made aware of the

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potential risks. Arrangements will be through the Departmental Manager for them to have any additional medical examinations necessary.

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Sub-Contractor Health & Safety

Each Departmental Manager, with assistance where appropriate from the QHSES Coordinator, shall ensure that all sub-contractors used within their area of responsibility properly address health, safety and the protection of the environment. Review of sub-contractors' health, safety and environmental policy and procedures shall form an integral part of the contract selection process. All contractors shall be obligated in their work for the company to comply with all applicable health, safety and environmental laws and meet good industry standards.

Occupational Health and First Aid

The QHSES Coordinator shall ensure that the Company employs appropriate qualified medical staff and/or trained First Aid personnel. Departmental Managers shall identify the requirements for such staff and ensure that appropriate equipment is maintained at each company location within their area of responsibility, to meet with standards set by the company. Departmental Managers must concern themselves with the occupational health of all personnel for whom they are responsible and any cases causing concern should be directed to the appropriate medically trained person(s) at the location or to the QHSES Coordinator.

Environmental Protection

Departmental Managers shall ensure that potential environmental impacts of any operations under their control are identified and the necessary actions taken to minimize these prior to the startup and during all operations.

Company Standards

Generally the health, safety and environmental standards adopted by the Company shall be those specified in relevant government legislation, codes of practice and guidance notes together with recognized international industry and or industry association standards and practices. Where it is deemed appropriate, these shall be further developed and improved by the Company. All standards adopted by the company will be progressively published as company standards. This activity shall be coordinated through the VP of HSE.

Design Construction and Operation of Company Operated Facilities

Departmental Managers shall ensure that company operated vessel, facilities and equipment, within their areas of responsibility, are designed, constructed, operated and conform to accepted company/industry standards and applicable legislation Construction and/or dry dock work should be properly supervised throughout its duration and systematic safety reviews and hazards analysis should be conducted during all design, construction or repair phases. Operating procedures shall be developed and followed and regular safety inspections conducted during all operations.

Technical Assistant and Support

The QHSES Coordinator shall provide technical assistance, guidance and support to all company personnel in the implementation of this policy.

Health, Safety and Environmental Inspections and Audits

The QHSES Coordinator or designate shall conduct independent inspections and audits of activities at all company locations. These may be conducted with or without prior notice. The level of activity at the particular location shall govern their frequency.

If in the opinion of the QHSES Coordinator, any serious risk or hazard identified during an inspection/audit represents an imminent risk to health, safety and environment, the responsible Division Manager must decide whether it shall be remedied immediately and/or the facility shut-down until appropriate action has been taken.

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As soon as practical after the inspection/audit, a report shall be prepared detailing any specific health, safety and environmental hazards noted during the inspection/audit and the action taken or recommendations made to minimize, if not eliminate them. Should the report identify a hazard and recommend remedial action, further inspection/audits shall take place to ensure that the hazards has been minimized, if not eliminated.

A qualified third party shall also perform audits at intervals determined by the President of Marine Acquisition.

Policy Review

The QHSES Coordinator shall report on and review company performance with respect to this policy on a regular basis with Division and Corporate Management, this will ensure problems are properly addressed and monitored and where necessary, improve the health, safety and environmental standards within the company.

4.2 Field Personnel HSE Organization & Responsibilities

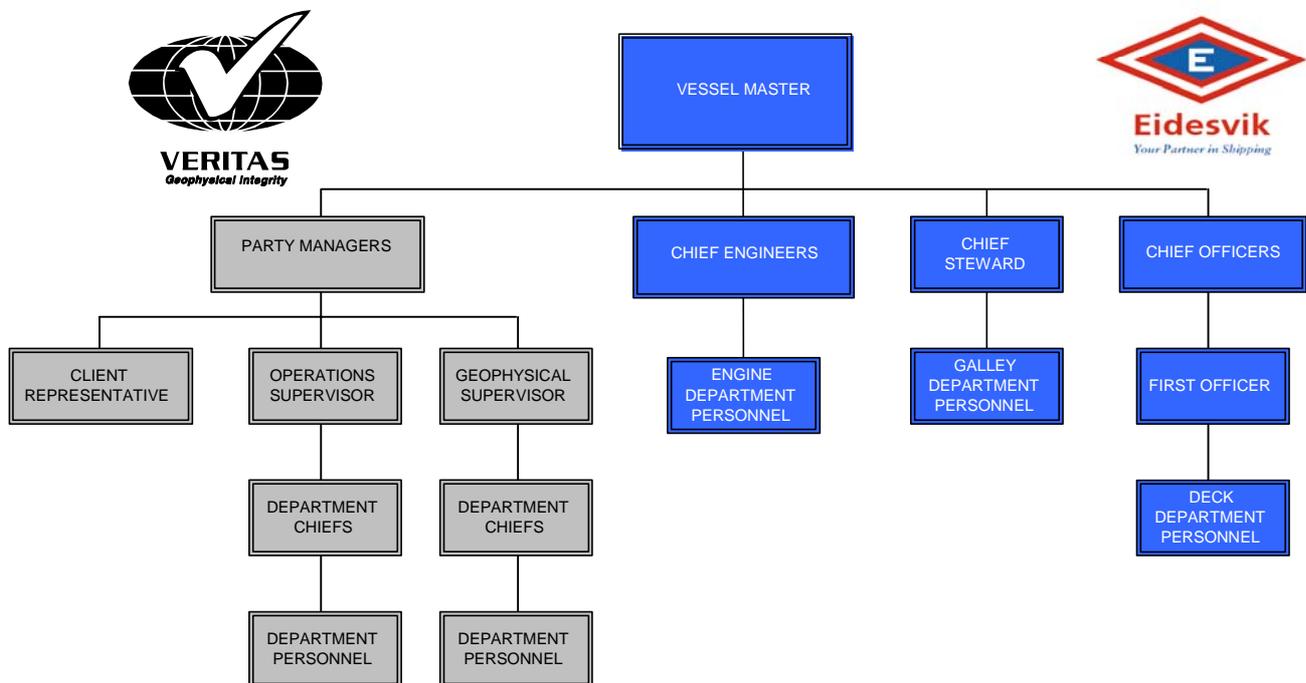


Figure 12 Field HSE Organizational Chart



**SR/V Veritas Viking 2
Organisation Diagram**

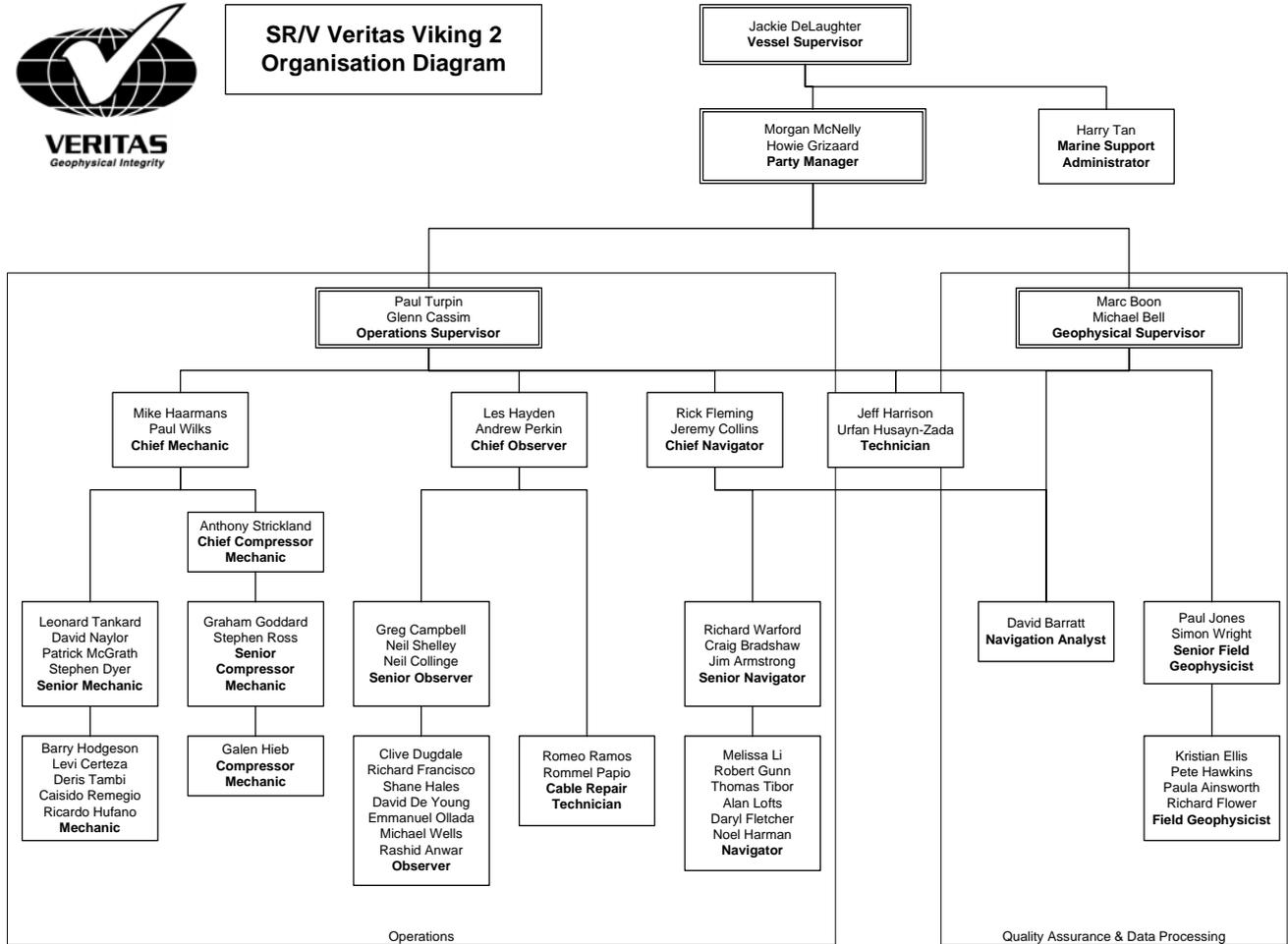


Figure 13 Vessel Organizational Diagram

(Note: The personnel assigned to the above positions may change, as operations require. For the current names of onboard personnel please refer to the Veritas electronic Document Collection System (DCS) crew list database.)

The Project Vessel Supervisor, Regional QHSES Coordinator and Regional Marine Manager will administer project Safety Management.

Marine Safety

Onboard either vessel, as is normal procedure, the Master of the vessel is ultimately responsible for all operations onboard his vessel, and is assisted in this role by Chief Officer, Chief Engineer, Party Manager and Operations Supervisor. The Master, at his discretion, can overrule any instruction issued by the seismic crew Party Manager or any other person, if he feels that this action would compromise the safety of any person involved or the safety of his vessel. The Master of the vessel maintains the ships log detailing daily operations and safety drills, change of instructions, accidents and safety reviews. The Party Manager will maintain a separate log of weekly drills and meetings in the VIMS reporting system.

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The Master and/or Party Manager and Safety Office will maintain a regular series of inspections of the vessel, purely to review the vessels safety status. These inspections will be carried out weekly and the results of the inspections will be discussed at each safety meeting and the necessary action points noted in the meeting minutes and added to the Action Point Tracking Register.

Master

The Master is responsible for the overall control of the vessel under their command and for ensuring the safety, health and welfare of the personnel on board.

The Safety aspects of the Master's duties include, but are not limited to, the following:

- Ensuring that the vessel is safely navigated and operated in accordance with the requirements of the Owners and Veritas DGC instructions and statutory regulations as governed by;
- The watch keeping standards laid down in the International Convention on Standards of Training, Certification and Watch keeping for Seafarers, 1978 (STCW 1978).
- The Convention on the International Regulations for Prevention Collisions at Sea, 1972 (COLREG 1972) and Amendments.
- Chapter V SAFETY OF NAVIGATION, OF SOLAS 74/78 Convention incorporating 1981/1983 Amendments.
- Ensuring that the vessel's safety equipment is maintained to the standards required by governing body and owner or Veritas DGC instructions.
- Ensuring that emergency drills are conducted in accordance with the company requirements and the standards or relevant sections the ships governing convention.
- Ensuring that the vessel's radio station is operated and maintained in accordance with the relevant Radio Regulations and the standards of SOLAS 74/78 and Amendments. Chapter IV - RADIOTELEGRAPHY AND RADIOTELEPHONY.
- Ensuring the Health, Safety and Welfare of all crew and charterer's personnel.
- Issuing necessary safety instructions to cover any work being undertaken.
- Ensuring that the vessel's working operations are conducted in a way that will avoid injury to personnel and damage to owners, Veritas DGC's and/or others property.
- Ensuring that incidents which prejudice any of the foregoing requirements are brought to the attention of Owner, Veritas DGC and others as soon as possible.
- Ensuring that upon departure from any place, the vessel is ready in all respects for the intended passage, is seaworthy and is properly manned, equipped and supported.
- Complying with, at his discretion, all instructions, standing orders and regulation laid down by Owner or Veritas DGC having due consideration for the safety of life and the vessel.
- Working with the Party Manager to ensure that there is effective two-way communications between the vessel and shore.
- Working with the Party Manager to ensure that proper arrangements are established for use in the event of an emergency involving the vessel or any trailing gear or equipment on board, so that there is no delay in executing the correct procedures and contacting the necessary shore based personnel.
- Delegating to his subordinates, at his discretion, any of the work involved in the performance of an assigned task together with the necessary degree of authority. However, the obligation to ensure proper and timely completion of that task remains with the Maser.

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- Keeping up, or arranging the upkeep and preparation of all log books, records, reports, correspondence and other documentation required by Eidesvik, Veritas DGC, Port Authorities, Classification Societies, Governments and other regulatory bodies, as appropriate.
- Obtaining appropriate advice/guidance from specialist departments including safety, on matter affecting the health and safety of their department.
- Advising Owner Management and Veritas DGC Management immediately of any deficiencies in equipment, standards, procedures or training.
- Working with the Party Manager and Operations Supervisor in arranging consultation with Line Supervisors and (where appointed) employee representatives on health and safety matters affecting the work area and ensuring that all personnel are advised accordingly.
- Working with the Party Manager and Operations Supervisor in initiating corrective action on receipt of accident/incident reports involving health and safety matters.
- Working with the Party Manager and Operations Supervisor in initiating appropriate action following safety meetings to rectify any unsafe situations highlighted.
- Providing leadership for the vessel's compliment of a quality that will encourage each man to perform at the best of his ability and develop to his fullest potential.

Deck Officers (Chief Mate, 2nd Mate)

The Deck Officers are responsible for assisting the Master in the operation of the vessel to the standards laid down by Owner requirements and Veritas DGC instructions and Statutory Regulations.

The safety aspects of their duties include, but are not limited to the following:

- Ensuring that when they are in charge of the vessel it is navigated in accordance with the terms of reference laid down by the Master's Standing Orders/Night Order Book.
- Ensuring when necessary, they keep radio watches in accordance with the Radio Regulations and requirements of Chapter VI of SOLAS 74/78 and Amendments.
- Prior to every departure, prepare calculations of the vessels stability and trim.
- Plan the routing and speed of any voyage.
- Responsible for the loading and unloading of any cargo and prior to departure, verify that all cargo is sufficiently lashed.
- Under the direction of the Master, ensuring that the radio and safety equipment is maintained and operated to the standards laid down by governing body and owners or Veritas DGC instructions.
- Assisting in the conduct of the required emergency drills and the training of the crew in emergency duties.
- Assisting in maintaining the Health, Safety and Welfare of the vessel's compliment and is responsible for the inventory and readiness of the ships medical locker and hospital.
- Assisting in ensuring that the vessel's working operations are conducted in a way that prevents injury to personnel and damage to property and equipment.
- The Chief Mate will in conjunction with other department heads (Including Seismic Personnel), be responsible for advising on and preventing unsafe working conditions and practices on board the vessel and when in port. He will pay particular attention to areas associated with fire hazards, e.g. paint lockers and storerooms. Cleanliness and good housekeeping practices eliminate potential hazards. Mechanical and electrical defects will be reported to the Engineering Department (Chief Engineer) for necessary action.

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Chief Engineer

The Chief Engineer is responsible to the owners, the Master and Veritas DGC for the upkeep, maintenance and operation of all machinery. In addition he is responsible for the safety, supervision and organization of crew members when employed in machinery spaces.

The safety aspects of his duties include, but are not limited to the following: -

- Ensuring that Engine Room watches are conducted to the standards laid down in the engine room watch keeping section of the International Convention on Standards of Training, Certification and Watch keeping for Seafarers, 1978 (STCW 1978).
- Ensuring that the mechanical and electrical safety equipment of the vessel is maintained to Eidesvik's standards and those required by governing body. These items include, but are not limited to: Fire Pumps, Fire Mains and Hydrants, Fixed Fire Fighting Equipment, General Alarms, Fire Alarms, and Detection Systems, Remote Closing Valves, Deck and Engine Room Electrical
- Emergency Shut Downs, the power supply to Navigation Lights and other safety items requiring electrical power for operation.
- When required he will assist and advise the Back Deck Supervisor or Crew Leader with the following (but not limited to): fast Rescue craft Engines, Hydraulic Davits/ Cranes and any hydraulic powered items.
- Assisting in all aspects of emergency drills, which have particular reference to the operation of mechanical and/or electrical systems.
- Assisting the Master in the health, safety and welfare of personnel employed in the engineering department.
- Assisting in ensuring that the working operations are conducted in a way that avoids injury to personnel and damage to property, with particular reference to the operation of mechanical and electrical systems.
- Reporting to the Master any shipboard occurrence, condition or significant body of opinion, of which the Master may be unaware, and which may affect the efficient working or safety of the vessel or the well being of those on board.
- Delegating to his subordinates, at his discretion, any or all of the work of an assigned task, together with the necessary degree of authority. However, the obligation to ensure proper and timely completion of that task remains with the Chief Engineer.
- Responsible for the safety measures taken during bunkering and transfer of oil products.
- Requisition and inventory of sufficient spare parts.

Engineering Officers (1st & 2nd Engineers)

Engineering Officers are responsible for assisting the Chief Engineer in the performance of his duties, as outlined in the Chief Engineers responsibilities, and as directed by him.

The safety aspects of their duties, but not limited to:

- Conducting their watches in accordance with the requirements of the engine room watch keeping section of the International Convention on Standards of Training, Certification and Watch keeping for Seafarers, 1978 (STCW 1978).
- Active participation in emergency drill and the training of vessel's personnel in the machinery aspects of safety equipment.
- Ensuring the Health, Safety and Welfare of personnel working under their direction in connection with the machinery on board.

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Crew Members (AB's, IR's, Stewards & Cooks)

These crew members have a responsibility to ensure that their actions or omissions do not cause injury to, or compromise the Health, Safety and Welfare of, other members on board.

It is their duty to participate in emergency drills as required by the Master and directed by the vessels Officers. They are to be acquainted with the location and operation of all fire fighting, lifesaving and other emergency equipment on board.

Seismic Operations Safety

The Master is ultimately responsible for the safety of the ship and personnel. The Party Manager is responsible for the geophysical operation of the vessel. It is the responsibility of the Master and Party Manager to ensure that the operation of any of the ship's equipment is only performed by experienced personnel. Everyone is responsible for ensuring that their subordinates have had the necessary training for the task in hand. If this is not the case, the fact should be identified to the Immediate Supervisor and the Marine Operations Manager, or if possible rectified immediately by providing the person with the necessary facts and training required either on the vessel or at a specialized center.

Party Manager, Operations Supervisor, and Geophysical Supervisor

The Party Managers and their direct reports are in charge of the overall running of the seismic crew and the operations this crew and vessel may carry out. Bearing in mind that, the Master may override any decision that the P.M. makes, if the Master deems such decision as to compromise the safety of the vessel or personnel on board.

The safety aspects of their duties include, but are not limited to the following:

- The P.M. is to ensure that all company policies and procedures are followed correctly. To this extent he will work with the assistance of the Operations Supervisor and Veritas DGC management.
- Ensuring that weekly emergency drills are carried out in accordance with Veritas DGC's requirements and standards.
- Ensuring the Health, Safety and Welfare of the Seismic personnel and contractors personnel.
- Where necessary, issuing safety instructions to cover any of the work being undertaken.
- Ensuring that Seismic operations are conducted in a way that will avoid injury to personnel, property, environmental or equipment damage.
- Ensuring that incidents, which prejudice any of the foregoing requirements, are immediately brought to the attention of Veritas Marine Acquisition, the Client, and any relevant authorities.
- Working with the Master of the vessel to ensure effective two-way communications is established between the vessel and shore.
- Ensuring that prior to departure from any place all Seismic personnel are fit for duty.
- Working with the Master to ensure that proper arrangements are established for use in the event of an emergency involving the vessel, trailing gear, on board equipment or personnel, so that there is no delay in executing the correct procedures and notifying the relevant shore based personnel or authorities.
- Keeping up, or arranging the upkeep and preparation of daily records, reports, correspondence and other documents required by Veritas Marine Acquisition and it's Clients.
- Obtaining appropriate advice/guidance from specialist departments including safety, on matters affecting the Health, Safety and Welfare of his charges.
- Advising Veritas Marine Acquisition Management immediately of any deficiencies in equipment, standards, procedures or training.

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- Working with the Master and Operations Supervisor in arranging consultation with Line Supervisors and (where appointed) employee representatives on health and safety matters affecting the work area and ensuring that all personnel are advised accordingly.
- Working with the Master and Operations Supervisor in initiating corrective action on receipt of accident/incident reports involving health and safety matters.
- Working with the Safety Committee Members in initiating appropriate action following safety meetings to rectify any unsafe situations highlighted.
- Providing leadership for the vessel's compliment of a quality that will encourage each man to perform at the best of his ability and develop to his fullest potential.
- Promoting Safety Awareness throughout the vessel.

Chief Observers

Observers are responsible for the quality control of acquired seismic data. They report directly to the Operations Supervisor and Party Manager. The Observers are the leaders of their respective shifts and it is their responsibility to ensure that all persons on their shift follow the specific guidelines set down for each and every task in their control. They are responsible for the safety of reel deck operations, i.e. streamer deployment and recovery.

The safety aspects of their duties include, but are not limited to the following:

- Delegating to their subordinates, at their discretion, any of the work involved with the seismic operation, with the necessary degree of authority. However, the obligation to ensure proper and timely completion of that task remains with the Chief Observer.
- They have their own safety check lists that must be submitted to the Safety Committee each week. When a discrepancy is found they will take the necessary actions to rectify the problem.
- In the Party Manager's absence the Chief Observer is to ensure that all HSE standards are followed.
- The Observers will take an active roll on the Safety Committee.
- Working with the Safety Committee Members in initiating appropriate action following safety meetings to rectify any unsafe situations highlighted.
- Providing leadership for the seismic crew members of such a quality that will encourage each person to perform at the best of their ability and develop to their fullest potential.
- Promoting Safety Awareness throughout the vessel and to all who sail with it.

Chief Navigators

Navigation personnel report to the Operations Supervisor and Party Manager. They will assist with the Bridge Officers in ensuring a safe passage for the vessel at all times. Navigators will also take charge of any positioning equipment that may be deployed and any problems arising with any antennae concerning the onboard navigational equipment.

When the Streamer is being deployed and once in the Tow Position, navigators will monitor the Streamer at all times. They will notify the Bridge and Gun Mechanics of line change times and any turns that may be required.

The safety aspects of their duties include, but are not limited to the following:

- In the event of an emergency they will take a position/fix of the location of the vessel at the time of hearing the alarm. They will monitor the VHF radio on the working channel being used for the prospect.
- Reporting any electrical faults concerning the navigational equipment directly to the on board Technician.

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- Ensuring that their actions do not compromise the Health, Safety and Welfare of the vessel and any of the crew members on board.

Participating in emergency drills as required by the Master and directed by Officers of the vessel.

Chief Mechanics

Chief Mechanic reports directly to the Operations Supervisor and Party Manager. They are in control of all high pressure systems onboard (air and hydraulics). They will, at times, request assistance from the Engineers onboard. They will assist the Gun Mechanic in ensuring that all safety procedures are met while working the Gun deck.

The safety aspects of their duties include, but are not limited to the following:

- Maintenance, in conjunction with the Chief Engineer, of the Fast Rescue Craft/Work Boats, including engines and propulsion systems of these boats.
- Maintenance of hydraulic systems to winches, cranes and davits.
- Ensuring the safe supply of compressed air for the deployed energy source.
- Assisting in the conduct of emergency drills as required by the Master and the training of crew members in emergency duties and routines.
- Ensuring that their actions do not compromise the Health, Safety and Welfare of the vessel or crew on board.

Gun Mechanics

Are responsible for the safe deployment, recovery and maintenance of the gun arrays and wide tow paravane system onboard the Veritas Viking II. Gun Mechanics are responsible also for stock control on consumable items in their domain. They will train all new employees in the safety operation of the gun deck with the assistance of the Chief Mechanic and Operations Supervisor

The safety aspects of their duties include, but are not limited to the following:

- Ensuring those new employees have the correct amount of training prior to having them work unsupervised.
- Ensuring the Health, Safety and Welfare of personnel working under their direction with regards to back deck operations.
- Participating in emergency drills as required by the Master and directed by Officers of the vessel.
- Although not members of the Safety Committee, they have their own weekly safety checks to do and will submit these on a weekly basis to the safety committee.

Chief and Senior Technicians

Technicians are responsible for the maintenance of all electrical and electronic equipment, as required.

The safety aspects of their duties include, but are not limited to the following:

- Maintenance of the electrical and electronics aspects of the safety equipment.
- Active participation in emergency drills as required by the Master and training of personnel in the operation of electronic equipment associated with safety equipment.
- Ensuring the Health, Safety and Welfare of personnel under their direction with electrical/electronic equipment.

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Observers, Navigators, Processors, Trainees

Will assist in many areas onboard the vessel at the direction of their respective superiors. They must adhere to all safety guidelines as they move from one area of operation to the next. Their duties are varied, from assisting in the Recording Room to assisting on the Cable Deck and the Gun Deck.

When maintenance is required on the Streamer, they will ensure that all tools are at the ready and are in good operable working condition. When this work is completed, it is their responsibility to ensure this area of the vessel has been tidied and is prepared for future tasks.

These members of the crew have a responsibility to ensure that their actions or omissions do not cause injury to, or compromise the Health, Safety and Welfare of the vessel or other crew members

It is their duty to participate in emergency drills as required by the Master and directed by the Vessel Officers. They are to be acquainted with the location and operation of all fire fighting, lifesaving and other emergency equipment onboard.

Personal Safety

Every individual is responsible for his/her personal safety, and the safety of the people working with him/her. Each individual should ensure that all safety equipment is in place and properly maintained. No task should be performed with sub-standard equipment, or by improvising.

All VERITAS DGC employees and sub-contractors, or any other person will always observe the basic rules of Marine Safety onboard this vessel.

4.4 Employee Performance Appraisal & Development

Annually, employees will be appraised, by their respective Managers, on their performance. An integral part of this appraisal relates to the employee's understanding of their job and HSE awareness.

The appraisal of each employee is assessed on the following categories:

Personal

Managing The Assigned Task

Working With Subordinates

Working With Others

HSE

Performance

The appraiser and unit manager will then provide their comments, prior to the employee being able to review the appraisal and add his/her comments.

The final stage is establishing a development plan for each employee, assessing their job history over their last 4 assignments, and their career direction.

This system will assist Management in determining development of employees in all fields.

4.5 Right to Refuse

It is legislated throughout industry in various forms, that workers have the right to refuse to work on the grounds of un-safe conditions. Due to the complexities of nominating any one particular legislation in regards to this Veritas DGC, agrees with the following relevant statement as issued

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by the Canadian Occupational Health and Safety Act.

“A worker may refuse to do work that the worker has reasonable grounds to believe is dangerous to his or her health or safety, or the health or safety of another person at the workplace.”

The following 3 step procedure applies:

Report immediately to his/her immediate supervisor giving the precise conditions for the refusal to work.

If the matter is resolved to the employee’s satisfaction he must return to work.

The unsafe condition must be reported via the completion of an Incident Report and follow up as per Veritas DGC Incident Reporting Procedures.

However, if the matter is not resolved to the employee’s satisfaction:

The employee reports to:

The HSE (VIMS) committee, or the site HSE (VIMS) representative for investigation, and also to the HSE department for information and follow up.

While the matter is under investigation Veritas DGC may assign the employee/contractor other work that is reasonably equivalent to his/her normal work without loss of wages or benefits. Irrespective of reassignment Veritas will continue to pay the employee/contractor the same wages or salary and grant the same benefits as the employee/contractor would have received had he/she continued to work.

Where an employee/contractor has exercised the right to refuse to work Veritas DGC shall not assign any other employee/contractor to perform his/her duties unless the substitute employee has been informed of the prior refusal and the reasons for that refusal.

If the matter is not resolved by the HSE Committee or employee/contractor representative:

The matter is investigated by an occupational health and safety inspector and advises the employee/contractor to return to work

Where an employee/contractor has exercised the right to refuse to work Veritas DGC shall not assign any other employee/contractor to perform his/her duties unless the substitute employee has been informed of the prior refusal and the reasons for that refusal.

Steps for Resolution to Unsafe Condition:

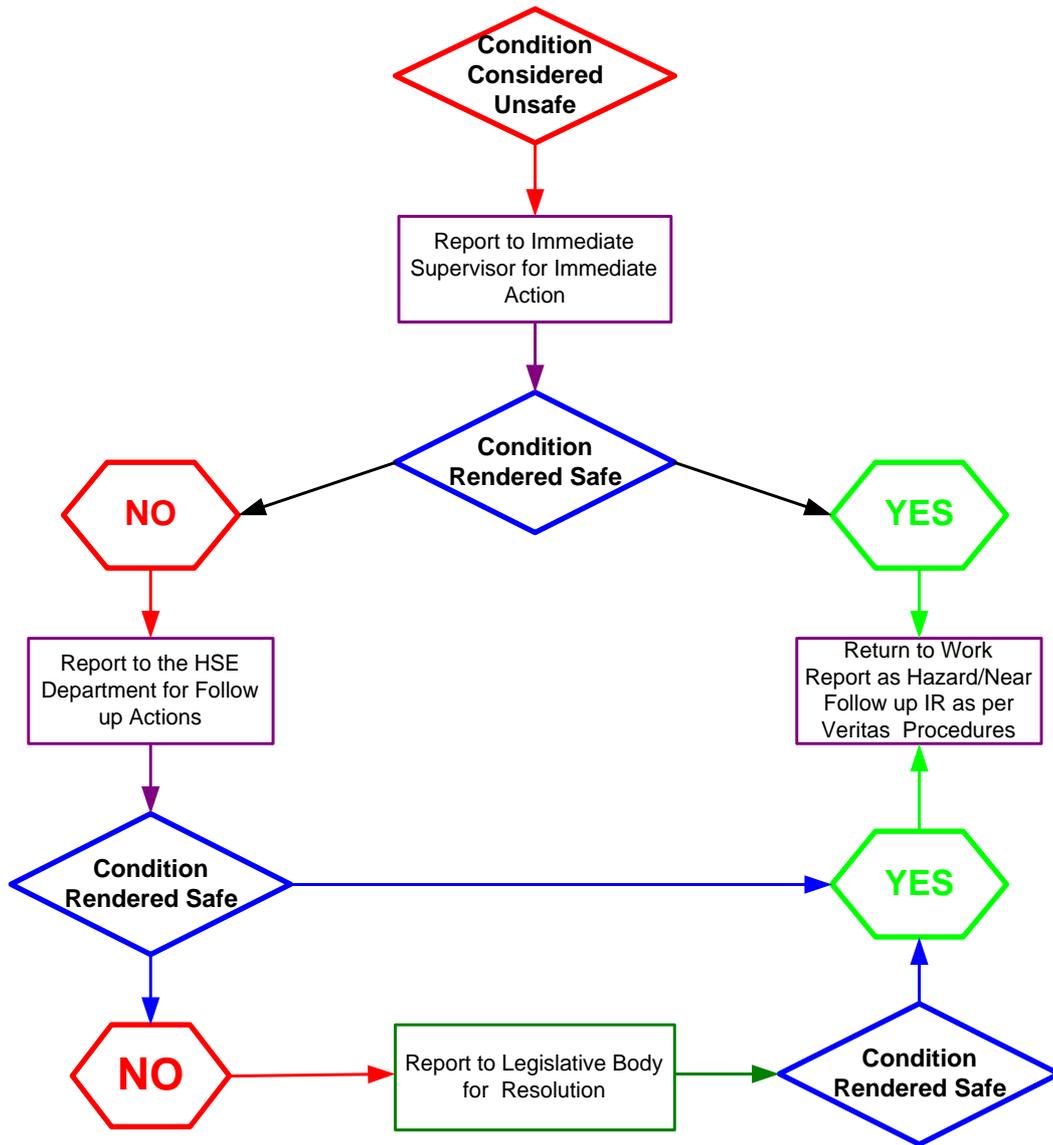


Figure 14 Steps for Resolution of Unsafe Condition

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4.6 Veritas/Eidesvik Safety Management System Interface

Introduction

The Veritas Viking II is a seismic research vessel chartered from Eidesvik by Veritas Geophysical. In the course of its normal operations there are several areas of activity and procedures that are critical for the safe operation of the vessel and the personnel assigned to the operation. Veritas and Eidesvik have documented these areas in their separate operational, management, and emergency plans.

Veritas' expertise lies in the acquisition of marine geophysical data through the use of multiple streamer, multiple source towed arrays. Eidesvik's expertise lies in the provision of the marine vessels utilized for marine geophysical surveys.

To this extent a separate document exists in all operational; centers of both Veritas and Eidesvik, as well as onboard the Veritas Viking II. The document is titled "*Veritas/Eidesvik HSE Interface*" and acts as the bridging document between the two companies HSE Management Systems. This interface will detail those areas where overlap or conflict in activities or procedures are possible, and provide direction for the vessel's personnel when encountering activities where overlap or conflict is possible.

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5.0 Hazard/Risk Assessment

5.1 Contents

Based on the guidelines of the E & P Forum and IAGC, Veritas DGC has formulated a Hazard/Risk Assessment Register for this vessel, the contents of which are listed below.

1 - AIRCRAFT

A-01 - Approaching Helicopters
A-02 - Rotors
A-03 - Adverse Weather

A-04 - Landing Area
A-05 - Security
A-06 - Passengers
A-07 - Medivac
A-08 - Personnel
A-09 - Noise

2 - COMPRESSOR

CM-01 - High Noise Levels
CM-02 - Fuel Spill Or Leak
CM-03 - Repair Of Hydraulic Pipes & Fittings
CM-04 - Hot Work - Use Of Cutting / Heating Equipment
CM-05 - Repair Of High Voltage Equipment
CM-06 - Repair Of Steelwork
CM-07 - Repair Of High Pressure Systems
CM-08 - Handling / Storage Of Compressor Oil
CM-09 - Operation Of High Pressure Compressors
CM-10 - Compressor Operation

3 - CRANE/HOIST

CR-01 - Crane Or Hoist Type / Suitability
CR-02 - Incompetent Operator
CR-03 - Unsafe Or Excessive Loading
CR-04 - Component Failure
CR-05 - Crane Operator Fitness

4 - ENERGY SOURCE

ES-01 - High Air Pressure Hazards
ES-02 - Deployment / Retrieval Of Guns
ES-03 - Lack Of Maintenance
ES-04 - Incompetent Sparker Operator
ES-05 - Incompetent Air Gun Operator

5 - HUMAN BEHAVIOR

HB-01 - Self Medication
HB-02 - Alcohol / Drugs
HB-03 - Fatigue
HB-04 - Disease
HB-05 - Fighting

HB-06 - Hygiene
HB-07 - Culture

6 - MISCELLANEOUS

7 - NAVIGATION

NV-01 - Masts - Falls
NV-02 - Maintenance Of Tailbuoys

8 - SHIPS & BOATS

SB-01 - Unsuitable Vessel
SB-02 - Towed Equipment
SB-03 - Towed Equipment Maintenance
SB-04 - Fuel
SB-05 - Fueling At Sea
SB-06 - Fuel Spill
SB-07 - Fuel Fire

SB-08 - Weather - Adverse
SB-09 - Propellers
SB-10 - High Pressure Systems
SB-11 - Confined Space

SB-12 - Hazardous Material
SB-13 - Passengers / Crew
SB-14 - Galley Hygiene
SB-15 - Galley Operations
SB-16 - Waste Management

SB-17 - Man Overboard
SB-18 - Sinking

SB-19 - Fouling Of Equipment
SB-20 - Noise
SB-21 - Personnel
SB-22 - Security
SB-23 - Small Boat Use Offshore
SB-24 - Small Boat Launching/Recovery
SB-25 - Lighting/Illumination
SB-26 - Navigation
SB-27 - Adverse Weather Conditions
SB-28 - Third Party Safety
SB-29 - Electrical Equipment Faults
SB-30 - Hygiene

SB-31 - Small Boat Landings
SB-32 - Towing Equipment
SB-33 - Small Boat Transfers
SB-34 - Boat-To-Boat Transfer
SB-35 - Ventilation

SB-36 - Stairways/Ladders
SB-37 - Electric Shock

9 - STREAMER

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M-01 - Battery Storage & Handling
M-02 - Work Shops
M-03 - Lighting

SO-01 - Lithium Batteries - Incorrect Use
SO-02 - Oil Spill Or Inappropriate Use
SO-03 - Ignition Of Cable Oil
SO-04 - Bad Weather - Recovery Of Equipment
SO-05 - Incompetent Winch Operator
SO-06 - Tools - Incorrect Use

5.2 Description

Hazard Risk Assessment

Risk can be mitigated through the application of the Hierarchy of Control. The Hierarchy of Control is a ranked scheme, which shows the techniques to control risk and is an iterative, multilevel process. The hierarchy is listed in order below showing the most to least effective control technique;

1. Elimination
2. Substitution
3. Reduction
4. Isolation
5. Administration
6. PPE
7. Discipline.

One of the ways in which we can mitigate unacceptable risk levels is by applying a Standard Operating Procedure (SOP), and within the Operating Procedures we may also be applying the Hierarchy of Control.

Hazard - Risk Assessment and Mitigation

We need to assess the risk that the hazard poses both before and after control measures are applied. We want to do this to be able to demonstrate that we have significantly reduced the relative risk, ideally to ALARP or into the 'Tolerable' zone if possible. We want to use the Risk Score Calculator (RSC) to do this. We want to quantify this reduction rather than only use a subjective description or an alphanumeric code such as A2, B3, etc.

The variable components to calculate the Risk Score Calculator are Probability, Exposure and Consequence. For our initial risk assessment, to keep the process simple, we use a fourth term Likelihood which is the product of Probability and Exposure or $L = P \times E$. This approach has a number of distinct advantages:

1. It keeps our Risk Score Calculator concept intact and applicable;
2. It makes the initial risk assessment simple since we only have to consider two components, yet provides us with either a subjective or a numerical value for initial risk assessment;
3. It enables a 2D representation of a 6 by 6 matrix with Likelihood and Consequences as the ordinates (see Figure 15).

In our 2D, 6 by 6 matrix we need to consider Consequences, which impact in four areas of our business namely People, Environment, Assets and Reputation . The first three of these four areas are already included as Incident Reports in VIMS and keywords are available which provide semi-quantifiable descriptors matching the broad Consequences of Noticeable, Important, Serious, Very Serious, Disaster, and Catastrophe (which also align with the RSC).

On the matrix in Figure 15 there are numbers on both axes. These numbers can be used to generate a quantifiable risk score. For example; for a Likelihood with a Possible outcome the number is 25; combined with the Consequence of a Serious outcome the number is 5. The Risk

Score is $25 \times 5 = 125$ which equates to a Substantial Risk (Check the RSC tool, Figure 16 to verify that this is so).

Having arrived at a measure of our pre-control risk, the next step is to apply controls and then reassess. To do this we use the RSC by considering Probability, Exposure and Consequence and the interactive RSC tool. If we now see that our Probability is Remote, Exposure is reduced to Rare and Consequence remains at *Serious* we have reduced the risk to Low or a Risk Score of 7.4 (Figure 17).

Likelihood P x E

Certain	81	Substantial	High	High	Very High	Very High	Very High
Quite Likely	49	Substantial	Substantial	High	High	High	Very High
Probable	36	Substantial	Substantial	Substantial	High	High	High
Possible	25	Moderate	Moderate	Substantial	Substantial	Substantial	High
Unlikely	9	Moderate	Moderate	Moderate	Substantial	Substantial	Substantial
Improbable	4	Low	Moderate	Moderate	Moderate	Moderate	Moderate
		2	3	5	6	7	9
Consequence		Noticeable	Important	Serious	Very Serious	Disaster	Catastrophe
People		No Injury	FAC or MTC	RWC or LTI	PPD	Fatality	Multiple Fatality
Environment		No Damage	Some local environmental damage. Within the localized area and within the local system. Negligible financial damage	Some contamination. Damage sufficiently large to affect the environment. A single exceedance of a statutory or prescribed criterion. A single complaint. No permanent affect on the environment	Limited loss or discharge of known toxicity. Repeated exceedance of a statutory or prescribed limit. Affecting the neighborhood.	Severe environmental damage. Extensive action required to restore the contaminated area to its original state. Extended exceedance of a statutory or prescribed limits.	Persistent severe environmental damage or severe nuisance extending over a large area. Major economic loss. Consistent exceedance of a statutory or prescribed limit.
Asset		No Outcome	Slight disruption < \$1000.00	Minimal Disruption \$1000 to < \$5000	Partial loss of service hours. \$5000 to < \$20000	Operations restored within a day. \$20000 to < \$50000	Substantial or total loss. >\$50000
Reputation		No Impact, No Public awareness	Slight impact. Public awareness may exist, no public concern	Limited impact. Some public concern. Local media and/or local political attention	Considerable Impact. Regional public concern, adverse attention in local media. Slight national media attention.	National impact, adverse attention in national media	International impact extensive adverse international media with potential to impact new contracts or licenses.

Figure 15 VIMS Likelihood – Consequences Risk Matrix

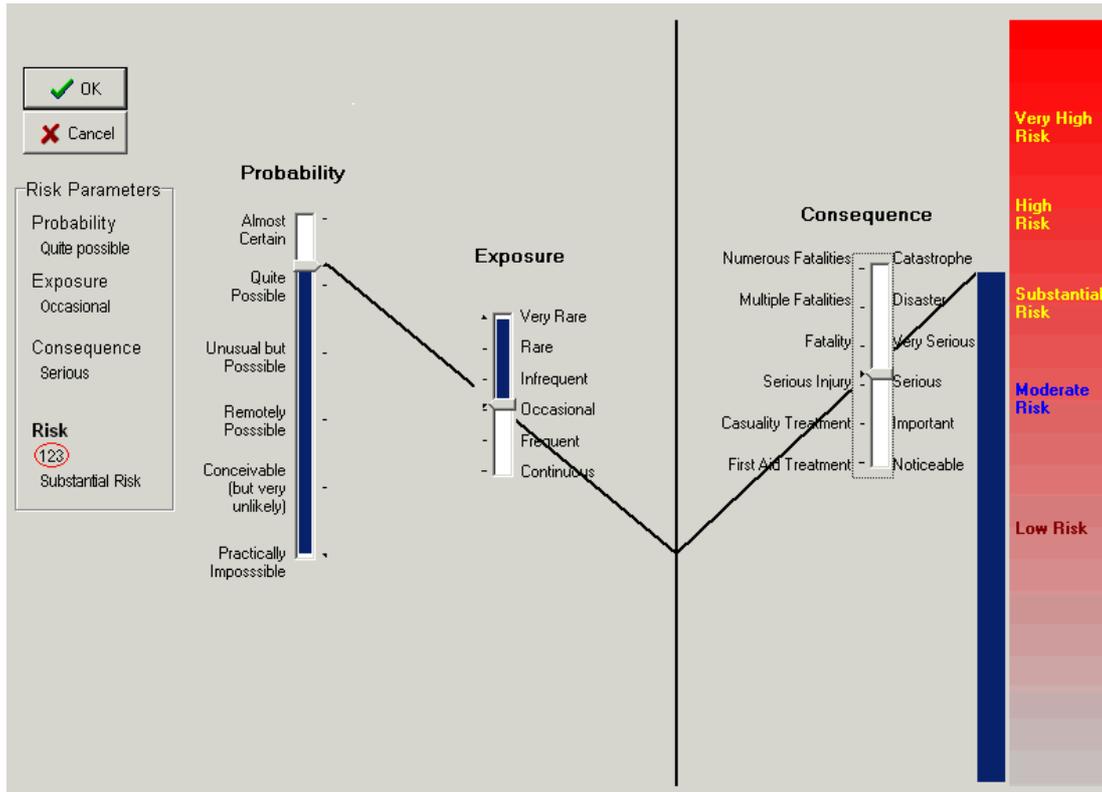


Figure 16 RSC showing Risk Score of 123 (Substantial Risk)

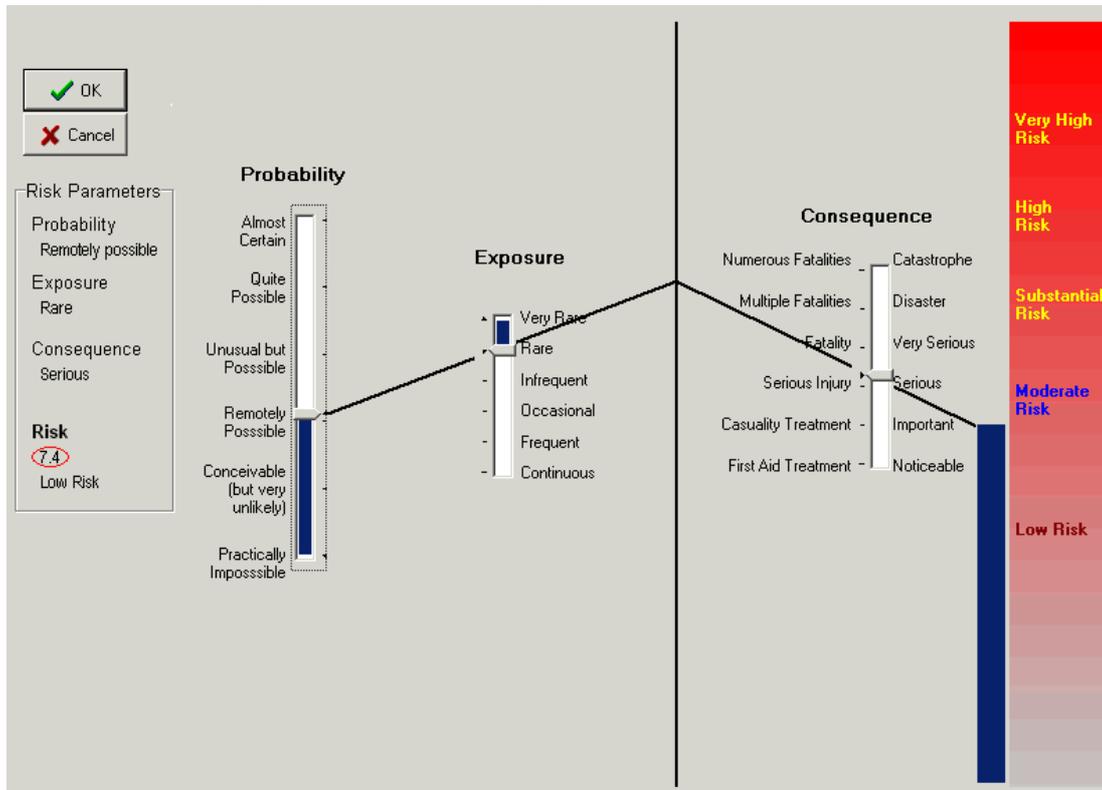


Figure 17 RSC showing Risk Score of 7.4 (Low Risk)

By using this method we can demonstrate in a semi quantifiable way the effectiveness or improvement gained in risk mitigation measures. This allows us to graphically display Risk Contours for Project hazards before and after mitigation as see in figures 18 and 19.

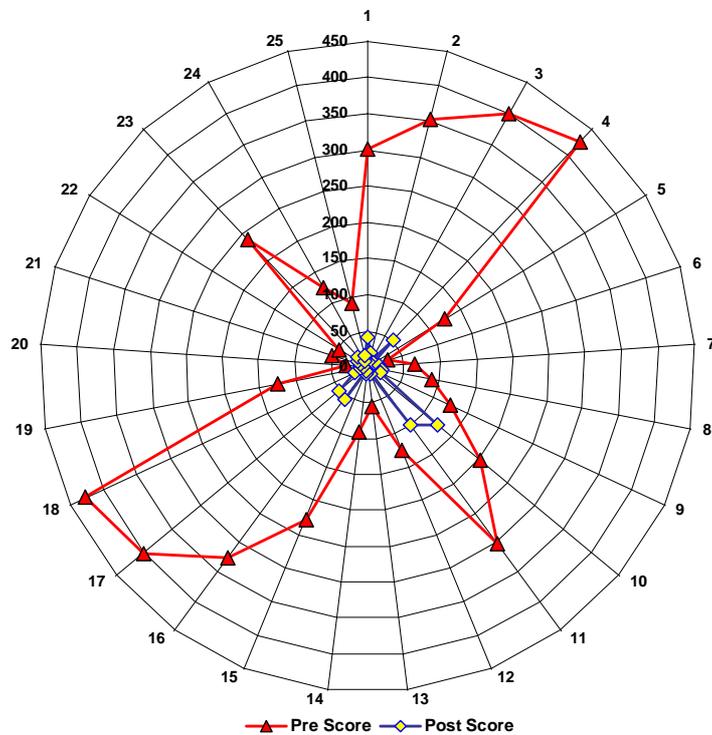


Figure 18 Risk Score profiling for 25 Hazards, pre and post control application

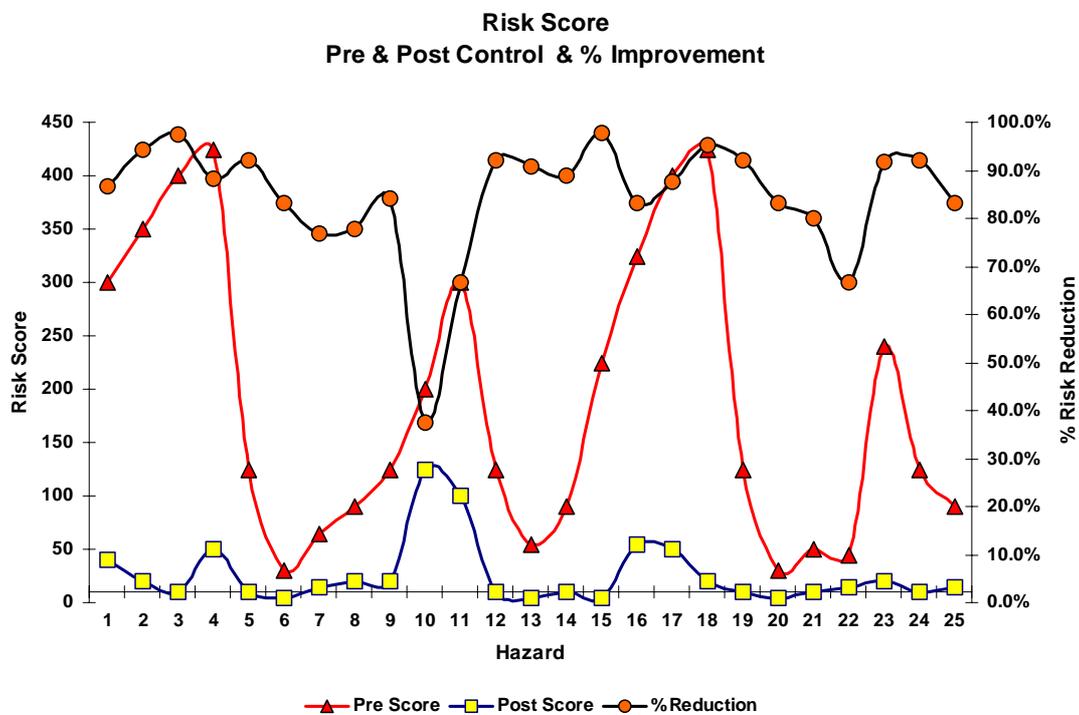


Figure 19 Risk Score profiling for 25 Hazards showing 'Pre-control' and 'Post-control' application and % Improvement.

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Note that the x-axis cuts the risk score axis at the 'Low Risk' score level of 10. Hazards with residual risk of > 10 may need further treatment.

By using this or similar techniques we can also plot the levels of relative risk and then look at hazards that need further treatment based on the risk score or sign off and accept the risk, as applicable.

Operating Procedures (Site Operating Procedures – SOP's)

1. 'Administration Related' (ADM) Operating Procedures:

The recommended method to complete documentation for an administrative process, e.g. filling out forms, processing information, managing events and submitting VIMS reports.

2. 'Equipment Related' (EQP) Operating Procedures:

A 'how to' set of procedures, e.g. Generator start up and shut down, vibrator pressure up, crane use, deploy streamers, retrieve gun array etc.

3. 'Activity Related' (ACT) Operating Procedures:

Those procedures associated with a particular activity, using the activities listed in VIMS. For example in Land - Administration, Camp, Drilling, Explosives, Helicopter. Line Clearing, Permitting, Recording, and Surveying.

4. 'Project Related' (PRO) Operating Procedures:

An operating procedure that mitigates or controls a particular project hazard.

5. 'Environment Related' (ENV) Operating Procedures:

A process to be followed to minimize impact or demonstrate due diligence in the physical environment.

Critical Operating Procedures

Procedures that control significant risks and involve a number of people work groups with significant staff turnover or otherwise require higher levels of management attention to assure the required level of compliance. Typical field acquisition sites identify 20-30 Critical Procedures dependent on the nature of their operations and associated hazards. Lower risk sites, such as offices, may only identify 10 Critical Procedures.

Regular Operating Procedures

Procedures for which a lower level of management attention is needed to achieve the required level of assurance. Regular Procedures typically involve a smaller number of people and/or involve a lower level of risk.

Reference Procedures

Procedures, which describe functions, which do not apply or are not, required, for normal operation.

SOP Structure

When is an Operating Procedure required?

Most tasks and activities can have procedures written for them, in reality many routine activities do not. If procedures were produced for every activity or task, the system would rapidly become unworkable and hopelessly inefficient by the sheer volume of information recorded. The questions to ask to determine when a procedure is necessary are:

- a) Has an incident already occurred, that indicates (through root cause analysis), the necessity for a written procedure? Would a written procedure have prevented or mitigated the loss experienced?

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- b) Is the task or activity so complex that each process step needs to be recorded to avoid errors of omission?
- c) Are the potential consequences of not having a procedure severe?
- d) Is organizational 'memory' of tasks or activities under-developed or likely to be discontinuous [through staff turn over or rapid changes in positions]?
- e) Do specific (safety critical) tasks need to be assigned to an individual to ensure that they are carried out [on a regular (monthly, quarterly, annual) time frame basis]?

The SOP's should be simple in format as follows:

1.0 SCOPE

WHY - Scope of SOP – Why is the SOP required, outline the intent/goal of the SOP

WHERE - To what site / facility does the SOP apply?

2.0 OBJECTIVES

WHAT are the ultimate goals of the procedure?

3.0 RESPONSIBILITIES

WHO is responsible for the actions, who does the SOP apply to?

4.0 PROCEDURES

WHEN will the SOP be carried out? How often? After any particular event?

WHAT is the procedure to be followed? List of the steps to be taken (This is the body of the document)

5.0 METRICS

HOW will the activities be verified as completed? Where will data be recorded? Records?

6.0 REFERENCE

TO WHAT Management Procedure and to what Hazard does this SOP attach? Is there any other information needed or required regarding local statutes, special requirements or references?

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6.0 Emergency Procedures

6.1 Personnel Duties During Emergency

MASTER

EMERGENCY (FIRE / FLOOD / FIRST AID, etc.)

Take command of the vessel from the Officer Of The Watch. Maintain a position on the Bridge as leader of the Bridge Squad, and in overall charge of the emergency and co-ordinates all activities according to his judgment of the total situation.

The master is assisted in his role by the Chief Officer, whose combined roles is to ensure all crew have mustered at their designated muster stations:

Emergency Response Teams

Engine Room Response Team

General Muster Personnel

Ensure fire pumps are started.

In the event CO² is to be released in any compartment, the Master along with the Chief Engineer are to ensure that all vent flaps/hatches/openings to the compartment are secured and all personnel are accounted for prior to release.

ABANDON SHIP

In the event of an **ABANDON SHIP**, he is the only person who is to issue the command to Abandon ship. This command will be a verbal announcement to the crew.

The Master will issue the emergency messages and notification to be dispatched, call for any outside assistance or abandon the vessel.

Record ships position.

Activate **EPIRBS** if necessary.

Direct Spare personnel to gather up spare blankets, water, and medication if there is time.

CHIEF OFFICER

In charge at the scene of the emergency. Keeping Bridge informed of the situation and liaison with Response team leader and 1st Officer on VHF.

Take command of the vessel should the Master become incapacitated or unable to tend to wheelhouse requirements.

Ensure the Medical Cabinets and Hospital are open, and where critical drugs are required, ensure the correct quantities are given, etc.

1st MATE

Remains on bridge to assist Captain as directed.

AB'S, COOKS, & STEWARDS

Upon hearing the emergency alarm, the Off-Shift Abs' are to proceed directly to the General Muster area and stand-by to be directed by the Mate. The Cooks & Steward are to check all accommodation then proceed to the muster station & administer first aid if necessary.

The On Shift AB has the role of Smoke Diver on the initial Attack Team and is to muster accordingly and commence donning the appropriate equipment from the Fireman Locker, or as directed by the Chief Officer.

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In general the Cooks and Steward are more than conversed in first aid procedures and will be utilized where practical to conduct first aid support in the event it is required.

CHIEF ENGINEER, 1st & 2nd ENGINEER'S

On duty Engineer & Chief Engineer to stay in Engine Room & report to the bridge.

In the event of an Engine room fire the Engine Room staff are to muster at the Engine Room entrance fully kited up in Fire Suits, BA's Flashlights, and life-line (optional), or maintain assistance to the Smoke Diver. They are to enter the Engine Room spaces in pairs only and evaluate the situation.

Fuel and ventilation can be remotely shut-down by operating the shutdown switches on the main engine room panel or the emergency shut down on the bridge & levers and flaps at various outer locations around the ship.

The Fire Attack Team will back up the Engine Room Staff under the control of the Chief Engineer. Once again at least pairs are only to enter with the Bridge Staff being kept informed of the situation.

CO² ACTIVATION

If the CO² Extinguishing system is required to be used, then the Order to activate the system can only be given by the Chief Engineer in conjunction with the Master.

This can only occur if it is certain that there are no personnel in the compartment to be flooded with CO² and that all vent flaps, hatches, and air intake vents have been fully secured.

The Bridge has a checklist that has to be strictly adhered to in the event the CO² system is to be utilized.

EMERGENCY ATTACK TEAMS:

List of personnel assigned to EMERGENCY RESPONSE TEAMS or ATTACK TEAMS are posted around the vessel and are subject to change based on personnel being trained in a particular task, but would be typically as follows:

Muster Point	Fire Fighting AM	Fire Fighting PM	Assist Team
Leader	Ch. Officer	1st Engineer	Veritas
Smoke Diver	Eidesvik AB	Eidesvik 2nd Engineer	Veritas
Smoke Diver Asst.	Eidesvik AB	Veritas	Veritas
Assistant	Eidesvik AB	Veritas	Veritas

Muster Point	Engine Room Squad	Technical/First-Aid	Bridge Squad
	Engine Room	Hospital/Bridge	Bridge
Leader	Ch Engineer	Electrician/Ch Stew	Master
Fire Chief		Veritas	Party Manager
Fire Chief Asst.		Veritas	First Officer

All other personnel MUSTER AT MUSTER STATION with life jacket & survival suit

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PARTY MANAGER

Upon hearing the Emergency alarm, proceed directly to the Bridge and report that you have mustered.

Evaluate the situation along with the Master, advising where required. Assist the Master as instructed.

Should the situation be non-serious or under control, he should dispatch crew to monitor the Back Deck and in-water equipment.

SEISMIC PERSONNEL

Upon hearing the Emergency Alarm proceed directly to the Muster Point and await instruction. Personnel assigned to the Attack Teams should prepare necessary equipment.

6.2 Project HSE Plans

Due to the diverse range of personnel, roles, companies, clients and agents that may be present on these vessels, it is necessary to ensure that all personnel are aware of operational and emergency procedures.

Veritas Marine Acquisition, as operator of the Veritas Viking II, maintains the safe control of all geophysical activities onboard and assists the owners with the operation of the vessel, within the boundaries of the respective governing authorities or industry standards. At all times, all personnel, agents, sub-contractors and the like are required to perform their roles in a safe, efficient and responsible manner, and within the guidelines of this manual and the policy's and procedures contained within it. Policies and guidelines provided by other companies, agents or sub-contractors may be used as a guide.

Occasions will arise where a Project Specific HSE Plan is produced to give all personnel clear and concise guidelines as to the procedures they are expected to follow while engaged on a particular operation.

A Project Specific HSE Plan is produced as a result of input received from various parties, companies or organizations involved in any one project or operation having realized that integration of policies, a pooling of resources or a clear statement is required to clarify proceedings.

The Project Specific HSE Plan is produced for each project performed by this vessel. This Plan is specifically designed to give personnel information on, but not limited to:

- Area of operations, environmental conditions and hazards
- Policy
- Emergency contacts and reporting
- Local conditions
- Severe weather
- Casualty evacuation and resources
- Environmental management
- Supplementary information or manuals
- This manual should be the first point of reference during and emergency, along with the Crisis Management Plan.

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6.3 Crisis Management

Crisis Management

Consult the Veritas DGC Crisis Management Plan as soon as a situation develops. All employees are encouraged to read the Plan and consult this plan, together with the Project Safety Plan, FIRST when any crisis arises. The following is the "Purpose Statement" from the Plan.

The Crisis management plan has been developed to enable Veritas DGC (the "Company") to establish and maintain the capability to quickly and effectively respond to all aspects of any serious incident involving any Company employee, contractor, subcontractor, client, or other person on Company owned or operated facilities, or involving the production, distribution, or use of Veritas DGC's products or services.

The Plan has been distributed to all Veritas DGC personnel who act in a supervisory position. These personnel will, at least annually, review the Plan with all employees under their supervision and will post a copy in each facility under their control. In addition, a copy of the Plan is to be provided to each client and subcontractor of the Company at the beginning of any contract for seismic data acquisition or other field activity.

This Plan is specifically designed to give personnel information on, but not limited to:

- Initial disaster response guidelines
- Crisis management teams
- Crisis management by function
- Classifying the crisis for proper response
- Response plans for specific disasters
- Notification tree

6.4 Abandon Ship

General

All personnel are required to be familiar with their emergency station, duties, and Muster Area before an emergency arises. Each crew member will be required to sign the acknowledgment form shortly after completing the safety tour after arrival on the vessel. The emergency duties are described on the Emergency Plan/Muster list located on each deck. A more detailed description of the emergency duties can be found posted on the bulletin board outside the galley. A diagram of the vessel showing the location of the cabin relative to the vessel is posted in each cabin. This diagram shows the exits with the quickest route highlighted. It is the responsibility of each individual to learn all possible escape routes from their cabins and work areas.

Unless assigned to an Attack Team or specific emergency role, all personnel are required to report to the Muster Area and await orders. Crew members have more involved roles in an emergency, and must become proficient with the duties assigned to them.

Proper dress is an important PPE factor when reporting for any emergency, all personnel are trained in sea survival and must have the following: Coveralls, or Long Pants, Long Sleeve Shirt, as well as Safety Shoes or Boots, and a Hat available for use in an actual emergency.

Alarms

The alarm signals are different for each emergency. All personnel will familiarize themselves with the alarm signals, and the required response to each. During drills the general alarm is used along with an announcement over the P.A. system regarding what type of emergency situation is being

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drilled. The reason for this is the Fire Alarm system onboard automatically shuts down all vents in the engine room and other areas on the vessel.

- Abandon Ship** Continuous ringing of general alarm, followed by 7 Short rings followed by 1 Long ring of the general alarm (repeated by vessel horn and/or whistle).
- Fire** Intermittent ringing of the general alarm, followed by announcement over ships PA
- Man Overboard** Continuous ringing of the siren alarm, (a distinctively different tone), followed by announcement over ships PA.

The Master has overall responsibility for ordering an abandonment of the ship, based on his judgment of how the given situation is expected to develop He will issue the necessary emergency distress messages and notifications. It is vital for future survival that the distress messages are acknowledged prior to abandonment. The distress messages should contain, as a minimum, the following information: -

- a) Name and Call Sign of vessel.
- b) Position.
- c) Weather conditions.
- d) Lifesaving equipment available to be used.
- e) Number of persons.

In a situation where it is evident that the ship will have to be abandoned, but time is available, then preparations and precautions can be undertaken, to better prepare the crew in a survival situation and to aid the rescue effort. Gather and distribute additional survival equipment and supplies, ensuring that radios, signal equipment, first aid boxes, ropes etc. are ready for the survival craft and life rafts. At all times personnel should be encouraged and reassured to prevent any panic.

6.5 Fire

General

Similar to the abandon ship procedure, all personnel are required to read the Emergency Plan and be familiar with their emergency station and duties during a fire emergency.

The Master has the responsibility of coordinating all activities according to his judgment of the total situation. The Chief Officer who is responsible for coordinating the fire teams and other activities during the emergency assists him in this role. The Chief Engineer is responsible for fire fighting in the machinery spaces.

General Precautions

When a fire is detected, no matter how small, or there is a suspicion of a fire somewhere on the ship, it is the responsibility of all personnel to:

- a) Activate the Fire Alarm.
- b) Try to extinguish the fire with available equipment, until fire team arrives.
- c) Try to seal off all openings feeding air to the fire.

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- d) Try to seal off openings that may be allowing smoke to enter other areas of the ship.
- e) Search for, and rescue people that may be trapped or overcome by the smoke.
- f) Once assistance arrives, either proceed to the muster point, or pass word of the situation and persons involved.

The Veritas Viking II is equipped with numerous fire fighting devices and fixed extinguisher systems. The fixed systems are primarily the CO² systems fitted in the machinery spaces and

Galley, along with a foam deluge system fitted over the Streamer reels. These systems are designed to adequately tackle a blaze in these areas. Personnel working in and around these areas should make themselves aware of the operation of these systems and be prepared to use them in the event of a serious fire.

The foam deluge system operates in conjunction with the main fire pump. When activated, the foam solution is injected into the water feed and expelled through the series of nozzles located over the streamer reels and associated decks. The foam is designed to blanket the area effectively smothering the area and extinguishing the fire. Once the foam solution is exhausted, water will continue to deluge from the nozzles, aiding in the cooling of the area.

CO² systems are agents designed to eliminate the oxygen from the area thereby extinguishing the flames. Because of its properties, CO² release must only be performed when the space is cleared of personnel and sealed, as it would be fatal to any person remaining in the area without correct breathing apparatus. The CO² release system contains a delay of 25 seconds. Once the system is activated, all ventilation systems are automatically shut down, and a siren sounds to indicate that the gas will be imminently discharged. The gas is pumped into the space through a series of nozzles, filling the space, from bottom to top. The area should be adequately vented prior to re-entry into the space.

When a fire is detected, the Master should assess the situation based on his own and the observations of the Chief Officer, and consider the possible developments of the fire and the possibilities of getting it under control. The Master, based on his evaluation, should:

- 1) Turn the ship on a course that will bring the location of the fire to leeward, to facilitate fire ventilation fire fighting from the windward side
- 2) Unless the fire is insignificant, the master will send an urgency message with information about the situation and what actions are intended, and if there are doubts that the crew will be able to contain or control the fire, the a distress message will be sent containing the following :
 - a) Name and Call Sign of vessel.
 - b) Position.
 - c) Weather conditions.
 - d) Assessment of the situation.
 - e) Lifesaving equipment available to be used.
 - f) Number of persons.
- 3) If there are substances within or in the vicinity of the fire location, that may emit toxic gases, the Master should direct the crew to a safe place and organize the fire fighting, with full protection, from this area. The master should consider possibilities of explosion or imminent danger of the crew being isolated from the rescue craft, when making this decision.

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- 4) A distress message will be sent if it is apparent from the muster that persons are discovered to be missing, or seriously injured. The distress message should request assistance to search the area.

6.6 Emergency Medical Evacuation

Introduction

The I.S.O.S. Maritime Services manual entitled *Medical Protocol Handbook*, and Veritas DGC's manuals entitled *Veritas DGC Crisis Management Procedure* and *Project Specific HSE Plan* should be consulted before implementation of the following Medivac procedures. These manuals describe the situations that require Medivac, and detail events leading up to the following procedures.

This procedure gives a general outline guide for Medivac of injured personnel to shore. The guide will list the necessary steps for a successful Medivac in general terms. Reference the Project Specific HSE Plan as this procedure is tailored to the area of operations, and will include the exact transportation available, and the steps required to execute immediate action. Additionally, the procedure may include the shore facilities available, and what injuries these facilities are unable to attend; requiring evacuation from the area, or country, of operation. As such, this procedure will require frequent review and update. The majority of this procedure is provided, by the supervisor, before the start of operations in a new area.

The following incorporates recommendations contained in the "*Notices to Mariners*" of a number of countries, and also the IMO Search and Rescue Manual (IMOSAR). The recommendations contained here should be regarded as supplementary to those previously established for your vessel.

General Guideline for Medivac for Illness or Injury

In cases of illness or injury when it is necessary to arrange for the evacuation of personnel via helicopter the following points should be noted.

Requesting Assistance

When requesting helicopter assistance the Master should:

- Determine and arrange a rendezvous position as soon as possible.
- Confirm the ship is inside helicopter range or if a diversion is necessary.
- Compute and confirm the ships ETA to the rendezvous point.
- Give as much medical information as possible, especially concerning the patient's mobility.
- Advise immediately of any changes in the condition of the patient.
- Confirm environmental conditions, i.e. wind speed and direction, sea conditions, visibility, cloud cover and height.

Preparation of the Patient

Before the helicopter arrives steps should be taken to:

- Move the patient as close to the heliport area as his/her condition permits.
- Ensure the patient is tagged to show details of any medication that has been administered.
- Prepare the patients' seaman papers, passport, medical record and other necessary documents in a package ready for transfer with the patient.

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- Prepare a small “overnight” bag containing the patient's personal toiletries; i.e.: toothbrush, comb, razor, etc.

Ensure that designated personnel are positioned and prepared to transfer the patient to a helicopter lowered stretcher if required. The patient should be strapped in face up with a life jacket and survival suit, if his/her condition permits.

Communications

General

The success of any transfer of personnel at sea depends on establishing and maintaining good communications. This applies not only to the communications between the helicopter and the ship, but also messages passed between each ship owner, operator, or agent and the helicopter operators.

Communication during the operation itself should be directly between the helicopter and the ship and not relayed through a third party.

To avoid any misunderstandings, especially if the language in use is foreign to any involved party, speak slowly and clearly to ensure all essential information is understood.

Use the best communications equipment available to ensure successful relay of all vital information; i.e.: VHF, SSB, Cellular, Inmarsat, or local FM.

The Medivac message should be sent in the order given, and repeated back by the helicopter, ship operator, or local contact. The operator must confirm the rendezvous position is suitable; if not, the Master must be notified and a new rendezvous position chosen agreeable to both parties. In the event a third party transfers the Medivac message, or confirmation, between ship to helicopter; it is essential the identical format, style, and content of the message remain unchanged.

Message Format

It is recommended that the format, style, and content of messages be based on the following example; also consult the SOS Medical Protocol Handbook:

- Vessel Name
- Vessel Call Sign
- Caller/Title
- Local Owner/Operator management with contact numbers
- Present Location-Latitude/Longitude
- Course/Speed
- Radio frequencies actively monitored. Include aircraft frequencies, if available.
- Rendezvous Position-Latitude/Longitude
- ETA to Rendezvous Position
- Number of personnel to Embark/Disembark
- Local Weather and Sea Conditions. Include relevant advisories.
- Any other relevant information.

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6.7 First Aid Case Management

INTRODUCTION

Purpose

To provide instructions on the Duties and Responsibilities for Medics operating onboard vessels within the Asia Pacific division. The details provided below will allow each individual to understand his or her position and reporting responsibilities.

1.2. Organisation

The Marine Acquisition department for the Asia Pacific Region operates three Seismic Vessels, the R/V Veritas Searcher and M/V Pacific Sword and the SR/V Veritas Viking II (hereinafter referred to as the **vessel**). The glossary listed below in section 2.0 details the Management team within the Asia Pacific Region.

Glossary Of Abbreviations

Hereinafter is a list of position mandate abbreviations that are found in this document.

RMM	Regional Marine Manager
SUP	Vessel Supervisor
RIS	Regional Instrumentation Supervisor
RMS	Regional Marine Superintendent
HSE	QHSES Coordinator
RLS	Regional Logistics Supervisor
MAS	Marine Administration Supervisor
PM	Vessel Party Manager
OS	Operations Supervisor
VM	Vessel Master (Captain)

Onboard Medic Duties And Responsibilities

Medic's Daily Duties

Daily responsibilities include but are not limited to;

- Periodic inspection of medical cabinets and medical O₂ usage logs for verification of stocks and volume remaining. Expiry dates should be listed and monitored to ensure fresh stocks are ordered as required.
- Distribution of basic medications (Other Than "S4" Drugs) as required.
- Onboard tuition on basic or advanced first-aid techniques.
- Reporting to the **VM** and or **PM** on a daily basis,
- Weekly Inventories and reports on medical supplies. Full report submitted to the **PM** for vessel weekly reports.
- Daily inspection of ablutions, showers and food preparation areas, to ensure high levels of hygiene.
- Correlation of medical supplies for requisition. Submit to **PM** two weeks before any port calls.

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- Full and comprehensive hand over report for relief Medic, report submitted to the **VM** and **PM** before departure from the vessel.
- Monthly Report to **HSE** before the second day of the new month.

Medical Supplies

Notwithstanding the Medic's responsibilities for medical supplies as detailed above, the **VM** and **PM** are responsible for the inventory level of marine & seismic equipment and stock levels. By following the duties listed above the Medic will provide the information required by **VM** and **PM** to submit requisitions for replenishment of used or expired medical supplies. A well-planned inventory level will ensure that there is ample stock for no less than a nominal work swing (6 weeks +/-1 week).

Onboard Case Management (First Aid)

In the event that first aid is required, it is of great importance that a comprehensive Case Management procedure outlines the reporting and follow-up requirements. The overriding objective is to ensure all first aid treatment cases remain exactly that. With the onboard medic taking a pro-active approach to all first aid cases, will assist in avoiding any unnecessary complication.

Case Management Reporting and Follow-up

The bullet points raised below clearly define the onboard medic responsibilities for each individual first aid case. The onboard medic to submit follow-up reports (Electronically) to the **PM** and **VM** twice daily. Continue with this routine until such time, all parties are 100% satisfied that no further first aid is required. The **PM** or **VM** will submit the reports twice daily, within the comments section of the initial incident report.

- Provide details on prescribed medication
- Highlight all recommendations for further treatment during the early stages.
- List medical supplies utilized, e.g. Ointments, Bandages and Antiseptics.
- Detail the mobility of the patient. E.g. Bedridden, restricted duties, full mobility.
- Details of correspondence with International SOS

First Aid Treatment Case Definition

Treatment of a defined nature whether performed by a Medical professional or para-professional. The following are generally not considered as recordable occupational injuries unless the occupational injury involves loss of consciousness, restriction of work or motion or transfer to another job

6.8 Man Overboard

Seismic Crew

This section is intended as a guideline, and to help focus efforts in the event of a man overboard. Every emergency has its own unique set of circumstances; procedures will therefore be modified as the situation dictates.

Hail the words "**Man Overboard**", and notify the bridge immediately. Launch the MOB life raft and life rings/smoke floats. If you haven't already activated the "Emergency Stop/MOB Alarm" for the guns then the Recording Room will do so upon hearing the alarm. Do not leave your post unless essential. Pass the word through others and post all available lookouts

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It is essential that visual contact is maintained with the subject as long as possible. NEVER jump from the vessel into the water to attempt rescue, one person is easier to rescue than two.

Upon notification of the bridge the officer in charge will sound the appropriate man overboard alarm: continuous ringing of the ships' general alarm bell. The Master, Party Manager will then be immediately notified and appraised of the situation.

Chase boat and other traffic in the area to be immediately notified, as first response, other vessels to post lookouts and standby to respond.

The Observer on watch will immediately terminate the line and start appropriate recovery of overboard equipment.

Navigators obtain an immediate position fix and make that position known to the Bridge. Stand by at the Navigation station take additional fixes as required, especially changes in course or speed. Plot positions as soon as fixed.

Prepare FRC for launch, and equip with additional blankets and first aid supplies for treatment of hypothermia or shock.

Assigned personnel muster immediately to their man overboard-emergency stations.

Launch Fast Rescue Craft – **Under Master's directive.**

All others not directly involved in the rescue operation **Stand Clear.** Go to lookout points on the Helideck and Topside levels. Await instructions.

Launching the MOB Life Raft

The six-man capacity, Man-Over-Board, emergency life raft is mounted on the stern and can be deployed from the Streamer Deck or Gun Deck. The Painter is attached directly to the life raft cradle.

The raft is released from one of the two release stations, Streamer Deck or Gun Deck, by pulling the wire, allowing the raft to free-fall out of its cradle.

The action of the raft falling will automatically inflate the raft, then release the painter line at the quick release hook, and allow the raft to float free from the vessel.

Bridge Crew

Duty Officer on Bridge sounds alarm. Call Master and Party Manager. Release smoke and light float.

A.B. on watch release smoke and light float.

Alert other vessels via radio, and instruct chase vessel to proceed immediately to the known location.

Designated spotters to proceed to Bridge.

Assigned personnel muster immediately to their man overboard emergency stations.

Launch Fast Rescue Craft – **Under Master's Directive.** For launch procedures see section “Small Boat Operations”

6.9 Boarding or Disruption by Activists

Boarding or Disruption of Operations by Environmental Activists

This procedure is for the rare occurrence of interference of operations, or in case of actual vessel boarding by environmental activists. Consult the Veritas DGC Crisis Management Plan as soon as possible.

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If any of the vessels associated with the seismic operations are approached or boarded by uninvited representatives of action groups, the following guidelines should be applied. Specific statements to be read out are included.

Minimize any opportunities, which if photographed may offer the possibility of sensationalizing the situation. Media teams may accompany any boarding party. Do not give any interviews.

The key is for everyone on the vessel to be non-confrontational and to deal with such an incident in a professional, firm and moderate manner.

These guidelines should be passed down to support vessel masters in the event of such a situation developing.

Pre-Boarding

If you become aware of another ship approaching the vessel or the towed cables, the normal rules of the sea apply. Collisions at sea are to be avoided if at all possible. The appropriate signals during maneuvering should be given. Any maneuvers etc. should not be made which would endanger the safety of your vessel or of the other craft. Safety of your ship, crew and any other craft and their passengers should be your overriding concern. However, rapid changes in course provide high risk to personnel onboard in entangling the towed equipment with the vessel's propellers. There may therefore be times when collision with inflatables or persons in the water becomes unavoidable. Should this be the case the vessel's FRC's should be deployed to assist with rescue efforts following the incident. It is important that a log is kept of all observations and steps taken.

If you come into contact with potential illegal boarder(s) and it is possible to communicate by radio, telex or load hailer, Statement 'A' must be read to them

Attempts to Board

No assistance should be given to aid illegal boarder onto the ship. However, attempts to board should not be resisted, unless it is clear that in doing so, no person's safety (including that of the illegal boarders) is endangered. All accesses to the vessel's accommodation should be locked. Attempts to gain entry to the vessel's cable and deck should be strongly resisted since such areas contain numerous hazards for those not briefed on the functions of the equipment.

On Boarding

If an illegal boarder succeeds in boarding the vessel, statement 'B' must be read to him/her. The illegal boarder should then be asked to leave the ship unless it is dangerous for him/her to do so. If he/she does not, or cannot leave the vessel he/she may be restrained if:

His/her conduct appears to threaten the safety of the vessel, the crew or any other party.

His/her conduct is contrary to the preservation of good order or discipline onboard the ship.

Therefore if, for example, the illegal boarder attempts to chain himself/herself to a piece of machinery necessary for the operation of the ship, or if he/she proceeds to try to threaten the crew with physical harm, he/she may be restrained, statement 'C' must be read to him/her. There can be no restraint until his/her conduct falls under either category above. At all times the crew should remember that compromising photographs/video photography may be made of the events when restraining boarders. Only such force as is reasonably necessary can be used. If an illegal boarder does not resist restraint, no force is therefore necessary. Causing pain/bruising to an illegal boarder may be criminal assault, unless it can be shown to be necessary to promote safety, good order, and or discipline. This may mean, for example, that

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holding a person's arm behind their back and causing them pain is unnecessary and, therefore, illegal.

Once restrained, the illegal boarders may be placed in locked premises.

Areas such as the bridge, engine room and accommodation should be locked to deter boarders from entering. If any illegal boarder attempts to force entry, he may be restrained (in accordance with the above) Statement 'C' must be read to him/her. All accesses to the vessel's accommodation should be locked. Attempts to gain entry to the vessel's cable and gun deck's should be strongly resisted since such areas contain numerous hazards for those not briefed on the functions of the equipment.

An illegal boarder may be restrained until reasonably practicable to have him/her put ashore. This may mean that the illegal boarder may be handed over to the police, if the police so request, prior to him/her being put ashore. If you are restraining any person, you should inform the police and the Veritas DGC Shore Supervisor.

Statements

STATEMENT 'A'

I do not authorize you to board this vessel and any attempt to do so is an illegal action. Moreover, it would interference with navigation and a potential hazard to the safety of the ship and her crew as well as those making the attempt. Such reckless and potentially dangerous behavior is unseamanlike and completely contrary to the rules of the sea.

Anyone who boards this vessel will be asked to leave immediately, if they do not do so I reserve the right to take action as considered necessary for the protection of the vessel and her crew. Such action could include the searching and detaining of personnel until they can be placed in the hands of the appropriate authorities at the next port of call.

STATEMENT 'B'

I am authorized by the master of the ship to inform you that you are not authorized to be present onboard this ship. You must leave this ship. If you do remain onboard, you will be committing an offense under Maritime Law. I am formally requesting you to leave this ship immediately.

STATEMENT 'C'

I am authorized by the master of this ship to put you under restraint if and for so long as it appears to the master necessary or expedient. This is (either/both)

1. In the interests for the safety of the ship, it's crew and/or your safety.
2. In order to preserve good order or discipline aboard this ship.
3. This power of the master of the ship is exercised under Maritime Law.

Notification Procedures and Actions

Introduction

In the event of a Pressure Group attempting to interfere with vessels' activities, the Master will use Emergency Reporting Procedures to mobilize the appropriate Emergency Response.

If the vessel master considers safety or the environmental standards may be compromised at any stage then operations should be suspended, and facilities made safe.

Veritas DGC standard reporting procedures will be followed.

Special actions including mobilizing a senior manager to site as a matter of urgency may be

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necessary, as well as proceeding with Government and Public Affairs activities aimed at staff and key opinion formers and keeping authorities and clients fully informed.

The local police, Coast Guard and relevant authorities must be notified.

Actions Offshore

The strategy for dealing with initial disruption should be:

HSE compliance is paramount, therefore halt all activities to prevent risk of injury.

People to be treated firmly but with respect - *aggressive action should not be taken.*

At all times personnel should try and avoid presenting photo opportunities.

The over-riding objective is to minimize negative publicity and disruption to our operations

Proposed Media Holding Statement - For Senior Manager's only. No statement to be given by anyone else.

This type of statement can be used in case of a direct approach from the media.

"We are aware of {activist organization} action in the {area of operations}. Our immediate concern is to ensure the safety of our own and {activist organization} personnel. Let me assure you that

Veritas DGC are taking all reasonable steps to ensure people's safety and we would urge {activist organization} not to do anything that could jeopardize safe operations. Beyond that, we have no further information. For further information we suggest you call our headquarters in Houston.

Evidence Gathering

Always remember that in order to satisfy any criminal or civil court, it will be necessary to establish "Who did what to whom - when, where and how"

Best evidence will comprise corroborated eyewitness statements or the evidence of one eyewitness supported by other corroborative evidence such as video recording, taped conversations etc.

Scenario planning should have identified equipment and personnel essential to the good management of an incident. This will involve making sure adequate photographic, recording and cutting equipment is readily available and in the hands of trained staff.

The following guidelines will assist evidence gathering:

- Delegate someone to keep a log of events as they happen. This log may be hand written or kept on computer and must be capable of being updated.
- Make every effort to video record and photograph as much of the action as possible.
- The names of persons who witness incidents must be recorded in the log.
- The names of persons who make video or audio recordings or take photographs must be noted.
- Video, audio and other evidence should be collated centrally.
- Accurate plots of all vessel positions and headings must be made at material times of action. This may be crucial e.g. if intentional obstruction of passage occurs.
- Attempts should be made to glean as much information as possible about those you are dealing with e.g. "Who are you? What is your name? Which organization do you represent? What is your position in that organization? What is your aim?" etc.
- If possible, identify those persons by name or at least by sight on the video or photograph.

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- Take possession of and retain for safekeeping any cameras etc. (non-intrinsically safe).
- Always have 2 persons escorting anyone unlawfully onboard. Make pictorial record of the escorts with the intruder.
- Take possession of handcuffs, chains, etc. for evidential purposes.

6.10 Collision or Grounding

The stability and buoyancy of any ship is dependent on the integrity of the hull and the weight distribution. A collision or grounding could possibly cause a hull fracture, which will inevitably affect the stability of the ship, the severity being dependent on the type, extent and location of the damage, intact stability and buoyancy reserves.

In any incident of this type, the first priority is for the Master to consider possible action in case of an imminent danger to the crew or loss of the vessel. During the assessment of the situation the general alarm should be sounded, and all crew accounted for.

In the event of grounding the Master should firstly:

Stop engines and try to assess the extent of any damage to the hull and watertight compartments, while trying to establish the ingress of any water.

Establish if the vessel is in danger of sinking, breaking up, or sustaining further damage.

Consider the possibilities of evacuation, and any limitation to this process due to the sustained damage.

Establish the danger of damage to the environment, and measures to either stem the flow of contaminants being released or prevent any possible leakage.

If the grounding is such that the vessel or crew is in no immediate danger, the following checks should be made:

- The exact position.
- Depth information and tidal conditions.
- Damage to propulsion or steering.
- Possibilities of the vessel being re-floated without assistance.

When it is established that the situation is secure, the nearest local authorities should be notified, along with the owners and charterer's representatives, indicating, as a minimum:

- Name and nationality of vessel.
- Accurate position and extent of damage.
- Casualties, if any.
- Type and extent of possible pollution.
- Precautions that have been taken.

The Master would then be responsible for establishing an estimation of the situation and the outlook. Based on his findings it would then be determined what immediate course of action was required, in respect of ballast, trim, watertight integrity, reduced buoyancy, and whether outside assistance would be needed.

In the event of a collision the Master should firstly:

Sound the general alarm and account for all personnel.

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Establish communications with the other vessel, exchange necessary information and coordinate any rescue action.

Ascertain the extent of the damage and take precautions against pollution damage or explosion.

Close all hatches and openings.

Follow the codes of Maritime Law as for reporting, notifications, gathering and logging information or evidence.

Any request for any outside assistance should be via the owners of the vessel, unless the situation is critical, and the Master has no option but to make appropriate decisions.

6.11 Language for Emergency Communications

The personnel assigned to the Veritas Viking II represent a number of different nationalities. In order to ensure all communications are consistent the language to be used during all emergency and normal operations will be English. The use of English will be used at all times during the following circumstances:

- a) During normal communications over the onboard intercom system.
- b) During all emergency drills.
- c) During all helicopter operations.
- d) During all communications with the chase boat.

Emergency Instructions: all emergency instructions must be written and available for each nationality represented onboard. This information includes:

- 1. Life Boat and Life Raft instructions.
- 2. Fire and Emergency instructions and alarms.
- 3. Life Jacket and Survival Suit instructions.

6.12 Communication Equipment and Procedures

Equipment:

- Full GMDSS Radio Station
- Inmarsat B Station
- VSAT Station
- Tron, type 30S Class 2, 406 MHz EPIRB
- 5 Hand held UHF Radios
- 3 Hand held VHF Radios
- 2 Tron Radar Transponders

Capabilities/Procedures:

The Veritas Viking II produces and transmits a report on a daily basis of its prior 24 hours of activities. It utilizes the VSAT system to communicate this report to Veritas' offices in Houston,

Reports are reviewed on a daily basis by Veritas' land based management team. The report is in the form of written text.

The Inmarsat B system also is available for voice communications on a 24-hour basis. Veritas' land based management team is available via office phone, office fax, home phone, and cellular phone.

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Distress communications are included in the Inmarsat B system.

The VSAT system also provides 24-hour voice communication independent of the Inmarsat B system. Veritas' land based management is also available via the VSAT phone system. The VSAT provides a 24 hour direct link between the vessel and Veritas' offices.

The GMDSS system provides VHF and SSB radio communications in case of Inmarsat B and VSAT failure. Battery power can be utilized in case of total loss of ship's power.

The EPIRB is mounted on the stairway leading into the lifeboat. It is fitted with a hydrostatic release for automatic deployment in case the vessel sinks. It will transmit a distress signal and location to a satellite based alert system.

The radar transponders are mounted inside each bridge wing door and are intended for use in case of life boat and life raft launch. It will transmit a beacon that will help surface ships and low-level aircraft to home in on the lifeboat or raft.

In the event of no contact from a vessel for over 24 hours shore based management are to attempt voice contact via VSAT and Inmarsat B.

In the event Veritas management cannot contact the vessel, the charter management is to be contacted to establish the last time they had contact with the vessel.

In the event voice communications cannot be established Veritas management will attempt to contact the vessel via SSB standby frequency.

In the event SSB communications can not be established, Veritas management are to contact any known stations within the vessel's work area to attempt contact via VHF channel 16. The chase boat working in tandem with the Veritas Viking II would be the first station contacted.

In the event VHF contact cannot be established via local known stations, Veritas will contact the appropriate government agency or Coast Guard to notify them of lost communications and request assistance in establishing communications.

VESSEL ON FIRE SCENARIO

If a fire is discovered onboard, providing safely able to do so, the vessel should be set on a course which puts the fire to the leeward side to minimize the danger of the fire being spread by the wind across or through the ship.

Vessel speed should be reduced to as slow as feasible to maintain steerage and minimize airflow feeding the flames.

If the vessel is on fire and making heavy smoke it would be advantageous if possible to put the wind two points off the bow.

To protect personnel against the possibility of intense heat at the location of the fire, an ample spray of water, (a fog applicator), should be used by the lead team when nearing the scene.

Once the fire is quenched cooling water must continue to be applied over the source and surrounding areas to prevent the fire from re-igniting. Boundary cooling must be applied while fighting the fire to prevent spreading to adjacent areas.

If an installed fixed extinguisher system is used in a confined space all personnel must be evacuated from the area before these appliances are activated.

Raising the Alarm

It is of utmost importance that a fire alarm is raised as soon as a fire is discovered.

The smallest of fires that is allowed to escalate unchecked due to a late alarm being raised or a slow fire team response can have disastrous consequences for both personnel and for the vessel itself.

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Persons first discovering a fire must act quickly and correctly.

The officer of the watch must be alerted immediately so that the general fire alarm can be sounded and information regarding the location of the fire and can be broadcast over the vessel's public address system.

In the early stages it may be entirely possible to bring the beginnings of a fire under control by simple use of a hand held extinguisher.

It follows that the faster that a fire or potential for fire is dealt with exponentially improves the chances of it being successfully extinguished and averting the potential for a crisis emergency situation developing.

Never open any doors to the suspected location of a fire area without first cautiously checking the door for heat and having the use of fire fighting equipment in hand as the fire may immediately escalate and blow back if air is allowed to suddenly flow in to a confined space.

If the first persons on the scene are not able to control the fire those persons must withdraw ideally shutting off the supply of air if possible by closing all doors to the scene and waiting for reinforcements to arrive.

Assign persons to search all nearby rooms to be sure there are no casualties suffering from gas or smoke inhalation.

Always remember that your life is more important than heroics.

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07. Safety Critical Vessel Procedures

7.1 Boarding & Departing Vessel

Introduction

These procedures are for any personnel boarding, or departing the Veritas Viking 2 while in port. The intent of the procedures are to allow the Master, and Party Manager, an accurate "head count" at all times. This serves several purposes, the most important is the knowledge of who is aboard, and their location, should an emergency situation develop. All personnel are to embark and disembark the vessel using the gangway. You should not step between the ship and the dock at any time. During high and low tides the gangway may be at a steep angle, check that you have a firm footing before proceeding, always have one hand free to grasp the handrail.

Visitors should arrive with the appropriate hard hat and safety footwear. If they do not, spare hard hats are available near the gangway; additionally available are ear defenders, and safety glasses. There are signs posted in all areas where the use of head, ear, and eye protection is required. Use of safety equipment is strictly enforced. Visitors are issued a visitor badge. New crew members also receive a "Vessel Orientation" manual. The manual contains information about vessel procedures, and crew responsibilities.

Upon Arrival

The Visitor Book and the Gangway Watch will be stationed either at the Gangway or on the Bridge. The role of Gangway Watch is equally shared between Veritas DGC and the vessel owners on a twenty-four hour system.

Agents, and vendors are escorted at all times. They are not allowed to wander around the vessel.

Contractors, agents, and vendors will report directly to the Master, or Party Manager on arrival as appropriate.

New crew will have a safety briefing and safety manual upon arrival onboard.

Hand held radios will be utilized by the Gangway Watch to notify the Master or Party Manager of visitor arrivals. This will ensure that the watch is maintained continuously.

Departure

All personnel must return their protective gear when leaving the vessel.

All personnel must checkout with the Gangway Watch on leaving the vessel.

Standard Operating Procedure

Failure to comply with these procedures may result in the removal of the offender.

Alcohol, Drugs, and Fire Arms are strictly forbidden. Anyone suspected of carrying contraband is subject to search. This is at the sole discretion of the Master, or Party Manager. Anyone refusing search can be removed from the vessel.

Anyone suspected of stealing is subject to search. Anyone found stealing would be detained until local authorities are summoned.

Anyone suspected of being under the influence of alcohol, or drugs can be refused permission to board the vessel.

7.2 Visitor Badges

Visitors will sign in the visitor's book on arrival. The visitor will detail the location of work, and the person visited. All visitors wear a visitor badge at all times while onboard.

Vessel master to be supplied with a list of names of all visitors and service personnel who will board the vessel at least 24 hours prior to their arrival.

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The gangway watch controls the visitor book. The gangway watch will ensure all visitors sign in on arrival. The gangway watch records the date and time of arrival and departure of each visitor. Crew members will ensure all visitors to their areas have signed in and wear badges.

7.3 Helicopter Operations

Helicopter operations are one of the more hazardous activities personnel will take part in. It is essential that all personnel are attentive when being briefed on helicopter operations and follow all instructions exactly.

Passenger Briefing Instructions

During helicopter operations all personnel are under direct command of the helicopter crew. While onboard the vessel prior to boarding, or disembarking from the helicopter, all personnel are under the direction of the vessel master and designated Helicopter Landing Officer (HLO).

No person will approach the helicopter while the red flashing anti-collision light is on. The flashing anti-collision beacon is used to signal the HLO when it is safe to proceed with the operation. The beacon is off when it is safe to approach.

All personnel will avoid the tail rotor and air intakes of the helicopter.

No person will wear any unsecured objects such as hats, scarves, etc. These may blow away in the down draft of the helicopter.

All personnel will approach the helicopter in sight of the helicopter crew. Note that the forward rotors of some helicopter models dip low in front of the aircraft. Be aware of high winds, which can cause the rotors to dip in any direction.

All personnel in helicopters will wear the seat belts, lifejackets, ear defenders, and survival suits provided by the helicopter crew as required.

All personnel will familiarize themselves with the aircraft's emergency exits and emergency equipment locations. A safety briefing is conducted prior to flight departure, normally with a video or verbal presentation conducted by a helicopter flight crew representative. Once aboard read the aircraft safety card.

When your destination is reached remain seated with your seat belt buckled until instructed by the flight crew to leave the aircraft. Lifejackets, and ear defenders are usually left in the aircraft. Survival Suits are normally removed once inside the terminal, or vessel.

During helicopter operations the FRC should be ready for launch and the attending chase boat, if available, should be positioned on the quarter as appropriate, to assist in the event of an in-water emergency.

Passenger Instruction for Emergency Ditching

In the event of an emergency landing, remain in your seat with your seat belt fastened. If the seat belts are removed, the motion of maneuvering for a landing may throw all passengers to one part of the cabin and cause the pilot to lose control.

Ensure that the survival suit is zipped up (if required).

Remove the ear protectors.

Take up brace position before landing.

After impact, put one hand on the seat belt buckle and the other pointing to the exit door for orientation in case the aircraft inverts.

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The man nearest the door is responsible for opening it.

Before releasing the seat belt count to 10 to allow the aircraft to settle.

Do not inflate the life jacket until you are clear of the aircraft.

Do not stand on inflated floats if the aircraft remains upright.

If the aircraft remains upright, await the pilot's commands to evacuate. He may be able to keep the aircraft upright if the blades are rotating.

Remain close to the aircraft as long as it remains afloat.

Remove life raft, flares, and other survival equipment.

VESSEL EMERGENCY READINESS

The Captain is in overall command during any helicopter operations, assisted by the designated Helicopter landing Officer (HLO). A state of emergency readiness should be maintained onboard the vessel when a helicopter is landing or taking off, a helicopter is on deck with the rotor running, any time the helicopter is refueling or starting the engine(s).

The state of emergency readiness should include these minimum activities and precautions:

- Any available Chase Boats should be standing by in close proximity prepared to recover personnel from the sea.
- Fast Rescue Craft(s) (FRC's) prepared for immediate launch with crews standing by.
- Man overboard floats and raft made ready for immediate deployment.
- Monitors manned with fire main and foam-system pressurized.
- Portable extinguishers made ready.
- Fire team dressed and manning fire stations.
- Other members of deck team dressed in bright colored clothing so as to be easily seen by the HLO and Pilot. Any loose items of clothing and hats should be properly secured.

HELICOPTER EMERGENCY PROCEDURES

Purpose & Scope

The purpose of this procedure is to give guidelines on what action to take during a helicopter emergency on or close to the vessel.

The scope of this procedure is to consider foreseeable emergencies enroute to or from the vessel and when helicopters land and take off from the vessel.

Responsibilities

The Master of the vessel is in overall command during a helicopter emergency. Every helicopter emergency will have its own set of unique circumstances and the Master will have to take whatever action he feels necessary to minimize the damage to the vessel and the environment. The Captain is responsible for all actions taken.

The helicopter emergency team shall carry out regular drills and excises in emergency preparedness to cover all foreseeable helicopter emergencies.

Emergency Deck Procedures - Fire

If on engine start up, the HLO spots an engine fire he will signal to the pilot. On the HLO's signal, the fireman and hose team should become alert to the situation but no action should be taken until

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the pilot has signaled to the HLO that he cannot deal with the fire.

If the pilot signals to the HLO that he has an engine fire and requires assistance then the HLO will order the firemen in protective clothing to advance on the helideck, taking with them a CO² extinguisher to discharge into the air intakes. The backup fireman should be ready with a hose.

If the engine has a "wet start" a large flame may be seen on the exhaust. This should die and no action should be necessary unless there is running fuel on the air frame that may ignite. Again the backup fireman should be ready with the hose.

If, for any reason, there is a fuel spillage fire, the fireman in protective clothing should advance towards the helicopter with the dry powder to quickly tackle the fire and to protect the passengers and crew as they escape. The hose team should attempt to wash away any fuel/flames with light water. Care should be taken not to direct the hose on to any personnel in the area or into the engines or turbines.

The ships fire alarm should be sounded. In the case of a spreading fire, the prime objective is to keep the flames away from the cabin area to allow the crew to escape. In an engine fire, no water or dry powder should be used unless the fire turns into a spreading fire.

Emergency Deck Procedures - Crash

Firefighters should be in a protected area, behind the "Crash Shield" during helicopter operations, to prevent them from being injured by rotor scatter. The positioning of the protected area is such that the firefighters are in close proximity to the helideck fire fighting equipment to save time in them arriving on the scene of the fire.

If after a hard landing, the pilot is unconscious and there is no one with the skill to enter and turn off the fuel and switch off the power, the engine may be stopped by putting a jet of water into the air intake.

Start applying foam immediately whether or not ignition has occurred if there is spilling fuel. (The exhaust is hot enough to ignite it on contact).

Apply foam first to the fuselage, this will tend to protect it from heat and as the foam runs off it will take the fire away from the fuselage.

Firefighters with hand lines should get in close, as quickly as possible taking the fire away from the cabin area.

There is danger from pop-out flotation pods on the wheel rims of some helicopters. Do not stand in line.

If the helicopter is engulfed in fire, there is danger to firefighters from exploding hydraulic reservoirs. The undercarriage must be cooled before any close approach.

Try to reserve some powder for knocking back flame away from rescuers or rescued persons.

The inside of the helicopter will have plush furniture with the attendant fire risk and thick black acrid smoke. Breathing apparatus and spray will be needed for internal fires.

Certain doors and windows may need to be jettisoned. A window may be broken by making it cold with a CO² extinguisher and striking it with a rescue axe.

Injured passengers may be suspended on the high side by their harnesses. They must be lowered gently. The pilot has a lever on the left side of his seat to slacken the inertia harness after which it may be released in the usual way.

Once rescue is complete and the medical first aid attention is being given, firefighters must make sure all fire is extinguished without disturbing the wreckage any more than necessary pending investigation. This is of particular importance in the case of a high impact crash.

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Emergency Deck Procedures - Ditching

Mark the chart in the exact spot of the helicopter entering the water and the exact time, and give an advisory message on Channel 16.

Immediately launch the FRC's, and if applicable move the chase boat into a position that will enable it to support the rescue craft.

The FRC must not approach the helicopter until the rotors have stopped turning.

Once the rotors have stopped turning, the rescue craft can approach the helicopter and assist survivors into the rescue boat. The rescue boat must not at any time attach itself to the helicopter.

The FRC must not create a wash around the floating helicopter as this may add to the stability problem.

All efforts should be made to rescue all personnel without endangering the lives of the rescuers.

SEA RESCUE BY HELICOPTER

Once the helicopter has become airborne how soon it locates the causality and how effective the rescue is depends to a large extent on the actions and preparedness of the vessel itself.

Vessel Identification Aids

From the air, especially if there is a lot of shipping in the area, it is very difficult for the pilot to identify a particular ship from the many that he can see unless the distressed ship uses a distinctive signal.

In daylight the use of an orange coloured smoke signal is very distinct when seen from the air, another signaling method could be with the use of an Aldis lamp which is also quite effective in daytime except in very bright sunlight.

Position Accuracy

Because of the operational limitations helicopters must not be unnecessarily delayed at the scene of the rescue. It is essential that the ship's position is given as accurately as possible if the original signal is made by radio or as a mayday relay.

Helicopter Approach

A helicopter will normally approach the ship from astern and hover over the helideck area heading into the wind. In order for the helicopter pilot to have as much area as possible on which to operate consistent with the helicopter remaining heading into the wind, the ship should steam at a constant speed heading 30 degrees to starboard of the prevailing wind direction.

Rescue via Helicopter Winch

The maximum length of a helicopter rescue winch cable is typically 200 feet. On no account should the strop be secured to any part of the vessel or allowed to become entangled with any part of the ship's rigging or fixtures.

Professional rescue organizations such as the coastguard are expertly practiced in rescuing survivors either from a deck of a ship or from the sea itself.

In some circumstances the victim may be hoisted by means of a strop. In this event a crewman will be lowered from the helicopter together with the strop which will be secured around the victims back and chest.

If a victim's illness or injury is such that the use of a strop around his back or chest would aggravate the situation or cause suffering a crewman will be lowered to the deck with a stretcher. The victim would then be placed in the stretcher and strapped in such a manner that it is impossible for them to slip or fall out and both stretcher and crewman would be winched up to the helicopter together.

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If required and if prearranged, the helicopter may be carrying a doctor who will be lowered to the deck to assist with other victims.

Helideck Obstruction Scenario - Fire

In the event of a streamer deck fire or helideck obstruction making a landing or hovering maneuver impossible it may be possible for the helicopter to lift a man from an FRC towed astern on a long painter.

In the event that the vessel is on fire with the heliport obstructed and all FRC's and lifeboats out of commission being unable to be launched then it will be necessary to use an inflatable raft.

On the approach of the helicopter the inflatable raft should be streamed complete with victim and attending crew secured a minimum of 100 meters aft of the parent vessel.

RADIO COMMUNICATIONS

The success of any helicopter operation depends on establishing and maintaining good radio communications.

Communications during a helicopter operation should be conducted directly between the ship and helicopter and avoiding the need to relay through third parties if at all possible.

In the event that information or confirmation must be relayed through a third party it is essential that the identical format, style and content of the message is relayed exactly as it was received. Do not paraphrase.

To avoid miscommunication speak slowly and clearly to ensure that essential information is understood correctly. Insist that the information being passed is repeated back by the person on the receiving end to confirm that what was heard is actually the same as what was said.

Establish and confirm with the helicopter operator that a stated rendezvous point is suitable and within range of the helicopter. If the rendezvous point is unsuitable the Master must immediately be notified and a new rendezvous position established.

Message Format:

It is recommended that the format, style and content of emergency radio messages are based on the following outline.

- Name Of Vessel
- Call Sign
- All Radio Frequencies Being Used & Monitored
- Present Position
- Heading
- Speed
- ETA To Rendezvous Point
- Position Of Rendezvous Point
- Number Of Personnel To Be Evacuated
- Local Weather
- Sea State
- Pitch And Roll
- Visibility
- All Other Relevant Information

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VESSEL ON FIRE SCENARIO

If a fire is discovered onboard, providing safely able to do so, the vessel should be set on a course which puts the fire to the leeward side to minimize the danger of the fire being spread by the wind across or through the ship.

Vessel speed should be reduced to as slow as feasible to maintain steerage and minimize airflow feeding the flames.

If the vessel is on fire and making heavy smoke it would be advantageous if possible to put the wind two points off the bow.

To protect personnel against the possibility of intense heat at the location of the fire, an ample spray of water, (a fog applicator), should be used by the lead team when nearing the scene.

Once the fire is quenched cooling water must continue to be applied over the source and surrounding areas to prevent the fire from re-igniting. Boundary cooling must be applied while fighting the fire to prevent spreading to adjacent areas .

If an installed fixed extinguisher system is used in a confined space all personnel must be evacuated from the area before these appliances are activated.

Raising the Alarm

It is of utmost importance that a fire alarm is raised as soon as a fire is discovered.

The smallest of fires that is allowed to escalate unchecked due to a late alarm being raised or a slow fire team response can have disastrous consequences for both personnel and for the vessel itself.

Persons first discovering a fire must act quickly and correctly.

The officer of the watch must be alerted immediately so that the general fire alarm can be sounded and information regarding the location of the fire and can be broadcast over the vessel's public address system.

In the early stages it may be entirely possible to bring the beginnings of a fire under control by simple use of a hand held extinguisher.

It follows that the faster that a fire or potential for fire is dealt with exponentially improves the chances of it being successfully extinguished and averting the potential for a crisis emergency situation developing.

Never open any doors to the suspected location of a fire area without first cautiously checking the door for heat and having the use of fire fighting equipment in hand as the fire may immediately escalate and blow back if air is allowed to suddenly flow in to a confined space.

If the first persons on the scene are not able to control the fire those persons must withdraw ideally shutting off the supply of air if possible by closing all doors to the scene and waiting for reinforcements to arrive.

Assign persons to search all nearby rooms to be sure there are no casualties suffering from gas or smoke inhalation.

Always remember that your life is more important than heroics.

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OBSTRUCTED HELI-DECK

The helideck must be kept clear of obstruction & debris at all times. Helideck barriers must be lowered, at the time of helicopter departure from the heliport

Loose equipment or debris can be blown off the deck by the helicopter down draft. Clearance for helicopter arrivals or departures must not be given until the HLO (Helicopter Landing Officer) has completed a check for loose equipment or debris both on the helideck and surrounding areas.

Relevant personnel must be instructed that no operations are to be carried out on or around the helideck that could result in helideck obstruction until the HLO has confirmed that no helicopter operations are scheduled and the helideck perimeter fences have been secured in the vertical position.

All personnel should be made aware that the helideck is off-limits while the safety fences are lowered and the helideck safety barriers have been removed.

In the event of an unavoidable obstruction to the helideck during a period of planned helicopter operations, the helicopter company and/or the helicopter pilot must be immediately informed of the problem and the estimated time required to clear the obstruction.

During landing, embarkation and take-off, all off-going and on-going passengers must ensure that their bags and other personal items do not obstruct hoses, fire extinguishers, the fire teams or any other safety equipment on or around the helideck area.

HELICOPTER USE FOR MAN OVERBOARD

In the event of a Man Overboard situation the vessel will enter emergency status and all designated personnel will proceed immediately to their assigned Man Overboard (MOB) stations.

The Captain will immediately notify the Coast Guard. He will also broadcast on VHF channel 16 and/or on SSB 2182MHz to all ships in the vicinity that there is a Man Overboard and for all ships to keep a sharp lookout.

The last known position of the MOB will be taken from the onboard SPECTRA navigation system and also the bridge GPS navigation equipment.

The Coast Guard Coordination Centre will take overall responsibility for the Search and Rescue operations in conjunction with the Master assigning surface rescue vessels, helicopters and/or fixed wing aircraft as appropriate.

SEARCH AND RESCUE

Emergency Preparations.

If a helicopter is assigned to assist the vessel in Search and Rescue the vessel will be brought to VESSEL EMERGENCY READINESS. (as previously outlined under Article 2.0).

Depending on the nature of the emergency the following actions may be required if undertaking Search and rescue operations.

The Master, Chief Officer and Party Manager or their designates will to co-ordinate the necessary resource allocations.

All in-water towed equipment will be jettisoned or recovered as instructed by the Party Manager.

In the event that towed equipment is jettisoned, as many markers or floats as possible should be attached to the jettisoned equipment so that it can be tracked by the seismic vessel, and remain visible to other surface ships. A navigation warning will be broadcast warning other surface vessels.

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Update the bridge as soon as each piece of equipment becomes clear of the water or is let go.

Onboard (FRC's) Fast Rescue Crafts to be made ready and lowered to pre-launch positions on instructions from the Master.

Assigned First Aid parties to be alerted to position to standby.

Designated fire/rescue teams to be mustered and team leaders briefed..

Portable appliances, heaving lines, nets and stretchers to be made ready as required.

Assign designated lookouts around the vessel as required.

Inform the lookouts of the length of their watch and the name of their relief.

All personnel to remain in a state of readiness for the duration of operation.

VESSEL EMERGENCY SUPPORT

Upon receiving request from the appropriate authorities and depending on the nature of the emergency the vessel will be brought to a state of VESSEL EMERGENCY READINESS as outlined under Article 2.0.

- A constant line open line of communication is to be kept open with the controlling Emergency Co-ordination Centre.
- Radio working frequencies of all participating must be made known and logged.
- FRC's and FRC crews to be made ready and positioned on standby as required.
- Hospital tenders and First Aid Teams to be mustered and briefed on situation.
- All off-shift personnel to be mustered and updated on current situation.
- As situation develops Fire/Emergency teams to be mustered as required.
- Vessel to be kept in a higher state of readiness for duration of operation.
- Assign a watchman and designate a relief person as required to keep a continuous log of events.

AIRCRAFT SIGNALS TO SURFACE ASSISTANCE

If unable to communicate via radio, to direct vessels in the vicinity to the assistance of a distressed vessel an aircraft will perform the following maneuvers in sequence*

1. Aircraft circles the requested surface assistance vessel at least once.
2. Aircraft crosses the surface assistance vessel course close ahead at low altitude while rocking the wings or opening and closing the throttle or changing the propeller pitch.
3. Aircraft leads in the direction in which the surface assistance vessel is to follow.

* (Repetition of signals have the same meaning).

Note: An aircraft crossing the surface vessel's wake close astern at low altitude while rocking the wings or opening and closing the throttle or changing propeller pitch means that the assistance of the surface vessel is no longer required.

REFERENCES

Veritas DGC acknowledges use of the following reference works:

IAGC Marine Geophysical Safety Manual 8th Edition, Section 2

International Chamber of Shipping Guide to Shipboard Helicopter Operations

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Preventative Measures

- Training of personnel in the operation before deployment on the team.
- Use of additional protective equipment as the conditions merit.
- Two personnel to handle deck operation.
- Frequent and documented inspection, maintenance, and inspection of Crane, wires and lifting strops.
- Use of one or more tag lines depending on weather conditions.
- Inspection of load prior to lift. Use of strops to lift all pallet loads. Use of pallet forks is prohibited.
- Permit to Work approval process.
- Person assigned to standby manual controls in case of remote control failure

Responsibilities:

The crane operator is responsible for the operations. New personnel onboard will be tested for competency by the Master or Chief Mechanic, to assess their experience and safety knowledge of crane operation.

Training

At least one person from each Seismic shift to be trained onshore to recognized standards in Crane operations, rigging and slinging. This person will then train other suitable individuals on the crew.

An experienced operator who will have responsibility for the operation must always directly supervise inexperienced crane operators. This training will conducted with the ship alongside.

Procedure

The Chief Mechanic or Crew Leader is notified by the party requiring crane operations.

The Chief Mechanic or Crew Leader requests permission from the Bridger for crane operations. If approved, the Permit To Work process is completed on the Bridge.

The Chief Mechanic or Crew Leader is responsible for briefing the crew and assigning job tasks, and ensuring the crane crew is wearing the correct PPE.

He must conduct a visual check of the strops, wires, hooks and all lifting devices and verify the compatibility with the Safe working Load of the crane being used for the operation.

After inspection of the crane, the Lock Out/Tag Outs are removed or the hydraulic system initialized by the Chief Mechanic or Crew Leader.

The minimum team should consist of 3 people: 1 crane operator, 1 helper at the loading area and 1 helper at the unloading area. This number should be increased according to the line of sight, the lifting device being used and the weight and size of the load. In all cases a visual has to be maintained between the crane operator and the loading and unloading areas.

Any failure should be reported and the operation should not start until it is certain that all equipment and conditions are safe.

The crane team must communicate by signs and/or headcoms. If using hand signals, these must be in accordance with standard recognized & approved crane operating signals. The crane operator must wait for the OK of the helper before lifting the load. In the case of two helpers working together, one must be designated person to communicate with the crane operator.

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Assess wind force and direction, sluing the crane in the same direction as the wind could cause the load to become unstable.

Crane operator to use minimum length of cable during the lifting operation.

Upon the completion of crane operation, the Chief Mechanic or Crew Leader installs the Lock Out / Tag Outs or disengages hydraulics and then ensures all rigging gear is in the proper storage areas.

Any loose cargo or equipment should be secured, or taken below decks for secure stowage.

The following guidelines should also be adhered to when performing crane or hoist operations:

Pulling by hand any hanging load is dangerous. The load must be preferably pushed if adjustment is necessary and there must be nobody standing in the direction of the pushed load.

Never stand under a hanging load. Never travel with the load.

Emergency exits, escape routes and fire-fighting equipment must be kept clear of obstruction. Never set load loads down in an area that is likely to cause an obstruction.

The crane operator must avoid passing loads over gangways.

Adjust lighting for a clear view of all operations during hours of darkness.

If operations are halted, do not leave a load hanging; set it on the deck.

Only vertical lifting is authorized. To push or pull a load with the crane is forbidden.

Open hatch ways require guards on perimeter at all times.

7.5 Lock Out/Tag Out

Overview

The Lock Out/Tag Out system is designed to prevent the operation of any system that has been found to be unsafe, is undergoing repair, maintenance, or inspection, or requires authorization for use.

In the cases where equipment has been found to be unsafe or is undergoing repairs, maintenance, or inspection, this procedure will protect the health and safety of personnel and prevent equipment damage or loss by preventing the uncontrolled release of energy. This procedure establishes requirements for isolating of both kinetic and potential electrical, chemical, thermal, hydraulic and pneumatic and gravitational energy prior to equipment repair, adjustment or removal.

Authorized persons called the "Key Holder" can only energize the systems that are locked out. Key holders are qualified based on their experience and training and knowledge of the system. In the case of maintenance, the Key Holder is the person performing the work on the system. For normal operations, that require strict procedures before energizing the system, there is one designated Key Holder.

If a system is under repair, i.e.: an electrical circuit, the lock out is located at the origin of the circuit that effectively isolates that system from electrical circuit. Any mechanical device that physically prevents the transmission or release of energy device is known as an energy-isolating device. These include, but are not limited to, manually operated electrical circuit breakers, disconnect switches, line valves, and blocks

The circuit breaker supplying the device under repair is locked, and tagged with the name of the person performing the work on the device. He is the only person who may remove the lock. This is assured, as he holds the only key to the lock.

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Due to the necessity to operate equipment without delay, I.E. Streamers crossing online, equipment onboard is to be treated as if active at all times.

The Chief Engineer holds the key for all ships Machinery Spaces and the Technician for all electronics.

These procedures provide an effective control for the tagging out of plant and equipment, to ensure the safety of personnel and prevent damage. All employees, contractors and client personnel working within the vessel must adhere to these regulations and procedures.

Each department key holder is responsible for fully and correctly instructing all personnel under their control in the purpose and use of the Lockout/Tagout systems employed on the vessel. They must be certain that all personnel under their control fully understand and obey these systems.

Key Holders

This is defined as being a person or persons directly responsible for administering the particular task at hand, overseeing an employee, a group of employees and/or contractors.

Terminology:

Lockout - The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, ensures that the energy - isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device - Any device that uses positive means such as a lock, either key or combination type, to hold an energy - isolating device in a safe position, thereby preventing the energizing of machinery or equipment. When properly installed, a blank flange or bolted slip blind are considered equivalent to lockout devices. There should only be one key per lock and NO master keys for these special use locks. This prevents the inadvertent opening of a lock by unauthorized personnel

Tagout - The placement of a tagout device on an energy-isolating device, in accordance with an established procedure, to indicate that the energy - isolating device and the equipment being controlled may *not* be operated until the tagout device is removed.

Tagout device - Any prominent warning device, such as a tag and a means of attachment that can be securely fastened to an energy-isolating device in accordance with an established procedure. The tag indicates that the machine or equipment to which it is attached is not to be operated until the tagout device is removed in accordance with the energy control procedure.

The "Lockout Tag" is red in color on a white background and can only be tied off.

Lockout and Tagging Procedure:

Personal Lockout/Tagout System

Introduction

The Lockout/ Tagout System is designed to give an employee personal protection while working on isolated plant and equipment.

A Danger Tag must be attached to the isolated switch, valve, or other positive isolation device of the unit. Where these isolation points can be physically locked out, then a Special Use Lock or other appropriate energy-isolating device should be applied,

Some switches are not positive isolating switches and will not give sufficient protection. Such switches are those of the push button type or emergency shut down buttons. Special safeguards should be implemented to prevent the energizing of systems that cannot be mechanically isolated from energy sources. These circumstances should be identified during JSAs and Toolbox meetings conducted prior to working on these systems. The special requirements for preventing the accidental energizing of this system should be recorded on the Permit to Work and communicated to all effected personnel.

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It is the responsibility all personnel to:

- Place their own personal Danger Tags and Locks or other energy isolating devices on the appropriate isolation point before commencing work. Where more than one person working on the same job, each person must place his or her own Danger tag on the isolation point. In the case of Lockouts each person must use his or her own padlock.
- Ensure that the Tag is filled out legibly and correctly with the appropriate details.
- Securely attach or lock the tag to the appropriate isolation point, having firstly placed the device in the safe position, and the tag is clearly visible.
- All hand written tags are to be destroyed on completion of the job. Any Lockouts are to be removed and returned to the Lockout Station upon completion.
- Any Switch, valve or other positive isolation point to which a Danger Tag has been attached **MUST NOT BE OPERATED**. The only person authorized to remove Locks and Danger tags from a switch, valve or other positive isolator, is the person who placed it there.

When Danger Tag and Lock has been left on a switch, valve or other positive isolator, and the person responsible for the tag is unavailable to remove it (due to having left the workplace) the person in charge of the workplace, having ensured that it is safe to do so, may remove the tag and lock.

The circumstances surrounding this type of incident are to be fully investigated and a report made out.

If a Danger Tag is not immediately available, work on the equipment to be isolated must not commence until a tag is in place and energy isolating devices set in place

Danger Tags and Locks may only be removed upon completion of the job after the authorized persons have declared the equipment safe and ready to operate. If the system is not ready to return to service at the end of shift change, danger tags and locks shall remain in place until the equipment has been declared safe and is ready to be placed back in service. A change of control procedure must be used to replace the tags and locks of the departing shift with those coming on shift. This change shall be noted on the Permit to Work.

7.6 Cutting/Welding

Overview

The use of burning and welding equipment can be hazardous if not properly used and monitored.

Onboard this vessel the use of cutting equipment is often required. However, because these systems produce a naked flame, control must be exercised on use and location of the intended hot work. Many flammable liquids are carried onboard and there are many areas of increased risk should a flame be present. To control and monitor the proper use of burning and welding sets, a permit will remain in force at all times. The "Hot Work Permit" form is available from the Mate on the bridge or Master.

Procedure

Whenever the use of burning gear or a welding set is requested the operator will carry out the following procedure:

- 1 Inspect the work area to ensure it is free from flammable material.
- 2 Establish the exact location in relation to adjacent storage of materials of explosive content.
- 3 If cutting or welding on a tank, a "Gas Free Certificate" is required.

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- 4 Ready the suitable fire fighting equipment. The operator should have a Dry Chemical extinguisher at the job.
- 5 Maintain a fire watch during and after the hot work is complete.
- 6 Obtain a signed welding/burning permit from the Officer on Watch, Master. The permit will state the name of the hot work operator, and the fire watch, along with the following checklist:
 - 1 Nature of work.
 - 2 Location of work.
 - 3 Time of Start.
 - 4 Time Complete.
 - 5 Fire hose run out.
 - 6 Portable extinguisher on site-correct type.
 - 7 Name of Fire Watch and times active.
- 7 Deactivate any heat or fire sensors, close to the job, that may cause a false alarm. This is only applicable if authorized by the officer on watch.
- 8 Ensure adequate ventilation, and be aware of any build-up of toxic gases, i.e. burning paint, insulation etc.
- 9 The operator will wear the appropriate PPE.

7.7 Oxygen & Acetylene Cylinder Handling

Overview

Oxygen & Acetylene Cylinders should always be maintained in good condition and ready for use. These cylinders are under high pressure and volatile if exposed to hazardous conditions. The following guidelines should be observed for the storage and use of these cylinders: -

- 1 Cylinders should always be stored, handled and used in a vertical position.
- 2 Cylinders should always be stored in a dry, well-ventilated area, and not in contact with a continuously wet area, to prevent rusting.
- 3 Empty cylinders should be stored separately to prevent confusion.
- 4 Cylinders should never be lifted by their valves, and valve caps should be used when moving or lifting cylinders.

7.8 Cable Oil Handling

Overview

Various brands of Cable Oil exist, refer to the MSDS manual for exact product details, whenever handling these products. Cable oil, commonly referred to by the brand name "Naroma", is the liquid used as an aid to prevent water intrusion in the cable and acoustically couple the hydrophones to the water. The Cable oil is a particular blend of petroleum based solvent products, it is highly flammable with a low flash point. Although the Guardian Solid Streamers contain only a small amount of cable oil, as compared to a conventional seismic streamer, the same precautions must be observed.

No smoking, welding, or open flames are permitted at or near the cable reel or cable work area.

Exposed skin and clothes should be washed with water immediately after coming into contact with Cable Oil. As is the case with many solvents, the high evaporation rate of the product will cause a

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'burning' sensation if allowed to remain in contact with the flesh and can cause irritation and rashes.

Do not allow Cable Oil get into the eyes. If in the eyes, flush immediately with water at the nearest eye wash station. Eye wash stations are located on Reel Deck, Gun Deck, Cable Store and Gun Shack.

Under normal operations the new, or clean cable oil is stored in one tank, and the waste or contaminated cable oil is stored in another tank. Both tanks are piped to the Streamer Deck for the filling and draining of streamer sections. Care is necessary, in order that waste cable oil is not returned to the clean tank.

New Cable Oil is delivered to the vessel by bulk tanker, rarely by drum due to the quantity. The loading and unloading of Cable Oil is under the direct control of the Chief Engineer, and is performed by pumping the product into the fill pipe located on 1st Deck (stbd).

Recycling of contaminated Cable Oil should be performed where possible. An Alfa Laval, centrifugal purification system is located in the Purification Room.

Procedure For Re-cycling Contaminated Cable Oil

Potential Hazards

Cable Oil is a solvent and can cause burns and irritation to exposed skin and eyes.

Fire due to the low flashpoint of cable oil.

Marginal Weather and Sea conditions.

Falls caused by slippery footing from water and spilled cable oil.

Preventative Measures

Training of personnel in the operation of purifier.

Use of additional protective equipment as the conditions merit.

Training on fire foam system use.

Location of an eye wash station and shower near the Purification Room.

Strict control of cable oil spills. Immediate clean up of spills.

Standard Procedure

Check that drip trays below the streamer reels are fully drained, gain permission from the Chief Mechanic if draining is required. Draining is accomplished using the two-way valves on the Gun Deck.

Once the Cable Oil has been transferred to the Dirty Oil Tank, it should be allowed to settle in the tank for approx. 24 hours, giving the product and contaminates, mostly water, ample time to separate.

Start purification system. This will draw the product from the bottom of the tank, through the purifier, and back into the top of the tank. To start the Alfa Laval Centrifuge:

1. Open Fresh Water Valve.
2. Open Purifier Suction Valve slightly to allow pump lubrication.
3. Turn switch at the contactor box to "ON".
4. When the Purifier reaches full speed, (observe drop in amps to indicate full speed being reached) move switch at the control box to the "1" position.

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5. Open the suction and return valves to the tank that requires purification.
6. Adjust purifier suction and discharge valve to attain correct separating pressure. (The correct pressures are marked on the discharge pressure gauge).
7. When the purification process is complete, move the switch at the control box to position "2". This is the self-cleaning program, to eject sludge build-up.
8. When the cleaning process is complete, move the switch at the control box to the "0" position, and the switch at the contactor box to "OFF".
9. After several complete cycles, the product should be sampled with the Petro-Gauge, which will detect any water that remains. Once the Petro-Gauge shows no trace of water, the purification process is complete and the re-cycled Cable Oil can now be transferred to the clean oil holding tank.
10. Close the return valve to the tank containing the re-cycled product, and open the suction valve to the clean oil holding tank. The re-cycled product will now be pumped into the clean oil holding tank.

Procedure For Draining and Filling Oil Filled Streamer Sections

Note: This procedure is not for Guardian Solid Streamer sections

Potential Hazards

- Cable Oil is a solvent and can cause burns and irritation to exposed skin and eyes.
- Fire due to the low flashpoint of cable oil.
- Personnel are working near the stern.
- Marginal Weather and Sea conditions.
- Falls caused by slippery footing from water and spilled cable oil.
- Electric shock from cable DC power.

Preventative Measures

- Training of personnel in the operation before deployment on the team.
- Use of additional protective equipment as the conditions merit.
- Two personnel utilized to handle deployment and recovery operation.
- Training on fire foam system use.
- Location of an eye wash station and shower near the Streamer Deck.
- An extra fire extinguisher brought to the area during operations.
- Strict control of cable oil spills. Immediate clean up of spills.
- Good communication between the Recording room and the streamer team on the streamer power status.

Standard Procedure

- Check that drip trays in cable store are fully drained, gain permission from the Chief Mechanic if draining is required.
- Clean out any debris from drip trays. Check that filters are correctly installed, if not inform Chief Mechanic.
- Stretch out the damaged section on the false deck above drip tray in order that any contaminated Cable Oil can be drained.

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Remove plug screw and air vent screw from the end over the drip tray.

Gravity will allow most of the oil to drain from the streamer section. To ensure all oil is drained, start at the end of the section that is on the deck and holding it waist to shoulder height, "walk" the oil down the section towards the drip tray. To assist this process compressed air may be applied to the section. Care must be taken not to apply too much air as this may over stretch the skin, or damage hydrophones in the section.

If patching can repair the section, follow the procedures as detailed in the section "Streamer Deployment and Recovery".

Filling a section is basically the reverse of the above. Attach the filler nozzle to the filler hole on the section, hold the section shoulder height and proceeding up the section at the same rate as oil flows into the section, ensuring as little air as possible is left trapped. This can be achieved by squeezing the section ribs to allow air bubbles to rise into the next ribbed section. It is important not to overfill the section.

It is imperative for any section that is shipped off the vessel, to be in a fit condition, this being that it has no leaks. Any skin damaged (holed) sections need to be drained of oil, and the holes to be taped up.

7.9 Lithium Battery Storage & Handling

Introduction

Lithium Batteries must be considered potentially more hazardous than alkaline batteries, and do require special use and handling precautions which must be strictly observed and followed. Ensure all personnel handling Lithium batteries have read the appropriate MSDS and are aware of the hazards associated with this product.

In order to prevent the inadvertent shipping of lithium batteries, all birds and pods shall be shipped off the vessels with the nose cones removed and packed separately in the box.

Six of the most important of these precautions are:

1. Do not allow Lithium batteries to get wet. Store in a cool, dry and well-ventilated storage space.
2. Do not allow Lithium batteries to touch each other.
3. Do not charge or re-charge Lithium batteries.
4. Do not open, damage, solder or incinerate Lithium batteries.
5. In case of fire, use only Lithium-X/Class D fire extinguishers.
6. Follow appropriate Veritas DGC, Federal, State and local regulations for shipping and disposing of Lithium batteries

Shipping and Handling

Lithium batteries are packaged and shipped from the manufacturer in special metal containers. Each battery pack is packaged in an individual tube. As long as each battery pack remains in its individual package and not allowed to touch another battery pack, no danger exists.

Lithium batteries should only be transported in the special storage boxes as supplied by the manufacturer or those contained on the vessel.

Lithium batteries for disposal should also be packed in separate compartments and transported in the special containers.

No special handling equipment or PPE is required for lithium batteries unless the cell is damaged or exposed.

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All shipments of used batteries require a separate transmittal to ensure proper disposal.

All shipments of used batteries require special labeling to identify the contents of the shipment. Shipping containers must be marked with U.N. Class 9 Miscellaneous Hazardous Goods labels.

Storage

Lithium batteries should be stored in the original manufacturers shipping containers or in the battery storage locker. The individual cells must not be allowed to touch and should be separated by partition built or installed within the container.

Containers and individually secured Lithium batteries should be stored in a cool, dry area (elevated temperatures can result in shortened battery life) within a locker or cabinet in a well ventilated area.

The battery containment locker should be located internally on an unexposed deck, free from moisture, humidity and condensation. No other items should be stored in the locker and no objects should ever be placed on top of open battery containers.

All shipping containers should have the covers in place and all open edges should be sealed with waterproof tape.

Handling and Use Precautions

Mechanical Containment: Encapsulation of Lithium batteries will not allow cell venting at low pressure. Such enclosure can result in high-pressure explosion from inadvertent charging or high temperature environments (in excess of 100 degrees C). Heating above 354 degrees Fahrenheit will lead to melting of Lithium and represents a severe fire/explosion hazard.

Charging: Lithium batteries are primary cells and are not designed to be charged or re-charged. To do so may cause the cell to leak or explode.

Other: If soldering or welding to the battery terminals is required, exercise precautions to prevent damage to the cell which may result in loss of cell capacity, loss of the battery seal, leakage and/or explosion. In no incident should any soldering or welding be done on the battery case.

Defective or damaged batteries need to be monitored or checked regularly in case of leakage or reaction.

Special Safety Precautions

Installation

- a. Follow the manufacturer's recommendations for longlife Lithium battery installation, ensure all PPE is in place, including Lith-X/Class D Extinguisher.
- b. Check all seal o-ring connections for damage or deterioration before installation. Replace as required.
- c. Check all battery pack wiring for corrosion or damage before installation. Do not install a visibly defective pack.
- d. Testing of Lithium battery packs should be done with 20-30 ohm watt resistor across the battery terminals.
- e. When removing the battery packs from the recovered bird units, place the unit in a vertical position with the battery pack pointing down before removing. This will keep any accumulated water from around the nose of the bird from running into the body.

Emergency Procedures

In most normal operations, handling and use of Lithium type batteries will pose no problem. These EMERGENCY PROCEDURES are generated to assist all personnel in understanding how to handle any situation that may occur in the event of battery damage or case failure.

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Stored Battery Emergency

In case of battery pack rupture, explosion, high heat build-up or toxic gas release, all involved personnel are to put on PPE before attempting any action.

- a. Have a Lith-X/Class D fire extinguisher manned and ready.
- b. Determine problem source.
- c. Remove all damaged and affected batteries from the problem source and place each individually in a heavy wall plastic bag, plastic box or other solid container.
- d. Remove all other unaffected batteries from the problem source and store clear of the area.
- e. Rectify the problem source. Clean any contamination with dry wipes and re-check the storage containment area for any additional hazards that may exist.
- f. Replace all unaffected batteries in the storage area after checking each individual shipping or containment box and the condition of each battery within.
- f. Dispose of all affected batteries in accordance with all Veritas DGC, State and Federal regulations.

Recovery of Lost Cable/Streamer:

- a. In the event of a streamer loss, accurate depth readings must be obtained to determine what depth the cable may have sunk. Lithium battery cases are designed to withstand water depths of less than 300 metres. In water depth greater than 300 metres, the battery cells could experience external pressures in excess of 1,800 psi causing breakage of the glass to metal seal and flooding of the cell. This can cause the battery to short internally, releasing toxic gasses and high temperatures.
- b. If the streamer has not sunk or has sunk in water depths of less than 1000 feet, the cable may be recovered as normal. All birds should be inspected for case deformation and / or water contamination.

Note: Use caution during this recovery and inspection operation. Be alert for any unusual conditions such as heat build-up on the battery tube, case burn through, toxic gases etc....

During all recovery and launch operations, have a Lith-X/Class D fire extinguisher available along with a Lithium PPE Handling kit. (See SPECIAL EQUIPMENT SECTION)

- c. If the cable / streamer has sunk below 1000 feet, recovery should be delayed by at least 24 hours. This delay will allow any crushed battery cases to exhaust themselves in the water and minimize topside danger of fire, explosion and / or the release of toxic gases.

After the initial waiting period, recovery of the cable / streamer should be conducted with EXTREME CAUTION.

Fire fighting equipment should be at the ready and Lith-X fire extinguishers manned.

All members of the recovery team should wear lithium personnel protective equipment (PPE).

- d. All bird assemblies and battery housings should be disassembled on an open deck with good cross ventilation. A vice should be used to hold each housing in place, as the sealing mechanism is undone. Pressure build-up in the housings are a distinct possibility, therefore extreme care must be exercised when opening each battery compartment.
- e. If fire erupts in an assembled battery housing while the bird is still attached to the cable during the recovery operation, return the cable overboard and wait until extinguished.

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If the bird and / or housing has been removed from the cable sections and fire erupts, extinguish the fire with Lith-X/Class D fire extinguisher or throw all components overboard until extinguished. (Recover extinguished components if possible for proper disposal)

Note: Protection of personnel, followed by the onboard cable from any possible fire hazard is a priority.

- f. All recovered batteries, damaged or undamaged, should be placed in heavy wall plastic bags, plastic boxes or other solid containers and stored separately for disposal. (Do not store with new or depleted cells since electrolyte may react and corrosion set up)
- g. Proper procedures should be followed upon reaching port.

EMERGENCY EQUIPMENT

The following equipment should be provided and kept accessible during the storage, use and handling of lithium type batteries.

- a. Lithium-X (Lith-X/Class D) type fire extinguisher.
- b. Plastic or other solid containers for individual placement of damaged cells. (Heavy wall plastic bags, plastic boxes, plastic tubes with end caps, wooden containers etc.)
- c. Large shipping containers constructed of heavy wall plastic with sealing lids for transporting and disposing of damaged batteries.
- d. Lithium PPE Handling Kit consisting of:
 - Butyl rubber gloves (thick wall) with wrist cuffs
 - Face Shield or goggles
 - Acid gas filter mask (SCBA gear may be required if toxic gases are excessive)
 - Protective rubber chemical apron

7.10 Tools

Hand Tools

Always use the right tool for the job and make sure it is in good condition before use. Handles of hammers and screwdrivers should be secure and if wooden, should be smooth without splinters. All tools must to be returned to their proper storage area after use.

Portable Power Tools

Power tools and their cables or power supply leads/hoses should be inspected before use. Any tools that are suspected of being faulty should have a Lock Out tag attached and sent for repair. Where guards are fitted to machines and tools for particular operations, these should be checked before beginning work. Tools must always be disconnected from their power supply when changing accessories or guards. Electrical tools or apparatus should not be used in wet conditions.

Electrical leads and pneumatic hoses should be kept clear of sharp edges and hot surfaces, or anything else that might damage them. If leads and hoses have to pass through doorways, the doors should be secured open. Where leads trails across decks or passageways, they should be suspended high enough, wherever possible, to allow clearance for personnel passing beneath.

7.11 Housekeeping

Housekeeping

Good housekeeping in all places of work is essential for the prevention of accident, injuries and fires. Everybody is individually responsible for good housekeeping.

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Attention should be paid to the following:

- Desks, benches, tables, floors and deck should be kept clear of accumulations of unneeded material. Tools, parts, rags, papers etc. should be kept tidy and in their correct place.
- Flammables should be stored in designated lockers ensuring that all NO SMOKING signs are in place.
- Ropes, Chains, wires, electrical leads and hoses should be stowed or secured so as not to cause a trip hazard.
- Spilled oil or grease should be cleared up immediately so that they do not cause a slip hazard. Keep rags and paper used to clean up oil spills in a separate bag, and store in a safe place, as it may be inflammable.
- Keep alleyways and access areas clear of accumulations of stores and equipment, which might hamper evacuation in emergencies.

7.12 Boat-To-Boat Transfer

Fuel, Personnel or Item Transfer Between Vessels

Personnel

Personnel Performing Operation : Masters/Party Managers/Safety Officer, Seaman/Observer

Minimum Number of Personnel : Six (6)

Duties : 1–Master (of each vessel)
2–Line Handler
1–Operation Observer
2–Operation Assistants

Supervision : Master/Safety Officer

Job Safety Analysis : Safety Officer/Party Manager

Personal Protective Equipment

Minimum P.P.E. Required : PFD, LifeLine, Work Boots, Hard Hat

Recommended : Work Gloves

Overview

On occasions, transfer of fuel, personnel or supplies will be conducted, at sea, between two boats. This operation will only be carried out with the consent of both vessels' Masters. Consent will only be given if the weather conditions and visibility are suitable to complete the operation safely. All such processes will be conducted during daylight hours, unless prevailing conditions indicate an increase in risks. Transfer of personnel is to be performed via the workboat or FRC only, direct transfer between the Veritas Viking II and an alongside support vessel is prohibited.

For all transfers of fuel and cargo a minimum of one crew member from the Veritas Viking II shall be onboard the supply vessel to oversee operations.

Potential Hazards

- Collision
- Fire
- Communications Failure
- Man Overboard

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- Mooring Failure
- Falls / Trips
- Entanglement
- Spills
- Inadequate Hose Length
- Inadequate Control of Fuel Hoses
- Personal Injuries
- Punctured Hoses
- Loss of Steerage/Propulsion
- Damage to Reputation

Preventative Measures

- Briefing of all personnel prior to operation.
- Masters of each vessel to agree on process.
- JSA (Both vessels)
- Communications maintained throughout the process.
- Suitable Fendering as required.
- Fire appliances made ready.
- Use of additional protective equipment as the conditions merit.
- Certified /Inspected Hoses of suitable length.
- Suitable mooring lines with redundancy on each line.
- Control of moorings during the process.
- Lanyards.
- Dry Break Couplings.
- Oil Spill Response Equipment.
- SOPEP Guidelines.

Standard Operating Procedure

The Master or person designated in overall charge of the transfer operations should be agreed and clearly identified prior to the start of the operation.

The actual cargo or personnel transfer should be carried out in accordance with the requirements of the receiving ship. In all cases the Master of each vessel remains responsible for the safety of his own ship, its crew, cargo and equipment.

The only time two ships/vessels shall come alongside each other during hour of darkness is if there is a life threatening situation onboard either ship.

Manning and Duration of Operations

Each Master should take into consideration the estimated duration and the particular requirements of the operations to ensure that adequate manning requirements can be maintained throughout the operations.

COMMUNICATIONS

Satisfactory Communications including common language.

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Backup frequencies to be agreed ahead of time in case of external interferences.

All personnel to be aware of various audible sound signals with regards to breakdown of communications

Satisfactory communications between the ships are an essential requirement for successful transfer operations.

The ships should establish initial contact by radio as soon as practical to plan the transfer.

Communication During Approach And Mooring

Radio contact should be established on VHF Channel 16 at the earliest opportunity, thereafter to a mutually agreed channel. Approach, mooring and unmooring should not be attempted until fully effective communications are established. Officers responsible for mooring stations should be provided with portable hand-held transceivers.

Communications During Transfer Operations

Essential personnel on both ships involved in the transfer operations should at all times have reliable means of communications such as portable hand-held transceivers.

Breakdown of Communications

A total breakdown of communications on either ship while she is maneuvering should be indicated immediately. The approach operations should be suspended and the action taken to abort the maneuvers should be indicated by the proper sound signals prescribed by International Regulations for Preventing Collisions at Sea. Operations should not be resumed until full communications have been re-established.

CONDITIONS AND REQUIREMENTS

Weather Conditions

It is impracticable to lay down the limits of weather conditions under which transfer operations can be carried out because much will depend on the effect of the sea and swell on the fenders and the movement produced in the participating ships, taking their relative free boards. Throughout the berthing operation the visibility should be good enough for safe maneuvering, taking into account collision avoidance. The operation should only take place if both Masters are satisfied that conditions are suitable for berthing and personnel/cargo transfer.

Navigation Warnings

In all areas outside the jurisdiction of any coastal authority the ship in charge should broadcast a navigational warning to all ships advising:

- 1 Name and nationality of the ships involved.
- 2 Lat & Lon of the operations.
- 3 Nature of operations.
- 4 Time of starting of operations.
- 5 Expected duration.
- 6 Request for wide berth.

On completion the ship in charge shall cancel the navigational warning.

Navigational Signals

At the start of the approach by ship to the other, both ships should display the appropriate signals required by international or local regulations, and keep them displayed until the operation is completed and both ships have separated. The lights and shapes to be shown by ships engaged in ship to ship transfer operations are those required by the **International Regulations for**

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Preventing Collisions at Sea, 1972, Rule 27b, or any subsequent amendments, and/or local port regulations.

PRE-MOORING AND PREPARATIONS

Safety Precautions during re-fueling

The following safety precautions should be taken:

1. Fire main tested and kept under pressure.
2. Water spray nozzles tested and ready to use.
3. Two additional fire hoses connected and ready for immediate use.
4. All access doors to accommodation to remain closed at all times during transfer operations, except those authorized by the Master for personnel transit or loading/unloading operations.
5. Smoking regulations to be enforced, and general announcement of process over vessel PA.
6. First aid, protective clothing, safety clothing, breathing apparatus, respirators and resuscitators to be ready for use.

Fenders

Fenders should be rigged and positioned according to an agreed plan, taking into consideration the length of each ship, the parallel mid-body distance and the position of the intake valves.

The general condition of fenders, including protection materials, mooring and shackles should be checked before mooring.

If fenders are secured in a string then each fender should also be secured with end lines of sufficient length and strength to allow the fender to move down the ship's side in the event of rolling.

Except in the case of very small vessels, when two primary fenders may be adequate, three fenders should generally be considered the minimum. When secondary fending is required, then small pneumatics, foam or hollow cylindrical rubber fenders should be used.

Thought should be given to the strategic positioning of fenders at the shoulder and quarter, having due regard to any differences in freeboard between the two vessels.

Moorings Preparations

Mooring lines from the ship coming alongside are normally used. Each mooring line shall be supported by mooring lines from the receiving vessel, thus having 100% redundancy should one line give way during the process.

The mooring plan should be agreed and understood between the ships and the crews briefed on mooring method.

The weather conditions and forecast should be confirmed as suitable for transfer operations.

Sufficient men on both ships should be allocated to mooring stations to handle mooring lines effectively.

During liquid transfers, the intake/discharge valves to be used should be clearly indicated to the each other vessel by flags or similar means.

General Precautions

During liquid transfers. Due to gear such as paravane ropes, outrigger booms, crane jib, etc.; possibly protruding beyond the ships side, it is essential that both Masters man their respective bridges. In particular, the Master of the fuel supply vessel must man the rudder and throttle controls at all times during the transfer in case the bow line(s) fails.

Both ships should be upright, and excessive trim should be avoided.

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Galley precautions and safeguards should be taken to ensure no hazards exist.

Lights and shapes should be ready for use.

All crew members should be informed of their emergency stations for the transfer operation.

At night the deck should be adequately lighted and if possible the ship's side should be spotlighted.

The cranes to be used should be rigged and ready for use.

MANEUVERING AND MOORINGS

Basic Principles

Experience has shown that the most successful method of berthing is with both ships underway. One ship, preferably the larger, maintains steerage way on constant heading as requested by the maneuvering ship, usually with wind and sea dead ahead. The maneuvering ship then maneuvers alongside.

Positioning of Fenders

Fenders can be placed on either ship, preferably on the maneuvering ship where they can be so positioned as to cover the anticipated areas of contact along the parallel body of the larger ship, irrespective of where contact may occur.

Where fenders are placed on the maneuvering ship, primary fenders should be positioned, one at each of the parallel body, with additional units in between if required. Secondary fenders should be positioned fore and aft of the parallel body where contact may occur in cases of misalignment during mooring and unmooring. To minimize the possibility of primary fenders riding onto the deck of either ship these fenders should be floating throughout the operation.

Mooring - (General)

Rapid and efficient mooring operations are essential for safe berthing, and can be achieved by good planning. Although individual Masters will have their own preference for the method of berthing their ship, the following points should be emphasized:

1. the wind and sea should be ahead or nearly ahead.
2. the angle of the approach should not be excessive.
3. the two ships should make parallel contact at the same speed with no stern engine movement necessary.

The effects of interaction should be anticipated when maneuvering at close quarters. Experience has shown that the best method of berthing is for the maneuvering ship to approach the constant heading ship from broad on the quarter on the side of berthing, then parallel her course about 50-100 meters off. The maneuvering ship should then match the speed as close as possible. Time must be spared for this matching of speeds, as it is important for the safety of the operation. The contact is then made by maneuvering, reducing the distance between the two ships by appropriate rudder movements until the primary fenders contact. The forward motion of the two ships driving the sea between them will tend to push the bows of the ships apart and it is therefore important to make fast the head and spring lines as soon as possible. Consideration should be given to the unmooring procedures when the mooring arrangements are discussed and mutually agreed between Masters. It is recommended that the final lines to be let go on unmooring should be turned between the bits.

The Masters of both ships should always be prepared to abort the operations if necessary. The decision should be taken in ample time while the situation is still under control. The Masters of both ships should immediately be informed of the others actions. The International Regulations for Preventing Collisions at Sea must be complied with.

Approach and Mooring

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Both Ships Underway

When both ships are underway, the following should be taken into account:

1. Engine controls, steering gear and all navigation and communications equipment should be in working order.
2. A proficient helmsman should be assigned to steer the ship.
3. Speed should be controlled by adjusting engine revolutions or propeller pitch.
4. There should be effective communications between the bridge and each mooring gang.

Drifting Transfer

Providing conditions are suitable it is possible to carry out the transfer while drifting, but this should only be done in ideal conditions. In the event of both ships having to turn head to wind, consideration should be given to the windward vessel going astern on the engines rather than the leeward vessel going ahead on her engines. This should reduce the strain on the moorings during the maneuver. If deteriorating weather conditions are likely to cause the vessel to roll; they should be brought head to wind.

PROCEDURES ALONGSIDE

Pre-Transfer Procedures

When the ships are moored, the Masters of both ships should ensure that the checks and precautions as described in the checklist have been carried out and a safe condition has been established.

State of Readiness

The following arrangements should be made:

1. Both ships should be prepared to unmoor at short notice.
2. Fenders should be in the agreed positions and moorings sufficient and tendered at all times.
3. Extra lines and axes should be placed fore and aft on both ships.

Planning of Transfer

The planning of the transfer operation should include information on the following:

1. Type and Quantity of the transfer.
2. Initial transfer rate.
3. Maximum transfer rate.
4. Signal for slowing down transfer.
5. Signal for stopping transfer.
6. Emergency stop signals.
7. Ballasting and/or de-ballasting.

LIQUID TRANSFER OPERATIONS

Hours of Operation

All attempts are to be made to complete liquid transfers during daylight hours. However, there are many unforeseen conditions that may prevent the complete process to be finalized during daylight hours.

It has been assessed that with each time two boats come alongside the risks associated with this maneuver increase exponentially. Therefore, once all transfer equipment is in place and the transfer has begun, the transfer will continue until completed, unless weather conditions change or

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safety and environmental factors increase. This may require the transfer to continue into hours of darkness, at which time all floodlights will be used to assist in visibility at the local site. Should such an increase in risk be experienced the process is to be halted immediately. The two vessels will separate, the risks are to be re-assessed, and the process to be re-commenced during the next available daylight period.

List/Trim

During transfer, ballast operations should be performed in order to avoid excessive changes in freeboard during the transfer and excessive trim by the stern. Listing of either vessel should be avoided.

Bridge Check

During the operation the bridge watch should check particularly the position of the ships, weather conditions, the approach of unauthorized craft, traffic in the immediate area and information from the shore.

Engine Room Checks

The engine room watch should be required to monitor and control the various aspects of the transfer and the ballast conditions. During the transfer operations the personnel responsible should ensure that the main engines are on standby, and the fire main is pressurized continuously.

Completion of Transfer

After completion of transfer the following operations should be carried out.

1. Radio broadcast canceling navigation warning on completion of transfer operation.
2. Side of transfer cleared of any obstructions, crane etc.
3. Method of disengaging and of letting go moorings agreed.
4. Fenders, including towing and securing lines to be in good order.
5. Power on winches and windlass.
6. Crew at stations standing-by.
7. Communications confirmed between ships.
8. Communication between mooring gangs.
9. Mooring gangs instructed to cast off only in the manner and when requested by the maneuvering ship.
10. Area traffic (shipping) checked.

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Fuel Transfer Checklist

Item	Comments	Y	N
Maritime Industry Standard Practice			
Owner has provided an accepted checklist.			
Both masters are aware of loa and grt of both vessels			
Both masters are aware of what speed that their vessel loses steerage			
Both masters are satisfied that mooring ropes, fairleads and bollards are in good condition.			
Both masters satisfied that suitable bollards and fairleads fitted for a spring line			
Both masters and chief engineers are satisfied that manifolds, hoses, connections, and lifting gear are in good condition and free			
Both masters are satisfied that the sides of the ships are clear of over hanging projections			
Both masters agree on a cancellation plan			
Both masters have established radio contact, agree on course speed exchanged and understood			
Language of operation agreed			
Rendezvous position agreed, clear of other traffic			
Both masters agree on a berthing and mooring approach and which ship will provide the mooring ropes			
Both masters satisfied that communication with mooring gangs satisfactory			
Both ships upright (no listing)			
Engines, steering gear and navigation equipment tested and found ok			
Stand by steering pump and generator on line			
Has weather forecast been obtained			
Fenders in place			
Crew briefed on mooring procedures			
Both masters agree on a contingency plan			
Master to notify local authorities and post a navigation warning			
Navigation signals displayed			
Both masters and chief engineers are satisfied with inter-ship communications			
Amount of fuel to be transferred agreed			
Chief engineer of receiving vessel has sounded the tanks and has identified which tanks to fill, max 80% capacity			

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Both chief engineers agree on pumping rate and procedures			
Pumping vessel has a remote stop button for the transfer pump located close to the manifold			
Both chief engineers agree on a plan to stop			
Both chief engineers or their nominated person are in visual and verbal communications during the operation			
Both masters and chief engineers satisfied that their is no client interference			
Veritas DGC Requirements			
Job Safety Analysis completed with Master and Engineers			
Inter and Intra vessel communications established and operational			
Establish communication system (inter and intra vessel) in case electronic communications fail			
Confirm weather conditions and outlook for next 12 hour – 24 hours			
Establish rendezvous point (lat and long)			
Receiving vessel Engineer to nominate suitable observer to transfer to supply vessel			
FRB/Workboat to transfer nominated person to supply vessel			
Both masters confirm docking plan			
Mooring lines doubled up			
Transfer hoses handled between vessels via mechanical means			
General announcement over vessel PA that bunkering to proceed			
General announcement over vessel PA that NO SMOKING onboard until Bunkering is complete			
Oil Spill Kits on both vessels at the ready			
Fire hoses on both vessel primed and readied			
FRC/Workboat crews on standby			
Once bunkering commences normal refueling procedures to take effect			
Once bunkering complete drain fuel hose into lowest tank by way of raising dry coupling to suitable high point			
Once all fuel is drained secure all equipment and check soundings			
Compare receipts with supply vessel			
Masters to agree vessels can part			
Release mooring lines on Masters command			

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Vessels separate and resume normal duties			
Master to cancel navigation warnings			
Master to notify appropriate authorities bunkering complete			
Supply vessel to have both main engines running for duration of process			

PERSONNEL TRANSFER OPERATIONS

Personnel transfer between vessels is only to be performed via the workboat or FRC. Transfer at sea directly between a Viking class vessel and a support vessel whilst secured alongside is prohibited. Persons being transferred should not carry baggage or cargo, this should be passed across by hand, or with the use of a crane or hoist.

Transport of Equipment/Personnel

Transport of equipment using the Workboat or the MOB boat is not the preferred method of transfer and should be considered only when the vessels cannot complete a boat-to-boat transfer operation. Personnel transfer is not permitted between the Veritas Viking II and a support vessel and as such the Workboat or FRC is to be utilized.

The mission is restricted to good weather and limited to the transport of small lightweight goods or personnel. Cargo nets are prohibited but plastic bags designed and certified as lifting appliances (Salt sacks) can be used when the support vessel has a crane.

1. Evaluate the weather.
2. Plan the mission in respect of the following
3. Weather conditions.
4. Type of cargo and quantity
5. Crane position and functionality on the support vessel.
6. Crane position and functionality on the Seismic vessel.
7. Boarding area of the support vessel.
8. The use bowlines when alongside.
9. Communications.
10. Daylight hours.
11. PPE.
12. The position of the mother vessel during the operation. Is it in a turn during the mission?
13. Do not exceed total cargo weight or personnel capacity of the small boat.
14. Complete the toolbox meeting and get permission for the planned mission.
15. Instruct the support vessel about the plan.
16. Abort the mission if the weather is unsuitable or the crew is unable to safely complete the task.
17. Get alongside the support vessel and deliver the plastic bags designed for lifting, if required send a crewmember onboard to advise the crew on the planned mission and how to organize with maximum load.
18. In the case of personnel transfer wait until the support vessel's deck crew and the small boat coxswain give permission to transfer. Only one person is to transfer at any one time. Once a person has transferred they should move away from the embarkation/disembarkation area and be ready to assist as directed.

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19. Use the crane to get the load down in the workboat.
20. Report to the bridge on the seismic vessel "Cargo onboard, heading back for offloading"
21. Use a bowline (adjusted to fit for the range of the crane).
22. Unload the cargo from the workboat.
23. Move forward and release the bowline.
24. Report to the Chase boat "Heading back to pick up the next load/persons".
25. Report to the Bridge on the seismic vessel "Mission complete, heading back for retrieval".

7.13 Waste Management

Overview

Only certain waste is suitable for overboard disposal, as indicated in the following guidelines.

All waste is to be separated and measured (weight) for tracking according to ISO 14001 Guidelines.

General waste from around the ship including food and galley waste, plastic or plastic products such as Styrofoam cups, plastic bags, tape, line and paper waste should be bagged and placed in the deck containers for disposal in the ship's incinerator. If incinerator use is not available, this refuse is to be stored for disposal ashore. Plastics suitable for recycling should be stored separately and if the shore disposal service has a facility to handle this product then they should be informed accordingly.

Domestic waste (i.e. cans) should be separated, compacted and stored in the deck containers for disposal ashore. Again if a facility exist ashore for items able to be recycled, then these items should be separated.

Maintenance waste (i.e. paint, rags, deck sweeping, oil soaks, machinery deposits, etc.) should be disposed of in designated deck containers as may be appropriate. Oily wastes in the form of filters should be in drums and kept separate from the other waste, so that it there is no hazard caused from seepage. This type of waste will have to be disposed of separately from the regular garbage.

All batteries should be stored onboard and disposed of according to the manufacture's specifications. A separate section of this document deals with the disposal and handling of Lithium batteries.

All sewage wastes should be treated in the vessel's sewage treatment facility, according to all applicable international and local government standards, before being transferred to the supply vessel for disposal ashore.

Food and cooking waste are the only items allowed to be dumped overboard. This type of waste disposal should not occur when the vessel is within 12 miles of a charted reef or coastline

Waste oils and oily water is to be contained in the waste oil tanks and pumped ashore or to the supply vessel, before final shipment to an approved disposal contractor.

Prior to entry into any port, the vessel supervisor should be informed of the type, nature and quantity of any waste that is required to be disposed of.

The drip tray under each streamer reel is drained to the waste oil tank. The valves should be closed during streamer recovery and during periods of bad weather, to prevent the waste oil tank being filled with seawater.

7.14 Hazardous Substances

Introduction

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The term "hazardous substance" is one frequently used to describe any substances that have the potential to cause harm to people or the environment. This term is favored to describe such substances as it encompasses not only chemicals but also other goods not usually considered to be chemicals. It is a virtue of their toxic, flammable, explosive, corrosive, carcinogenic or radioactive nature that these substances are deemed to be hazardous or able to create a hazard.

The need for comprehensive control of hazardous substances is paramount in limiting employee exposure, providing for safe handling and disposal procedures and preventing any damage to the environment.

Hazardous Substance Control

All hazardous substances will be investigated for known hazards prior to their purchase and use in the workplace. Information will be obtained on the potential and requirements for protection against acute and chronic hazards. This information will be sought from suppliers and will be supplemented from other sources as necessary. Hazardous substances may not be purchased, supplied or used unless such information is available.

Hazardous substances, on the Veritas Viking 2 operation, are stored in the "Paint & Chemical Lockers". This is a controlled area and access is limited to authorized personnel. The Chief Navigator updates the MSDS manual and Hazardous Chemical Register, and copies are found inside the Locker. Personnel are required to consult these publications when using Hazardous Substances, ensuring that all safety instructions are followed.

Hazardous Chemical Register

The On Board Safety Officer will keep a Hazardous Chemical Register and Vessel Supervisor, on all hazardous substances used within the vessel. The intention of this register is to ensure uniformity in the supply of hazardous substances and limit products, where possible, to one brand.

Purchasing

Purchase requests for hazardous substances are to be forwarded to the Vessel Supervisor. It is essential to limit the number of hazardous substances available in the workplace, by assessing those already on hand, before ordering latest brand products, which have the same application.

Chemical products may not be purchased unless they are packaged and labeled as a minimum, in accordance with legislative and National Code of Practice requirements. Material Safety data Sheets are to be obtained prior to the purchase of the hazardous substance. Copies of the material Safety Data Sheet are to be filed in the Hazardous Chemical Register.

Where it is necessary to purchase hazardous substances locally to meet operational requirements, the person in charge is to first contact the Vessel Supervisor who will ensure that the product to be purchased is safe for its intended use. Due consideration is to be given to only purchasing existing products used by the Company.

All purchase orders are to be endorsed "Materials Safety Data Sheet Required", thus ensuring those persons handling hazardous substances have immediate access to the necessary information.

The Organogram at the end of this section depicts the purchase and supply of Hazardous Substances.

Material Safety Data Sheets

Material Safety Data Sheets are to be obtained for all hazardous substances used in the vessel's area of operation. Copies of these sheets are kept by the Safety Officer, and a copy of the MSDS manual is available to all onboard, in the Safety Library as well as in the "Paint & Chemical Locker".

When re-ordering the hazardous substance the supplier is to be requested to provide a known brand, of which the Material Safety Data Sheet are held onboard. Any substitutions of known

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products should have the Material Safety Data Sheet attached. No product should be accepted for use until Material Safety Data Sheet is received onboard

Personal Protective Equipment

The availability or the need to supply the necessary Personal Protective Equipment is to be considered when ordering the hazardous substance. If necessary P.P.E. is not available onboard, then the Vessel Supervisor or Safety Officer will order the P.P.E. and supply it at the same time as delivery of the hazardous substance.

Where required, training in the correct use, fitting maintenance and cleaning of equipment will be given to personnel. When it is not clear what P.P.E. is required, the HSE Department will be contacted for advise.

Training

When personnel are not clear as to the use of any Hazardous Substance, then the Safety Officer will give them instruction. These instructions will include the correct use, handling stowing and disposal of hazardous products, along with Instruction to cover interpreting Material Safety Data Sheets, use of Personal Protective Equipment and emergency procedures.

Emergency Procedures

Before using any hazardous substance consideration is to be given to the emergency procedures to be used in the event of spillage, fire, pollution or injury to personnel. Personnel who handle, or could become affected by the hazardous substance, are to be informed of the hazard potential and the procedures for safe handling, minimization of exposure, emergency and first aid.

Incidents involving sufficient spillage, or injury to personnel are to be reported in accordance with the vessels accident reporting system and client requirements.

Safe Handling

The major objective of Safe Handling is to protect the health and safety of those working with these products and to prevent environmental damage, such as pollution of air, water or soil. The aim is to ensure that the safe handling procedures are both known and understood by all concerned. All hazards are kept onboard must be correctly registered and labeled to indicate the general nature of the risks.

Safe handling includes transportation, storage, use and disposal of hazardous substances. Certain products should not be transported or stored together, refer to the Material Safety Data Sheets for further information.

Hazardous substances must not be transferred into unlabelled or unsuitable containers. Substances with labels missing or illegible should be disposed of.

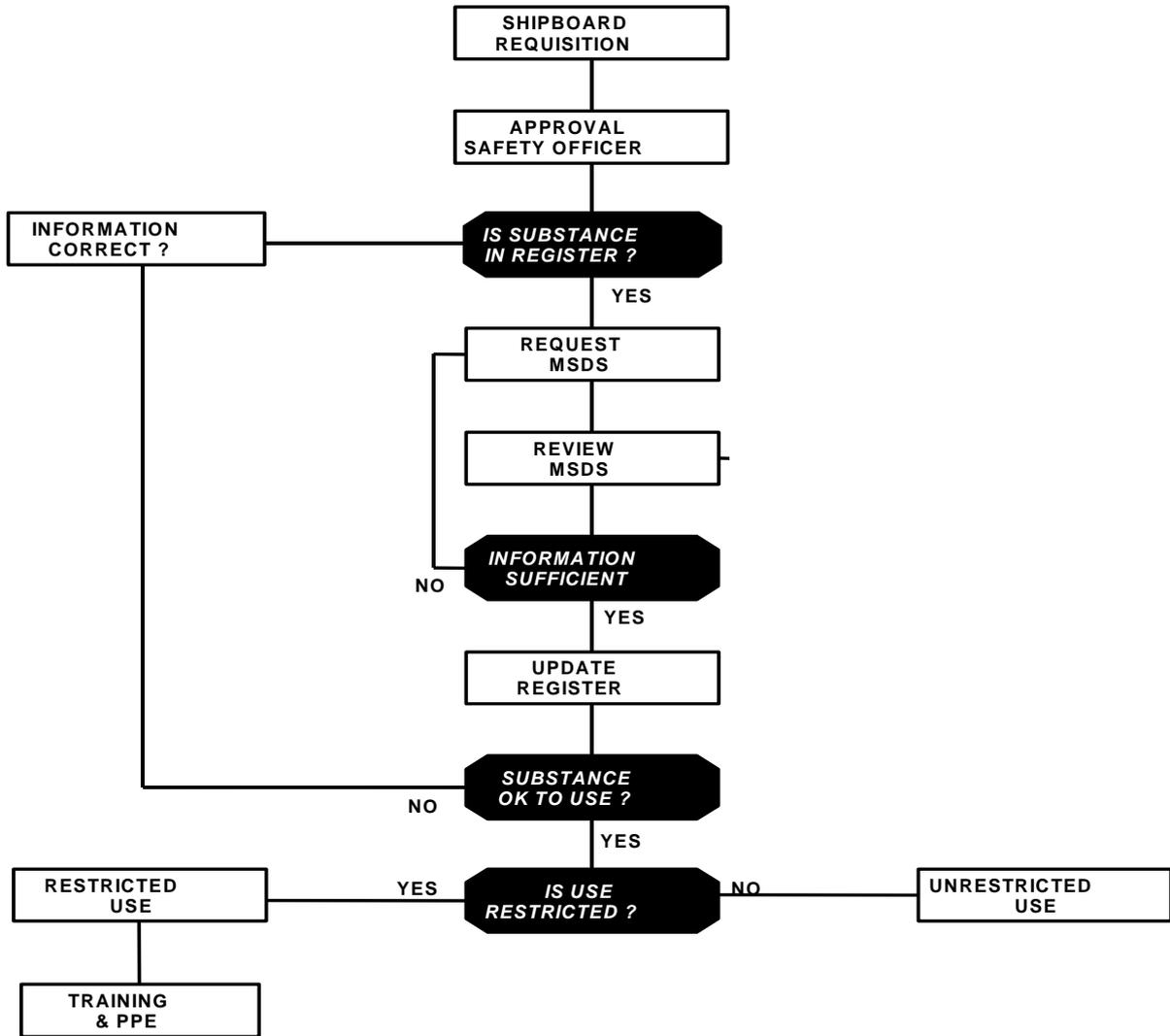


Figure 20 Purchase and Supply of Hazardous Substances

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7.15 Equipment Purchase

Purchasing of Equipment

Request for Purchase

All purchasing requests for supplies, new equipment or plant are supplied to the Vessel Supervisor using the standard requisition format.

Usual consumable supplies are requisitioned, in the usual format, giving quantity, brand names and part/stock numbers, to ensure that the correct product is supplied and the quality is assured. Substitute products, may be similar in appearance, but could be of sub-standard quality, they will therefore be subject of scrutiny by the field crew prior to being accepted into inventory. Wherever possible known brand products should be used. All consumable supplies are subject to approval by the Vessel Supervisor, and then processed through the Purchase Order system, and when it is necessary for nominated persons to purchase item locally they must liaise with the Vessel Supervisor and or Party Manager, to ensure preferred items only are purchased.

Other, non consumable items such as tools, electronics, plant or equipment will be forwarded to the Vessel Supervisor, detailing the product/s required and reasons for the requisition of the said items. Tools that are replacements for lost or worn items will be supplied through the normal process, however they are considered non-consumable.

The Vessel Supervisor is responsible for gaining Application For Expenditure (AFE) approval from Regional or Head Office Management for the purchase of non-consumable items. To gain approval, three quotes from reputable contractors are required to be submitted with the application. The quotes are required to have specific details on description of items being purchased, price and terms, guarantees, service intervals and service centers available and installation or commissioning details. The Vessel Supervisor will submit the AFE request to the Acquisition Manager giving recommendations based on quality, service and application of item.

The Acquisition Manager is responsible to ensure that the application of the item has been assessed by the Marine Technology Group, Marine Operations and Field Service Departments for operational use, and the QHSES Department for risk assessment, and that correct measures are in place for the commissioning of the item. Preferably the item will have been field tested prior to going into field operations. Approval by the Acquisition Manager is forwarded to the AFE Committee for final approval.

Vessel Supervisor is responsible for ensuring only approved plant and equipment is obtained, installed, commissioned and maintained to the manufacturer's recommendations. The vessel owners are responsible to ensure that all Class regulations are met and that the authorities are informed.

Use of Equipment

When new plant or equipment is purchased, the item will have been assessed to ensure that it can be used safely and without creating an unacceptable risk to the health of the personnel or damage to the environment. Manufacturers and/or suppliers are required to supply the necessary information, which will allow the purchased item to be commissioned and used safely. Due consideration will be taken into account for the ergonomic use and the environment in which the equipment is used.

Where the item/s being commissioned are for a new application, a Hazard/Risk Assessment will have been completed. The Master or Party Manager are responsible for ensuring that a Tool Box meeting is conducted prior to the operation of the new product or item, and the Hazard/Risk Assessment is reviewed and that a Job Safety Analysis is prepared. New Procedures are to be written and provided to the Vessel Supervisor who will ensure that all applicable publications are revised and distributed.

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Re-ordering of Equipment

A particular item, which has been used previously within the vessel's area of operations, will not require re-assessing at the time of purchase. However the person purchasing the equipment is to ensure the product specifications and work environments have not changed.

Any new equipment not previously used on the vessel will require an assessment as to the suitability of the equipment for the task it is required.

Equipment Records

Records of plant and equipment purchased are to be added to the various inventories onboard the vessel. A copy of which will be forwarded to the Vessel Supervisor. Department maintenance records will be updated with the inclusion of the new item or equipment.

Disposal of Equipment

Before any equipment or plant is disposed of, the responsible person for the workplace will consult with the Vessel Supervisor to ensure that legislative and company requirements are met.

Modification of Equipment

Modifications to any item, product or plant must have the approval of Management so as to ensure that the risks have been analyzed, and correct measures and procedures have been adhered to.

7.16 Job Safety Analysis (JSA)

Overview

Veritas DGC recognizes that it is their responsibility to provide a safe place of work and a safe system of work. All tasks that present a potential for injury, minor or serious, damage to property or equipment or loss, must be analyzed to ensure that they can be performed safely and effectively.

The Geophysical Operations Procedures gives an outline of all geophysical tasks performed on this vessel and a minimum number of personnel required for each task. These procedures cover the Job Safety Analysis for each task performed. It is the responsibility of the Party Manager to ensure that there is sufficient experienced personnel to perform these tasks and that trainees or inexperienced persons are supervised correctly.

When occasions arise that no Job Safety Analysis is available for a certain task, a Tool Box Meeting will be held with the persons to perform the task. The purpose of this meeting will be to review the Hazard Register to ascertain if the task has been analyzed for risk, this will aid personnel to compile the Job Safety Analysis and safely complete the task. Completed Job Safety Analysis forms, approved by the Party Manager or Master should be passed to the Safety Officer for preparation of new procedures to be inserted in this manual.

Procedures are continually being monitored by all persons onboard. Whenever certain procedures need to be revised, a Tool Box Meeting will be held by the personnel performing the task. Procedures are also reviewed after an incident has occurred, in the form of an incident investigation and follow up report. These investigations and reports are completed using, but not limited to, the VIMS Incident Report form.

7.17 Tool Box Meetings

Overview

A Tool Box Meeting is a term derived for a safety briefing required when a noticeable incident, which has serious potential occurs, or a particular task presents a hazard to those involved, or a task is to be undertaken that is out of the ordinary or not covered by any written procedure.

The Master, Party Manager, or task supervisor are responsible for arranging these meetings as required and a record of the information discussed is to be kept at the workplace.

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7.18 Management of Change

Introduction

Management Of Change System

Management of change is a system, which manages the risks associated with changes to the operations or procedures. It is a formal system, which attempts to address the issues and risks associated with a change to the existing 'accepted' practices.

The Management of Change system aims to identify the risks associated with these changes and to introduce control measures that may be required to eliminate or reduce the risks. It provides a documented route to the reduction and elimination of risk and ensures that due consideration has been given to ensuring that the outcome is concurrent with the aim.

Changes to equipment, processes, procedures or personnel, are to be thoroughly considered and tested before they are implemented. Managing and monitoring change is critical to safe and environmentally sound operations.

The elimination or reduction of reportable incidents measures the effectiveness of a Change Management System and it can work only if supported by an effective 'risk assessment and reporting and investigation procedure'.

The system should address:

- Authority for the approval of changes.
- Analysis of HSE implications.
- Compliance with regulations and approved standards.
- Acquisition of necessary permits.
- Documentation, including reasons for change.
- Communication of potential consequences and required compensating measures.
- Duration of the change and any time limitations.
- Training, identified as a result of the change.

Implementation

A Documented Management of change system will be developed by Veritas DGC, and will be implemented when it has been deemed necessary to 'deviate' from the accepted or approved operation or procedure.

Deviations or changes to existing practices will only be implemented if it is deemed 'critical' to the operation and will not be introduced until the formal processes of 'Management of Change and Hazard Assessment', have been documented and approved by the appropriate Management Representative. This will be achieved by carrying out a **vessel based, hazard analysis and risk assessment** of the proposed change and documenting the results in a log incorporating the attached 'Management of Change Form'. Assessments of this type will be conducted by senior crew-members and supervisors and in accordance with line management protocol and will include the Client Geophysical Representative, on board the vessel if required.

Change Management Requirements.

Formal management of change assessment may be required in the following circumstances, if there is considered to be an impact on HSE :

- Changes to the modes of operation or scope of work. (e.g. 2d to 3d, helicopter operations, chase vessel utilization, etc.)

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- Changes to the area or duration of the operation, with regard to the effect on Regulatory compliance, weather, environmental impact, proximity to rigs and other shipping activities.
- Changes to procedures, which introduce New hazards or risks.
- Changes to procedures, which remove existing controls.
- Changes to existing operations or procedures where it has been found necessary to introduce new control measures, either as the result of accident, injury or near miss, or where a new hazard has been identified.
- Changes of key personnel or persons who are unfamiliar with the operation or procedures and associated risks.
- Changes to existing equipment, which may introduce aspects, associated with the above requirements.

Where it has been identified that Management of Change is necessary the processes and considerations outlined in paragraph 1 and 2 of this section shall be followed.

MANAGEMENT OF CHANGE OPERATIONS CHANGE FORM

Marine Acquisition Veritas Viking2 Draft

Initiation			
Date:	Reference No: MOC-V2-		
Originator:	Area of operation		
Project:	Nature of change:		
Type of change			
Description of change:			
Justification of change:			
Potential consequences of change (positive and negative):			
Mitigation steps and special precautions:			
Is training required:			
Describe Training:			
Cost:			
Does change increase risk:			
Pre-mitigation:			
Probability:	Exposure:	Consequence:	Risk Score
Comments and attachments:			

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Implementation

Implementer:
Implementer Name: _____

	Name	Date
Change communicated to all parties involved :		
Describe method of communication :		
Documentation changes complete :		
List documents changed :		
Training required complete :		
List training conducted :		
Regulatory/Permit requirements complete :		
Describe requirements :		
Temporary change completed :		
Returned to normal operation		
Change implementation completed :		
Summary of lessons learned complete :		
List lessons learned :		
Lessons communicated to group :		
Change report summarized enclosed out documentation :		
Approval for change report close out report :		

Reviews

[Add Review Comment](#)

Date	Author	Comments

Approvals

Authorized Approvers:

Approved by	Approved Date	Comments

Figure 21 Management of Change Form

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7.19 Notification of Project Completion

Introduction

This procedure is to enable all parties to have a clear understanding of the completion of one project and the mobilization to the next project. This notification will enable the HSE Department to notify International SOS of the proposed transit plan from one site to the next.

Description

As a survey/project approaches completion, the Master will submit a transit plan to the Marine Supervisor, and the QHSES Coordinator. This shall be completed no later than 48 hours prior to completion of the current project. The QHSES Coordinator will forward this information to International SOS, to bring to their attention the vessels movements until the start of the next project.

Transit Plan Detail

The plan shall contain at a minimum but not be limited to the following;

- Starting Lat., and Long.,
- Estimated Lat., and Long. for each 24 hour period,
- Possible emergency evacuation ports along the transit route,
- Any surmised areas of piracy,
- Any envisaged hazards along route.

Conclusion

By having such a plan posted to the Vessel Supervisor, HSE Supervisor, and International SOS, Veritas will be able to monitor the general progress of the transit, and International SOS will be able to readily offer suitable assistance in the event of possible medical advice, and a suitable evacuation plan.

7.20 Electrical Safety

Introduction

Working with, in, and around electricity is one of the single most dangerous hazards we face each day. Positive isolation of electrical equipment is essential when working on any type of electrical equipment onboard the vessel. Without such isolation electrical injuries that could occur include;

- shock,
- electrocution, and
- electrical burns.

Most accidents involving electricity result from:

- Not isolating the electrical supply, and or
- Working on live electrical equipment.

Safe Systems of Work

General precautions for working with electricity involve a combination of insulation, earthing and isolation. Other precautions should include:

- Portable power tools being grounded or double insulated.
- Double adapters are prohibited.
- Immediate removal of equipment with frayed or damaged electrical leads from the workplace for repair.

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- Systems of isolation and tagging procedures are in place. Tagging and lock out prevents someone unwittingly turning the power back on while an electrician is working on a piece of equipment.
- Only cordless or air powered tools are used in damp or wet conditions.
- Metal ladders are not used for electrical work.
- Electricians wear correct clothing such as insulated safety boots.
- All electricians are trained in first aid treatment for electric shock.

General Procedures for Electrical Work

1 Prepare for shutdown.

Contact involved individuals, Chief Engineer, Compressor mechanic, Technician. Make sure everyone involved is aware item is to be removed from active use. Depending on Severity this could also involve making sure the appropriate fire extinguisher/safety equipment is on hand and area cordoned off to insure no one comes into contact with unit.

2 Equipment shutdown.

Turn off unit following normal operating procedure. If unit has been turned off using an emergency shutdown procedure insure all equipment switches are returned to the off position.

3 Equipment isolation.

Determine Power Source and Isolate. This could be as simple as unplugging the device to turning off breaker and removing buss fuses.

4 Lockout or tagout application.

Ensure electrical source is properly tagged out. In case of unit with plug insure plug has been tagged so no one will try and plug unit back in.

5 Release of stored energy.

In the case of most items, electrical energy can remain stored internally after power is removed. ie UPS, Monitors. Follow the individual units maintenance manual for proper procedure for releasing stored energy. Be aware that some units release stored energy through ground and if isolated may not be able to release the energy.

6 Verification of isolation.

Measure using appropriate meter to insure power has been removed from unit. If possible insure unit is physically disconnected before servicing.

What to do in the event of an electric shock.

When discovering someone who has suffered an electric shock:

- Get someone to call for immediate assistance,
- Turn off the source of the power to faulty equipment;

If this is not possible try to remove the person from the source of the power by using a non-conductive material:

- pull them with a dry rope;
- push them with a piece of dry wood or plastic tube;

On voltages 1000 V or more do not approach closer than 1.5m.

Once the person is removed from the source, check their breathing and if they are not breathing

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commence Expired Air Resuscitation (EAR). Check for a pulse and if there is no pulse commence cardiopulmonary resuscitation (CPR). For electrical burns, apply a cold compress and seek medical attention.

7.21 Noise Management

How Does It Affect Me?

Excessive noise destroys delicate nerve cells in the inner ear that transmit sound messages to the brain. The nerve cells are replaced by scar tissue that does not respond to sound. The damage is painless but permanent and there is no cure. Hearing aids are of some help but cannot restore normal hearing.

Noise mostly damages the parts of the inner ear that process high frequency sound. The result is noise-induced hearing loss, mainly affecting hearing for high frequency sounds rather than low frequency sounds. Because you can't always hear what's going on around you if your hearing is impaired, you could miss a warning sound or a cry for help, or misunderstand an important message.

As well as impaired hearing, people exposed to excessive noise may also suffer from 'ringing in the ears'. This can be very distressing, especially if you are trying to go to sleep.

You may think "I'll notice if noise is affecting my hearing and I'll do something about it then". Unfortunately, you probably won't notice. Noise-induced hearing loss develops slowly and painlessly and you probably won't notice it has happened until quite a lot of hearing has been lost.

What's The Problem?

The ability to hear is one of our most precious gifts. Without it, it is very difficult to lead a full life either on or off the job.

If sounds and noises are too loud they can permanently damage your hearing. The danger depends on how loud the noise is and how long you are exposed to it. The damage builds up gradually and you may not notice changes from one day to another, but for most effects of noise, there is no cure. So preventing excessive exposure to noise is the only way to avoid hearing loss.

How Do You Know If Exposure To Excessive Noise Is A Problem In Your Workplace?

There are two main factors that determine whether noise is harmful - how loud the noise is, and how long you are exposed to it each day. Noise starts to be a risk to hearing when it is about as

loud as heavy city traffic (about 85 decibels). You can work all day in noise levels below 85 decibels with little risk of hearing damage. Above 85 decibels the risk increases rapidly as the noise gets louder. At 100 decibels, for example, exposure should be no more than 15 minutes a day.

What Needs To Be Done?

Veritas DGC have a duty to protect its employees and to keep them informed about health and safety matters.

There are various Occupational Health and Safety Commissions around the world that have declared a standard for noise in the workplace as 85 decibels, averaged over an eight hour working day. In general these standards also stipulate that noise in the workplace must never exceed 140 decibels at any time. Most countries have adopted this as a national standard. However, individuals should check with the Occupational Health and Safety Authority in their Country, State or Territory for the precise requirements for your workplace.

As an employee you have a responsibility to follow work safety guidelines and instructions.

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To protect your hearing you should as a minimum:

- use noise controls supplied with machinery or installed in the workplace,
- report damaged noise control equipment and hearing protectors for repair or replacement,
- use hearing protectors in noisy areas, and
- order or notify your immediate supervisor of the need for noise controlling devices in your area of employment.

Practical Solutions

There are a number of ways to reduce people's exposure to noise. These include:

Quieting the source of noise:

- Designing equipment can make big noise reductions and work processes so they are not as noisy, for example, by lining metal chutes and bins with scrap rubber conveyor belting.

Stopping the noise from reaching people:

- This can be done by moving a noisy machine away from people, by building a soundproof enclosure around it or by putting up a barrier between machines and operators.

Reducing the time people are exposed:

- Where possible, people should swap between noisy and quiet jobs so that nobody gets exposed to noise for too long.

Wearing personal hearing protection when necessary:

- If noise exposure is still excessive after all possible control measures have been taken, individual protection like earmuffs or earplugs should be worn.

There are simple ways for you to judge if a noise is likely to be harmful. The best way is for a trained person to measure the noise, but generally speaking noise is likely to be harmful:

- when the noise is as loud or louder than heavy city traffic,
- if you have to raise your voice to speak to someone a meter away,
- when things sound different after the noise exposure,
- when you hear ringing or other noises in your ears after the exposure.

How you can contribute to reducing workplace noise levels:

- take a cooperative interest in workplace noise problems,
- help develop policies, plans and work practices for dealing with noise problems,
- suggest possible noise controls for the machines you know and operate,
- assist plant engineers or consultants develop design solutions,
- use noise control equipment supplied,
- take responsibility for the preservation of your own hearing by using hearing protectors whenever necessary.

Facts about hearing protection:

Some of the most commonly asked questions about hearing protection, and the effects of noise are discussed below.

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Is there any danger in putting earplugs in your ears?

Earplugs are soft and not long enough to reach far into the ear canal so it is virtually impossible to do any harm. However, if you have an ear infection or have ever had ear surgery, check with a nurse or doctor before using earplugs.

What if I don't wear hearing protectors all the time?

Taking protectors off even for short periods can cancel their protective effect. To be fully protected, you need to wear protectors all the time you are exposed to loud noise.

Is there any point in wearing hearing protectors if your hearing is impaired already?

Your ears will go on being damaged as long as they are exposed to excessive noise. The hearing you have left is very precious, and should be protected.

I won't be able to hear what people are saying if I wear hearing protectors.

Not so. If your hearing is normal you will find it easier to understand what people are saying when you wear protectors because your ears are no longer overloaded. The effect is like wearing sunglasses - you see better when the glare is cut down.

If your hearing is impaired, you may not get this benefit of being able to understand speech better when you wear protectors. Depending on the kind of impairment, you could find it harder to understand speech. If you have this problem don't give up the protectors - it's important to protect your remaining hearing.

Supplied Protection

Veritas DGC supplies various forms of hearing protection to its employees. If this protection is insufficient for your area of operations you will need to bring this to the attention of your immediate supervisor and the HSE department for correction and/or adjustments. The onboard Safety Representative will have various supplies held onboard at all times to assist in avoiding situations where the vessel runs low on this type of PPE. The HSE Representative will place orders with their supervisor to maintain a limited stock onboard at all times.

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8.0 Safety Critical Geophysical Operations Procedures

8.1 Identified Safe Work Area

The deployment, repair, and retrieval procedures often take more time than originally planned. The Party Manager and Master shall discuss the survey area prior to arrival onsite, then review the conditions after the vessel arrives in the survey area.

Consideration is given, but not limited to, shipping traffic lanes, shallow water, production platforms and associated hindrances, fishing, and the potential for encountering anchored buoys and markers. It may be necessary to define areas not suitable or safe for Streamer operations. An area will be deemed suitable or safe once all the above mentioned considerations have been taken into account, and all associated risks have been reduced to as low as reasonably practicable.

A clearance distance of no less than two (2) times the maximum length of the towed equipment from any identified hazard is to be maintained during Streamer Deployment and Retrieval (and maintenance), refer to the section titled Turn Radius for tables, and Safe Work Area for a diagrammatical description.

These areas shall be drawn on the vessels navigational charts, located on the Bridge, as well as any survey charts deemed necessary. The co-ordinates shall also be entered in the seismic navigation system. Once the danger areas have been identified, they will be classed as **NO GO ZONES** and are **OFF LIMITS** whenever Streamer work is in progress.

The Officer of the Watch (OOW) is responsible for ensuring the ship operates outside of all no-go zones during Streamer work. The OOW will inform the Observer and Navigator at least two (2) hours, or five miles, whichever is greater, before the vessel reaches a prohibited area. If a suitable response is not received, the OOW will inform the Master and Party Manager and appropriate evasive action will be immediately implemented.

The Navigator is responsible for notifying the Bridge of any course changes with as much notice period as possible, however it is acknowledged that the nature of real-time operations sometimes necessitates quick real-time decisions. Consideration shall be given to the OOW, allowing him sufficient time to check all prospect charts for any hazards in the area, prior to the required course alteration.

If a situation develops that threatens the safety of the streamer or vessel, the Master and Party Manager will be notified immediately. Once notification has been given of an impending no go zone the vessel will be maneuvered clear of the area.

The Party Manager has the final responsibility of any loss or damage to the towed equipment, however, the Master is responsible for the safe passage of the vessel, and the vessels' actions in relation to other seafarers, and their equipment. He will therefore, take control of a hazardous situation, and control the vessel in whatever manner necessary to normalize the situation.

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Turn Radius

Rate of Turn deg./min.

Turn Radius in metres	3500	4000	4500	5000	5500	6000	6500	7000	7500
Speed kts									
3.4	1.72	1.50	1.34	1.20	1.09	1.00	0.93	0.86	0.80
3.5	1.77	1.55	1.38	1.24	1.13	1.03	0.95	0.88	0.83
3.6	1.82	1.59	1.42	1.27	1.16	1.06	0.98	0.91	0.85
3.7	1.87	1.64	1.45	1.31	1.19	1.09	1.01	0.94	0.87
3.8	1.92	1.68	1.49	1.34	1.22	1.12	1.03	0.96	0.90
3.9	1.97	1.72	1.53	1.38	1.25	1.15	1.06	0.99	0.92
4.0	2.02	1.77	1.57	1.42	1.29	1.18	1.09	1.01	0.94
4.1	2.07	1.81	1.61	1.45	1.32	1.21	1.12	1.04	0.97
4.2	2.12	1.86	1.65	1.49	1.35	1.24	1.14	1.06	0.99
4.3	2.17	1.90	1.69	1.52	1.38	1.27	1.17	1.09	1.01
4.4	2.22	1.95	1.73	1.56	1.42	1.30	1.20	1.11	1.04
4.5	2.27	1.99	1.77	1.59	1.45	1.33	1.22	1.14	1.06
4.6	2.32	2.03	1.81	1.63	1.48	1.36	1.25	1.16	1.08
4.7	2.38	2.08	1.85	1.66	1.51	1.39	1.28	1.19	1.11
4.8	2.43	2.12	1.89	1.70	1.54	1.42	1.31	1.21	1.13
4.9	2.48	2.17	1.93	1.73	1.58	1.44	1.33	1.24	1.16
5.0	2.53	2.21	1.97	1.77	1.61	1.47	1.36	1.26	1.18
5.1	2.58	2.26	2.00	1.80	1.64	1.50	1.39	1.29	1.20
5.2	2.63	2.30	2.04	1.84	1.67	1.53	1.42	1.31	1.23
5.3	2.68	2.34	2.08	1.88	1.70	1.56	1.44	1.34	1.25
5.4	2.73	2.39	2.12	1.91	1.74	1.59	1.47	1.36	1.27

Time in decimal hours for 180 deg. turn

3.4	1.75	2.00	2.24	2.49	2.74	2.99	3.24	3.49	3.74
3.5	1.70	1.94	2.18	2.42	2.66	2.91	3.15	3.39	3.63
3.6	1.65	1.88	2.12	2.36	2.59	2.83	3.06	3.30	3.53
3.7	1.60	1.83	2.06	2.29	2.52	2.75	2.98	3.21	3.44
3.8	1.56	1.79	2.01	2.23	2.45	2.68	2.90	3.12	3.35
3.9	1.52	1.74	1.96	2.17	2.39	2.61	2.83	3.04	3.26
4.0	1.48	1.70	1.91	2.12	2.33	2.54	2.76	2.97	3.18
4.1	1.45	1.65	1.86	2.07	2.27	2.48	2.69	2.90	3.10
4.2	1.41	1.62	1.82	2.02	2.22	2.42	2.62	2.83	3.03
4.3	1.38	1.58	1.77	1.97	2.17	2.37	2.56	2.76	2.96
4.4	1.35	1.54	1.73	1.93	2.12	2.31	2.51	2.70	2.89
4.5	1.32	1.51	1.70	1.88	2.07	2.26	2.45	2.64	2.83
4.6	1.29	1.47	1.66	1.84	2.03	2.21	2.40	2.58	2.77
4.7	1.26	1.44	1.62	1.80	1.98	2.16	2.35	2.53	2.71
4.8	1.24	1.41	1.59	1.77	1.94	2.12	2.30	2.47	2.65
4.9	1.21	1.38	1.56	1.73	1.90	2.08	2.25	2.42	2.60
5.0	1.19	1.36	1.53	1.70	1.87	2.04	2.20	2.37	2.54
5.1	1.16	1.33	1.50	1.66	1.83	2.00	2.16	2.33	2.49
5.2	1.14	1.30	1.47	1.63	1.79	1.96	2.12	2.28	2.45
5.3	1.12	1.28	1.44	1.60	1.76	1.92	2.08	2.24	2.40
5.4	1.10	1.26	1.41	1.57	1.73	1.88	2.04	2.20	2.36

NOTE: A turn of 6°/min is approximately a 1500 metres turn radius.

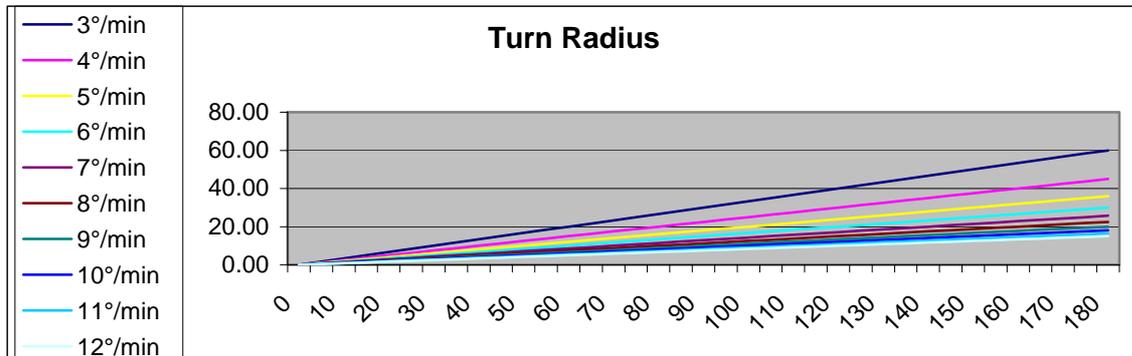


Figure 22 Turn Radius

Safe Work Areas
(No Go Zone / Go Zone)

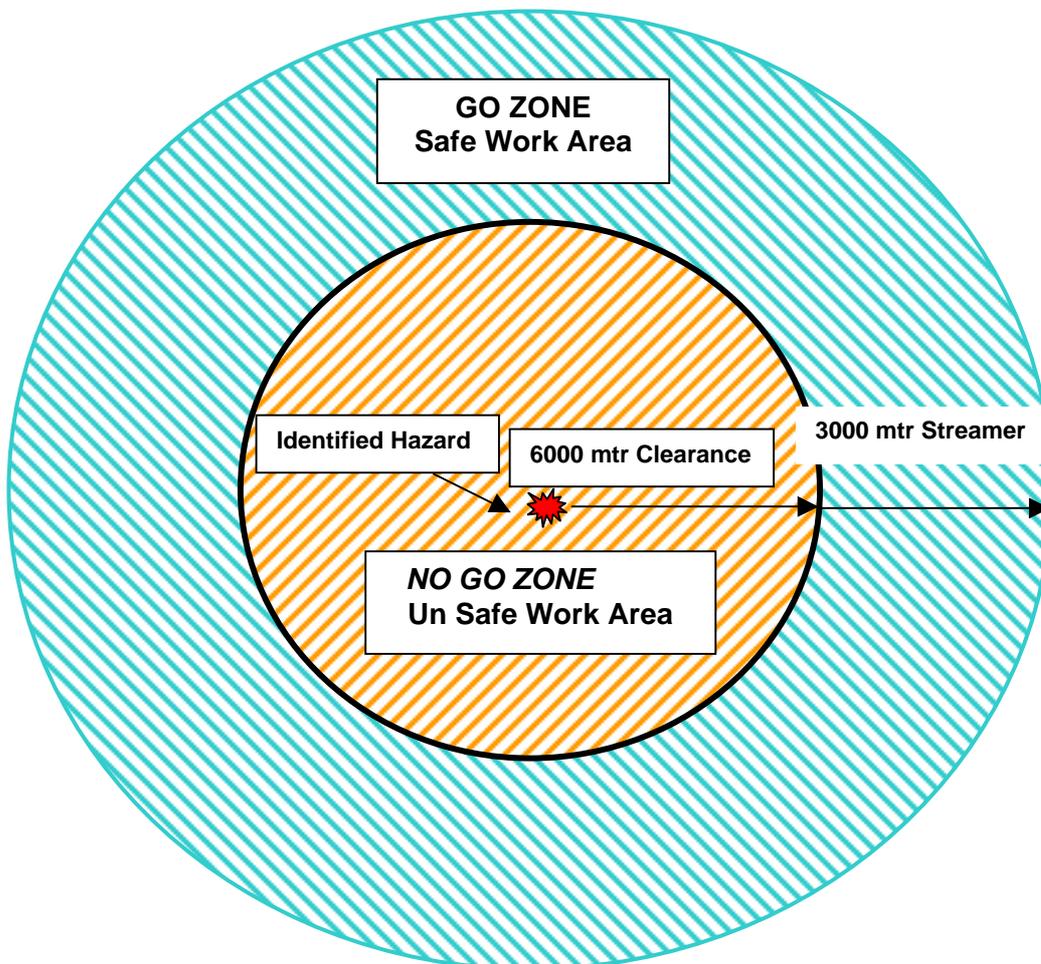


Figure 23 No Go Zone

e.g. Length of Streamer multiplied by 2 equals distance to be maintained from hazards, during deployment and maintenance of Tailbuoy and Streamer/s.

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8.2 Streamer Paravane Deployment and Recovery

Streamer Paravane Deployment and Recovery Procedures

Personnel

Personnel Performing Operation : Chief Mechanic, Observers, Gun Mechanics

Minimum Number of Personnel : Five (5)

Duties : 2–Winch Operator
2–Deck Helpers
1–Operation Observer

Supervision : Party Manager

Job Safety Analysis : Chief Mechanic

Personal Protective Equipment

Minimum P.P.E. Required : Work Boots, Hard Hat

Recommended : Hearing Protection, Work Gloves, Eye Protection, Back Protection, Work Vest, Tether Harness

Overview

The Streamer Paravanes are a device consisting of various wings or vanes designed to operate in undisturbed water. The forward motion of the paravane through the water forces the water flow through the series of vanes, thus forcing the paravane into a wide tow position.

The cable paravane is designed for the diverting of the cable(s) away from the ship. This enables the ship to tow more than one cable behind the vessel at a desired distance apart.

Potential Hazards

Failure of tow hardware: A steady load is required on all six elements of the Tow Harness to evenly distribute the force of the Paravane. If the force of the Paravane is distributed to less than six of the elements, or the load is not steady, the force on an element can easily exceed an element breaking strength. Loss of the Paravane is the immediate result; subsequent damage can also occur to the Sub-Arrays, and the Streamer. The weather and Sea State are the usual cause of failure. The upper limit has been determined as a Sea State 6 approaching a Beaufort force 7. All efforts must be made to limit the exposure of the Paravanes to inclement weather.

- Failure of winch line.
- The Paravanes are large and heavy.
- The equipment is under large loads.
- Marginal Weather and Sea conditions.
- Overdue Maintenance
- Tow rope from streamer bend restrictor to paravane tow rope going under vessel or caught up on protrusions.

Preventative Measures

- Training of personnel in the operation before deployment on the team.
- Use of additional protective equipment as the conditions merit.
- Two personnel utilized to handle deployment and monitor operation.

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- Frequent and documented inspection, maintenance, and inspection of Tow Lines.
- Frequent and documented inspection of the Winches, Paravanes, Paravane Tow harnesses and hardware.

Special Precautions

- It is UNSAFE to deploy the Paravanes in deteriorating weather conditions.
- Avoid standing on the Paravane to attach or detach Tag Lines or repair hardware.
- NEVER allow the Paravane to remain near the vessel. Either deploy the Paravane away from the ship (100m if possible), or retrieve and store the Paravane.
- NEVER stand in the bight of a rope.
- NEVER stand astride a rope
- NEVER stand on the outboard side of the outer streamer spooling block during deployment/recovery operations.

Preparation Check List

The Chief Mechanic or Crew Leader will assign personnel to their duties and make sure that they are properly attired.

1. All personnel will wear Safety Footwear
2. All personnel will wear Hard Hats.
3. All personnel will wear Ear and Eye protection as appropriate or when directed.
4. All personnel near the stern will wear Personal Flotation Devices (P.F.D.) and a Safety Harness, when directed. Due to the Viking deck layout, there are no open areas. This equipment is necessary when moving to a height above the enclosed rail area.

Standard Operating Procedure

Prior to the deployment or recovery of the streamers and paravanes a clear plan of the work to be achieved must be understood by all concerned.

The Chief Mechanic or Crew Leader is in charge of deployment and recovery of the paravanes, in conjunction with the Observer who will be deploying or recovering the streamer simultaneously. Both operation operators will assign the work duties before deployment or recovery of streamers or paravanes.

Streamer Paravane Inspection

Check the conditions of the Paravane for:

1. Physical damage to wings and eyes.
2. All retaining nuts and bolts in good condition and tight.
3. Secure flotation buoy.
4. Plexus harness and associated hardware in good condition and tight.
5. Tow rope eye socket and tow chain is in good condition and the rope not frayed, or showing signs of fatigue.
6. Tag Line in good condition.
7. Tow Rope in good condition.
8. Clear communications with the streamer deployment team.

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Deployment From Side Of Ship Stowage

Check the present sea state and weather. Consult the local forecast. Combined sea and swell should preferable be less than 2.5 meters (8 feet) with weather pattern stable or decreasing, however a Toolbox Meeting or Job Safety Analysis should take into consideration the risk that the wind and sea conditions and the subsequent vessel pitch/roll/heave, pose to the operation, and if the risk is considered too great, the operation should be suspended until conditions improve.

1. Conduct the Paravane Inspection.
2. Notify the Bridge and Recording Room that Paravane deployment is to commence. State clearly which side the deployment will begin and ensure the ship's speed is correct, approximately 4.0 knots through the water.
3. Unhook the Paravane stowing chains.
4. Attached the Paravane tow line to the streamer Bend Restrictor.
5. Lower the tugger winch tag lines until the paravane is hanging horizontally by the main tow rope, then remove the tugger winch lines.
6. Lower the Paravane to the water in a fast, smooth manner until the Paravane is approximately 20m from the ship's side. At this point, the deployment of the paravane and streamer can be transferred to the Chief/Senior Observer
7. Continue to deploy Paravane in conjunction with the deployment of the streamer(s). See section 'Streamer Deployment', ensuring clear and precise communications with the streamer deploy team.
8. Once fully deployed notify Bridge and streamer deploy team, and disengage the remote hydraulic controls.

Recovery To Side Of Ship Stowage

1. Notify the Bridge and Recording room that Paravane recovery is to commence. Ensure the vessel speed is correct.
2. The Paravane and streamer have to be recovered simultaneously. Ensure the Streamer recovery team is prepared and clear and precise communications are established.
3. Paravane recovery is the reverse of the deployment procedure, keeping in constant communication with the streamer recovery team.
4. When the Paravane reaches the ship's side continue the winch operation until the Paravane is clear of the water and held fast to the ships side with the tow rope.
5. Attach the paravane lifting winch lines to the forward and aft tag lines and winch the paravane up to its horizontal stow position.
6. Detach streamer tow rope from the streamer bend restrictor.
7. Secure paravane with the stowage chains.

Recovery to Top Deck Stowage

Check the present sea state and weather. Consult the local forecast. Combined sea and swell should preferable be less than 2.5 meters (8 feet) with weather pattern stable or decreasing, however a Toolbox Meeting or Job Safety Analysis should take into consideration the risk that the wind and sea conditions and the subsequent vessel pitch/roll/heave, pose to the operation, and if the risk is considered too great, the operation should be suspended until conditions improve.

1. Conduct the Paravane Inspection.

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2. Ensure permit to work has been completed.
3. Notify the Bridge and Recording room that Paravane movement is to commence, and state clearly which side the movement will begin.
4. In any circumstances DO NOT pick up the paravane by the splice. The splice is not designed to handle the load in this manner, as there is a risk of the splice failing, causing the load to drop. Lifting the paravane by the tow splice, and leg splices is considered an unsafe act.
5. After initial retrieval to side of the vessel, the paravane is held horizontally to the shipside on the tow splice.
6. Attach the paravane lifting lines on the cable deck to the fwd and aft tag lines on the paravane and heave in until these are just under tension. (The weight remains on the towrope.) This is merely a safety back up.
7. Pay out top deck tugger winch ropes through the Panama fairleads and down the ships side to the bottom fwd and aft towing shackles and attach. Lower 2 x 6 metre 5Tonne lifting strops from the cable deck on a rope and attach using shackles to the same. Ensure the rope is held inboard at all times.
8. Heave in with the lifting winches situated on the cable deck until the paravane is held vertical to the ships side.
9. Attach 2 x 6 metre 5 Tonne lifting stops with shackles to the top fwd and aft towing points from the cable deck and hold inboard.
10. Pay out with the cable deck lifting winches and disconnect tag lines, simultaneously lowering the ships crane and attaching all lifting strops.
11. Heave in slowly on the ships crane and the top deck winches for restriction of movement, thus maintaining the paravane on a horizontal plain at all times during the operation.
12. Continue carefully until the paravane is clear and safely stowed on the top deck of the vessel.
13. Reverse the procedure for deployment.

Replacing Paravane Float

Check the present sea state and weather. Consult the local forecast. Combined sea and swell should preferable be less than 2.5 meters (8 feet) with weather pattern stable or decreasing, however a Toolbox Meeting or Job Safety Analysis should take into consideration the risk that the wind and sea conditions and the subsequent vessel pitch/roll/heave, pose to the operation, and if the risk is considered too great, the operation should be suspended until conditions improve.

Ensure the paravane is secured vertically to the side of the vessel with no apparent obstructions to hinder the smooth removal of the float.

Attach painter lines to the eye welded to the top segment of the four float bands. (This is for safe and easy lowering and lifting of the float band.)

Attach 2 x 6 meter x 5 Tonne lifting strops around the float, equally located for point of balance to obtain a level lift. Ensure top deck fwd and aft tugger winch lines are attached around the float for use as tag lines.

Lower ships crane and attach to both lifting strops, applying no additional pressure to the float. This is to avoid stress to the bands.

Remove all clamp bolts.

Gently lower the top segment of the float band using the painter lines situated on the top deck.

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When all of the bands are lowered, slowly hoist with the ships crane and tag lines, steadily maneuvering the float to the required position on the top deck and secure.

Reverse the procedure for deployment.

8.3 Streamer(s) Deployment

Streamer(s) Deployment Procedures

Personnel

Personnel Performing Operation : Observers/Gun Mechanic, Chief Mechanic

Minimum Number of Personnel : Four (4)

Duties : 1–Winch Operator
2–Streamer Handler
1–Operation Observer

Supervision : Party Manager

Job Safety Analysis : Chief Observer

Personal Protective Equipment

Minimum P.P.E. Required : Work Boots, Hard Hat.

Recommended : Hearing Protection, Eye Protection, Back Protection, Work Gloves

MSDS

Cable Oil, Lithium Batteries

Overview

The Seismic Streamer is a towed cable used to record seismic signals produced in offshore seismic operations. The streamers are composed of sections, 150 meters in length, containing 96 equally spaced hydrophones mounted along the center axis. The streamer sections are either coupled together or connect into a digitizing module, located at the head of every section to digitize and relay the received seismic signals to the onboard recording system. The streamers are typically configured to lengths of between 4000 and 9000 meters of active sections, determined by specific contractual requirements. Each streamer is marked at the end by a tail-buoy equipped with GPS, while the depths are controlled using remote cable levelers or 'Birds'.

Work Area

The deployment and recovery procedures must be planned in detail between the Party Manager, and Master who must discuss the survey area prior to arrival onsite, then review the conditions after the vessel arrives in the survey area.

Consideration is given, but not limited to, traffic lanes, shallow water, production platforms and associated hindrances, fishing, and the potential for encountering anchored buoys and markers. It may be necessary to define areas not suitable for Streamer operations. An area is determined where it is deemed appropriate for Streamer work. These areas are drawn on the vessel area charts on the Bridge and Navigation, as well as any survey charts deemed necessary. The coordinates should be entered in the seismic navigation system. Once the danger areas are defined, they are OFF LIMITS when Streamer work is in progress.

The Bridge is responsible for ensuring the ship operates outside of prohibited areas during Streamer work. The Bridge will inform the Observer and Navigator at least 2 hours, or five miles, whichever is greater, before the vessel reaches a prohibited area. If a suitable response is not received, the officer of the watch will inform the Master and Party Manager.

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If a situation develops that requires the vessel, and or streamer, to be maneuvered clear of an obstruction, the Master will take charge, assisted by the Party Manager.

The Party Manager has the final responsibility of any loss or damage to the towed equipment. However, the Master is responsible for the safe passage of the vessel, and the vessels' actions in relation to other seafarers, and their equipment. He should therefore, take control of a hazardous situation, and control the vessel in whatever manner necessary to normalize the situation.

Potential Hazards

- Cable Oil is a solvent and can cause burns and irritation to exposed skin and eyes.
- Fire due to the low flashpoint of cable oil.
- Personnel are working near the stern.
- Marginal Weather and Sea conditions.
- Falls caused by slippery footing from water and spilled cable oil.
- Electric shock from cable DC power.
- Lithium batteries. (see section on lithium battery storage and handling)

Preventative Measures

- Training of personnel in the operation before deployment on the team.
- Use of additional protective equipment as the conditions merit.
- Two personnel utilized to handle deployment and recovery operation.
- Training on fire foam system use.
- Location of an eye wash station and shower near the Streamer Deck.
- Lith-X extinguisher for Lithium Batteries.
- Strict control of cable oil spills. Immediate clean up of spills.
- Good communication between the Recording room and the streamer team on the streamer power status.
- CCTV monitoring from Bridge and Recording room.

Special Precautions

- The Work Area is defined and confirmed by the Party Manager, and the Master, before any Streamer deployment operation commences.
- The Bridge will closely monitor shipping traffic in the area and notify the Instrument and Navigation personnel of any developing situation.
- The Navigator will monitor the course, and speed, and advise the Bridge and Streamer crew of any necessary course alterations during the Streamer operations. The Navigator is responsible for monitoring the water depth and setting the initial depth of the "Birds" during deployment.
- At ANY TIME a streamer section is disconnected or connected the streamer power is turned OFF. The Streamer crew calls the Recording room to turn the streamer power off via the intercom system. Verbal acknowledgment is REQUIRED after the power is off.
- The Streamer crew will advise the Recording room when the Streamer is reconnected; in order to immediately monitor the Streamer and conduct testing.

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- ANY cable oil spills are immediately cleaned from the deck, and personnel are to rinse any cable oil from their skin and clothing immediately.
- It is UNSAFE to deploy the Streamer in deteriorating weather conditions.
- Prior planning of the work to be performed understood by all involved before the Streamer is deployed or retrieved.

Preparation Check List (Checklist in Section 9 Miscellaneous Sample Forms)

Prior to any Streamer work a clear plan must be understood by all concerned parties. The Shift Leader must discuss the work with the Party Manager, possible resolutions for problems are discussed, and contingencies for probable difficulties are planned. This is achieved by way of a Toolbox Meeting.

The Shift Leader will assign personnel to their duties and ensure the duties are properly completed. He also ensures all personnel are wearing appropriate PPE for the task and conditions.

Prior to the deployment of any trailing equipment, the Observer will consult with the Bridge to determine if the deployment area is suitable for the task at hand, and the vessel's speed and direction are conducive for the operation.

The streamer check should begin with a review of the worksheets from the last recovery, i.e. defective traces, ballasting, holed or damaged streamer jacket, slipped bulkheads, low voltage batteries and defective levelers and acoustic pods.

The operational condition of the deployment, and recovery, equipment is checked well before any foreseen Streamer work is required. Directly prior to Streamer work the following equipment check is performed:

1. Cable reel and winch controls.
2. Communications equipment.
3. Life rings and fire extinguishers are in proper locations.
4. Streamer tools complete and ready.

Peripheral Equipment Checks

Tail-buoys

All tail-buoys are individually inspected before deployment takes place. The following items must be thoroughly checked:

1. All bolts tightened.
2. Antennae and associated peripherals such as regulators and radar reflectors are secured.
3. All shackles secured with locking wire.
4. All equipment attached to the tail-buoy secured with a safety wire.
5. Strobe lights are switched on.
6. Beacons are powered up on battery power and their respective ID's checked before connection to the streamer Stic cable.
7. Power cable or Stic cable inspected for damage to wire or pins.

Connection of Stic cable to the tail-buoy. Streamer power must be switched off, and connection only carried out once the recording room has confirmed that the 'tail-buoy power' is off. The streamer must be fed through the appropriate Spooling Block before being connected to the tail-buoy. Before deploying the navigator checks the power module reading to make sure the tailbuoy is drawing amps.

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Streamer Levelers (Birds)

Each Bird needs to be individually inspected prior to commencement of streamer deployment. The following items must be thoroughly checked:

1. Using the DigiCOURSE modem and computer check the battery voltage of each Bird. If either battery bank is reading less than 6.5v, then these should be changed.
2. Set fin angle to zero degrees. The Wing/Coil Assembly may now be removed, by undoing the relevant screws.
3. Clean all exposed surfaces. Clean motor piston using a cotton bud. Spray connectors with electrical contact cleaner. Ensure wing lever arm is tight to the wing shaft, change and re-grease gasket and 'o' rings and replace Wing/Coil Assembly to Bird. Make sure everything is seated properly and no 'O' rings are trapped.
4. Using the DigiCOURSE software carry out a wing reset function. This will show whether the Wing/Coil Assembly was refitted correctly and if there are any problems with the motor module.
5. Check that the Depth Calibration is correct and also that the compass is functioning by observing that the Read Heading corresponds to the movement of the Bird.
6. Finally check the Bird visually i.e. wings, latch pins, Bird collars. If all checks are good then the Bird maybe placed on the relevant Bird Tree, ready for deployment.

Acoustic Pods

Each Acoustic Pod needs to be individually inspected prior to commencement of streamer deployment. The following items must be thoroughly checked:

1. When checking Acoustic Pods the same DigiCOURSE software is used, but use the Acoustic menu.
2. First check the Battery Voltage of the unit. Ensure the voltage is acceptable.
3. The Acoustic Pod's SIGR count should read 80, if so the 90 degree Pinger should be 'scratched' and the SIGR count should now read 60.
4. The pulse count of the Pod should read 175.
5. The Pod should then be checked visually i.e. Latch pins, collars, Pinger guard. If all checks are good then the Pod should be placed on the relevant Bird Tree, ready for Deployment.

Wide Tow Streamer Deployment

The tail-buoys, having been prepared, checked and powered are the first items to be deployed from the Gun chute.

1. Remove Gun Deck chute gates. Care must be taken to ensure personnel working close to the chute have workvests with safety lines attached. Gun Deck CCTV cameras must be viewing this area, enabling the bridge & recording room to oversee operations.
2. The tail-buoy telemetry/GPS health is checked by Navigation before deploying the tailbuoy and the Recording room is notified upon the deployment of each individual tail-buoy.
3. Using overhead tigger winches, tailbuoy can be maneuvered to the top of the chute, release the winch hook and allow the tailbuoy to slide down the chute under its own inertia.

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4. Notify Bridge and Recording room upon the deployment of each individual tail-buoy and check that the stable and towing correctly.
5. The streamer can now be let out at a speed determined by the depth the streamer maintains when in the water and under tow. A Streamer should never reach depths of more than 30 meters or pressure damage could result. Crew in the recording room, who are in constant contact with the streamer deployment crew, monitors depths. The speed of the ship and the RPM of the streamer reel is the key to maintaining even streamer depths during deployment. All depth references are relative to the speed of the vessel through water. It is also worth noting that the faster the vessel travels, the more strain is put on the streamer, which in turn could cause it to part. The faster the streamer is deployed the less pull it has, causing it to sink. If the streamer is sinking too fast then a halt on deployment will allow the depths to stabilize under tow. An even balance is required to prevent damage to the streamer.
6. Streamer deployment should be halted when each streamer leveler or acoustic pod collar is at the attachment position, just aft of the spooling block. Care should be taken to bring the deployment to a smooth stop, so as not to put undue stress on the hardware or streamers.
7. Two members of the streamer deployment crew are required for attaching Streamer Levelers, or Acoustic Pods to the Streamer, one to hold and support, while the other locks collar latches into place and affixes Safety Lanyard. Care should be taken when stopping the cable to attach or maintain depth levelers or similar attachments.
8. Repeat the above procedures, noting any repairs on the worksheet, until the streamer is deployed as far as the Armored Lead-In Bend Restrictor attachment point.
9. Attach Bend Restrictor, (See Bend Restrictor Attachment Procedures).
10. Attach the Paravane tow line to the Bend Restrictor.
11. Further deploy the streamer, in conjunction with the Paravane deployment (see Sub-Section 1) maintaining clear and precise communications with the Paravane deployment team. The Paravane, as it is being deployed, should be maintaining a pull on the streamer, while a carefully judged slack is maintained in the streamer Lead-In by the deployment operator, so as not to create any undue strain on the towed equipment and deployment hardware.
12. Attach buoys to the Lead-In at the attachment points, using Quick Connect Links.
13. Once the Paravanes are fully deployed the slack in the Armored Lean-In should be adjusted to its optimum, thereby completing the deployment process.
14. Advise Bridge and recording room that the particular streamer is fully deployed and secured at the tow position.
15. Replace safety chains and gates and clear the decks of any debris, tools or spilled oil.

Multiple Streamer Deployment

Additional streamers can be added to the same Paravane following the above procedures,

For Multiple Streamer deployment, a Tether Line attaches the Inboard Streamers, on both sides, to the Outboard Streamers; this is affixed at the Bend Restrictors of both Inboard & Outboard Streamers

Once the Paravane, with the Outboard Streamer attached, has been deployed to a safe distance from the vessel and unlikely to tangle or interfere with the inboard streamer deployment, and the tether connected to the Outboard Bend Restrictor & vessel is not under too much strain,

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deployment of the inboard streamer may begin with precise communications between the Paravane deployment team and the streamer team.

At the Inboard Bend Restrictor the tether is attached, then the two streamers are let out with the Paravane, judging the correct tension as they go out to their respective tow points. As the two streamers and the Paravane are being paid out to Tow position the tether line is paid out from on the deck. The tether line must be laid out in such a way that it will not tangle or snag, and crew should never stand in the bite of the tether.

Once the Paravane and Streamers are deployed to their towing positions set them to shooting depth. The bridge is to be advised and the time logged. A ballast and diagnostic check is carried out, then the procedure is repeated on the other side of the vessel.

All decks are cleared and cleaned, hydraulic systems disengaged, logs completed.

8.4 Streamer Section or Module Replacement

Streamer Section or Module Replacement

Personnel

Personnel Performing Operation : Observers

Minimum Number of Personnel : Three (3)

Duties:

- 1–Streamer Reel Operator
- 1–Performing Replacement Task
- 1–Assistant

Supervision : Senior Observer

Job Safety Analysis : Chief Observer

Personal Protective Equipment

Minimum P.P.E. Required : Work Boots, Hard Hat, Work Vest, Tether Harness (if necessary)

Recommended : Eye Protection, Gloves, Back Protection

Overview

The streamers are composed of sections, 150 meters in length, containing 84 hydrophones mounted along the center axis. The streamer sections are coupled together using a digitizing module, located at the head of each section to digitize and relay the received seismic signals to the onboard recording system. Defective sections or modules are replaced as required.

Potential Hazards

- Cable Oil is a solvent and can cause burns and irritation to exposed skin and eyes.
- Fire due to the low flashpoint of cable oil.
- Marginal Weather and Sea conditions.
- Falls caused by slippery footing from water and spilled cable oil.
- Electric shock from cable DC power.

Preventative Measures

- Training of personnel in the operation before deployment on the team.
- Use of additional protective equipment as the conditions merit.

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- Two personnel utilized to handle section and module replacement.
- Training on fire foam system use.
- Location of an eye wash station and shower near the Streamer Deck.
- Strict control of cable oil spills. Immediate clean up of spills.
- Good communication between the Recording room and the streamer team on the streamer power status.
- CCTV monitoring from Bridge and Recording room.

Special Precautions

- At ANY TIME a streamer section is disconnected or connected the streamer power is turned OFF. The Streamer crew calls the Recording room to turn the streamer power off via the intercom system. Verbal acknowledgment is REQUIRED after the power is off.
- The Streamer crew will advise the Recording room when the Streamer is reconnected; in order to immediately monitor the Streamer and conduct testing.
- ANY cable oil spills are immediately cleaned from the deck, and personnel are to rinse any cable oil from their skin and clothing immediately.

Streamer Section and/or Module Replacement Procedure

The Section or Module to be changed needs to be 'Chained off' at the tail end. 'Chaining off' is the term used for bringing the streamer under tow from a deck mounted towing harness, taking the strain off the streamer reel. The tow harness is a series of Dextron Ropes linked to a hinged clamp. The clamp fits around the streamer section and is secured with lock bolts. Care must be taken to ensure the lock bolts are tightened to the limit of each thread, thus making sure that the clamp is held fast on the Streamer. Also ensure that the Dextron Ropes leading from the clamp to towing points are not twisted or uneven, as towing the streamer this way could cause undue strain and possible failure of one element of the tow harness.

1. Once the streamer has been 'chained off', the towing tension can be released from the streamer reel to the tow harness, allowing enough slack for the streamer section or module to be disconnected.
2. Communicate with the recording room to ensure that the power to the streamer is switched off. A verbal acknowledgment must be received from the recording room prior to disconnecting the streamer section.
3. Disconnect Section or module at both ends, using Allen Key & C- Spanners.
4. Fit protective caps to the exposed ends of section or module, label and attach fault report, and remove to safe stowage.
5. Connect replacement section, connectors should be sprayed with Isopropyl Alcohol and 'o' rings should be replaced & greased. Tighten fittings using Allen Key & C- Spanners.
6. New Program Plugs should be changed if necessary.
7. Take up the slack and resume towing with the Streamer Reel.
8. Communicate with Recording room, to switch the streamer power on and test replacement Section or Module.
9. Remove tow harness and Dextron Ropes, and resume deployment of streamer.

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8.5 Streamer Section Patching

Streamer Section Patching

Personnel

Personnel Performing Operation	: Observers
Minimum Number of Personnel	: Three (3)
Duties	: 1–Streamer Reel Operator 1–Performing Patching Task 1–Assistant
Supervision and Fire Watch	: Senior Observer
Job Safety Analysis	: Chief Observer

Personal Protective Equipment

Minimum P.P.E. Required	: Work Boots, Hard Hat
Recommended	: Eye Protection, Gloves, Back Protection

Overview

Each streamers section is 150 meters in length containing 84 hydrophones. Around each hydrophone is 200 milliliters of cable oil. Small holes can sometimes appear in the plastic jacket, which need to be sealed with insulation tape as soon as possible.

Potential Hazards

- Cable Oil is a solvent and can cause burns and irritation to exposed skin and eyes.
- Fire due to the low flashpoint of cable oil.
- Marginal Weather and Sea conditions.
- Falls caused by slippery footing from water and spilled cable oil.

Preventative Measures

- Training of personnel in the operation before deployment on the team.
- Use of additional protective equipment as the conditions merit.
- Fire Watch on standby.
- Training on fire foam system use.
- Location of an eye wash station and shower near the Streamer Deck.
- Lith-X extinguisher for Lithium Batteries should be on standby.
- Strict control of cable oil spills. Immediate clean up of spills.
- CCTV monitoring from Bridge and Recording room.

Special Precautions

- ANY cable oil spills are immediately cleaned from the deck, and personnel are to rinse any cable oil from their skin and clothing immediately.
- Fire Watch to be familiar with Foam Deluge System operation.

Streamer Section Patching Procedure

1. Holed sections should be patched both on deployment and recovery of the streamer.

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Restrictor. The 2nd layer of rods (Used on the outer most two lead-ins on each side) is assembled over the first layer with the lay of the rods being OPPOSITE to the first.

2. OTS Dextron fast grips are now placed with the towing eyes at the center point of the helical rods, one grip in each direction with the eyes almost touching. With temporary tape holding the eye in place spiral down the assembly wrapping two of the four legs around the lead-in in opposite directions until only sufficient is left to tie off with a reef knot. Repeat with the other two "legs" of the grip. Repeat again with the other grip.
3. The delta plate should now be fitted, remove the two pin and bush assemblies from the main delta plate that have the greatest distance between them. Insert the tow eyes of the fast grips in-between the upper and lower plates of the delta plate assembly and re insert the pins and bushes into the eyes. Tighten bolt accordingly.
4. The Bend Restrictor is now ready to have the Tow Lines (Tethers) to the Paravanes attached.
5. The removal of these units is a reversal of the above procedure.

8.7 Streamer(s) Recovery

Streamer(s) Recovery Procedures

Personnel

Personnel Performing Operation : Observers/Gun Mechanic, Navigator, Chief Mechanic

Minimum Number of Personnel : Four (4)

Duties : 1–Winch Operator
2–Streamer Handler
1–Operation Observer

Supervision : Party Manager/Operations Supervisor/Chief Observer

Job Safety Analysis : Chief Observer

Personal Protective Equipment

Minimum P.P.E. Required : Work Boots, , Hard Hat.

Recommended : Hearing Protection, Eye Protection, Back Protection, Work Gloves

MSDS

Cable Oil, Lithium Batteries

Overview

Streamer(s) recovery procedure will differ depending on the purpose of the retrieval. Although guidelines for several different scenarios are depicted, it must be remembered that they are just guidelines. Often situations will arise that will necessitate slight deviations to the procedures. The Party Manager, Shift Leader, Navigator, Officer on the Bridge, and the Observers, must formulate a clear plan. Factors such as shipping traffic, obstructions, shallow water, currents and estimated time of retrieval must all be considered.

Potential Hazards

- Cable Oil is a solvent and can cause burns and irritation to exposed skin and eyes.
- Fire due to the low flashpoint of cable oil.
- Personnel are working near the stern.
- Marginal Weather and Sea conditions.

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- Falls caused by slippery footing from water and spilled cable oil.
- Electric shock from cable DC power.
- Lithium batteries. (see section on lithium battery storage and handling)
- Potential entanglement of towed equipment in ships propellers.

Preventative Measures

- Training of personnel in the operation before deployment on the team.
- Use of additional protective equipment as the conditions merit.
- Four personnel utilized to handle deployment and recovery operation.
- Training on fire foam system use.
- Location of an eye wash station and shower near the Streamer Deck.
- Lith-X extinguisher for Lithium Batteries.
- Strict control of cable oil spills. Immediate clean up of spills.
- CCTV monitoring from Bridge and Recording room.
- Turn vessel to head seas if deemed by the Party Manager to be beneficial.

Special Precautions

1. The Work Area is defined and confirmed by the Party Manager, and the Master, before any Streamer recovery operation commences. The Bridge will closely monitor shipping traffic in the area and notify the Instrument and Navigation personnel of any developing situation.
2. The Navigator will monitor the course, and speed, and advise the Bridge and Streamer crew of any necessary course alterations during the Streamer operations. The Navigator is responsible for monitoring the water depth and setting the initial depth of the "Birds" during deployment.
3. At ANY TIME a streamer section is disconnected or connected the streamer power is turned OFF. The Streamer crew calls the Recording room to turn the streamer power off via the intercom system. Verbal acknowledgment is REQUIRED after the power is off.
4. The Streamer crew will advise the Recording room when the Streamer is reconnected; in order to immediately monitor the Streamer and conduct testing.
5. ANY cable oil spills are immediately cleaned from the deck, and personnel are to rinse any cable oil from their skin and clothing immediately.
6. It is UNSAFE to deploy the Streamer in deteriorating weather conditions.
7. Prior planning of the work to be performed understood by all involved before the Streamer is deployed or retrieved.
8. All personnel are to remain inside the safety railings during streamer operations.

Preparation Check List

Prior to any Streamer work a clear plan must be understood by all concerned. The Shift Leader must discuss the work with the Party Manager/Operations Supervisor, possible resolutions for problems are discussed, and contingencies for probable difficulties are planned.

The Shift Leader will assign personnel to their duties and ensure the duties are properly completed. He also ensures all personnel are wearing appropriate PPE for the task and conditions.

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Prior to the deployment of any trailing equipment, the Observer will consult with the Bridge to determine if the recovery area is suitable for the task at hand, and the vessel's speed and direction are conducive for the operation.

The operational condition of the deployment and recovery, equipment is checked well before any foreseen Streamer work is required. Directly prior to Streamer work the following equipment check is performed:

- a) Cable reel and winch controls.
- b) Communications equipment.
- c) Life rings and fire extinguishers are in proper locations.
- d) Streamer tools complete and ready.

Once all checks are complete the hydraulics can be initialized.

Streamer Recovery

Navigators are responsible for monitoring the water depth and setting the birds during recovery.

The speed of recovery depends on circumstances, but the Streamer should never reach depths of more than 30m as pressure damage could result. Crew in the recording room, who are in constant contact with the streamer recovery crew, monitors depths. The speed of the ship and the RPM of the streamer reel are the key to maintaining even streamer depths during deployment.

All depth references are relative to the speed of the vessel through water. The slower the streamer is recovered the less pull it has, causing it to sink. A constant visual check is required on level winding and the tension of the streamers as they are wound onto the reel, as damage may occur i.e. holed sections or telemetry failure, if the tension is excessive.

Streamer recovery should be halted when each streamer leveler or acoustic pod is at the detachment position, just aft of the spooling block. Care should be taken to bring the recovery to a smooth stop, so as not to put undue stress on the hardware or streamers.

Two members of the streamer recovery team are required for detaching Streamer Levelers, or Acoustic Pods from the Streamer, one to hold and support, while the other unlocks collar latches and detaches Safety Lanyard.

Any repairs to the Streamer must be noted on the worksheets during recovery.

Standard Recovery Procedures

Turn head seas. Notify the Bridge to reduce vessel speed to approximately 3.2 Knots.

The inner streamer should be released from its towing bridle as it is the first to be recovered, and proceed with recovery, in conjunction with one Mid and Outer streamer, and their associated Paravane. This operation, as with the deployment, requires clear and precise communication with the paravane recovery team.

The support buoys (if any) on the streamers' Lead-Ins are removed as the streamers wind through their spooling blocks, until the Inner streamer Bend Restrictor is at the spooling block. Remove the separation rope to outer streamer & Bend Restrictor outer clamp swivel.

Continue to pick up the center and mid streamers while recovering the outer streamer until the Bend Restrictor is at the spooling block. Recover the separation rope using the winch. Remove the Bend Restrictor outer clamp swivel.

Halt outer streamer recovery operations and release the Paravane topline, instructing the Paravane recovery team to fully recover the Paravane to the stowing position (See Paravane Recovery Procedures).

Repeat the above with the other Paravane and the two or more remaining deployed streamers. While the paravane recovery team are in the process of safely securing the last Paravane in its

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stowing position, all streamers need to be staggered in-line with the inners the shortest, first Mid & Outer next shortest, and the second Mid & Outer the longest.

Adjust Leveler depths so that the streamers are also staggered horizontally, ideally towing the Center streamer the shallowest at 8 - 10m, the Mids at 15 - 18m and the Outers at a depth of 23 - 26m.

The bridge will be notified that the speed will need to be dropped and the Bow Thruster needs to be activated.

Streamer recovery should be halted when each streamer leveler or acoustic pod is at the detachment position, just aft of the spooling block. Care should be taken to bring the recovery to a smooth stop, so as not to put undue stress on the hardware or streamers.

Two members of the streamer recovery team are required for detaching Streamer Levelers, or Acoustic Pods from the Streamer, one to hold and support, while the other unlocks collar latches and detaches Safety Lanyard.

Any repairs to the Streamer must be noted on the worksheets during recovery.

The Tail Buoys will be recovered in the reverse of the 'Tailbuoy Deployment Procedure.

Once all Streamers have been fully recovered and the Tail Buoys are secured onboard notify the Bridge and the Recording Room.

Turn power OFF to all streamers, Lock-Out or disengage the Hydraulic Control Station, replace safety chains and gates and clear the deck of any debris, tools or spilled oil.

Standard Recovery Procedures (Single Streamer "B, C or D" only)

The Streamers that are not being recovered should be taken to a depth where they will be safely under the recovered streamer. The streamer being recovered should be at least 2 meters shallower than the deeper streamers. The depths used should be decided based on currents in the recovery area. Do not bring the Streamer to the surface, as this will allow any surface current to have a greater effect on the Streamer. If the survey is utilizing a small separation between streamers, i.e., 50m, deploy an additional 25m between each streamer to increase the separation both in line and cross line. Deploy remaining Streamers and their paravanes out wider and longer.

Instruct the Bridge to decrease vessel speed as much as possible, but still maintaining a good bite on the paravanes, typically about 3.2 knots. IT IS IMPERATIVE THAT A NAVIGATOR IS IN THE INSTRUMENT ROOM MONITORING THE CABLE DEPTHS.

Normally the recovery should continue until you reach the farthest point needed for cable work, i.e., the lowest number module or section, before cable work begins.

The Tailbuoy will be recovered in the reverse of the Tailbuoy Deployment Procedure.

Once the Streamer have been fully recovered and the Tailbuoy is secured onboard notify the Bridge and the Recording Room.

Unless the Streamer is going to be deployed immediately Turn power OFF to the streamer, Lock-Out or disengage the Hydraulic Control Station, replace safety chains and gates and clear the deck of any debris, tools or spilled oil.

8.8 Gun Array Deployment and Recovery

Gun Array Deployment and Recovery Procedures

Personnel

Personnel Performing Operation : Chief Mechanic/Gun Mechanic, Observer

Minimum Number of Personnel : Three (3)

Duties : 1-Winch Operator

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2-Gun Array Handlers

Supervision : Chief Mechanic/Senior Mechanic

Job Safety Analysis : Chief Mechanic

Personal Protective Equipment

Minimum P.P.E. Required : Work Boots, Hard Hat, Work Vest, Hearing Protection, Tether Harness in Danger Zone, UHF Radio

Recommended : Work Gloves, Eye Protection, Back Protection

Lock Out/Tag Out

The Lockout Key Holders are as follows:

Airgun Systems : Gun Mechanic

The Chief Mechanics or Crew Leaders are the only personnel authorized to unlock any part of the system. The reel systems are equipped with limit switches, which do not allow the reels to operate unless the deck leads are unplugged.

Overview

Airguns are devices that rapidly release compressed air into the water creating the effect of an explosion. The energy released generates a pressure wave that is the source of the seismic signal necessary to perform an offshore geophysical survey. Air compressors, capable of producing a large amount of air at high pressure, are used to continuously replace the air discharged by the operating airguns. The typical working pressure is 133 bar, (1950 psi). The Sub-Array are deployed and retrieved with 34 bar, (500 psi).

Deployment and recovery of the Gun Arrays is conducted from the Gun Deck. The Gun Arrays are stored on overhead trolley rails located mid-ship, one Sub-Array per rail. Sub-Arrays are deployed and retrieved one at a time. A constant tension winch is utilized as required to move and deploy the Sub-Array. Each Sub-Array is deployed out the stern down the central gun chute. Recovery is reverse of deployment.

Potential Hazards

The air gun is the system component that requires the most handling and maintenance and consequently, represents the greatest danger to personnel.

The main switches for disabling/enabling, triggering, and pressure control must be operated from the deck by the crew working on the guns, not from a remote location.

The operating pressure of the airguns used onboard the Veritas Viking 2 is typically 133 bar, 1950 psi, which can be equated to 60 times greater than the pressure found in the average automobile tire. Any release of air at this pressure can tear flesh and may force dust, air, or oil particles through the skin and into the blood stream. Loose, damaged, or weakened gun parts can fail under pressure and become airborne missiles.

CAUTION AROUND AIRGUNS MUST BE OBSERVED AT ALL TIMES.

- HIGH PRESSURE AIR.
- Failure of one or more winch line.
- Tangling personnel in loose lines, ropes, or Sub-Array.
- Personnel are working near the stern without the stern fence in place.
- The Sub-Arrays are large, long, and heavy.
- Multiple winches in use.
- Marginal Weather and Sea conditions.

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Preventative Measures

- Training of personnel in the deployment/recovery operations prior to assignment on the team.
- Use of additional protective equipment as the conditions merit.
- Three personnel utilized to handle arrays.
- Frequent and documented inspection of personal protective equipment - PPE. Includes workvests, tether lines, harnesses.
- Communication check with Instrument Room and Bridge
- Video monitoring from Instrument Room and Bridge.
- Frequent and documented inspection, maintenance, and replacement of all winch ropes.
- Frequent and documented inspection of the Airguns, Winches and Sub-Arrays

Special Precautions

- Never put your hands in the front jet of air or any pressurized discharge port. Air can penetrate into your blood vessels, causing an embolism, which can be fatal.
- Only qualified persons shall operate the air-guns, the handling equipment, including lines, rigging, tugger winches, snatch blocks and booms while deploying, retrieving, and working on air-gun systems.
- All personnel in areas where there is a risk of the sudden release of air shall wear ear and eye protection while the system is operating.
- Eye wash stations are located on the port and starboard sides of the gun deck.
- The storage tanks, pipes, lines, and fittings used to carry and control this high pressure are specialized equipment and must receive special attention. Never handle, tighten or loosen bolts or fittings, or hammer any part of a high pressure system while pressure is applied.
- Pressure relieving valves and other safety devices should never be removed or modified except for repair or adjustment by qualified personnel.
- Any ball valves installed upstream or downstream of a relief valve should be locked in the open position.
- When opening valves, always close the valve one-half turn after reaching the maximum open position.
- The use of sub-standard replacement parts may be dangerous.
- Every high pressure air injection injury, no matter how small, should be treated seriously. The absence of pain is not to be accepted as a lack of injury or a positive sign. An accident or near miss report should be filed.

Explosion Hazards

Another danger of compressed air is the possibility of explosion. When high-pressure air reacts with combustible fluids in the piping or other system components, explosions can occur. Explosions can also occur when high temperatures are created by sudden compression in the dead end (compression ignition), or when a gauge valve is opened to a vented gauge containing oil. Even a thin film of lubricating oil in the system piping may explode.

- Once ignition occurs, propagation of a shock wave may cause the pipes to be ruptured at many locations.
- To minimize risks:
- Open all valves slowly.

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- Keep all compressed air and piping free of oil and other combustible contaminants.
- Never assemble any pneumatic equipment using hydrocarbon oils or grease. Use only vegetable or synthetic oils (as used in compressors) or silicone grease.
- Ensure the compressed air after-cooler is operating to specifications to prevent oil ignition due to high temperature.
- Prevent ignition from other causes such as electro-static discharge, compression of oil foam in a pump, external shock and external fire.
- On deck, repairs must be performed with care. Keep open flames and other heat sources away from the air lines and electrical cable. During inclement weather, repairs must be performed under temporary cover. Electrical soldering irons and lifts must be grounded to the ship's deck. Use the proper hand tools to prevent slippage and injury to maintainers and the burring of hardware, which can cause further injury. (Any burrs on hardware must be filed down or the hardware replaced.)
- Pipes and hoses must be secured at frequent intervals along with their length so that in the case of fracture, the ends do not whip.

Standard Operating Procedure

Deployment of Sub-Arrays

1. Prior to the deployment of the gun arrays, a clear plan of the work to be undertaken must be understood and clarified by all concerned. (i.e. Gun crew, Observers, Navigation.)
2. The Crew Leader is in command of the gun deployment and all hydraulic controls during this operation. He is to ensure all assisting personnel have the correct PPE.
3. Air pressure to the sub-array is set at no more than 500 psi to seal the guns for deployment.
4. Inform the bridge and recording room that the guns are ready for deployment and request approval for adjustment of the vessel speed as required. State clearly which sub-arrays are to be deployed and in what order.
5. Check:
 - (a) Reel deck leads are unplugged.
 - (b) All sub-array main air control valves are closed at the reels.
 - (c) All deck lead-ins are disconnected and safely stowed in the brackets provided.
6. Illuminate the orange warning strobe lights, indicating high pressure on the deck.
7. Charge accumulators to 500psi (34bar) Compressor can be shut down at this point if deemed necessary.
8. Visually check around the gun deck port and starboard spaces. Instruct all personnel to stand clear prior to the airing up of the guns.
9. Sound one continuous 15 second long warning signal on the Klaxon.
10. Open sub array "air charge" valve to allow the sub array to be charged up to a maximum pressure of 500psi.(34bar) Ensure the charge valve is fully closed and close main manifold supply valve. **Special caution to be taken to avoid airline and jumper entanglement now that the guns contain 500psi.**
11. The constant tension winch cable should be connected to the last gun trolley chain to aid in pulling the sub array down the rails to the gun chute. When each gun is at the top of the chute the trolley chains and the tugger winch cable can be released.

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12. Move the constant tension winch cable along to the next gun trolley and repeat the process, until the weight of the sub array allows it move along the rail under its own inertia. The sub array can now be deployed using the main umbilical winch. Extreme care is necessary, when disconnecting the trolley chains, to avoid entanglement with the array as it is moving along the deck.
13. When the sub-array is successfully deployed clear of the stern, the tag line is attached at the tow point using the quick connect links, prior to the array being further deployed to its towing position.
14. By repeating the above processes, the remaining sub-arrays can be deployed prior to the umbilical deck lead-ins being re-connected, and the Crew Leader can increase the air pressure to its operating level and inform the recording crew that the arrays are fully deployed and at the required warm up pressure.
15. The GCS 90 system can now be switched to operating mode allowing the guns to cycle automatically.

Recovery of Sub-Arrays

1. Prior to the recovery of the gun arrays, a clear plan of the work to be undertaken must be understood and clarified by all concerned. (i.e. Gun crew, Observers, Navigation.)
2. On completion of the line, the senior gun mechanic should ensure the GCS 90 system cycle has been turned off, get verbal confirmation from the seismic observer of this, and permission to continue with the recovery operation. The Compressor Mechanic can be informed that the compressors are no longer required and can be shut down
3. After confirmation the senior gun mechanic unplugs the reel deck leads effectively disabling the guns and allowing the reels to operate. The limit switches will not allow the reels to operate with the deck leads still attached.
4. The air pressure on all the guns are bled down to 500psi. (34 bar) from the Fisher valve in the gun shack. The engine room is informed that the line has ended and that only one compressor is required. Illuminate the orange warning strobe to signify that there is still pressure in the system and that gun work is about to commence.
5. The senior gun mechanic ensures that everyone is wearing PPE prior to recovering the sub-array's in reverse to the procedure for deployment. The Crew Leader is in command of the gun recovery and all hydraulic control winches during the operation, and
 - a) In the case of an air leak or auto -firing gun extra caution is to be taken.
6. When the guns are at the back of the vessel, start bleeding down the sub-array.
7. Locate the air leak and notify all personnel.
8. Stand clear until pressure ceases.
- 10 Continue with the recovery.

Venting the System.(When no requirement to vent the air from the sub array prior to recovery exists)

- 1 Visually check around the gun deck port and starboard spaces.
- 2 Sound one continuous 15 second long warning on the Klaxon siren.
- 3 Open the sub array vent valve on the manifold until the air pressure gauge for the sub array is showing zero pressure on the gauge at the reel.
- 4 Ensure sub array vent valve is ~~LOCKED~~ OPEN and charge valves LOCKED CLOSED.

Only Qualified Senior Gun Personnel Are To Be Involved In The Airing Up/Bleeding Down Of The Guns.

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The Crew Leader assigns individual gun repairs to be performed (under his supervision) by the gun crew.

Before commencing work, each individual in the gun crew must check the pressure gauge on the main manifold, to make sure all of the guns on deck are zero psi. and confirm this to the senior gun mechanic.

Test firing of airguns on deck **is not** permitted.

After all of the gun maintenance has been completed, the decks are cleared in preparation for re-deployment.

8.9 Tailbuoy Deployment and Recovery

Tailbuoy Deployment and Recovery Procedures

Personnel

Personnel Performing Operation : Observer/Gun Mechanic, Chief Mechanic

Minimum Number of Personnel : Three (3)

Duties : 1-Winch Operator
1-Line Handler
1-Operation Observer

Supervision : Chief Mechanic/Chief Observer

Job Safety Analysis : Chief Observer/Chief Mechanic

Personal Protective Equipment

Minimum P.P.E. Required : Work Boots, Work Gloves, Hard Hat, Work Vest

Recommended : Back Protection, Hearing Protection, Tether Harness, Work Gloves

Overview

The tail buoy is towed at the end of each streamer and equipped with GPS positioning equipment. It is the first piece of equipment deployed on the streamer.

Potential Hazards

- Failure of winch line.
- Personnel are working near the stern without the stern fence in place.
- The Tailbuoy is large and heavy.
- Marginal Weather and Sea conditions.
- There are two sources of power, the battery and the streamer.

Preventative Measures

- Training of personnel in the operation before deployment on the team.
- Use of additional protective equipment as the conditions merit.
- Frequent and documented inspection of winches and cables.

Pre-Deployment Checks (Checklist in Section 9 Miscellaneous Sample Forms)

- All bolts tightened.
- Antennae and associated peripherals such as the beacon, battery and strobe light are secured.

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- All shackles secured with locking wire.
- The tail buoy beacon is functioning correctly.
- The strobe light is working.
- Stic (Streamer Tailbuoy Interface Cable) cable is inspected for damage.
- Tag line is inspected for damage.
- Tow stop is inspected for damage.
- Check the diode in the stic cable.
- Ensure 24V is available on the correct pins at the end of the stic cable.

Deployment

- 1 Ensure the vessel speed is correct for deployment.
- 2 Make sure the tail buoy tow harness, tow rope and tag line are clear of any obstacles on deck.
- 3 Make sure no personnel are standing inside the bight of any tow ropes or streamer.
- 4 Assure the person launching the tail buoy is in the center of the slipway so the antennae clears the overhead.
- 5 Deploy the tail buoy down the gun slipway.
- 6 Notify the instrument room that the tail buoy is fully deployed.

Recovery

- 1 Ensure the vessel speed is correct for Recovery.
- 2 Connect recovery rope winch on gun-deck.
- 3 Ensure the power is off before disconnecting.
- 4 Pull tail buoy up the gun slipway using the winch and attempt to center the tail buoy in the slipway.
- 5 Move the tail buoy to a safe location, ensuring the antenna doesn't hook on over hanging objects.
- 6 Clean tail buoy if required.
- 7 Clean both end connections and cap connections.
- 8 Secure tailbuoy.

8.10 Small Boat Operations

Small Boat Operations

Personnel

Personnel Performing Operation : Workboat (Seismic Personnel), FRB (Marine Crew)

Minimum Number of Personnel : Three (3)

Duties : 1-Coxswain
2-Crew

Supervision : Master/Party Manager

Job Safety Analysis : Operations Supervisor/Party Manager

Personal Protective Equipment

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- Minimum P.P.E. Required : Work Boots, Work Gloves if suitable for task, Geco Helmet, Work Vest
- Recommended : Survival Suit(required when water temp. is <15C), Back Protection, Eye Protection, Sun Screen,

Overview

Due to the nature of multi-cable operations the use of either FRC type or Norpower dedicated small boats is sometimes necessary for efficient operations. The FRC can be used for work such as changing streamer hardware i.e., levelers, acoustic pods, tail buoy batteries, cutting off fishing gear, retrieving lost equipment, transferring personnel or supplies. Purpose built Norpower work boats are to be utilized for tasks which require towing, such as changing streamer sections. Either of these craft may be used for transfer of personnel between the Veritas Viking II and a support vessel.

Potential Hazards

- Launch and recovery breakdowns.
- Capsize.
- Man Overboard.
- Engine or radio malfunction.
- Exposure to the elements.
- Slips, Trips, and Falls.

Preventative Measures

- Training of personnel in the operation before deployment on the team.
- Sea survival training for all crew members.
- Use of additional protective equipment as the conditions merit, particularly PPE to protect from environmental exposure.
- Frequent and documented inspection, maintenance, and replacement of all FRC/Norpower components.
- Frequent inventory checks of safety equipment, life vests inspected before donning.

Restrictions

1. There are no tasks offshore critical enough to compromise the safety of the FRC/Norpower crew or the equipment.
2. The Party Manager advises the Master of the proposed work and requests permission to utilize the Small Boat.
3. The Small Boat is NEVER operated when:
 - a) In the hours of darkness. (Except in life threatening emergency situations)
 - b) The operation cannot be completed before Civil Twilight in the area of operations
 - c) Visibility is significantly reduced by rain, fog, hail, snow, etc.
 - d) A guard vessel is not in close proximity, or the standby FRC/Norpower boat is not fully operational
 - e) The combined wind, sea, and swell endangers safe launch and recovery.
5. The FRC/Norpower boat is NEVER tied to any part of the towed equipment without the use of a quick release mechanism.

Deployment and Recovery of FRC/Norpower Work Boat

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1. All permits shall be completed and signed, Toolbox Meeting conducted with the Captain, Party Manager, and/or Operations Supervisor all FRC/Work Boat crew members present.
2. Guard vessel shall be dispatched in a timely manner to ensure their location is near work area.
3. The Recording Room must be ready to disable the guns, if not already done so, on deployment and retrieval of FRC/Norpower boat.
4. Backup FRC shall be readied for deployment, crew assigned before toolbox meeting.
5. Lee should be given for launching of FRC/Norpower boat where possible.
6. The embarkation person ensures all personnel are wearing appropriate PPE prior to launch.
7. The launching procedure is performed by experienced personnel, who are trained in the task and approved by the vessel Master.
 - a) The FRC/Norpower boat is lifted from its cradle and lowered to the boarding station.
 - b) The davit is then swung inboard so that the FRC/Norpower boat is held firm against the ships side.
 - c) Personnel board the craft and assume their positions on the outboard side of the FRC/Norpower boat.
 - d) Radios and GPS beacon are checked and confirmed operational
 - e) The FRC/Norpower is then lowered to the water and the engine started.
 - f) e) The lifting hook is should be immediately released when the craft hits the water.
 - g) Coxswain should engage forward propulsion and pull forward to allow slack for the painter line to be disconnected.

Standard Operating Procedure

1. Prior to launch all inspections are completed on the FRC/Norpower Boat. The inspection shall include a check of all fluid levels, a visual inspection of all lifting equipment, a visusl inspection of the bow line and release mechanism, first aid supplies, drinking water, sun screen, primary and back up VHF radios, RTT beacon status.
2. The minimum manning level for any sortie is three persons, a Coxswain plus experienced and trained crew, and must include one person of either Senior or Chief level. Total number of persons is dependent on the task.
3. All FRC/Norpower crew plus Master, Party Manager and/or Operations Supervisor to be briefed on proposed operation prior to deployment. Any changes in plan once in the water to be relayed to the mother vessel and the Management of Change process completed.
4. All FRC/Norpower boat crew must wear properly donned gear appropriate for the climatic conditions and for the proposed task(s). A double chamber manually inflated life vest is required at all times. A Geco Helmet is required during deployment and retrieval. In cold conditions the crew must wear a survival suit, on retrieval and deployment and during operations, the survival suit must be fully fastened with the hood up. In tropical climates, the wearing of the survival suit is optional. All crew members should wear hats, long sleeves and long pants (coveralls) when prolonged exposure to the sun is expected. These items should be taken in the workboat in case of an unexpected problem. Maximum strength sun block should be applied to exposed skin prior to launch.

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5. The chase boat, if available, must standby in close proximity to the FRC/Norpower boat should an emergency arise. If a chase boat is not available, the second FRC or lifeboat must be readied for launch.
6. The FRC/Norpower boat must maintain radio contact with the ship at all times, with intervals not exceeding 15 minutes. If this is not followed the second FRC may be deployed for rescue. Radio checks to continue throughout the entire operation.
7. All FRC/Norpower crew must have undergone survival training and hold a current survival certificate from an approved offshore survival school.
8. The Coxswain must have an approved FRC Coxswains Certificate and at least 50% of the crew must have undergone training at an approved small craft operators school or received training onboard from Veritas small boat trainer.
9. The minimum FRC standard is as follows:
 - a) Fully intact or inflated floatation collar.
 - b) Equipped with self righting mechanism (Norpower boat exempted) .
 - c) Fitted with VHF radio and portable VHF as back up.
 - d) Be launched and recovered from single point lift, over the side davit or crane.
 - e) Fully fueled.
 - f) Carrying emergency pack containing first aid kit, flares, drinking water, basic tool kit, flashlight, spare batteries etc.
 - g) Fitted with radar reflector.
10. The responsibility for the maintenance and ordering of spares lays with the Chief Engineer. Any malfunction to, or maintenance and supplies required for the FRC, shall be brought to the attention of the Master and Party Manager.

In Water Equipment Repair or Replacement

1. Drive safely within the limits for the sea conditions with the helm manned at all times. All necessary tools and equipment, including spare tools should be carried in the craft to complete the task. The following procedures should be observed when changing or repairing Streamer hardware such as **Streamer Levelers and Acoustic Pods**:
2. The area of streamer to be worked on is sent to the surface by assigning (at least) two birds in front of area and one behind to zero depth.
3. Once the area of interest is on the surface the master vessel should slow down as needed by the workboat crew and still maintain cable depth control.
4. Position FRC/Norpower boat alongside streamer.
5. Locate faulty component by RGPS positioning or by serial number.
6. Hold FRC/Norpower boat in position using correct RPM's. **DO NOT attach FRC/Norpower boat to the towed equipment without the use of a quick release mechanism.** It is permitted to restrain the Small Boat with a painter, however one end **MUST** be free with no loops, knots or double wraps used, to allow for quick release if necessary.
7. In the case of the workboat, the cable may be retrieved using the hydraulic arm on the starboard side of the craft. The arm operator directs the coxswain who eases the craft alongside the cable. Once the arm is against the cable it is raised, catching the cable in the roller and raising it to working position. In the FRC, the cable must be pulled up to the side of the craft and dropped into the removable tray. It is permissible to use a rope to assist with this, provided one end is free with no loops, knots etc.

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8. Replace faulty component and test.
9. The workboat arm may then be dropped and the craft steered away from the cable. In the case of the FRC the cable must be manually lifted over the front of the tray, after which the craft can be steered away.
10. Return to vessel.
11. The same procedure should be followed when removing debris or fishing gear from the streamer. Caution is required when cutting fishing gear, as many barbs and hooks or frayed wires may be present, and open bladed knives present a hazard when used on the FRC.

The following procedures should be observed when changing or repairing Streamer hardware such as **Modules**:

1. The area of streamer to be worked on is sent to the surface by assigning (at least) two birds in front of area and one behind to zero depth.
2. Once the area of interest is on the surface the master vessel should slow down as needed by the workboat crew and still maintain cable depth control.
3. Position FRC/Norpower boat alongside streamer.
4. Locate faulty component by RGPS positioning or by serial number.
5. Hold FRC in position using correct RPM's. DO NOT attach FRC to the towed equipment without the use of a quick release mechanism.. It is permitted to restrain the Small Boat with a painter, however one end MUST be free with no loops, knots or double wraps used, to allow for quick release if necessary.
6. In the case of the workboat, the cable may be retrieved using the hydraulic arm on the starboard side of the craft. The arm operator directs the coxswain who eases the craft alongside the cable. Once the arm is against the cable it is raised, catching the cable in the roller and raising it to working position. In the FRC, the cable must be pulled up to the side of the craft and dropped into the removable tray. It is permissible to use a rope to assist with this, provided one end is free with no loops, knots etc.
7. Attach two A-3 Norwegian style buoys with a lanyard, one to the streamer section forward of the module to be changed, and one aft of the module to be changed. The buoys would enable floatation to this section of the streamer in the event that it had to be jettisoned from the FRC/Norpower boat in an emergency.
8. Attach the module changing harness to the module. Module Harness consists of: 2 x Syntron Tow Harness connected together by 2 Ratchet type Turnbuckles or Chain Ratchets to enable the harness to be tightened/loosened. 2 lengths of 16mm Long Link Chain or 2 lengths of Plexus Rope each 0.75m long are also connected between the tow harnesses acting as a fail-safe.
9. Request the streamer power to be turned OFF. Verbal confirmation of power status required before proceeding.
10. Tighten both turnbuckles or ratchets simultaneously to induce enough slack to enable the cable collars to be loosened.
11. Unscrew collars from the module, simultaneously loosening the turnbuckles or ratchets until the module is able to be removed.
12. Insert replacement module and fully secure one end by tightening the collars tighten both turnbuckles or ratchets simultaneously to enable the opposite collar to be tightened.

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13. Tighten set-screw and request streamer power to be turned ON and a test performed on the module.
14. Upon confirmation that module is operational, loosen turnbuckles to enable the harness to be removed.
15. Remove A-3 buoys and lift cable out of the tray and confirm the work is complete.
16. Return to vessel.

The following procedure shall be observed for replacing **Modules With the Workboat**.

Notes: It is important to have the correct length of towrope from the tow point to the clamp. The connector needs to be inside the boat for ease in disconnecting and connecting. Also, personnel must stay on the port side of the streamer at all times during this procedure. In the case of engine failure at this point in the procedure, the workboat would be towed on its starboard beam. It is considered an unsafe act to stand on the starboard side of the streamer during this operation.

1. The mother vessel should reduce power to the minimum safe speed for the towed equipment(< 4 knots).
2. Use the RGPS beacon/Spectra system to locate the surfaced module requiring replacement
3. Instruct the Instrument Room to power down the streamer - confirm via VHF radio.
4. Raise the retrieval mast on the Work Boat to the correct position for retrieval.
5. At the coxswain's command, lower the retrieval mast into the water and close on the streamer. Optimum position is approximately 12 meters in front of the head of the module to be replaced. Use the hydraulic retrieval system to bring the streamer into the roller position.
6. Attach a Norwegian buoy at the 12 meter mark
7. Lower speed of the work boat to allow it to slide slowly back to the module to be replaced. Remove any acoustic pods or birds on the section.
8. At the tail end of the module being replaced attach the towing clamp/harness when the connection is just aft of the forward roller. **Ensure all personnel are prepared before the attachment, at this point the work boat will be attached to the towed streamer prior to taking the load of the streamer.**
9. Secure the towing clamp/harness to the quick release mechanism on the center of the work boat.
10. Increase power slowly to allow the work boat to tow the streamer aft of the module being replaced. A loop will begin to form just off the starboard side of the work boat. The coxswain should allow a loop of 1.5 to 2.0 meters to form.
11. Remove bad module and replace.
12. When attachment is complete, Via VHF radio notify the mother vessel that the transfer is complete and the streamer is ready for power and quality control testing.
13. When the test is complete, slowly reduce power and transfer the load to the mother vessel. As soon as the transfer of the load is complete activate the quick release mechanism.
14. Remove towing harness.
15. Remove the Norwegian buoy aft of module, move forward on the Module adding acoustic pods or birds where necessary, remove the Norwegian buoy forward of the new section.

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16. Release the streamer from the rollers.

The following procedure shall be observed for replacing **Streamer Sections With the Workboat**.
Notes: It is important to have the correct length of towrope from the tow point to the clamp. The connector needs to be inside the boat for ease in disconnecting and connecting.

Also, personnel must stay on the port side of the streamer at all times during this procedure. In the case of engine failure at this point in the procedure, the workboat would be towed on its starboard beam. It is considered an unsafe act to stand on the starboard side of the streamer during this operation.

The following procedure shall be observed for replacing **Streamer Sections**:

1. The mother vessel should reduce power to the minimum safe speed for the towed equipment(< 4 knots).
2. Use the tailbuoy rGPS beacon in conjunction with the Spectra system to locate the surfaced section requiring replacement.
3. Instruct the Instrument Room to power down the streamer - confirm via VHF radio.
4. Raise the retrieval mast on the Work Boat to the correct position for retrieval.
5. At the coxswain's command, lower the retrieval mast into the water and close on the streamer. Optimum position is approximately 12 meters in front of the head of the section to be replaced. Use the hydraulic retrieval system to bring the streamer into the roller position.
6. Attach a Norwegian buoy at the 12 meter mark
7. Lower speed of the work boat to allow it to slide slowly back on the section to be replaced. Remove any acoustic pods or birds on the section.
8. At the tail end of the section being replaced attach the towing clamp/harness when the connection is just aft of the forward roller. **Ensure all personnel are prepared before the attachment, at this point the work boat will be attached to the towed streamer prior to taking the load of the streamer.**
9. Secure the towing clamp/harness to the quick release mechanism on the center of the work boat.
10. Increase power slowly to allow the work boat to tow the streamer aft of the section being replaced. A loop will begin to form just off the starboard side of the work boat. The coxswain should allow a loop of 1.5 to 2.0 meters to form.
11. Disconnect the tail end of the bad streamer section.
12. With the work boat now towing the remaining streamer, move to port and attach a Norwegian buoy to the head of the streamer under tow by the work boat.
13. Connect the aft end of the new section on the work boat reel to the streamer under tow. Pay out and re-attach the tow harness/clamp and quick release mechanism at the head of the section.
14. Take up tension with workboat reel and remove towing clamp/harness
15. Increase power and slowly move up the streamer under tow by the mother vessel. Once at the head of the bad section use the retrieval mast to pull the streamer into the roller position. Attach the port side tow mechanism with "quick release" to the head of the bad section. Disconnect the bad section and allow it to tow from the port side of the work boat.
16. With enough slack in the streamer towed by the mother vessel, again, 1.5 to 2.0 meters, connect the streamer to the work boat's towed streamer. Work boat position

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and speed are vital at this stage of the procedure. Use the Norwegian buoy as a reference, position the work boat bow in line with the buoy 2 meters off the starboard side. **Ensure all personnel are prepared before the attachment, at this point the work boat will be attached to the towed streamer prior to transferring the load back to the mother vessel.**

17. Via VHF radio notify the mother vessel that the transfer is complete and the streamer is ready for power and quality control testing.
18. When the attachment is complete, slowly reduce power and transfer the load to the mother vessel. As soon as the transfer of the load is complete activate the quick release mechanism.
19. Retrieve the bad section onto the streamer reel on the work boat.
20. Move back to the rear Norwegian buoy and utilise the hydraulic streamer retrieval system to position the streamer onto the rollers.
21. Remove the Norwegian buoy, move forward on the new section adding acoustic pods or birds where necessary, remove the Norwegian buoy forward of the new section.
22. Release the streamer from the rollers.

In Water Streamer Cleaning

In some areas at certain times of year an ongoing program of cable cleaning needs to be maintained in order to counteract the effects of marine growth, which can cause excessive drag and streamer noise.

Personnel required : 5 workboat crew. Coxswain, Radio Operator and three personnel to perform the cleaning.

Equipment : 2 spare birds, 2 spare pods, 2 spare floats, spare collars (inner and outer), 9 x 1m lengths of 1/8" polypro rope with rubber hose "handles" spliced into one end.

1. Viking II water speed should be in the range 3.8 - 4.5 knots until bird 1 shows to be < 1m depth. From this point on speed change requests are to be communicated to Viking II Navigator by the crew leader. It is the responsibility of the assigned Navigator to evaluate if the requested change can be implemented and passed on to the Viking II Bridge. In the event that the speed change would jeopardize streamer handling then the Crew Leader must be immediately informed.
2. Maneuver workboat alongside cable and retrieve cable just forward of tail buoy slip-ring. Do not put the workboat and crew at risk during any part of the operation and if there is any doubt as to the safety of approaching this close to the tail buoy then retrieve at a safer distance forward.
3. Retrieve cable into workboat roller and lock in position. The Coxswain then slowly runs the workboat forward along each cable section while cleaning takes place.
4. Cable cleaning is to be carried out by three personnel, one positioned forward of the roller, and two aft. The person aft of the roller takes a rope "cleaner". These are pre-

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constructed from 1/8" polypro rope, approximately 1m long, with short rubber hose "handles" spliced into one end. The rope "cleaner" is tied off to the lifting arm tray and is wrapped TWICE around the streamer. The cleaning action is achieved by pulling the rope tight and allowing the streamer to pass through. Care needs to be taken that the rope does not get caught on modules, weights and collars. Letting tension off the rope and slowing down the vessel when passing these items is suggested. The person holding the cleaning rope should hold it in such a way that is easily let go. **NEVER WRAP THE ROPE AROUND YOUR HAND OR ARM**

5. When the first bird is sighted, the Bow Man signals to the coxswain to proceed slowly until the bird is positioned just fwd of the roller. The Bow Man must remove it and pass to the fourth member of the crew (radio operator), who is positioned aft of the wheelhouse with the standby VHF. This crewmember will then pass a new bird to the aft cable cleaners who attach it once the coxswain has maneuvered the boat so that the collars are aft of the roller. The radio operator then requests that the bird be tested by Viking II Navigation.
6. Once navigation has tested the bird OK, cable cleaning proceeds as before until the next CMU (Cable Mounted Unit) is reached. Meantime the radio operator must clean the removed bird using a wire brush and fixed blade knife. When the next bird is reached the process is repeated, this time the cleaned bird is used as the replacement. The advantage of this method is that it eliminates the waiting time that would otherwise be involved while each CMU is cleaned. The navigator should already have the serial numbers assigned as he knows in advance that bird 2 will be replaced by bird 1, 3 by 2 and so on.
7. The Navigator must monitor progress of the workboat along the cable using the RTT beacon displayed on SPECTRA. As the workboat progresses they will keep three birds fwd of the boat and two birds aft assigned to depth 0. Further birds aft should be set to operational depth.
8. Proceed using the above procedure as far along the cable as it is safe to do so given the speed limitations and sea state. The speed of the Viking II will need to be dropped as the workboat nears the forward ends of the streamers. The Crew Leader must judge this and the operation stopped prior to the tension on the cable affecting the FRC/Norpower boat's ability to disengage from the procedure.
9. Personnel should be swapped between tasks regularly to avoid fatigue and overexposure.

In Water Transfers

The FRC is often deployed and utilized for transferring personnel and supplies from one boat to another. The following in water procedures should be observed:

1. Position FRC alongside the other vessel.
2. Sufficient fenders must be utilized to prevent damage to the FRC, when alongside another vessel.
3. Coxswain should steady the FRC alongside transfer boat. When Coxswain is steady and gives the ok then the transfer can begin.
4. Items transferred between the FRC and any other vessel (chase boat, tail buoy etc.) must be attached with a safety line or be in a net until the items are safely transferred. Personnel being transferred should have a life jacket with, and, when applicable, survival suit.

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Removing Fishing Gear

1. Using beacon positioning if possible, locate the area of streamer that is fouled.
2. One crew member should be placed on the bow to watch for trailing ropes or other material that could foul the propeller. All crew should have a knife to expedite removal of the material. Crew members should be wearing Kevlar gloves while using knife or removing fishing gear as there is often hooks involved.
3. Upon approach to the fouled area, the situation should be assessed and a plan of action agreed on prior to the operation beginning (Management of Change). The risks and hazards in the task are to be evaluated by the coxswain and the crew. The vessel should be notified and the Captain and PM advised of the plan. Once the plan is agreed upon, the coxswain is entrusted to act on it at his discretion. If the operation becomes hazardous, it is to be abandoned for re-appraisal, and the management of change procedure implemented. A second toolbox meeting may be needed to discuss the operation.
4. After approval the workboat can remove the fouling material through a variety of means including cutting the fishing line or long line rope, untangling seaweed, or pulling tape off of bird wings, depending on the situation.
5. Communication is essential; updates should be given by a crew member not directly involved in removing the fouling agent or driving the workboat. The coxswain should not be expected to answer radio calls during this operation, as their concentration is needed to ensure the workboat stays properly positioned.

Ballasting

1. Insure all tools and materials needed for ballast works are in the workboat.
2. Using beacon positioning if possible, locate the area on the designated streamer needing ballast work.
3. Adjust the speed of the workboat to pace along side the streamer, using the bulkheads as a reference for pacing.
4. Keep station 2 meters off to the port side of the streamer.
5. Raise the retriever arm up and out, into the ready position, then lower the mast into the retrieve position.
6. Insure all crew are positioned for the job and ready to move in on the streamer.
7. On the coxswain's signal, guided by the ops leader, move in on the streamer.
8. Once in position over the streamer, the ops leader can then raise the streamer out of the water and lock the mast in place.
9. The ops leader can now guide the coxswain forward or backward to the area requiring ballast adjustment.
10. Add or remove lead as required, preferably using clamp-on style weights.
11. On the coxswain's signal, prepare to release the streamer. *if using the aft roller, it must be released first.* Upon lowering of the streamer back into the water, speed up a little and pull away to port.

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12. Move on to the next area, circumventing birds and pods, and repeat steps 1-11 as needed.
13. Report to instrument room upon completion of each task. The instrument room should be aware that while ops are under way, the workboat may not be in communication at all times. If the instrument room requires a status check from the workboat during ops, and between regular communications checks, the instrument room should get a visual "situation normal" confirmation from the chase boat. This will eliminate the possibility of the coxswain's attention being drawn from the job at hand.

Visual Check of Gear

1. Adjust speed to pace along the inside of the Barovane at a safe distance of about 2- 3 meters.
2. The coxswain should be aware of the "bail out" procedure for this operation. The "bail out" procedure states that in the event the workboat gets caught inside the rolling water (vortex) caused by the Barovane, he/she should increase speed and execute a *starboard* turn forward and around the Barovane. **Reasoning: A port turn will put the propeller further into the strap leg area, and force the stern of the workboat further into the vortex, next to the Barovane. This procedure is for inspecting the starboard vane. The reverse should be used when inspecting the port vane.**

Towing

Towing fishing gears and logs

1. Use the slide off bar together with the quick release hook when towing fishing gears and logs away from streamers, tail-buoys, head floats or any of the equipment towed by the seismic vessel
2. Always be ready to release the tow if the boat goes out of control for any reason
3. Continuously inform the Coxswain to avoid confusion and keep control of the workboat
4. The "leader" in the boat does not take part in the task, and is assigned to monitor the operation in respect to safety and keeps the Coxswain informed
5. Maintain communication with the mother vessel on the progress of the task.

Towing tail-buoys

1. Make ready a towing rope for the workboat and attach a small Norwegian buoy to be picked up by the workboat when the tail buoy is in position. The tow rope should be approximately 15 meters long with a "quick link" in the end. Place another Norwegian buoy to the rope towed from the seismic vessel as a reference point to hook up the bad tail buoy later in the operation. This rope should be hooked to the tailbuoy tow rope with a "quick link".
2. Deploy the tail buoy from the stern of the mother vessel and pay out until the tail buoy reach behind the head floats.
3. Instruct the Coxswain to maneuver the boat in position to pick up the small Norwegian buy
4. Do not attach the towing rope but hold it until the tail buoy is released
5. Move up in front of the tail buoy and disconnect the towing rope from the longer rope running to the mother vessel.
6. Attach the towing rope in the quick release and move out on either side of the streamers. Move out of range of the streamers in order to not being caught in a bird or similar if the tow goes deep.

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7. Stop the workboat and disengage the propeller while the crew make the tail buoy ready to be towed and connected at the tail of the streamers

Towing Canoes or similar sized objects

1. Connect the tow in the quick release onboard the workboat and connect the other end to the bow of the canoe
2. Keep one man ready to release the tow in case of any problems
3. Coxswain find a safe heading too pull the canoe away. It is important to take up tension slowly.
4. Tow in a straight line as a canoe easily capsize when the workboat makes a turn

Recover the workboat or the FRC in case of engine failure

1. Use a quick release hook on the towing boat
2. Be ready with a knife or axe to cut the tow if the quick release fail.
3. Use a short towing rope between the two boats
4. Maneuver the towed boat in position to connect the bowline and slow down until the bowline got the tension
5. Release the tow or cut the tow when the towed boat is secured in the bowline.
6. Move out and stand by in a safe distance until the boat with failure is hoisted out of the water

Towing the Paravane

1. Towing the Paravane is restricted to port calls when the Paravane needs to be moved in range of a crane or other lifting device.

Recovery of Lost Equipment

1. The chase boat will be instructed to standby the tail-buoy(s) until the weather is suitable for deployment of the workboat.
2. Load the Workboat with a new streamer section prior to launch
3. Load the Workboat with spare birds and pods
4. Locate the connector at the head of the broken streamer section and pick up the streamer
5. Place a Norwegian buoy 12 meters in front of the connector, on the tail of the section in front of the broken streamer section
6. Drop back to the connector and attach the clamp to the "clamp on point" at the head of the broken streamer section
7. Attach the clamp into the quick release hook and ask the Coxswain to slowly take up tension
8. Disconnect at the head of the broken streamer and fit an end cap on the tail of the streamer towed from the mother vessel.
9. Drop the streamer off the tray and move out to port
10. Transfer the broken section to the chase boat.
11. Prepare the boat for towing the broken streamer.

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12. To save time and minimize manual handling, instruct the chase boat to tow the tail buoy backwards until the separated streamer comes to the surface
13. Maneuver the boat alongside the streamer on the surface and lower the arm into ready position
14. When all the crew is ready and on the Coxswains signal move in and pick up the streamer
15. Lift the arm up and into "work position"
16. Slow down the boat and allow the streamer to pass all the way to the connector at the head of the broken section
17. When the connector at the head of the broken section is located instruct the chase boat to slow down and cut the tow.
18. Slow down and stop the workboat in position alongside the streamer connector
19. Disengage the propeller.
20. Attach the "Streamer tow clamp" to the "clamp on point" at the head of the good section behind the broken section
21. Disconnect the tail of the broken section and coil the broken section in the front of the workboat
22. Or attach a Norwegian buy to the broken section and leave it in the water for the chase boat to pick it up
23. Engage the gear and move forward to catch up with the tail of the broken streamer (marked with a Norwegian buoy)
24. Connect the new section on the winch onto the head of the streamer towed from the workboat.
25. Transfer tension from the towing point to the winch and remove the "Streamer tow clamp"
26. Deploy the new streamer as you move forward to catch up with the tail of the broken streamer towed from the mother vessel
27. When the "new section" is fully deployed attach the "Streamer tow clamp" to the "Clamp on point" at the head of the "new section"
28. Pick up the tail of the streamer towed from the mother vessel
29. Keep enough slack of the streamer onboard the workboat to be able to connect the tail of the streamer from the mother vessel onto the head of the streamer towed from the workboat
30. Ask the Coxswain to develop a loop by the streamer just in front of the "cable retriever rig" in order to get more room for safe maneuvering
31. Connect the tail of the streamer towed from the mother vessel onto the head of the streamer towed by the workboat
32. Have recording room test streamer.
33. Ask the Coxswain to gently slow down in order to transfer the tension from the workboat onto the streamer towed by the mother vessel
34. Just before the tension passes onto the streamer release the quick release hook
35. Remove the clamp from the side of the workboat

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36. Move forward and remove the Norwegian buoy.
37. Move out to port and drop the streamer off the “tray”
38. To replace birds and pods please see the work-instruction “15 Changing birds and pods”

Tail-Buoy Maintenance

1. Locate the tail-buoy and make ready to transfer one person onto the tailbuoy.
2. Approach the tail-buoy keeping the tail-buoy at the bow (Forward for the Workboats pivot point)
3. If possible complete repairs without boarding the tail buoy, otherwise, one person boards the tail buoy on the Coxswains signal.
4. The Coxswain is ready to slow down or turn to port when the person is safely onboard the tail buoy.
5. Workboat stands by behind the tail buoy and out to port, out and away from the keel water from the tail buoy in case the person falls off the tail buoy
6. Report to the instrument room “One crewmember onboard the tail buoy”
7. Approach the tail buoy and hand over tools, battery, antenna, beacon or whatever is requested from the crewmember onboard the tail buoy
8. The Workboats “Team leader” is responsible for communication between the instrument room and the person on the tail buoy.
9. Report to the instrument room when the job is complete and ready for testing.
10. Approach the tail buoy and recover the person from the tail buoy.
11. Report to the instrument room “Crewmember safely onboard the workboat, mission complete, heading back or underway to the next mission”

Transport of Equipment/Personnel

Transport of equipment using the Workboat or the MOB boat is not the preferred method of transfer and should be considered only when the vessels cannot complete a boat-to-boat transfer operation. Personnel transfer is not permitted between the Veritas Viking II and a support vessel and as such the Workboat or FRC is to be utilized.

The mission is restricted to good weather and limited to the transport of small lightweight goods or personnel. Cargo nets are prohibited but plastic bags designed and certified as lifting appliances (Salt sacks) can be used when the support vessel has a crane.

26. Evaluate the weather.
27. Plan the mission in respect of the following
28. Weather conditions.
29. Type of cargo and quantity
30. Crane position and functionality on the Chase boat.
31. Crane position and functionality on the Seismic vessel
32. The use bowlines when alongside
33. Communications
34. Daylight hours
35. PPE

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36. The position of the mother vessel during the operation. Is it in a turn during the mission?
37. Do not exceed total cargo weight or personnel capacity of the small boat.
38. Complete the toolbox meeting and get permission for the planned mission.
39. Instruct the Chase boat about the plan.
40. Abort the mission if the weather is unsuitable or the crew is unable to safely complete the task.
41. Get alongside the Chase boat (support vessel) and deliver the plastic bags designed for lifting, if required send a crewmember onboard to advise the crew on the planned mission and how to organize with maximum load.
42. In the case of personnel transfer wait until the support vessel's deck crew and the small boat coxswain give permission to transfer. Only one person is to transfer at any one time. Once a person has transferred they should move away from the embarkation/disembarkation area and be ready to assist as directed.
43. Use the crane to get the load down in the workboat.
44. Report to the bridge on the seismic vessel "Cargo onboard, heading back for offloading"
45. Use a bowline (adjusted to fit for the range of the crane).
46. Unload the cargo from the workboat.
47. Move forward and release the bowline.
48. Report to the Chase boat "Heading back to pick up the next load/persons".
49. Report to the Bridge on the seismic vessel "Mission complete, heading back for retrieval"

Changing a Tail Buoy

1. Pre-launch, launch and recovery checks and procedures as usual.
2. Deploy the new tail buoy from the stern of the seismic vessel.
3. Follow work instruction for deploying the tail buoy and to take the tail buoy under tow from the Workboat.
4. Take new tailbuoy to support vessel to tow until needed. (may have to use FRC).
5. Locate the tail buoy in place and pick up the stretch behind the pinger.
6. Attach a Norwegian buoy behind the pinger.
7. Drop back to the connection point between the stretch and the chain.
8. Ask the instrument room to power down the streamer and to confirm when the power is off the streamer.
9. Fit the towing harness to the head of the chain and secure the towing harness in a quick release.
10. Ask the Coxswain to slowly take up tension until there is slack enough to disconnect the chain and the stick cable.
11. Fit end caps to the mail and female connectors for the stick cable.
12. Place a Norwegian buoy to the chain and release the tail Buoy from the Quick release and remove harness.
13. Support vessel can unhook good tailbuoy with Norwegian buoy attached to tow line.
14. Tow bad tailbuoy to support vessel and have them take it under tow.

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15. Recover good tailbuoy and proceed back to streamer.
16. Recover end of streamer and pick up ahead of buoy using mechanical arm.
17. Slide back to end of stretch section and fit towing harness.
18. Connect the new tail buoy to the tail stretch.
19. Connect the stick cable.
20. Release the tail buoy from the support vessel and remove the towing harness from the chain.
21. Move forward and remove the Norwegian buoy.
22. Report to the instrument, power up and test.
23. Drop the stretch off the tray and move out to port.
24. Take the bad tail buoy and tow the tail buoy back to the seismic vessel.
25. Hook up the tail buoy to the rope paid out from the stern of the seismic vessel and release the tow from the workboat.
26. Report to the instrument room "Mission complete, heading back for retrieval".

Changing a STIC Cable

1. Locate the tail buoy in place and pick up the tail stretch behind the pinger.
2. Place a Norwegian buoy to the stretch behind the pinger.
3. Drop back until the connection point between the chain and the stretch is on the side.
4. Ask the instrument room to power down the streamer and get it confirmed when the power is off the streamer.
5. Attach the towing harness to the chain and secure the other end into the quick release.
6. Ask the Coxswain to take up the tension until there is enough slack to disconnect the chain and stick cable.
7. Fit end caps to the male and female connectors.
8. Drop the tail stretch off the tray and back in the water.
9. Slow down, stop the workboat and disengage the propeller.
10. Change the stick cable and secure it with new tie raps.
11. Move up forward and pick up the tail stretch behind the Norwegian buoy.
12. Slow down until the connection point is in range to be connected to the chain of the tail buoy.
13. Connect the chain and the stick cable.
14. Release the tow from the quick release hook.
15. Move forward and remove the Norwegian buoy.
16. Power up and test.
17. Drop the stretch off the tray and move out to port.
18. Report to the instrument room "Streamer released from the workboat, heading back for retrieval".

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Tail Buoy Entanglement

1. Tangled tail buoys are like a big loop of streamer in the water. There is a high level of drag on the streamers.
2. No small boat should be inside that loop with the streamer in the tray due to the drag. The drag will push the boat sideways and might capsize the boat before the crew even realize they are in trouble.
3. No small boat should be in range of the tail buoys when they become loose, as they will return to their normal positions with the speed of a jet boat.
4. No small boat should try to tow the tail buoys in attempt to pull them loose from each other.
5. Pre-launch, launch and recovery checks and procedures as usual.
6. Locate the tangled tail buoys and stay out of range in case the tail buoys become loose.
7. The Workboat is only used to observe the progress and to report to the instrument room.
8. The tail buoy movements must be controlled from the instrument room: bringing the streamers up and down, shorten or lengthen the streamers, initiate a turn.
9. Use the Chase boat to observe and report if possible.

Reporting

All Small boat/FRC operations are logged by the Party manager and Bridge and counted on the monthly statistics.

8.11 Streamer Head (Prism) Float Deployment and Recovery

Streamer Head (Prism) Float Deployment and Recovery Procedures

Personnel

Personnel Performing Operation : Gun Mechanic/Observer
Minimum Number of Personnel : Three (3)
Duties : 1-Performing Unit Attachment (Gun deck)
1-Performing Unit Attachment (Cable deck)
1-Operation Observer
Supervision : Senior Mechanic/Observer
Job Safety Analysis : Mechanics/Observers

Personal Protective Equipment

Minimum P.P.E. Required : Work Boots, Hard Hat, Work Vest and Tether Harness for person on gun deck.
Recommended : Work Gloves, Back Protection.

Overview

A head float is located at the head of each streamer, just behind the bend restrictor on the armored lead-in. It is attached to the armored lead-in via a plexus rope. The head float is torpedo-like in shape, with a triangular fin at the rear to facilitate a steady tow. Above and near the head is a welded pole upon which is mounted a reflective prism and/or Buoylink beacon. The head float is deployed and retrieved via the gun chute, and is secured safely on the gun deck when not in use.

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Potential Hazards

- Personnel are working near the stern without the stern fence in place.
- Rope attachments from the streamer to float can cause tangles and be a trip hazard.
- Ropes under tension
- The head float is bulky and quite heavy.

Preventative Measures

- Training of personnel in the operation before deployment on the team.
- Use of additional protective equipment as the conditions merit.
- Recovery Procedure

When the head float is at the stern of the vessel the tugger winch rope, from the streamer deck, is attached to the tag line by person performing duties on the streamer deck. The quick release shackles are then removed and the tugger winch rope from the gun deck is attached and the head floated is pulled up onto the gun deck via the gun chute

Attachment Procedure

A rope stop is placed at a pre-determined location on the armored lead-in.

The head float, located on the gun deck, is connected to this rope stop via plexus rope and quick release shackles.

The head float is deployed out of the stern down the central gun chute manually.

8.12 Hull Pinger Deployment and Recovery

Hull Pinger Deployment and Recovery Procedures

Personnel

Personnel Performing Operation : Navigator/Gun Mechanic
 Minimum Number of Personnel : Two (2)
 Duties : 1-Open/Close Sea Chest
 : 1-Position Hull Pinger
 Supervision : Chief Navigator
 Job Safety Analysis : Senior Navigator

Personal Protective Equipment

Minimum P.P.E. Required : Work Boots, Hard Hat, Ear Defenders
 Recommended : Work Gloves, Back Protection

Overview

The Hull Pinger is composed of a six meter sealed tube of stainless steel, which at its base is connected to an acoustic pinger. The Hull Pinger is deployed below the hull of the vessel, via the sea chest, just before production commences within a survey. The Hull Pinger is ALWAYS retracted if the vessel needs to go faster than the maximum equipment towing speed (5.5 knots), or if it is entering an area of extremely shallow water (e.g. a harbor area).

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Potential Hazards

- The Hull Pinger is located in the Compressor room, which is not a normal working area for the seismic crew.
- The Compressor Room is noisy, ear defenders have to be worn at all times.

Preventative Measures

- Training of personnel in the operation before deployment on the team.
- Use of additional protective equipment as the conditions merit.

Deployment Procedure

1. Turn valve to open the sea chest so that the Hull Pinger can be deployed below the hull of the vessel.
2. The Hull Pinger is manually lowered under it's own gravity the maximum extent and then secured.

Retrieval Procedure

1. There is a block and chain pulley, which pulls the Hull Pinger completely within the vessel.
2. Make sure the Sea Chest is closed completely to the open sea.

8.13 Working Aloft

Working Aloft Procedures

Personnel

Personnel Performing Operation: Climber, Spotter

Minimum Number of Personnel : Two (2)

Duties : 1-Climber
1-Spotter

Supervision : Chief Navigator

Job Safety Analysis : Senior Navigator

Personal Protective Equipment

Minimum P.P.E. Required : Work Boots, Work Gloves, Hard Hat, Harness, Lanyard

Recommended : 2 VHF Radios

Overview

Working aloft becomes necessary, at times, to repair critical navigation, satellite, and other equipment. Working aloft, on the mast, walkways, and other elevated areas is controlled by the Permit to Work system. The completion of the work permit is required before any work can begin where personnel are required to work in exposed elevated areas. The vessel Master or Officer on Watch shall approve the work permit.

Potential Hazards

- Slips and falls from the mast, walkway, or other elevated area.
- Radiation exposure from radars, VSAT, Marisat
- Falling tools and parts

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- Communication problems
- Vessel movements due to wind and sea conditions.
- Electric shock from cables on mast and walkway.

Preventative Measures

- Training of personnel in the operation before assignment.
- Use of PPE, including harness, lanyards, hard hat, nonskid boots.
- Ensuring relevant radiation sources are locked out/tagged out
- Communication tests prior to climb.
- Wind and seas are noted on Permit to Work and approved by Master or Officer on Watch
- Proper labeling of all cable runs.

Restrictions

Weather conditions must be within an acceptable level to perform the operation safely. The Master, or Officer on Watch, and the climber must approve the work permit, listing the current weather conditions, prior to the commencement of the task. Winds and seas above Beaufort Scale 5 shall be considered the highest limit to working on masts.

Standard Operating Procedure

1. The minimum manning level for any work aloft is two persons, a Climber and Spotter.
2. A Permit to Work form is completed
3. All necessary tools and equipment are gathered at the base of the ladder.
4. Complete inspection of PPE, including climbing harness and lanyards.
5. Communication tests are carried out between the Climber, Spotter, Bridge, and Instrument Room.
6. Ensure all relevant radiation sources are Locked out/Tagged out.
7. Proper climbing technique is to use a hand over hand movement on the ladder rungs. Do not slide hands up the sides of the ladder. Use lanyards during the climb one over the other to ensure the climber is constantly attached to the ladder.
8. Spotter keeps area under the work clear of all personnel
9. Use lines and tool buckets to limit the amount of equipment on the Climber.
10. Before descent ensure no tools or loose parts remain on the walkway or platform.

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09. Misc. Sample Forms

9.1 Examples

Work permit form is for example purposes only. Form used onboard will conform to vessel operator standard.

Description of Hot Work						
Responsible Person		Permit Holder / Person-Contractor Carrying out Work				
Date Work to Start		Date Work to Finish			Time Start	
					Time Finish	
Checks	State	Yes / No	Comments			
Method Statement Required Yes / No						
Method Statement Attached Yes / No						
Risk Assessment Required Yes / No						
Risk Assessment Attached Yes / No						
Precautions	State	Yes / No	GAS TESTING RECORD			
Is Site ready for Hot Work (precautions in place?)			%LEL	Toxicity	%O2	Time
Are all energy sources isolated / locked out / tagged?						
Is Flammable / Toxic Gas testing required?						
Are results of required Flammable / Toxic Gas Tests OK?						
Is continuous Gas Monitoring set up & operating?						
Is Hot Work on live line or vessel authorized?						
Is a competent Safety / Fire Watcher required?						
			Name Gas Tester			
			Signature Gas Tester			
State Description and Nature of Expected Potential Hazards plus mitigation (& Personal Protective Clothing / Equipment) Requirements						
Systems Requiring Isolation	N/A	Isolated	Reinstated	Comments		
Fire Alarm System						
Fire Detection Systems						
Electrical Systems						
Computer Systems						
Equipment (Plant) Systems						
Sprinkler Systems						
Security Systems						
Other Systems (describe)						
People Requiring Notification		Contact these people if an incident occurs affecting this permit				
Area Authority		Tel No.		Cell		
Responsible Person		Tel No.		Cell		
Site Maintenance Personnel		Tel No.		Cell		
Issuing Authority		Tel No.		Cell		
Emergency Response Officer		Tel No.		Cell		
Approval for Work to Proceed in Area		Start	Issuing Authority		Time/Date	
Area Authority			Accepting Authority		Time/Date	
Sign Position			Accepting Authority		Time/Date	
Form Version		Finish	Issuing Authority		Time/Date	
Issued by Date			Issuing Authority		Time/Date	
24 hr. Endorsements	Day	2	3	4	5	6
Time/Date						
Authorized Issuer						
Authorized Acceptor						

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FRC/WORK BOAT CHECKLIST

Have the Master and Party Manager been informed and given permission for the operation? **YES NO**

Has a toolbox meeting been conducted with all crewmembers present? **YES NO**

Do all crew members understand the "management of change" procedures governing workboat operations? **YES NO**

Do all crew members agree the work proposed can be conducted safely considering the current weather conditions and tasks? **YES NO**

Has the FRC/Work Boat been inspected prior to launch? **YES NO**

Are all required safety items onboard(first aid, sunscreen, liquids, hand held VHF, etc.)? **YES NO**

Are all tools/materials required to perform the operation onboard? **YES NO**

Launch date

Time out Time in

Wind speed (Knots)..... Are all crew wearing lifejackets? Hard hats? **YES NO**

Visibility(Miles)

Sea state (Meters)Are all crew wearing survival suits? **YES NO**

Back up vessels.....

Work Area VHF Ch in use.....Radio check.....RTT Beacon **YES NO**

Type of work to be performed

Estimated time for operation

Actual time for operation.....

Signatures of crewmembers:

1) 4)

2) 5)

6)

Post mission brief/Comments:

Sign.Master

Sign PM

WORKBOAT CHECK LIST

DATE: _____

SIGN: _____

SAFETY CRITICAL, PRE-LAUNCH

Check:

- | | |
|-----------|--|
| 1 | Bowline is connected and in good condition |
| 2 | Oil level |
| 3 | Cooling water level |
| 4 | Fuel enough for the planned mission |
| 5 | Fuel shut off valve is open |
| 6 | Raw-water inlet valves (2) is open |
| 7 | Oil level on gear box |
| 8 | Oil level on Hydraulic |
| 9 | Functions operated from the electric panel |
| 10 | First aid kit onboard |
| 11 | Pyrotechnics onboard |

	YES	NO
1	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>
11	<input type="checkbox"/>	<input type="checkbox"/>

TO PROCEED FROM THE WORKBOAT BEFORE LAUNCH

- | | |
|-----------|-------------------------------|
| a) | Main switch on |
| b) | Radio check |
| c) | Rudder in mid position |
| d) | Pitch in Neutral |
| e) | Throttle in Idle |
| f) | Clutch out |
| g) | Start up |
| h) | Crew ready in their positions |

a	<input type="checkbox"/>	<input type="checkbox"/>
b	<input type="checkbox"/>	<input type="checkbox"/>
c	<input type="checkbox"/>	<input type="checkbox"/>
d	<input type="checkbox"/>	<input type="checkbox"/>
e	<input type="checkbox"/>	<input type="checkbox"/>
f	<input type="checkbox"/>	<input type="checkbox"/>
g	<input type="checkbox"/>	<input type="checkbox"/>
h	<input type="checkbox"/>	<input type="checkbox"/>

POST MISSION CHECK

- | | |
|-----------|--|
| 12 | Re-fuel |
| 13 | Wash down the boat using fresh water |
| 14 | Tools, survival equipment and anything else that may have been used, cleaned up and made ready for next deployment |

12	<input type="checkbox"/>	<input type="checkbox"/>
13	<input type="checkbox"/>	<input type="checkbox"/>
14	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS:

Description:	
Responsible: _____	Target date: _____

EMBARKATION POINT CHECK LIST

DATE: _____ **SIGN:** _____

SAFETY, PRE-LAUNCH

Check that all crew wear:

- 1 Constant wear suit (in cold areas)
- 2 Inflatable life-jacket
- 3 Workboat helmet
- 4 Sun screen in warm areas
- 5 Protective shoes
- 6 Is bowline in correct position
- 7 Is FRC bowline out of way

	YES	NO
1	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>

COMMUNICATION

Check that:

- 8 The workboat is equipped with a minimum of 2 fully operational radios
- 9 Perform a radio check on decided channel
- 10 Both radios are able to work on channel 16

	Yes	No
8	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>

OTHER DUTIES

- a) Open and close the door at the embarkation point
- b) Unhook/hook chains.
- c) Help the workboat crew to load and unload the boat
- d) Make ready the water hose at the embarkation point
- e) Secure the area to make sure nobody is falling overboard

POST MISSION CHECK

- 11 Re-fuel
- 12 Wash down the boat using fresh water
- 13 Tools, survival equipment and anything else that may have been used, cleaned up and made ready for next deployment
- 14 All tools accounted for and checked off

	YES	NO
11	<input type="checkbox"/>	<input type="checkbox"/>
12	<input type="checkbox"/>	<input type="checkbox"/>
13	<input type="checkbox"/>	<input type="checkbox"/>
14	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS:

Description:	
Responsible: _____	Target date: _____

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Tailbuoy Equipment Check List

The operational condition of the deployment, and retrieval, equipment is checked well before any Tailbuoy work is required. Directly prior to Tailbuoy work, the following equipment checklist is performed:

For Tailbuoy Launch Procedure refer to Safety Critical Geophysical Operations Procedures in the Veritas Marine Safety Management System)

Tail buoy Pre-launch Checks

Nº	Item Description	Check
1	Toolbox Meeting	
2	Description of work defined and discussed.	
3	Safe Work Area defined and clearly mapped.	
4	Verify serial number of RGPS beacon and float to be deployed.	
5	Inspect hull, tow points and tow harness for physical damage or fatigue.	
6	Ensure all hardware (bolts/shackles etc) are in good condition and secure.	
7	Ensure any watertight compartments are secure and dry.	
8	Inspect Stic cable for sufficient slack with respect the tow harness and for wear at critical points.	
9	Ensure the tag line is in good shape, the correct length and not twisted around stic cable.	
10	Inspect Telemetry antenna and coax for signs of fatigue or damage.	
11	Ensure RGPS mount is secure and in good shape.	
12	Ensure battery is fully charged and secure.	
13	Ensure that the tail buoy strobe light is on and working.	
14	Ensure that all connections from the stic cable to the battery, and the RGPS pod to the battery are secure and water tight when using an active tail buoy.	
15	With streamer powered-up and tailbuoy power module enabled, assure correct voltage and amperage in the Syntrak Operator screen with the battery disconnected and using the battery bypass jumper. Once confirmed, remove bypass and reconnect battery.	
16	Confirm tail buoy correctly configured in Spectra and have good communications to beacon on deck prior to launch.	

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Streamer Equipment Check List

The operational condition of the deployment, and retrieval, equipment is checked well before any foreseen Streamer work is required. Directly prior to Streamer work the following equipment check list is performed:

Nº	Item Description	Check
1	All level controllers (Birds) fully functional	
2	All hand tools (allen keys, "C" Spanners, wrenches etc.) are at the ready.	
3	All required crew PPE prepared and ready.	
4	All recommended PPE on location and ready.	
5	Tool-box Meeting (Master/OOW, Party Manager, Observer, Navigator.	
6	Description of work defined and discussed.	
7	Safe Work Area defined and clearly mapped.	
8	Air Brake fully functional.	
9	Hydraulic Controls fully functional.	
10	All alternative hydraulic start/stop points positively locked out.	
11	All communications fully functional.	
12	All Fire Fighting appliances at hand and fully functional.	
13	Manual Brake fully functional.	
14	Life rings and smoke canisters in correct locations.	
15	Streamer and canister summaries, and serial number listings on hand.	
16	Work list on hand.	