

**FIELD REPORT**  
**20 SEISMIC SURVEY, SCORPION FIELD, VICTORIA, AUSTRALIA**  
**for**  
**EAGLE BAY RESOURCES LTD.**

**Report No. 34841.36**

**Client Reference :**

**Date of Field Work :** 12.06.2001-21.06.2001

**Date of Report :** JUNE2001

**Responsible Manager :** DAVID NOLAN

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## **APPENDICES**

### **GENERAL**

1. DAILY LOGS
2. LINE SUMMARY
3. LINE QC
4. ENERGY SOURCE DROP OUT SPECIFICATION
5. ORIGINAL DATA ACQUISITION PROGRAM
6. WEATHER REPORTS
7. SAFETY ACCIDENTS / NEAR MISS REPORTS

### **POSITION**

6. PROFILES LOG
9. PRODUCTION LOG
10. NAVIGATION PROCESSING LOG

### **PROCESSING**

- II. SEISMIC QC PROCESSING LINE LOG





## **1 INTRODUCTION**

Fugro-Geoteam AS was contracted by Eagle Bay Resources NL to perform a 450km seismic survey on the Scorpion field in Victoria, Australia. in June 2001. Geo Arctic, which was already in the area employed on several projects in the Bass Strait area, was commissioned with the project after leaving the Bass Strait and on transit to Port Kembla N.S.W. for a scheduled port call.

The scope of the work and the parameters used were based on :-

- The Contract between Eagle Bay Resources and Fugro-Geoteam AS
- The Environment plan for the Scorpion prospect seismic survey in permit area VIC/P41
- A series of e-mails and faxes exchanged between:
  - Eagle Bay Resources, Perth
  - Fugro-Geoteam AS
  - Geo Arctic, Party Chief
  - Fugro-Geoteam logistics manager Steve Dorland, Perth

There was to be no Client's representative onboard.

### **1.1 SCOPE OF WORK**

The survey will comprise of 450 line kilometres of 20 data over the Scorpion field, Gippsland Basin, Australia.

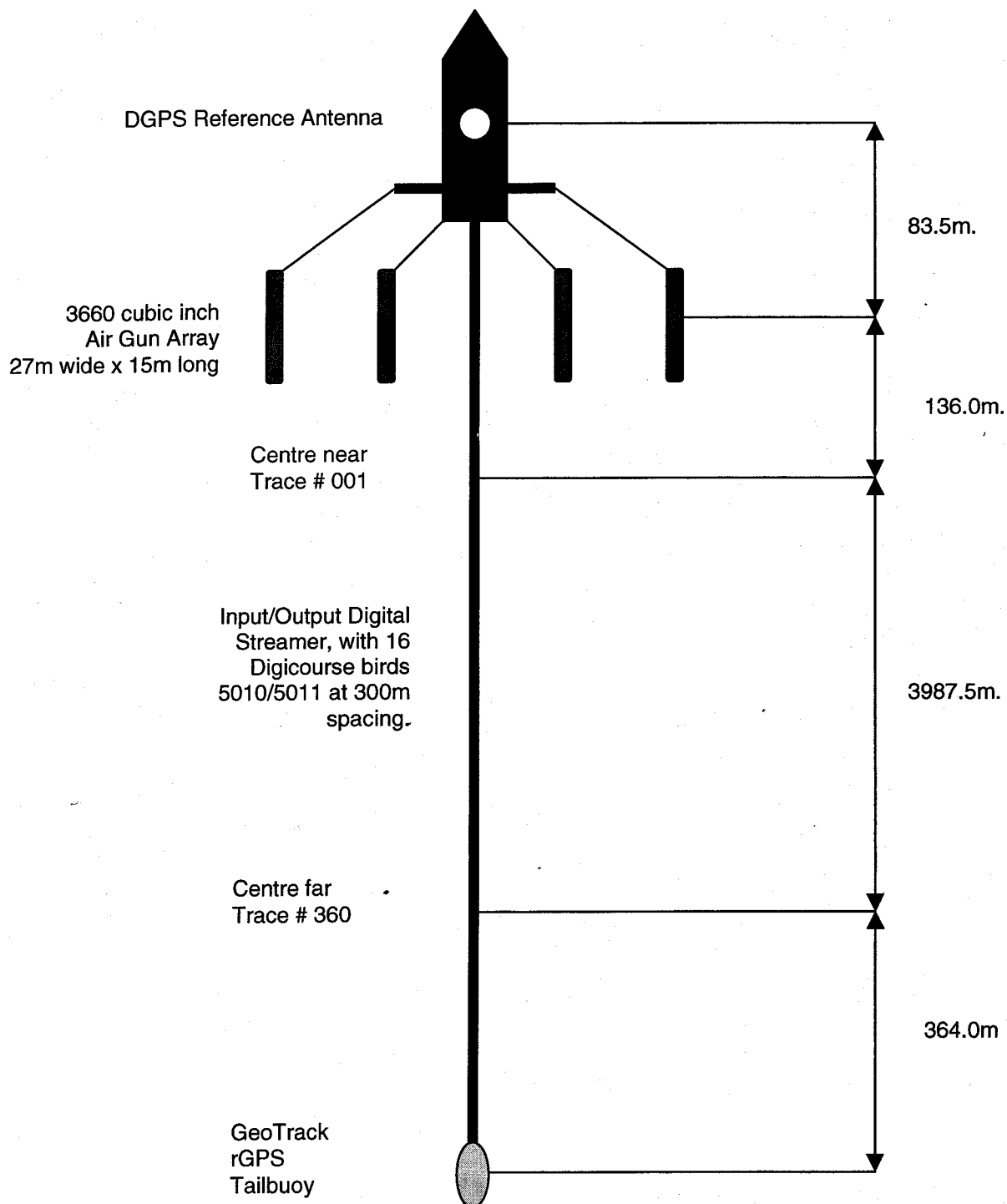
Number of lines : 34

### **1.2 WORK AREA / SURVEY PROGRAM**

Please see appendix 5 - Original Data Acquisition Program.



### 1.3 SYSTEM LAYOUT



**All Dimensions are Nominal**



## 1.4 PLANNING AND PREPARATION - TIME SCHEDULE

Geo Arctic had a planned port call at Port Kembla N.S.W. for the purpose of re-supply and partial crew change on the 20<sup>th</sup> – 22<sup>nd</sup> June. The vessel completed a project in the central Bass Strait on the 9<sup>th</sup> June it was then intended to steam directly NE to the Scorpion site and begin acquisition. On completion the vessel was to continue north to Port Kembla for demobilisation.

## 1.5 OTHER DOCUMENTATION

The following documentation is referred to directly or indirectly and must be available throughout the survey, to ensure that all information, specifications, guidelines and agreements for this project are available :

- QC Specifications (Standard Fugro-Geoteam Spec. except where specified)
- HSE Plan (separate document not included in the project manual)
- MEDEVAC Plan (separate document not included in the project manual)
- Fugro-Geoteam AS' QA and HSE documentation. A master reference list for these documents is found in Appendix 1 in the project manual.
- Health, Safety and Environmental related documents according to contract.

## 2 ACQUISITION PARAMETERS

Fugro-Geoteam AS will ensure that the equipment in use meets the manufacturers specifications, and also meets Fugro-Geoteam's quality requirement.

### 2.1 DEFINITION

Acquisition mode	:	Single vessel
Configuration	:	Single streamer, single source
Shot interval	:	25m.
CDP spacing	:	6.25 m.
Coverage	:	80 fold

### 2.2 SEISMIC PARAMETERS.

Vessel	:	R/V Geo Arctic
Streamer length	:	4,000m
Receiver Interval	:	12.5m
No. of Channels	:	320
Coverage	:	80 fold
Sample rate	:	2 ms
Shot Interval	:	25m
Record Length	:	6 seconds
Source	:	3,660 cu.in
Gun type	:	G-Gun
Pressure	:	2,000 PSI
Positioning	:	DGPS - vessel, rGPS – tailbuoy



## 2.3 GEODETIC PARAMETERS.

### Survey datum.

Datum	:	AGD 84
Ellipsoid	:	Australina National Spheroid
Semi Major Axis (a)	:	6378160
Inverse Flattening (1/f)	:	298.25
Projection System	:	Universal Transverse Mercator (UTM)
Projection Zone	:	55 South
Central Meridian	:	147° East
Scale Factor at CM	:	0.9996
Latitude at Origin	:	0° (Equator)
False Easting	:	500,000
False Northing	:	10,000,000
Grid Units	:	Meters

### World Geodetic System 84 (WGS-84)

Ellipsoid	:	WGS84
Semi Major Axis (a)	:	6378137.0m
Inverse Flattening (1/f)	:	298.257224

## 2.4 LINE NAME CONVENTION

The line naming convention is to be as follows:

### EBR01-NNR \*

Where EBR01 is the Prefix, and

NN is the line number. R is the re-shoot code. R=A for the first re-shoot, R=B for the second re-shoot, etc.

Shotpoint numbering to be ascending regardless of line direction.

\* **NOTE:** On 27<sup>th</sup> June after the project had been acquired, Eagle Bay Resources sent a note saying that a Government Dept had requested that the line prefix be GEBR-01. As all data and logs had already left the vessel this was impossible to implement. Lines in processing may however be renamed with the extra character in the prefix.

## 2.5 POSITIONING SYSTEMS

### Primary Vessel Positioning

System: STARFIX-Spot DGPS with Starfix reference stations.  
Optus satellite delivering RTCM Type 1 and 3 differential corrections.  
Recommended set-up "weighted mean".

Equipment: Trimble 4000 DS GPS Receiver  
Trimble antenna  
Starfix 6500 MK II demodulator  
Allison Spot antenna  
Pentium computer running MRDGPS software

**STARFIX-Spot**

Starfix Spot was used as the vessels Primary position, d/t diff stations available on Spotbeam being closer than ref stns available on MN8. The correction stations used for Spotbeam were;

Station Name	Station ID	Distance
Melbourne	385	158kms
Bathurst	336	795kms
Port Augusta	326	1071kms
Brisbane	275	1536kms

**Secondary Vessel Positioning**

System: Fugro STARFIX MN8 Differential GPS via InMarSat (P.O.R.).

Equipment: Trimble 4000 DS GPS Receiver  
 Trimble antenna  
 Starfix 6500 MK II demodulator  
 Pentium computer running MRDGPS software

**2.6 IN SEA POSITIONING SYSTEMS:****Tailbuoy**

A Tail-Buoy (TB) will be deployed in the tail of the streamer for positioning. The TB is fitted with Geo-Track - relative GPS, and radar reflector.

Relevant work book :WB.NAV.002 Tail Buoy Nav. Work Book

Relevant work instruction :WI.NAV.109 Work Instruction for  
 STARFIX/GEOTRACK Operators

**Source Positioning** N/A

**Magnetic Compasses and birds**

The compasses and birds will be mounted at 300m intervals on the streamer. A total of 16 depth controllers/compasses will be mounted on the streamer. The depth controllers / compasses will be Digicourse model 5010 / 5011. Extra compass birds will be mounted in the front and tail of the streamer for redundancy.

**Magnetic Declination**

The value at the centre of the survey, 39 50 S, 145 30 E is calculated at 12.55 deg. This is the average value of the IGRF 2000 and WMM 2000 models.

**2.7 NAVIGATION PROCESSING.**

This is to be performed onboard, using the latest version of QCPro software from ECL.

FINAL data format : UKOOA P190  
 Final data medium : SEG Y  
 Relevant Procedure : TP.304



## **2.8 SEISMIC RECORDING SYSTEMS**

Recording type	:	I/O MSX
Recording length	:	6 seconds
Sampling rate	:	2ms
Low-cut filter	:	4Hz, 12dB/Oct
Hi-cut filter	:	206Hz , 264dB/Oct
Format	:	SEG-D Demux
Tape media	:	3590
Source type	:	Sodera G guns.
Recording mode	:	Single source

## **2.9 SEISMIC STREAMER**

Streamer type	:	I/O MSX 24 bit digital
Streamer length	:	4000m
Nominal streamer depth	:	8m preferred, 10m due to sea noise if necessary
Near offset	:	136m
No of groups	:	320
Group interval	:	12,5m
Group length	:	17,55m
No of birds	:	15

## **2.10 ENERGY SOURCE**

Source type	:	G Guns
Air pressure	:	2000 psi
Volume	:	3660 cubic inch
No of subarrays	:	4
Source depth	:	5m.
Source width	:	27m
Source length	:	15m
Peak-peak	:	132 bar-m
P/b ratio	:	17.7 : 1

## **2.11 GRAVITY AND MAGNETOMER**

Gravity and Magnetic data is not required on this survey.



### **3 FIELD WORK SUMMARY**

#### **3.1 MOBILISATION**

After a 24 hour transit from the Bass Strait, Geo Arctic arrived to the south of the prospect at 00.10 on the 13<sup>th</sup> June. Mobilisation time started with the start of the cable deployment but had to be suspended at 04:00 when the wind and swell suddenly increased. As the weather front passed through, the cable and guns deployment were restarted. System tests were completed and the vessel ready to start production at 13:38 of the 13<sup>th</sup> June after a total mobilisation time of 6.72 hours.

#### **3.2 ACCEPTANCE TEST**

With the 4.0km cable fully deployed after 12:00 on the 13<sup>th</sup> June a full set of instrument tests were run on the MSX recording system. All channels were found to be in specification.

The 30 G -gun source was proved to be fully functional with all guns firing as per the 3,660 cu .in. array specification with 3 spare guns in the sea.

#### **3.3 CALIBRATION**

Instruments test : A full set of I/O MSX instrument tests were performed on site 13<sup>th</sup> June 2001 with the equipment ready to start production. All parameters were found to be within specification. Results were displayed on paper on paper printout and stored to tape cartridge.

Gyro calibration : Underwater Surveys Ltd. Pty performed calibration check on the Plath survey gyro on the 15<sup>th</sup> December while the vessel was in Cape Town dry dock.

GPS verification : . On the 31<sup>st</sup> December Underwater Surveys Ltd. Pty. performed an independent survey of the position of the GPS navigation antennas and tailbuoy tracking system. A report showing that all equipment was within specification was received on the 27<sup>th</sup> December.

Draught measurement : An echosounder bar check was completed when the vessel left the Cape Town dry dock on the 19<sup>th</sup> December .

Sound velocity : Nominal 1500 m/s was used.

#### **3.4 SURVEY SUMMARY AND PERFORMANCE**

The first line EBR01-01 started at 13:38 on the 13<sup>th</sup> June. Unfortunately a hang up with the gun firing computer prevented the guns from starting until 13:43 with the loss of 31 shots and 0.775km of data. The Client later advised that this was not critical in this area and the line start was accepted.

At the start of the second line EBR01-11, a compressor starter failure caused the vessel to abort a line approach and circle around. By the time of the second attempt on line -11 was due to start, the weather had suddenly increased again forcing the vessel to abort this approach and go onto weather standby until early on the 16<sup>th</sup> June.



At 01:41 16<sup>th</sup> June production started once more as the bad weather had passed through the area. Now the vessel got into a steady production routine and shot all of the inner grid of four 15km cross lines and nineteen 10km long north-south lines in quick succession by 18:43 on the 18<sup>th</sup> June.

The 11 remaining tie and longer grid lines were also shot in a continuous roll until all acquisition had been completed at 12:39 on the 20<sup>th</sup> June 2001.

The guns and cable were recovered in 5.5 hours with the vessel steaming against a 20 m/s NE wind with building 3-4m swell. With all gear onboard by 18:00 utc 20<sup>th</sup> June Geo Arctic started a 24 hour transit to Port Kembla.

### **3.5 DATA QUALITY**

#### **Surface navigation and position**

Position accuracy was maintained throughout the survey and checked by comparisons between the Primary Starfix Spot DGPS and the Secondary Stafix MN8 system.

#### **Seismic system**

Data quality was very dependent on the weather. The client requested that the project be completed as quickly as possible regardless of the prevailing weather. Production had started on the 13<sup>th</sup> June but had to be stopped on the 14<sup>th</sup> and 15<sup>th</sup> due to excessive swell. When production resumed on the 16<sup>th</sup> the winds were reducing but the persistent southerly 2-3m swell caused high noise conditions on the cable which was towed at 10m depth. However the nature of the sub-bottom reflectors produced strong returns and very useable data could still be seen on the stacked QC plots. Noise levels of up to 40-60 ubars had to be tolerated on the 16<sup>th</sup> and early 17<sup>th</sup> June on sequences 4 through 13. After that the weather moderated and much quieter records were acquired on the last half of the 17<sup>th</sup> June through to early 20<sup>th</sup> June. Seq 28 through to 35 were recorded with the cable depth brought up to 8m to take advantage of the calmer sea conditions.

While acquiring the last two lower priority 15km cross lines EBR01-25 and -29 on the 20<sup>th</sup> the weather started to increase and noise levels rose again. Gun timing also deteriorated on these lines because the crew had been pushing to get all acquisition completed with out stopping for routine gun maintenance before the increasing weather shut the operation down again. On line -25 a 250 cu. in gun was miss timing intermittently through the line and it was switched out on the last line -29 sequence 36.

#### **Analogue systems**

Echo sounder records were generally quite good but rather broken during times of high swell on the 16<sup>th</sup> / 17<sup>th</sup> June seq. 4-13.

### **3.6 POSITION PROCESSING**

Position processing was performed onboard using QCPro software. On-line P294 data was imported from StarfixSeis and processed into a P190 output tape ready for delivery to the customer. There were no real problems, see the Position Processing Report for details.





### **3.7 SEISMIC PROCESSING**

The MSX recorded field tapes were read into the Focus/DISCO Unix processing system for the purpose of QC checking. Noise analysis was carried out, a near trace profile produced. Velocities were picked every 1km along each line and a stacked section produced for display to the client representative. Checks for gun performance were made by examining the near field signatures recorded on the aux. channels as well as exact offset checks.

Sequences 7 to 13 would normally have been rejected because of the high level of swell noise, however on Client instructions they were not to be re-shot due to lack of time.

Sequence number 1 had 31 shots missing from the start due to a fault on the gun firing system. This was also accepted by the Client as not critical to the objectives of the survey and therefore not to be reshot.

### **3.8 WEATHER**

Weather in this area to the east of the Bass Strait, offshore Lakes Entrance east Victoria is renowned for fast unpredictable changes. This certainly held true to form during first cable deployment on the 13<sup>th</sup> June when deployment had to be suspended due to rapidly building seas. Again later in the same day after cable had been deployed and the first 10km line shot rapidly increasing winds and swell caused the vessel to recover the guns and go into weather standby for two days until the SW winds and swell started to abate. From midday 17<sup>th</sup> through to 08:00 20<sup>th</sup> a calm period prevailed when the bulk of the acquisition was achieved.

The last line on the 20<sup>th</sup> was shot into increasing winds and swell, which also made later cable and gun recovery difficult.

### **3.9 TIDES AND CURRENTS**

Tides and currents did not effect the survey. Some high feather angles in the region of 7-10 degrees reported at the start of lines were due to the vessel trying to make a quick a line turn as possible. This higher feather angles quickly reduced after the first few shots after the start of the line and only effected the tail end of the cable.

### **3.10 OBSTRUCTIONS AND SHALLOWS - NIL**

### **3.11 SEISMIC ACTIVITY - NIL**

### **3.12 FISHING AND SHIPPING ACTIVITIES**

The fishing associations at Lake Enterence and Eden were notified well in advance of Geo Arctic arrival on the prospect. Some trawlers and squid fishing boats were seen but all were contacted by radio and gave the survey a wide berth. There were also quite a number of merchant ships seen as the Scorpion prospect lay across the coast shipping route. No ships came close enough to cause noise in the records or danger to the cable and good co-operation was received by all.



### **3.13 ENVIRONMENTAL ISSUES AND DIVING ACTIVITY**

The seismic guns were always put through a soft start routine before building up to full power. The mandatory whales watch routine was established on the bridge and records kept though out. Copies of the records are sent to the environmental agency in Camberra. There were no whale sightings throughout the period of the survey.

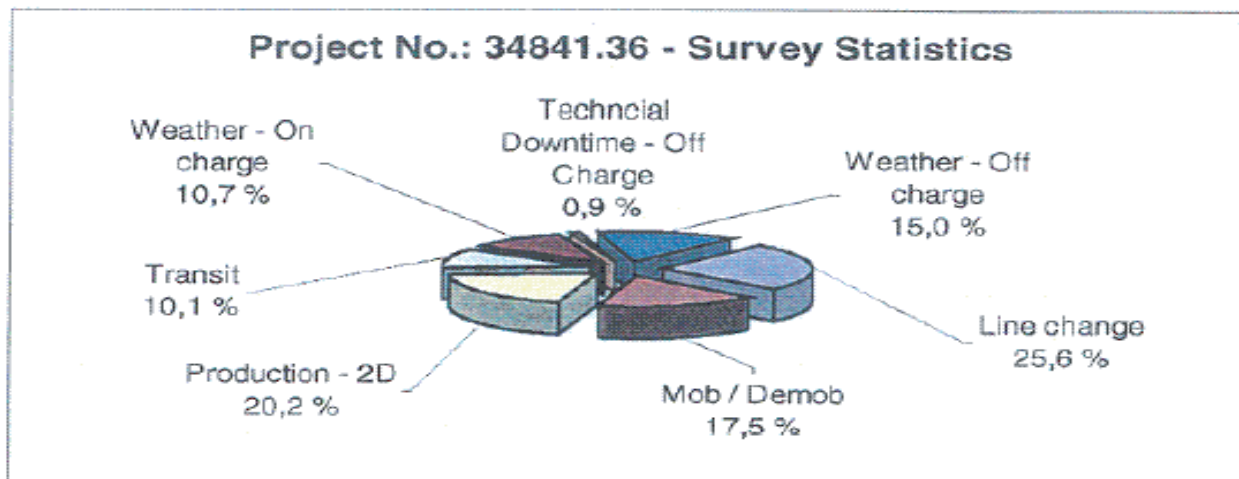
### **3.14 THIRD PARTY INTERFERENCE - NIL**

### **3.15 DEMOBILISATION**

Five and half hours were taken to recover the guns and cable after completion of the last line on the 20<sup>th</sup> June. The vessel then steamed for 26 hours north to Port Kembla, near Wollongong, New South Wales to demobilise which was said to be complete at midnight UTC 21<sup>st</sup> of June.

On instructions from Fugro-Geoteam due to contractual reasons the seismic data was split into two shipments. Sequence 1-27 were sent directly to the client Eagle Bay Resources Ltd. in Perth. Sequences 28 to 36 were sent for holding by Fugro-Geoteam's partner company Seismic Australia Ltd also in Perth.

### 3.16 SURVEY STATISTICS



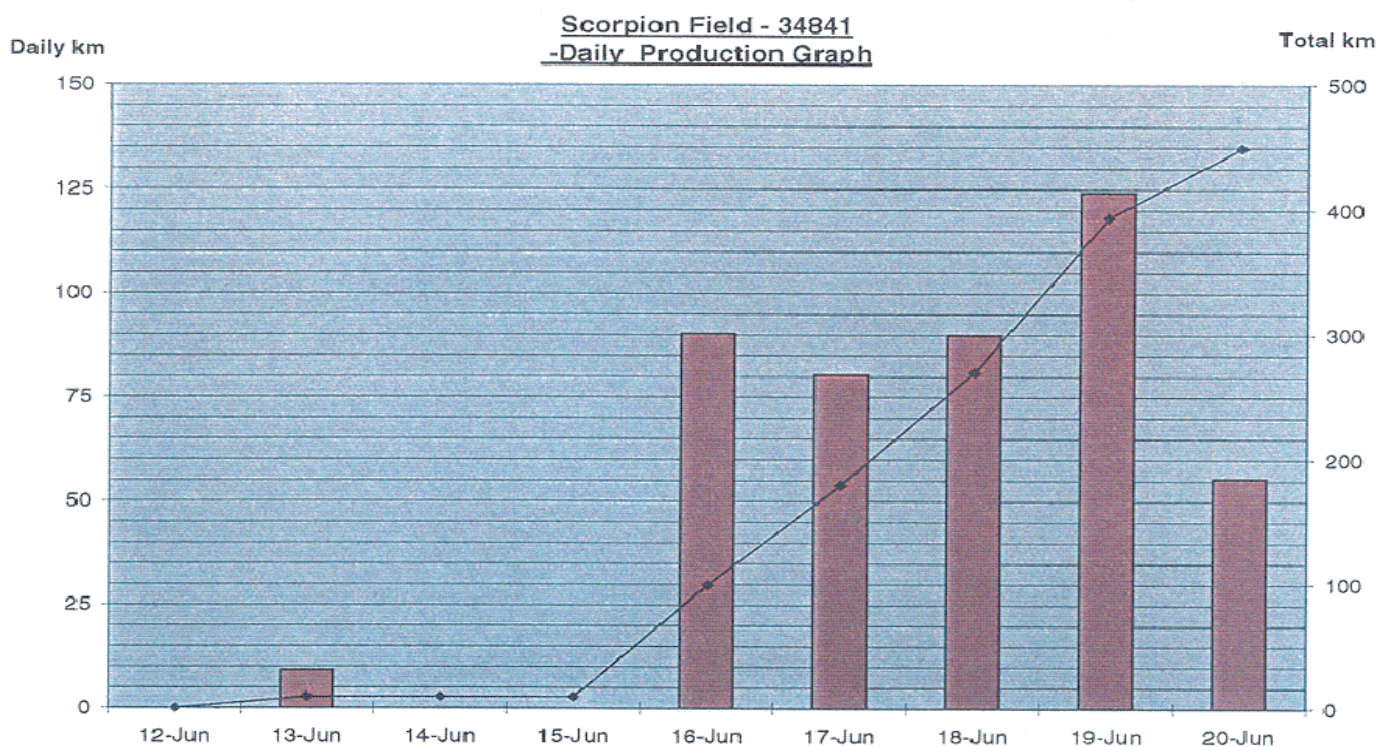
**Timing analysis :-** From 12/06/01 to 21/06/01 = 240.00 hours or 10.00 days

**Chargeable :-**

	Accumulated Hours	
Line change	61.33	25.56%
Mob / Demob	42.07	17.53%
Production - 2D	48.38	20.16%
Transit	24.17	10.07%
Weather - On charge	25.68	10.70%
	201.63	84.01%

**Non Chargeable :-**

	Accumulated Hours	
Compressor	2.18	0.91%
Source	0.08	0.03%
Weather - Off charge	36.10	15.04%
	38.37	15.99%



Total production = 449.725 sail line km shot as 34 lines in 36 sequences.

#### 4 HEALTH, SAFETY AND ENVIRONMENTAL

The contractual commitments and instructions regarding HSE for this project is found in Contract 1100000159 Section IV Appendix I, Health, Safety and Environmental standards. The following documentation is referred to and forms a part of the requirements /specifications :

- E&P Forum 1993, Health Management Guidelines for Remote Land-Based Geophysical Operations. Report No. 6.30/190
  - E&P Forum 1994, Health, Safety and Environmental Schedules for Marine Geophysical Operations. Report No. 6.34/206
  - E&P Forum 1995, Health, Safety and Environmental Schedules for Land Geophysical Operations. Report No. 6.35/207
  - E&P Forum 1994, Health, Safety and Environmental Schedules for Marine Geophysical Operations. Report No. 6.34/206
- and Shell Health, Safety and Environmental Committee documents :
- SHSEC, 1991, Management Guidelines for hearing conservation
  - SHSEC, 1992, Guide for Safety Performance Reporting
  - SHSEC, 1993, Guide for Health Performance Monitoring
  - SHSEC, 1993, Incident Investigation and Analysis Guide
  - SHSEC, 1994, Medical Emergency Guidelines for Management
- and
- IAGC, 1991 b, Marine geophysical Operations Safety Manual.



#### **4.1 SAFETY OVERVIEW**

##### **Toolbox meeting**

Due to the short duration of this project there was not much to report. The last safety meeting was held on the 8<sup>th</sup> June on a previous project.

**Safety drills** - 17<sup>th</sup> June a general muster drill was held followed by a training exercise for the marine crew in the use of the emergency steering equipment.

**Safety audit** - Nil

#### **4.2 ACCIDENTS AND NEAR MISS**

**Accidents** - Nil

**Near miss** - Nil

#### **4.3 ENVIRONMENTAL**

The Environmental Plan for the Scorpion Prospect Seismic Survey in permit area VIC/P41 was received on board before the project began. It was read by the Party Chief and the Captains.

There were no reported accidental discharge of kerosene or engine oils into the sea.

All procedures to soft start the gun array were followed. All other Fugro-Geoteam HSE policies were followed in regarding environmental impact.



## 5 PERSONNEL

### 5.1 GENERAL

The vessel left Burnie, Tasmania on Wednesday 27<sup>th</sup> after a partial crew change. To comply with Australian legislation a partial Australian marine crews were employed onboard. Also to comply with the Russian maritime register of shipping a minimum number of Russians were also employed in key positions on the marine crew.

The Canadian gravity engineer was still onboard from the previous project, see note about his activities in the Gravity Report section.

The Russian Superintendent was onboard preparing for an official inspection at the next port call and not part of the project.

### 5.2 CREW LIST

Name		Rank
1 Pidzhakov	Konstantin	Master
2 Julier	Mike	Master
3 Isaev	Nikolay A.	Chief Mate
4 Dillon	Dion Joseph	Chief Mate
5 Tsygankov	Nikolay A.	Second Mate
6 Ashmore	Bob	Second Mate
7 Namanyuk	Sergey M.	3rd Officer
8 Iljashevich	Fedor M.	Radio Officer
9 Matsepula	Vladimir	Boatswain
10 Platt	Steve	Boatswain
11 Grishenkov	Vladimir N.	A.B.
12 Zelinskiy	Vladimir	A.B.
13 Moss	Colin	A.B.
14 Cloonet	Michael	A.B.
15 Gough	Michael	A.B.
16 Pankratov	Robert I.	Chief Engineer
17 Gonsalves	Claude	Chief Engineer
18 Karakosov	Evgeny	2nd Engineer
19 Sloane	Patrick	2nd Engineer
20 Vasyutin	Oleg M.	3rd Engineer
21 Joseph	Philip	3rd Engineer
22 Kurochkin	Alexsey	Motorman
23 Karachev	Sergey	Motorman
24 Shamarin	Victor A.	1st Elec. Eng.
25 Jeffries	Kevin	1st Cook
26 Baczik	Michael	2nd Cook
27 Romaniv	Galina Y.	Stewardess
28 Ushmaeva	Antonina	Stewardess
29 Ross	Jeffrey	Steward
30 Polev	Nikolay F.	Chief Observer
31 Medvedev	Viktor S.	Chief Observer
32 Zhuravlev	Vladimir Y.	Observer
33 Zhuravlev	Viktor N.	Observer
34 Svetlichniy	Alexey P.	Chief Navigator



<b>Name</b>		<b>Rank</b>
35 Belous	Valeriy	Navigator
36 Nikulin	Ilija B.	Chief Gun Mech.
37 Teterkin	Alexandr N.	Chief Gun Mech.
38 Mogilevskiy	Genadiy	Gun Mech.
39 Egorov	Vasily V.	Gun Mech.
40 Polozov	Nikolay I	Chief Compressor Man
41 Gusev	Anatoliy V.	Compressor Man
42 Olkhovskiy	Vladimir	Superintendent
43 Carrey	John	Party Chief
44 Jones	Tony	Instrument Supervisor
45 Taylor	Kevin	Navigation Supervisor
46 Ytterland	Kare	Mechanical Supervisor
47 Brookes	Kathryn	Seismic Processor
48 Salter	Shawn	Gravity Eng.
49 Barber	Mike	Chief Steward

Total number of persons on board 49



## 6 DEPARTMENT REPORTS

### 6.1 POSITION REPORT

#### 6.1.1 Introduction

The vessel mobilised for the survey at sea on the 13/06/01. Differential corrections in the survey area were available through P.O.R satellite, which was tuned to through the inmarsat system, and Optus satellite, which was tuned to through the Spotbeam system.

Scope of Work	: 2D Seismic Survey
Client	: Eagle Bay Resources N.L.
Project Number	: 34841
Project Name	: EBR01-
Location	: Scorpion field Gippsland basin Australia

#### 6.1.2 Navigation Systems

Navigation System	: StarfixSeis suite 3.1 (Fugro Survey Pty Ltd)
Primary Navigation	: Fugro Starfix Spot Differential GPS.
Demodulator	: Starfix M2 Demodulator
GPS Receiver	: Trimble 4000DS 9 channel, nav version 7.29
Secondary Navigation	: Fugro Starfix MN8 Differential GPS
Demodulator	: Starfix M2 Demodulator
GPS Receiver	: Trimble 510 Survey receiver 9 channel, nav version 7.29
Tailbuoy and Source Positioning	: Fugro Geotrack Tailbuoy Tracking System
Acoustics	: N/A
Binning	: N/A
Navigation processing	: QCPro
Seismic Recording	: Input/Output, 24 bit system
Bird Controller	: Digicourse 5010/5011
Gun Controller	: Hydrapulse 200X
Echosounder	: Simrad EA 500 12 & 27 kHz
Speed log	: N/A
CTD Probe	: N/A
Gyro (main)	: C.Plath, Navigat 2. DHI. Interfaced via Lekmkuhl Digital Gyro repeater with RS232 output to StarfixSeis
Gyro (secondary)	: SG Brown 1000B





### 6.1.3 Survey Information

#### Survey Datum and Datum shift parameters

GPS Datum : WGS 84  
 Ellipsoid : WGS 84  
 Semi-major Axis : 6378137  
 Inverse flattening : 298.257224

Survey Datum : AGD 84  
 Ellipsoid : Australian National Spheroid  
 Semi-major Axis : 6378160  
 Inverse flattening: : 298.25

Shift Parameters :  
 X-shift : 116.0  
 Y-shift : 50.47  
 Z-shift : -141.69  
 X-rotation \* : -0.23  
 Y-rotation \* : -0.39  
 Z-rotation \* : -0.344  
 Scale correction : 0.0983

(\*Bursa Wolf sign convention)

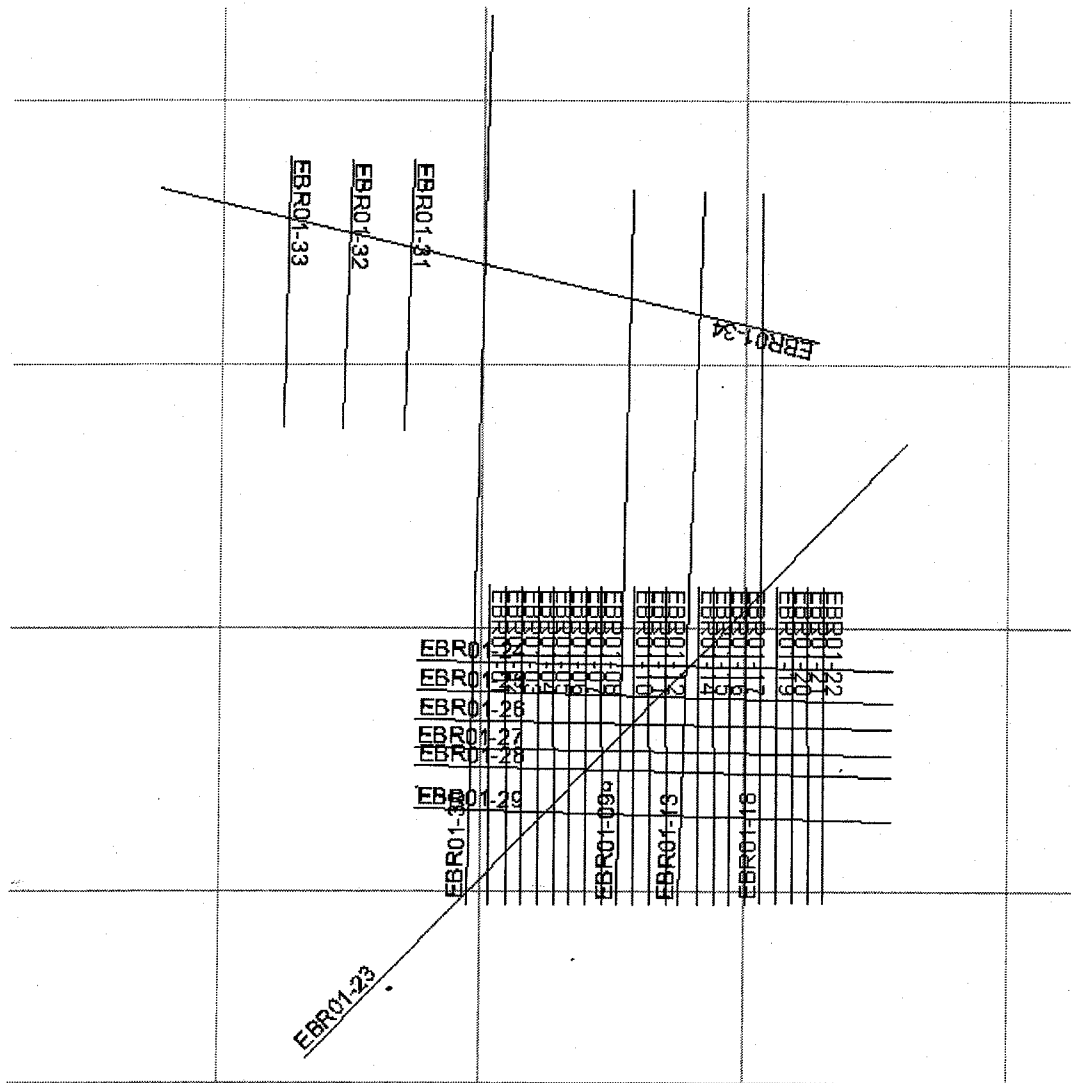
#### Projection parameters

Projection : Universal Transverse Mercator (UTM)  
 UTM Zone : 55 South  
 Central meridian : 147°  
 Latitude of origin : 0° (Equator)  
 False Easting : 500000  
 False Northing : 10000000  
 Scale Factor : 0.9996



#### 6.1.4 Survey Area

The survey area was in the Scorpion Field in the Gippsland Basin. The survey consisted of 34 runlines, total 449 km





### 6.1.5 Naming convention

The line naming convention followed was

#### **EBR01-NNNR**

Where EBR01 is the Prefix, and

NNN is the line number. R is the reshoot code. R=A for the first reshoot, R=B for the second reshoot, etc. For each successive reshoot of a line 1000 was added to shotpoint numbers.

#### **Vessel**

The vessel datum  $x=0, y=0, z=0$ , is defined as the ships main mast projected down to sea level. All vessel offsets such as primary and secondary gps antennas are offset from this point

#### **Source**

Vessel operated in single source mode with the nominal offset from stern to centre of source being 49.85m.

#### **Streamer**

Single streamer with nominal head of streamer defined as 173.35m from stern, first trace 185.85m from stern.

#### **Tailbuoy**

One active seatex active tailbouy deployed on the end of the streamer

#### **Digicourse Birds**

15 Digicourse birds, 13 of which were compasses. The bird/compass position on the streamer is summarised below.

<b>Position</b>	<b>Type</b>
-12.5	compass/depth controller
-112.5	compass/depth controller
-412.5	depth controller
-712.5	compass/depth controller
-1012.5	depth controller
-1312.5	compass/depth controller
-1612.5	compass/depth controller
-1912.5	compass/depth controller
-2212.5	compass/depth controller
-2512.5	compass/depth controller
-2812.5	compass/depth controller
-3112.5	compass/depth controller
-3412.5	compass/depth controller
-3712.5	compass/depth controller
-4061.5	compass/depth controller

#### **Gun Arrays**

Four subarrays 2 each side.



### 6.1.6 Calibration / Validations

Underwater Surveys (Pty) Ltd, performed a Gyro calibration and position verification of the R/V Geo Arctic navigation equipment, in Cape town, South Africa, 18<sup>th</sup> and 31<sup>st</sup> December 2000. Full details of the results are contained in Underwater Surveys (Pty) Ltd, Report No. PSA202Gyro December 2000, which is summarised in **Table 1** and **Table 2** below :

**Table1**

<b>Gyro Calibrations</b>		
	<b>Survey Gyro 1 C. Plath (°)</b>	<b>Ship's Gyro 2 SG Brown (°)</b>
True azimuth	131.68°	131.68°
Gyro reading	132.50°	132.50°
<b>C-O</b>	<b>-0.82°</b>	<b>-0.82°</b>

**Table2**

<b>GPS and RGPS Systems verification</b>		
<b>DGPS</b>	<b>Latitude</b>	<b>Longitude</b>
Calculated position	33° 54' 57.212 S	18° 27' 15.837 E
Observed position	33° 54' 57.262 S	18° 27' 15.933 E
<b>C-O</b>	<b>-0.05"</b>	<b>-0.096"</b>
<b>GeoTrack</b>	<b>Northing</b>	<b>Easting</b>
Difference	-0.41 m	-1.70 m

### Sound Velocity

Using Default value of 1500 m/s

### 6.1.7 Position equipment performance

#### MRDGPS

#### STARFIX-Spot

Starfix Spot was used as the vessels Primary position, d/t diff stations available on Spotbeam being closer than ref stns available on MN8. The correction stations used for Spotbeam were;

<b>Station Name</b>	<b>Station ID</b>	<b>Distance</b>
Melbourne	385	364kms
Bathurst	336	657kms
Port Augusta	326	1261kms
Brisbane	275	1369kms

Spotbeam performed well throughout the survey.



### **STARFIX MN8**

The coverage available on the P.O.R satellite was not particularly good for this area. Reference stations used were;

Station Name	Station ID	Distance
Melbourne	385	364kms
Dunedin	026	1901kms
Auckland	022	2269kms

The MN8 system was in close agreement with Spotbeam solution and proved to be useful secondary system.

### **Tailbuoy tracking**

Tailbuoy was working during the first seq. However during a bad weather period between the 13.06.01 – 16.06.01. the tailbuoy was damaged in rough seas. D/t weather conditions it was not possible to launch the work boat to inspect the damage to tailbuoy and d/t time constraints on the survey it was not feasible to recover the streamer in order to fix the tailbuoy. The tailbuoy was not working for any lines shot after seq 001.

At the completion of the job when the streamer was recovered it was discovered that the tailbuoy mast was broken.

### **Starfix suit software**

StarfixSeis software performed well throughout the survey, no problems experienced.

### **Echosounder**

Two echosounder transducers were logged online and written to the P294 file. The transducers used were Simrad EA500 12 and 27 kHz. Water depths were draft corrected nominal velocity of sound used was 1500 m/s. Both transducers performed well throughout the survey.

### **Streamer compass**

All compasses performed well throughout the survey, although d/t poor sea conditions data was often noisy.

**Acoustics**      N/A

### **C-Plath, S.G Brown 1000B**

Performed well throughout the survey. The C-Plath gyro was used as the vessels primary gyro.

### **6.1.8 Downtime**

Positioning systems: 0.0 hrs

Nav Software: 0.0 hrs

Operator: 0.0 hrs



## **6.2 INSTRUMENT REPORT**

### **6.2.1 Introduction**

Geo Arctic mobilised for the Scorpion field acquisition program at sea on the 13<sup>th</sup> June. Weather caused a halt to proceedings following the first seismic line. Production resumed on the 16<sup>th</sup> June. The Project was completed on the 20<sup>st</sup> June. The vessel de-mobilised in the port of Kembla.

Scope of work	: 2D Seismic survey
Client	: Eagle Bay Resources Ltd.
Project number	: 34841
Location	: Scorpion Field

### **6.2.2 Instrument system**

#### **Main systems**

Recording system	: Input/Output MSX. SW ver 2.0111
Streamer system	: Input/Output MSX.
Bird controller	: Input/Output DigiScan. SW ver 3.12
Gun controller	: Hydro Pulse 200X Ver. 1.a.1 For Windows
Number of streamers	: 1
Length of streamers	: 4000m
Streamer depth	: 8 to 10 (+/-1.5m)
Shot point interval	: 25
Near Offset	: 136 m

#### **Recording system**

No. of modules	: 20 per streamer
Waterbreak channels	: 4 per streamer
Auxiliary channels	: 16
Cable sensitivity	: 14.0 V/Bar
Total No. of channels	: 320
High cut filter	: 206 Hz, 264 dB/octave
Low cut filter	: 4 Hz, 12dB/Octave
Pre-amp gain	: 6 dB
Group length	: 17.5
Recording Length	: 6 seconds
Sample rate	: 2ms
Trace Summing	: No
DC offset removal	: Yes
Depth transducers	: Not Recorded
Online display	: OYO GS 624-2
Tape deck	: IBM Magstar 3590 Microcode ver.ECD19129DOI8_1EC
Tape format	: SEG D
Data Blanking at SOR	: No
Data recording format	: 8058-IEEE
Max files per tape	: 1500
Navigation interface	: Header Serial link to StarfixSeis
User Header size	: 6016



External User header version : 8  
 Extended Header ver : 3  
 Number of 5011 birds : 15

### 6.2.3 Calibration and checks

A monthly test was performed on the recording system prior to the Start of contract on the 16<sup>th</sup>. Daily tests were recorded when the production schedule afforded suitably long line changes on the 17<sup>th</sup>, 19<sup>th</sup>. On all occasions the equipment was proved to perform within the contract specifications. Any deviations in the performance was noted in the observer logs. The Monthly tests were carried out in accordance with the manufacturers recommended performance verification tests and included the following 23 tests.

MSX Performance Specifications for these tests are given here below:

File No.	Test Mode	Error limit	Data type	Apply low cut filter	DC Offset Removal	Test type	Result
1	T13	0.00%	Special Bit Pat.	No	No	Pattern, All ones	
2	T13	0.00%	Special Bit Pat.	No	No	Pattern, 50% ones	
3	T13	0.00%	Special Bit Pat.	No	No	Pattern, All zeros	
4	T13	<0.0001%	15.625Hz, 0 dB	No	No	Pattern	
5	T2	<0.0005%	15.625Hz, 0 dB	Yes	Yes	Dynamic Range	
6	T2	<0.0020%	15.625Hz, -10 dB	Yes	Yes	Dynamic Range	
7	T2	<0.0050%	15.625Hz, -20 dB	Yes	Yes	Dynamic Range	
8	T2	<0.0160%	15.625Hz, -30 dB	Yes	Yes	Dynamic Range	
9	T2	<0.0500%	15.625Hz, -40 dB	Yes	Yes	Dynamic Range	
10	T2	<0.1600%	15.625Hz, -50 dB	Yes	Yes	Dynamic Range	
11	T2	<0.5000%	15.625Hz, -60 dB	Yes	Yes	Dynamic Range	
12	T2	<1.6000%	15.625Hz, -70 dB	Yes	Yes	Dynamic Range	
13	T2	<5.0000%	15.625Hz, -80 dB	Yes	Yes	Dynamic Range	
14	T2	<20.000%	15.625Hz, -90 dB	Yes	Yes	Dynamic Range	
15	T2	<20.000%	15.625Hz, -100 dB	Yes	Yes	Dynamic Range	
16	T5	< 2.9uV	Special Bit Pat.	Yes	Yes	Cable Noise, 50% ones	
17	T10	> 70 dB	15.625Hz, 0 dB	Yes	Yes	Cable Noise	
18	T11	> 60 dB	15.625Hz, 0 dB	Yes	Yes	Cable Noise*	
19	T12	> 60 dB	15.625Hz, 0 dB	Yes	Yes	Cable Noise*	
20	T6	7% ch-ch	Imp. 64 bit, 0.5ms	Yes	Yes	Impulse	
21	T7	7% ch-ch	Imp. 64 bit, 0.5ms	Yes	Yes	Impulse*	
22	T0		Special bit Pat.	Yes	Yes	Cable noise*	
23	T4	>1560mV	Analog loopback	No	No	Cable noise, 2.048 V*	

#### Test mode description

T0	Normal Acquisition	T7	Analog Impulse, phones connected
T2	Analog loopback, phones simulated	T10	CMR (Common Mode Rejection)
T4	Analog loopback, phones connected	T11	Cable crossfeed, Odd pairs driven
T5	Preamplifier terminated	T12	Cable crossfeed, Even pairs driven
T6	Analog Impulse, phones simulated	T13	Digital loopback

\* indicates that the test result is dependant on Ambient Noise



Daily tests were performed on appropriate line changes with good weather, or when down time allowed and consisted of a selection of tests from the standard monthly test suite as below;

- System Dynamic Range test
- Equivalent input noise test
- Impulse test
- Harmonic distortion test

Equipment tests, calibration and set-up took place during mobilisation. These included:

MSX 24bit recording system	Acceptance test , parameter set-up
Streamer	Polarity check, offset and balance.
Digibirds	Battery check, function test .
Gun	Depth transducers checked
	Source separation
Inventory	Inventory checked for necessary levels of stationary, cartridges and consumables

#### **6.2.4 Instrument equipment performance**

##### **Recording**

The MSX recording system performed very well during this survey accumulating no downtime. All Semi-monthly and daily QC tests (performed as often as the consistent production would allow) proved the system to be operating well with-in manufacturers specifications.

##### **Streamer**

The streamer balance proved to be a good throughout the project.

##### **Gun controller**

The Hydrapulse 200X gun controller performed well throughout the survey. Incurring no downtime.

#### **6.2.5 Downtime**

Overall the prospect went extremely well from the instrument department point of view.

See section 3.16 for fuller statistical analysis.





### 6.3 SOURCE REPORT

#### 6.3.1 Introduction

The main energy source was a single source, the array used was a Sodera G gun type with a working volume of 3660 cu. inch, with a working pressure of 2000 psi.

#### 6.3.2 Source system

The gun array configuration consists of four sub arrays with a combination of nine or eight guns persub array.

The source consists of 30 active Sodera G-guns plus 3 guns used as spares on the arrays. The sizes of the Sodera G-guns that are used on this vessel are: 40, 70, 100, 150 and 250 cu. inch.

See diagram for array configuration.

The sub arrays are towed from fixed booms.

The gun depths are monitored in the instrument room.

Source type	Sodera G-gun
Array volume	3660 cu.in.
Air pressure	2000
Number of sub arrays	4
Source depth	6.0 metres, +/- 1.0 meter
Source length	15 metres outer 11 metres inner
Source separation outer - outer	27 metres
Source separation inner-outer	9 metres
Back deck to centre source	49.85 metres
Shot interval	25.00 metres
Source controller	Hydrapulse 200X Minipulse
Source synchronisation	+/- 1 ms

#### 6.3.3 Calibration and checks

All guns solenoid and timing sensor were checked before deployment.

A Click test was performed to verifying the gun positions correspond to the gun controller.

***All 12 depth sensors were calibrated prior the start up of the project.***

Depth rope was checked for correct source depth of 6.0 metres.

All near field Hydrophones were tap tested before deployment.

#### 6.3.4 Source equipment performance

The Sodera G-gun performance was maintained at a high standard with constant monitoring in the instrument room. All sub arrays were recovered after every line for inspection and maintenance.

Relevant spare guns were enabled as required.

There are two gun mechanics per shift with one supervisor on call 24 hours per day.

The instrument room is constantly manned during production periods.

The performance of the Sodera G-guns during this project was very good, with only routine maintenance being under taken.



Gun controller performed well during the survey. Gun statistics were produced at the end of each line.

Near field signature were logged in the header together with gun synchronisation and depth data. Air gun pressures were monitored in the gun shack and in the instrument room by the observers. If spare guns were used the instrument room observers logged them.

#### **COMPRESSOR PERFORMANCE**

Using, the LMF high-pressure air compressor and a combination of 1 off the 4 EK 30 compressors produced the high-pressure air supply for the array source.

The air pressure is regulated by means of a Fisher control valve; the set pressure for this contract was 2000 psi.  $\pm 10.0\%$ .

During production periods the compressors temperatures and pressure are logged.

The compressors in use performed well except for a problem with fuel supply to the LMF compressor, caused by a faulty valve on a tank.

#### **BACK DECK EQUIPMENT PERFORMANCE**

The gun sub arrays are deployed and recovered using a combination of hydraulic winches, which are controlled by manual operating handles.

During deployment and recovery of the gun sub arrays three people are required.

The instrument room and the bridge are able to monitor and communicate with the gun deck by means of C.C.T.V and radio system.

The deck equipment performed well through out this project.

Routine maintenance was undertaken. Winches and hydraulic power back performed well during the survey.

#### **IN WATER EQUIPMENT PERFORMANCE**

Generally all arrays towed very well during the survey. Source position was calculated using time measurements.

#### **6.3.5 Downtime**

A total of **5.217** hours were lost due to downtime. Downtime was **0,55 %** of total fieldwork.



## 6.4 SEISMIC PROCESSING REPORT

### 6.4.1 Introduction

This report concerns the Gippsland Basin, Australia, Scorpion Field, exclusive 2D seismic survey 2001 (EBR01), project number 34841, for Eagle Bay Resources Ltd. Approximately 450 km of 2D seismic data were acquired along 36 lines and QC controlled to verify that the data were acceptable for further processing. The 36 lines acquired made up a total of 34 full lines, and 2 reshoots. Only 2 of these lines were recorded as NTBP. The survey area was entirely within Australian waters. The length of the full lines varied between 8.5-28 km. Water depths were generally less than 1000 metres. Data were acquired between 13th and 20th June 2001.

Each line sequence was given a unique identifier and has its own Observers' Log. Failures to completely acquire a line in one attempt were related to weather conditions producing unacceptable swell noise levels and navigation failures. An example of line numbering is the following: EBR01-NNR, where EBR01 is the project name, NN is the line number, and R is the re-shoot code (A for the first reshoot, B for the second, etc).

The main priority of onboard processing was generation of a brute stack for every line. Brute stacks were used for quality control in identifying noise and acquisition related problems.

The seismic data were QC processed using Paradigm Geophysical "Focus/DISCO" UNIX workstation-based software. The data were read in from 3590 tapes, then reformatted from SEG-D to internal DISCO format. Noise analysis was carried out over a time window of 5.5 to 6.0 seconds (raw and filtered with a 6Hz filter applied), and the waterbreaks and nearfield auxiliary channels were inspected. Near trace profiles were generated. Velocities were picked every 1 km and used to create a stacked section, which was then archived in SEG-Y format onto 3590 tapes.



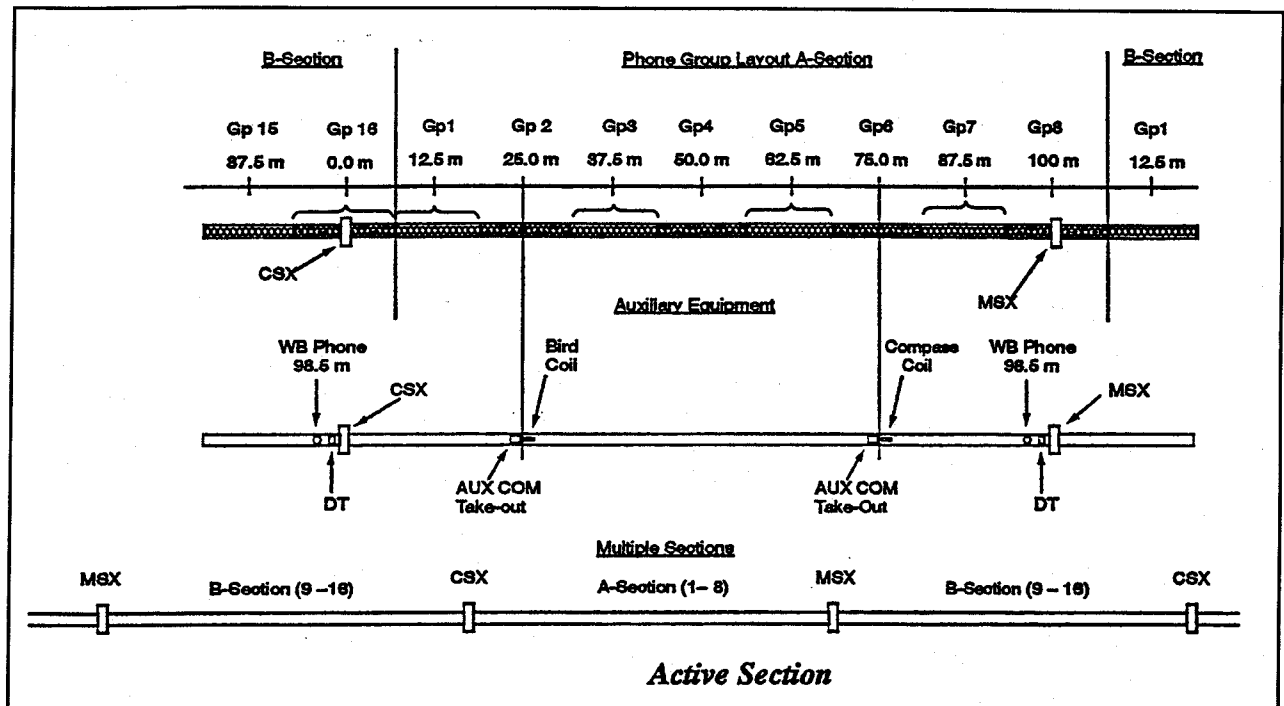
## 6.4.2 Operational Procedures

### 6.4.2.1 Acquisition Configuration

Number of streamers	1
Number of source arrays	1 X 4 strings, 3660 cu.inch
Number of CMP lines per sail pass	1
Shot interval	25 m
Number of channels per streamer	320
Receiver group spacing	12.5 m
In-line spacing of CMP's	6.25 m
Fold per bin of subsurface coverage	80
Recording length	6 sec.
Sample interval	2 ms
LC recording filter	4 Hz, 18 dB/octave
HC recording filter	206 Hz, 264 dB/octave
Nominal Source depth	6 m
Nominal Streamer depth	8 m (line seq#: 28, 30-35) 10 m (line seq#: 01-27, 29, 36)
Theoretical near offset	136 m



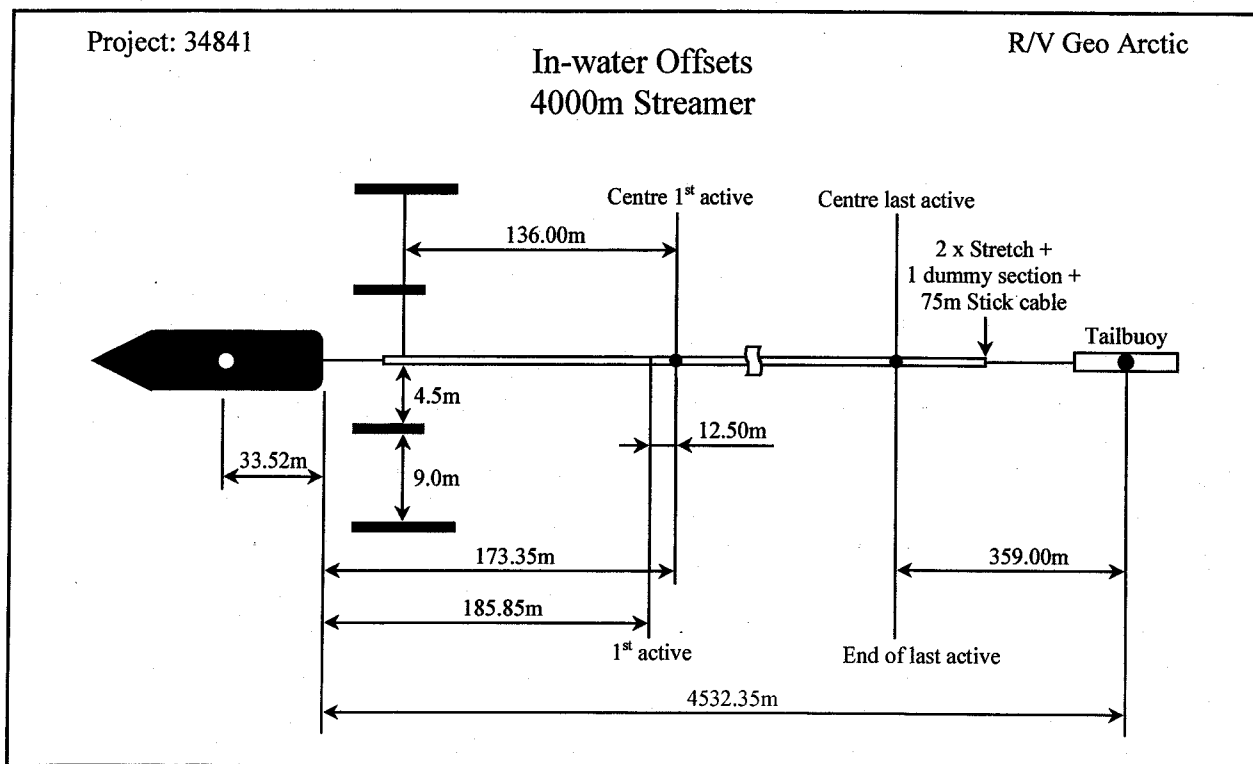
In addition to the configuration described previously, four hydrophones were situated in the cable sections. The first of them is located in the first section with 86 meters distance from the first group. The following hydrophones are situated 200 metres to each other. These are intended for calculation of the water breaks, and were stored on tapes as channel set number 2. Figure 2.1 shows a MSX streamer cable configuration.



**Figure 2.1:** MSX streamer cable configuration

Near Field hydrophones (16 auxiliary channels, channel sets 3 to 18) were located on all airguns in the array, and used to check airgun performance and to monitor misfires, auto-fires and air leaks.

Figure 2.2 shows a simplified view of the towing configuration used during the survey



**Figure 2.2:** A simplified diagram of the towing configuration used for the survey. Configuration is theoretical in terms of all offsets.



#### 6.4.2.2 Processing Sequence

The main QC-priority was generation of a brute stack for every line, its main use being the identification of noise and acquisition related problems. It should not be used as a substitute for a final product.

RMS amplitude analysis was performed over a noise window between 5500-6000 ms. The intention of this is to give a picture of the ambient noise level as real signals are expected to be negligible at such a time. The noise files generated at both ends of each line were used to assist interpretation. In addition a real-time near trace stack for every line was produced. This is useful for identifying the amount of swell noise and ship noise in the data. Thorough shot examination was performed for the same reasons. Waterbreaks were viewed to check the near offset for each line, and the auxiliary channels were also examined. These are useful for identifying gun autofires and errors in timing.

After generation of a brute stack with a single velocity for the entire line, velocities were picked every 1 km. A velocity brute stack was then produced and archived in SEG-Y format.

The basic processing sequence was as follows:

1. Reformat from SEG-D to internal Disco format:

Resampling from 2 to 4 ms.

2. View Waterbreak Channels (chset 2):

QC the waterbreak channels to make sure the near offset remains correct and constant.

3. View Auxillary Channels (chsets 3-18, gun hydrophones):

View the auxilliary channels to check the gun signatures, enabling airleaks and autofires to be spotted as well as the checking of Observer's Logs for when different guns are turned on and off.

4. View Shotgathers:

View every 100<sup>th</sup> shot to evaluate the data quality.

5. Excel noiseplots:

Plot unfiltered and 6 Hz, 12 dB/oct low-cut filtered RMS noise graphs for all traces averaged over the whole line (in microbars) using Microsoft® Excel™, from a noise window taken over 5500-6000 ms.



6. Scaled RMS plots:

Create plots showing the average noise for all traces for every shot in microbars (using a noise window over 5500-6000 ms) for both the raw shots and shots with a low-cut filter of 6 Hz, 12dB/oct applied.

7. Near Trace Plot:

A near trace plot is produced real-time.

8. Velocity Analysis:

Pick velocities every 1 kilometre.

9. Velocity Stack plot:

Spherical divergence gain recovery using  $t^0$ ,  $v^2$ . Normal move-out correction using the picked velocities and front end muting using 20% stretch muting and a defined mute. Normalised stacking using 80 fold, followed by a datum shift to correct for source and cable depths, and muting above the water bottom.

Generate velocity stack in SEG-Y format.

QC envelopes were filed in sequential order and put in a box available for inspection by the Party Chief in the Processing room. Processed data were backed up on 3590 tapes when QC was finished and thereafter removed from the system.





#### **6.4.2.3 QC Products**

QC data processing was undertaken to ensure that data recorded were of the highest possible quality. This was achieved by analysis of shot records from each line, producing plots of data and displays of stacked sections. In particular the following products were produced.

- Near trace plot in paper format only
- RMS amplitude - noise plots (raw and 6 Hz, 12 dB/oct low-cut filtered)
- RMS amplitude - noise graph averaged over entire line, (raw and 6 Hz, 12 dB/oct low-cut filtered)
- Velocity stacks in paper and SEG-Y format
- Velocities as text files.



### **6.4.3 Summary**

#### **6.4.3.1 Partitioning of lines.**

Each line sequence was given a unique identifier and has its own Observers' Log. Data were processed as acquired. A spreadsheet with information about line numbers, sequences, and partitioning is given in the Appendix.

#### **6.4.3.2 Comments**

Data acceptability was decided by the Party Chief onboard, after consideration of all the QC products and Observers Logs and records.

##### **Party Chief Comment :-**

Sequences 7 to 13 would normally have been rejected because of the high level of swell noise, however on Client instructions they were not to be re-shot due to lack of time.

Sequence 01 had 31 shots missing from the start due to a fault on the gun firing system. This was also accepted by the Client as not critical to the objectives of the survey and therefore not to be reshot.

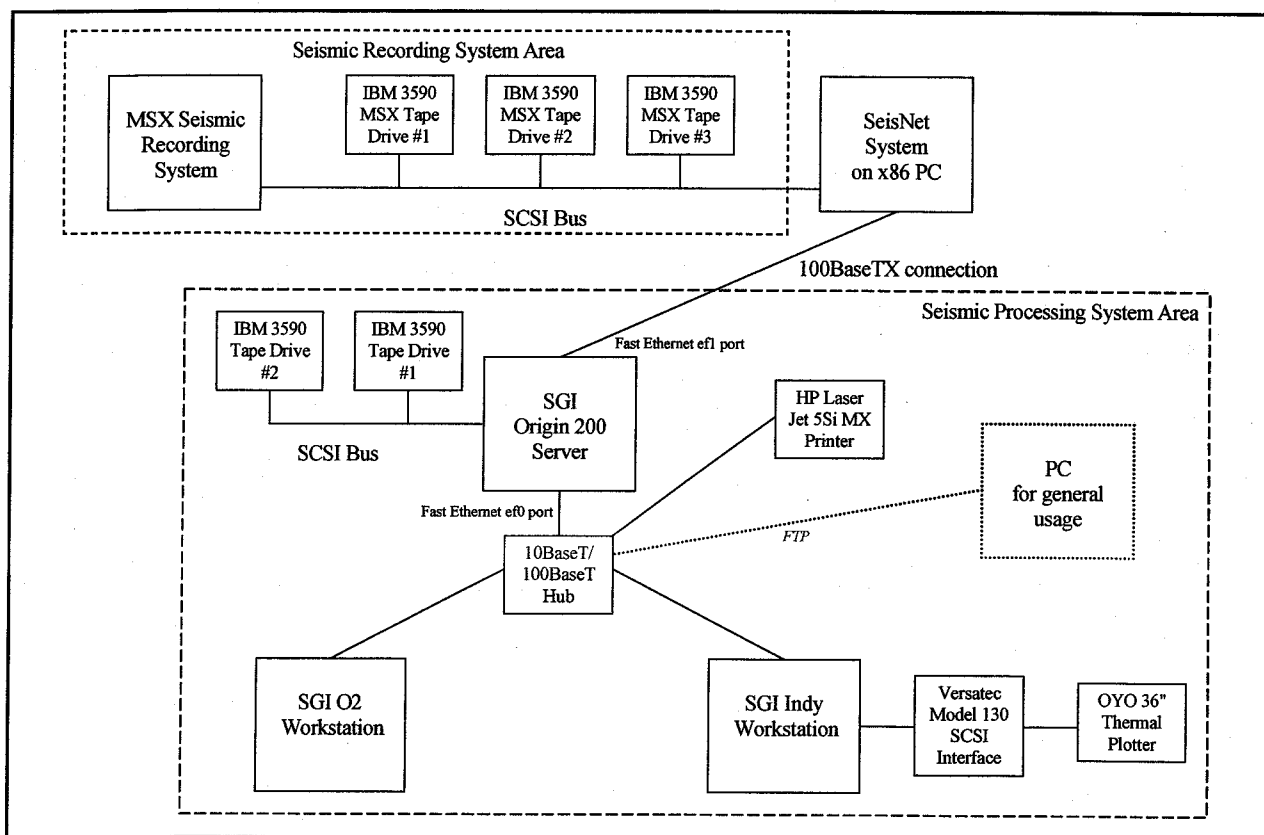


## **HARDWARE**

Processing was carried out using the following hardware:

- Workstation : Silicon Graphics Origin server
- 4 x 225Mhz MIPS R10000 Processors with MIPS R10010 FPU's
  - 3Gb main memory
  - 176Gb hard disk.
  - internal 8mm Exabyte Tape drive
  - 1 x 12" terminal and keyboard
- Graphic Displays : 1. Silicon Graphics O2 workstation
- 1 x 180MHz MIPS R5000 Processor with MIPS R5000 FPU
  - 128 MB RAM
  - 1 x 21" Graphic Monitor and keyboard
2. Silicon Graphics Indy workstation
- 1 x 100 MHz MIPS R4600 Processor
  - 32 MB RAM
  - 1 x 21" Graphic Monitor and keyboard
- Storage : Two IBM 3590 Tapes drives both with autoloader
- Plotter : OYO 36" thermal plotter with Versatec 130 SCSI interface
- Printer : HP Laser Jet 5Si MX PostScript Printer
- PC : Computer x86 Family 6 Model 8 Stepping 3 AT/AT Compatible
- 2 x 750MHz Intel Pentium III Processors
  - DC20 SCSI Capture card for connection with MSX
  - 256 Mb RAM
  - 89Gb disk memory.
  - 32 Mb ATI Technologies Inc. Rage128 GL (AGP) Graphic Adapter
  - 1 x 19" Monitor and keyboard

The principal scheme of online processing system used on board R/V "Geo Arctic" in the EBR01 survey is shown on Diagram (Figure A).



**Figure A:** The principal scheme of online processing system

**SOFTWARE****Workstations:****SGI Origin:**

IRIX64 version 6.5

Paradigm Focus version 4.3

DISCO version 12.3

**SGI O2:**

IRIX64 version 6.5

**SGI Indy:**

IRIX64 version 5.3

**PC - SeisNet:**

Microsoft Windows NT 4.00.1386

Software System Inc. SeisNet Version 5.109

GUIServer Version 1.0

**PC - General Usage:**

Microsoft Windows NT 4.00.1386

Microsoft® Word 97™ and Excel 97™



## 6.5 POSITION PROCESSING REPORT

### 6.5.1 Introduction

The vessel mobilised at sea for the survey on the 13/06/01. The configuration was setup for 136m minimum offset.

P294 files for seq 001-005 reflect a minimum offset of 145m. These seq's were later reprocessed with 136m offset so the final P190's are correct.

### 6.5.2 Processing method

Processing was done on QCPro software. Online P294 was imported from StarfixSeis, Some light filtering of compass, echo sounder and Gps was done on the QCPro software and a final P190 made.

### 6.5.3 Data observation quality

#### Compass calibration

No dynamic compass cals were done. Any compass showing a noticable bias was set passive and changed at first available opportunity.

The compass configuration was ;

Position	Type
-12.5	compass/depth controller
-112.5	compass/depth controller
-412.5	depth controller
-712.5	compass/depth controller
-1012.5	depth controller
-1312.5	compass/depth controller
-1612.5	compass/depth controller
-1912.5	compass/depth controller
-2212.5	compass/depth controller
-2512.5	compass/depth controller
-2812.5	compass/depth controller
-3112.5	compass/depth controller
-3412.5	compass/depth controller
-3712.5	compass/depth controller
-4061.5	compass/depth controller

Compass data between seq 008 – 012 was particularly noisy. This was directly related to the sea conditions at the time which were bad.

#### GPS

Both differential Gps systems Spot and MN8 showed good agreement. Spotbeam was used as the Primary navigation system

**Tailbouy**

Tailbouy was in use on seq 001 only. The tailbouy sustained damage d/t rough sea conditions after seq 001 when the vessel was down for weather. Unfortunately d/t continuing rough sea conditions it was not possible to launch the workboat to inspect the tailbouy, and d/t time constraints on the survey it was not feasible to pick up the streamer to fix the tailbouy. The tailbouy was not working on any seq after seq 001.

**Gyro**

Two gyros were in use on the vessel, the primary Gyro a C.Plath is situated in the instrument room and interfaced via a Lekmkuuhl digital gyro repeater, and a SG. Brown 1000B, which is situated on the bridge and interfaced directly into Starfix.

Both Gyro's were recorded in the P294.

Both Gyro's performed well during the survey.

**Echosounder**

Two echosounder transducers were logged online and written to the P294 file. The transducers used were Simrad EA500 12 and 27 kHz. Water depths were draft corrected nominal velocity of sound used was 1500 m/s. Both transducers performed well throughout the survey. The 12kHz transducer was used as primary.



## **6.6 MAGNETIC AND GRAVITY REPORT**

The specification did not call for a gravity survey, however as there was a calibrated system onboard together with an operator / engineer data was recorded on to disk.  
Should the Client decide that they would like a gravity survey the raw data is stored on disk ready for processing on request.

## **6.7 FISHERY REPORT**

No fisheries representative onboard.

All fishing authorities and organisations informed of seismic program.

Full co operation received from local trawlers and squid fishing boats.

No whales sighted by whale watch personnel.

Whales watch report forms sent to the Australian environmental agency in Camberra.





## 7 VESSEL SPECIFICATION

### 7.1 VESSEL GENERAL

Name	R/V Geo Arctic
Owner	Amige SE, Murmansk
Operator	Amige SE, Murmansk
Type	2D Seismic survey vessel
Port of Registration	Murmansk
Flag	Russian
Class	KM ULI A2
Class registration no.:	M-42019
Call Sign	UGXK
IMO no.	8409018
MMSI	273458600
Year Built/Rebuilt	1988 Polen / 1997 Norway
Length overall	81.85 m
Breadth	14.8 m
Draught, loaded	5.23 m
Tonnage	3225 T, 967 Net T
Cruising Speed	Max 14.5 knot, cruising 12.5 knot
Operation Range	60 days cruising, NM
Endurance seismic	60 days
Main Engine	Zgoda-Zulcer, Type 6ZL 40/48, 4200 HP, (3090 Kw)
Gearbox	Zamech MA90-10, ratio 505/222,6
Propulsion	Zamen, Controllable pitch. LN 13 NM, 4 blade Stainless steel, Traditionally
Rudder	Zamech
Steering gear	N/A
Azimuth thruster	Brunvoll FU-45-LTC-1225, electrical, 600 HP / 441 Kw
Bow Thruster	Polen
Main engine monitoring	Total power 2200 Kw
Electrical Power	Voltage: 3 x 380 (220) VAC, 50 Hz. Shaft generator, 1 x 1200 Kw Generator 2 x 500 Kw 217 PMA-39H6. 121 Kw Rotation generators and several small UPS.
Emergency generator:	1000 m <sup>3</sup>
Clean power:	Sailing 12.8 t, working 8.4 t, in port 2.8 t
Fuel capacity	200 ton
Fuel consumption	VY 125 AD. 7 ton full speed.
Fresh water capacity	10 ton full speed, 1 ton in port
Fresh water generator	LK-30(2)
Sewage treatment plant	Yes
Incinerator	9,9 m <sup>3</sup>
Black water	N/A
Grey water	12,0 m <sup>3</sup>
Bilge water	12,0 m <sup>3</sup>
Sludge	3,2 m <sup>3</sup>
Waste water	26,2 m <sup>3</sup>
Lub oil	



Dirty oil	11,7 m <sup>3</sup>
Stabilising system	N/A
Deck Machinery	
Crane	4 ton, 12.5 m max., 2.5 m min. 1 x 1 ton provisions crane front deck 1 x 1 ton folding crane, top aft deck
A-frame	N/A
Winch	2 x Streamer, 6000m aft reel, 3000m fwd reel. Spare streamer, 2 x 2000m Gravity / FF Magnetometer
Paravane	N/A
Gate valve	N/A
Hydraulic power pack:	Hydrakraft A/S. 2 x 45 Kw. 2 x 130 l/min. 220 Bar.
Accommodation	Single cabins 17 + 2 hospital Double cabins 18 Total capacity 55 persons
Galley stores:	2 x Deep freeze 16,2 and 12,2 m <sup>3</sup> 2 x Cool room 14,1 and 21 m <sup>3</sup> 1 x Dry store 28,5 m <sup>3</sup> 1 x Vegetable 13,5 m <sup>3</sup>
Mess:	Seating capacity: 31 Size 42 m <sup>2</sup>
Day room:	2 x Smoking / Non-smoking 17,2 m <sup>2</sup> and 15,9 m <sup>2</sup>
Exercise room	20,7 m <sup>2</sup>
Air condition:	Tropical
Helicopter landing zone:	Superpuma 9.8 ton

## 7.2 VESSEL NAVIGATION AIDS

Auto Pilot	Polish (TS-75)
GPS	Furuno GP50 MK II
Radar no.: 1	1 x Kelvin Hughes; 6000, Nucleus 2, ARPA, 10 cm
Radar no.: 2	1 x Nayada-5, Russian 3cm
Gyro no.: 1	1 x Plath, Navigat II with Lehmkuhl LR40 gyro repeater.
Gyro no.: 2	1 x SG Brown Meridian
Speedlog	1 x Atlas Dolog 1 x IEL-2M (Russian)
VHF direction finder	N/A
Wind sensor	Aanderaa 3017 Speed, direction and temperature
Nav. Echo Sounder	GEL-3
Electronic chart:	N/A
Navtex	Furuno NX-500
Weather fax	None



### 7.3 VESSEL COMMUNICATION AIDS

GMDSS	A1, A2 and A3 Sailor VHF & VHF
Satellite Fixed line:	Telenor Sealink Light. NorSat. Phone, modem and fax.
Inmarsat	Saturn B, Phone, high speed data modem; 64 KB and fax
GSM	2 x Phone,
WAN	Data modem
M/F, H/F	Skanti TRP 7201
VHF stationary	Skanti VHF 3000
	Sailor VHF RT2047D
	Sailor VHF RM2042. (GMDSS)
VHF portable	3 x Tron VHF
UHF portable	3 x Headcom
UHF helicopter communication	Jotron TR-7510
Non-directional beacon	AS Telesupply TS-20B
Watchkeeper	Sailor GMDSS A3
Internal communication	Stationary all rooms.
Telephone numbers	
GSM Bridge	+ 47 9076 4256
NMT Bridge	+ 47 9419 8081
Inmarsat FGAS	+ 872 3273 18612
Inmarsat Bridge	+ 872 3273 18610
Inmarsat AMIGE	+ 872 3273 18611
NorSat FGAS	+ 47 22134789 Tel/Fax
NorSat Bridge	+ 47 22134791 Tel/Fax
NorSat Vessel	N/A
NorSat Client	N/A
Fax numbers	
Inmarsat	+ 872 3273 18613
Norsat	+ 47 2213 4789



## 7.4 VESSEL SAFETY

Safety manning level:

55 persons

Covered lifeboat:

Totally enclosed 8.5m, fire protected,  
model JY-QFN-8.5, seats up to 65 persons

Rescue /MOB Boat

Lifeboat used for MOB

Work boat

Norpower 22ft, 7m open boat

Inflatable Life Rafts

9 x 10 persons

Man overboard Liferaft

2 x 6 person life raft

Survival Suits

100 %

Life Jackets

100 %

Life rings

8

Smoke hoods

100 %

Work vest

4 x Crewsaver

Emergency radios

Sailor GMDSS A3

Emergency beacons

1 x McMurdo E3 EPIRB

Radar transponders

2 x Jotron TronSart

Fire detector system:

INCO UCPP-20

Fire pumps

1 x 100 t Electrical driven

1 x 40 t, Electrical driven

Fire suits

3

Halon systems

Engine room

CO2 systems

Compressor room and streamer store

Foam systems

Streamer deck.



## 8 EQUIPMENT SPECIFICATION

### 8.1 SEISMIC RECORDING INSTRUMENTS

Type	Input / Output, MSX, 24 bit system
Number of Channels	720 channels @ 9000 m
Number of waterbreaks	4 channels
Number of auxiliary	16 channels
Sample Rate	1, 2 and 4 ms
Filters	Low cut, high cut
Low Cut	Out, 2 Hz, 6dB/octave 2 Hz, 12 dB/octave 4 Hz, 12 dB/octave 6 Hz, 12 dB/octave 8 Hz, 18 dB/octave
High Cut	1 mS: 412 Hz, 264 dB/octave 2 mS: 206 Hz, 264 dB/octave 4 mS: 103 Hz, 264 dB/octave
Tape Format	SEG-D
Recording Medium	4 x IBM Magstar 3590
QC System	All QC data, QC plots - AGC or fixed gain; harmonic distortion analyses; noise analyses; spectral analysis;
On-line Display	Oyo GS 624-2
Processing	
Hardware	Silicon Graphics Origin 200 with dual MIPS 10000 64 bit processor SCSI Raid disc controller rack with 40 GB capacity (160 GB) Oyo 36" thermal plotter , I/O 8MB/sec
Software	Paradigm Disco/Focus v. 4.1
Capacity	
Tape drives	2 x Magstar IBM 3590 tape drive
Data compression software	N/A

### 8.2 STREAMER

Type	Input / Output, MSX digital
Max. length	9000 m
Max. outer separation	N/A
Available Group interval	12.5 / 25 m
Section length	99.5 m
Group pr. Section	8
Hydrophone type	Input / Output, Preseis WM1-018B
No. of Hydrophones /Group	14 hydrophones (2.5 m), tapered array, centre weighted. 29 % overlap, total group length 17.55 m
Streamer diameter	63.5 mm
Streamer sensitivity	14 V/Bar
Fault locator	Input / Output
Depth Controller / Compass	Digicourse 5010/5011
Acoustic	N/A
Cable oil clean:	2250 + 960 ltr.
Cable oil dirty:	1.920 ltr.



### 8.3 ENERGY SOURCE

Type	Sodera G-gun
Size of guns:	40, 70, 100, 150, and 250 cu. Inch.
Max volume:	2860 Cu inch. (3660 Cu. Inch)
Max output. 5 m depth. 0-128 Hz:	2860 Cu inch 86,3 Barm (3660: 103,3 Barm)
Number of Sub. Arrays	4
Configuration:	Single source
Tow width	30 m
Firing control	Hydrapulse 200X
QC	Hydrapulse
Depth transducers	4 x 2
Tow system:	Norwegian buoys
Offset	144m with 6000m streamer. 250m with 9000m streamer
Compressor	1 x LMF, 1100 SCFM 4 x EKA, each 390 SCFM
Compressor capacity	2660 SCFM
Pressure:	2000 PSI

### 8.4 NAVIGATION EQUIPMENT

On-line Navigation System	Starfix.Seis. (Fugro system)
Primary Navigation	Starfix Plus, Differential GPS.
	Seadiff ver. 7.02 software. Fugro
GPS receiver	Trimble 4000DS 9 channels nav ver. 7.28
Secondary navigation	Starfix SPOT, Differential GPS. Fugro
Demodulator	Fugro 3000LR
GPS receiver:	Trimble 4000DS 9 channels nav ver. 7.28
Tail buoy tracking	Geotrack RGPS (Fugro) and radar.
Gun array tracking:	Time/Acoustic measurement. Optional RGPS
Acoustic	N/A
Laser	N/A
VRU:	Seatex MRU-5
Navigation processing	N/A
Binning	N/A
Multi beam echosounder	N/A
Echosounder	Simrad EA500
Echosounder transducer	27 khz
	Maximum range 3000 meter
Streamer Control	Digicourse 5011 Compass
Speed log:	Atlas Dolog
CTD probe	N/A
SVP probe	N/A
Water level recorder	N/A



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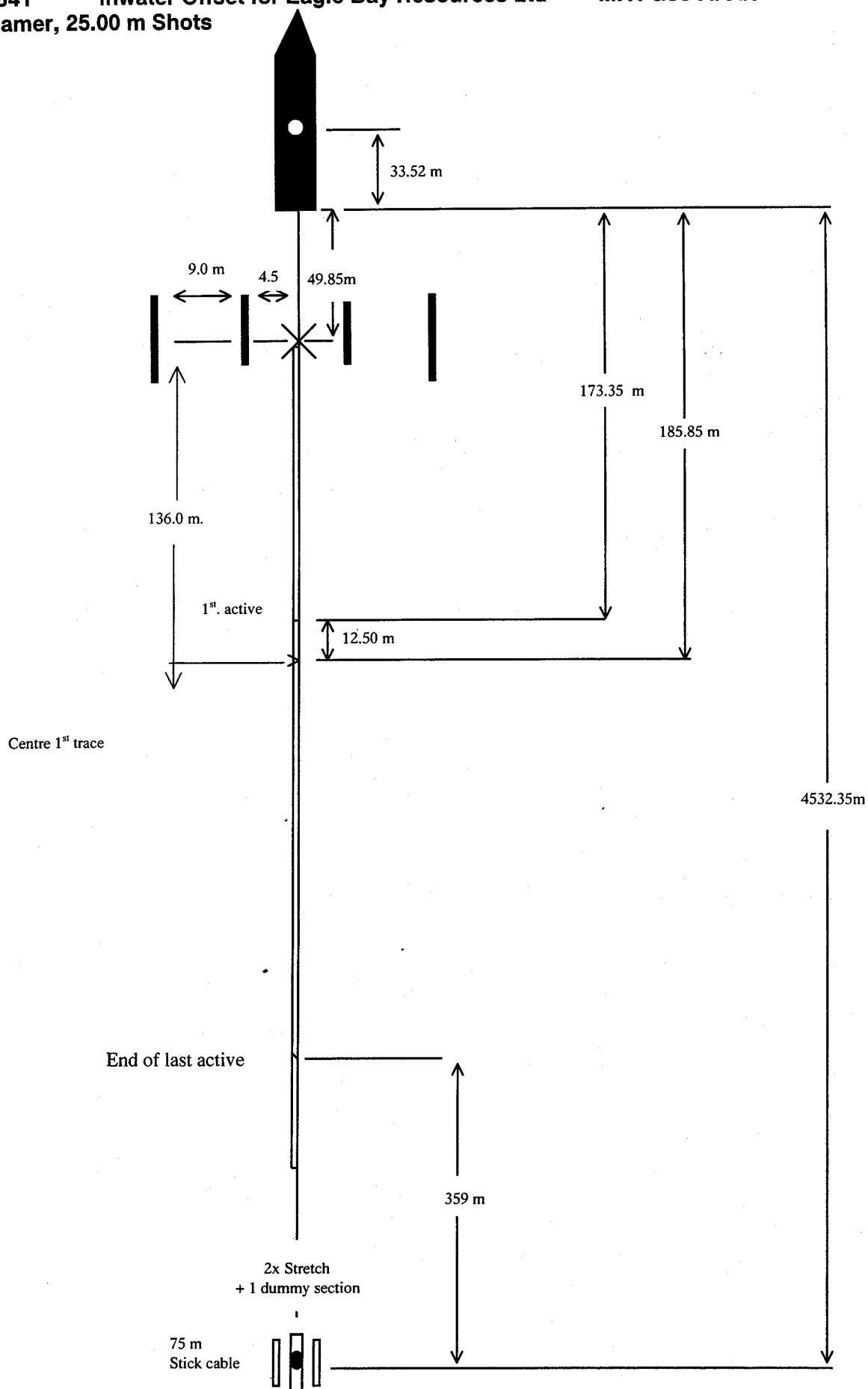
## **9 DRAWINGS**

### **9.1 OFFSET DIAGRAM**



**Project: 34841 Inwater Offset for Eagle Bay Resources Ltd**  
**4000m Streamer, 25.00 m Shots**

**M.V. Geo Arctic**



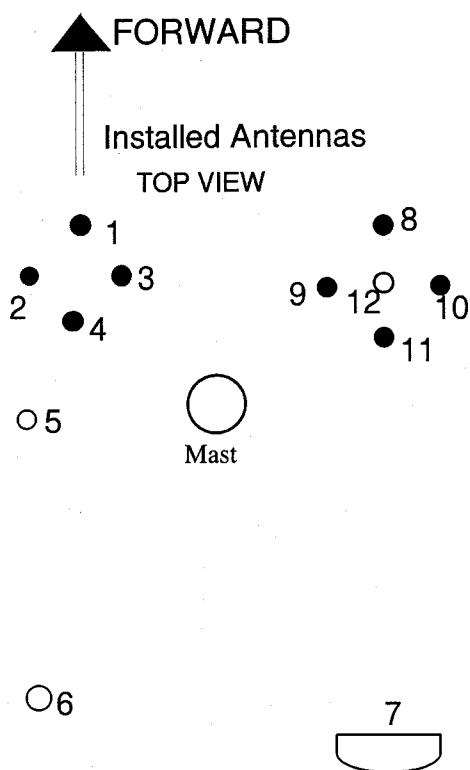




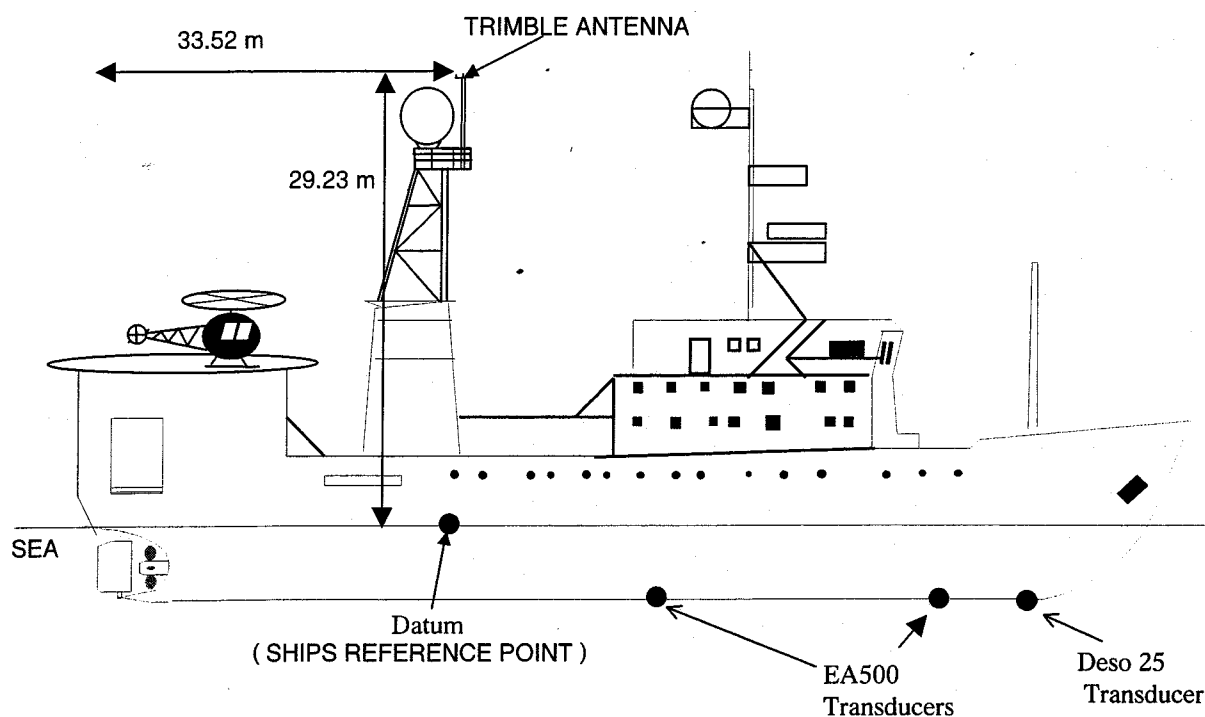
## **9.2 VESSEL OFFSET**

# R/V Geo Arctic. (updated 27 April 2001)

## ANTENNA OFFSET

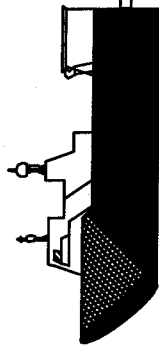


	X m	Y m	Z m
Datum. Mast S/L	0.0	0.0	0.0
Mid. stern	0.0	-33.52	0.0
EA500 27 kHz tran	-1.21	18.53	-4.97
EA500 12 kHz tran	-0.64	31.61	-4.98
Deso 25 transducer	0.01	35.73	-4.99
Survey Gyro	-2.4	9.60	1.0
1 Primary Trimble	-1.51	1.07	29.23
2 Secondary Trimble	-1.86	0.72	29.23
3 Spare Trimble	-1.16	0.72	29.23
4 Glonass	-1.51	0.37	29.23
5 VHF antenna			
6 Seatrack Wipe ant.			
7 Seatrack Panel ant.			
8 Norsat GPS	1.51	1.07	29.23
9 Spotbeam	1.16	0.72	29.23
10	1.86	0.72	29.23
11 Spotbeam	1.51	0.37	29.23
12	1.51	0.72	n/a

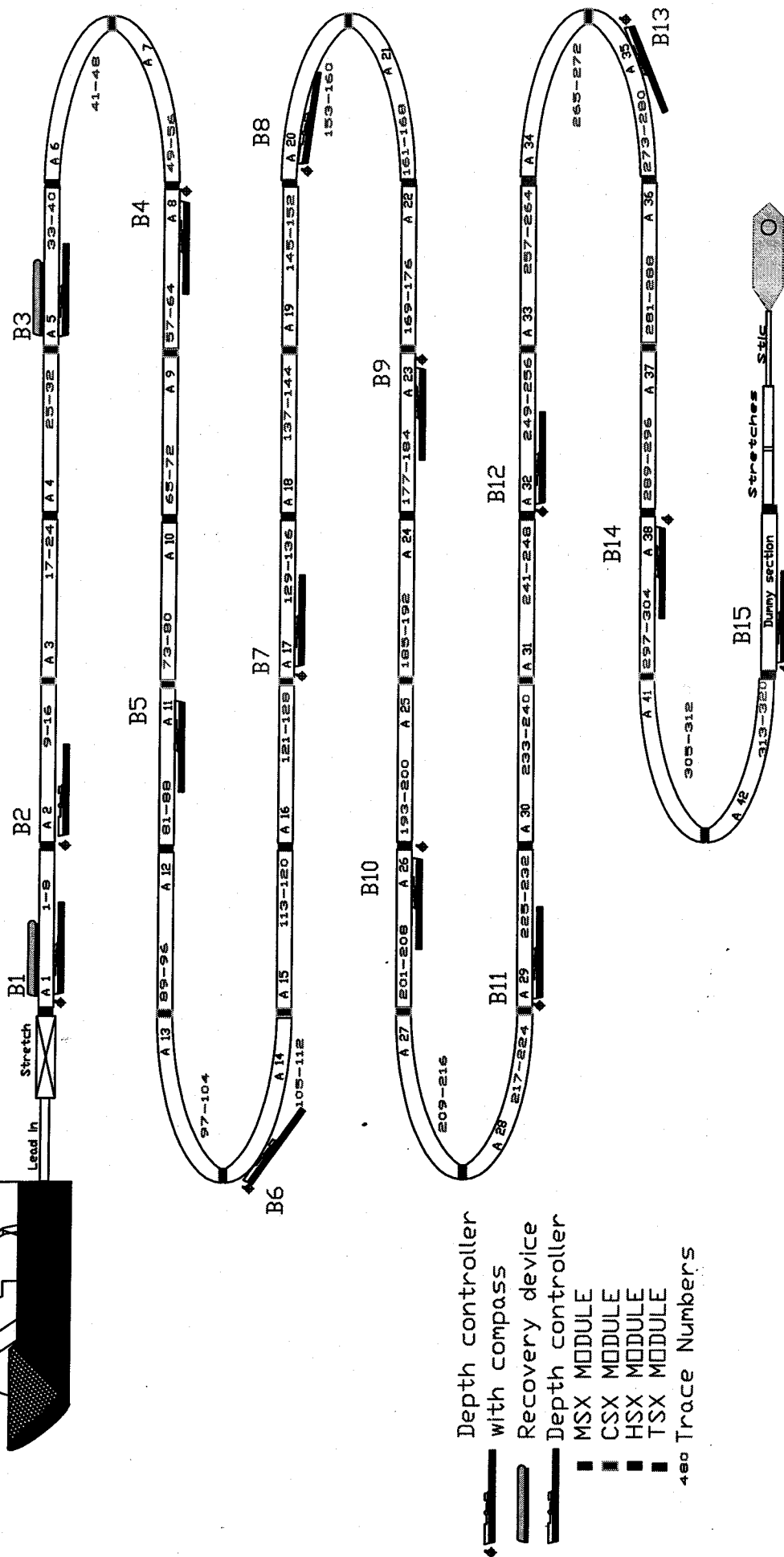




### **9.3 STREAMER CONFIGURATION**



# M/V GEO ARCTIC

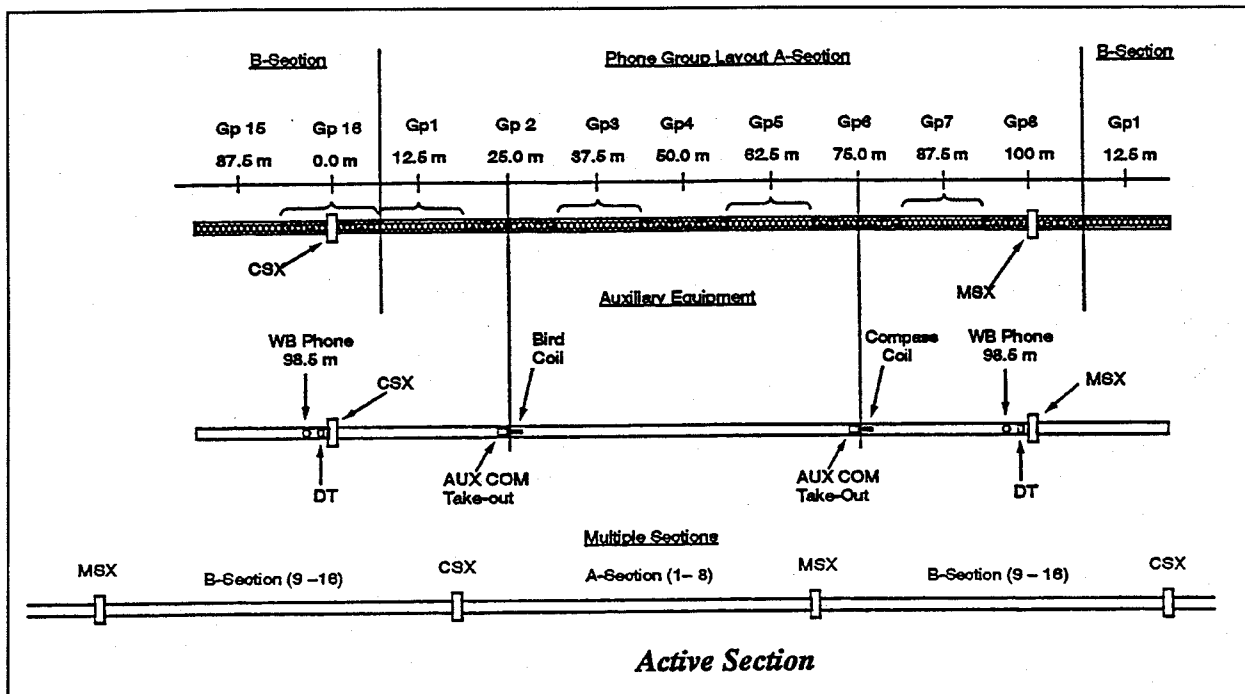


FUGRO GEOTEAM AS  
 Job No. 34834  
 Client: Origin Energy Resources Ltd.  
 AREA: Bass Basin Tasmania - Shelduck - Permit T/18P.



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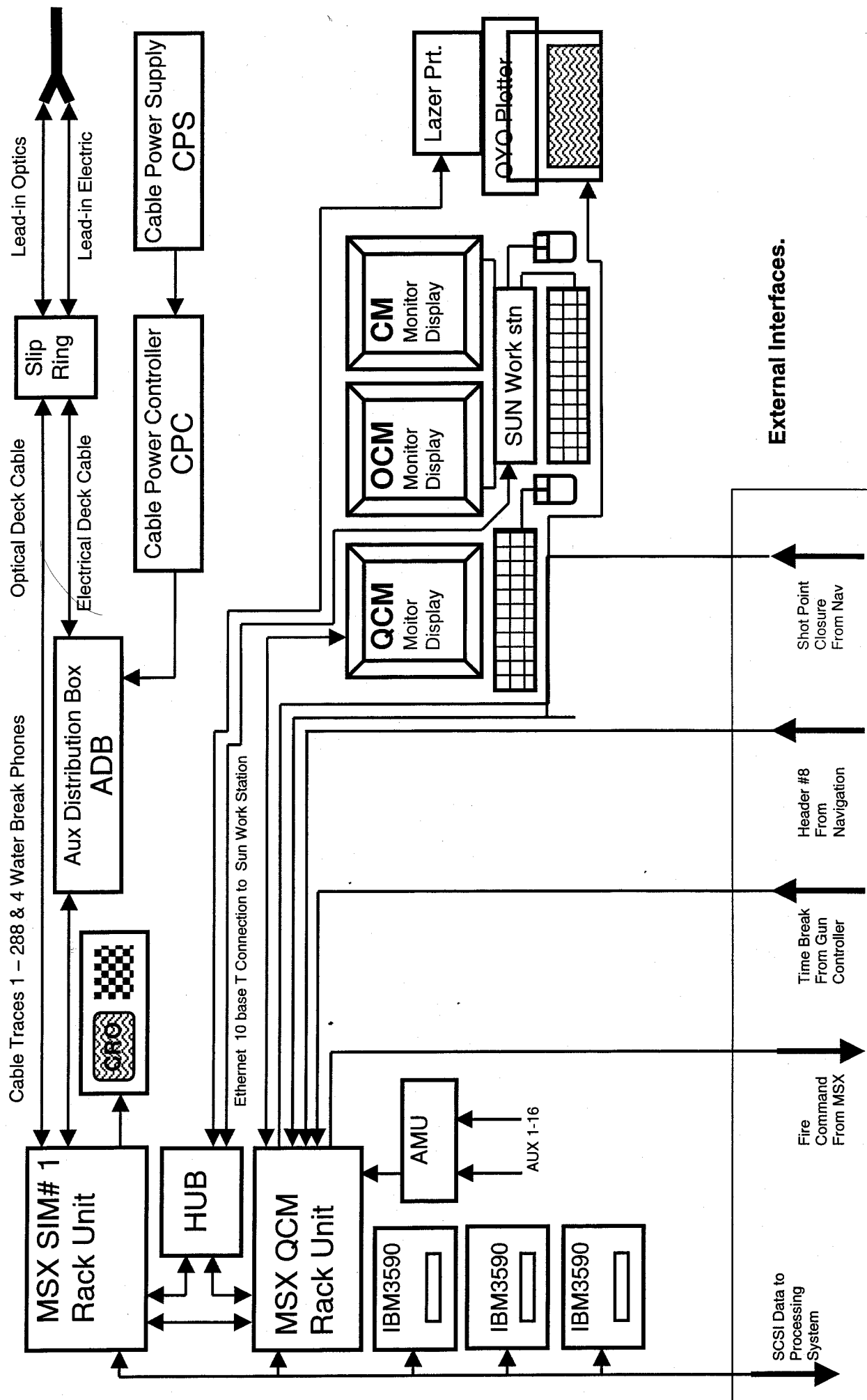
## 9.4 HYDROPHONE GROUP CONFIGURATION





## 9.5 INSTRUMENTATION LAYOUT

# Fig 1.MSX System Overview







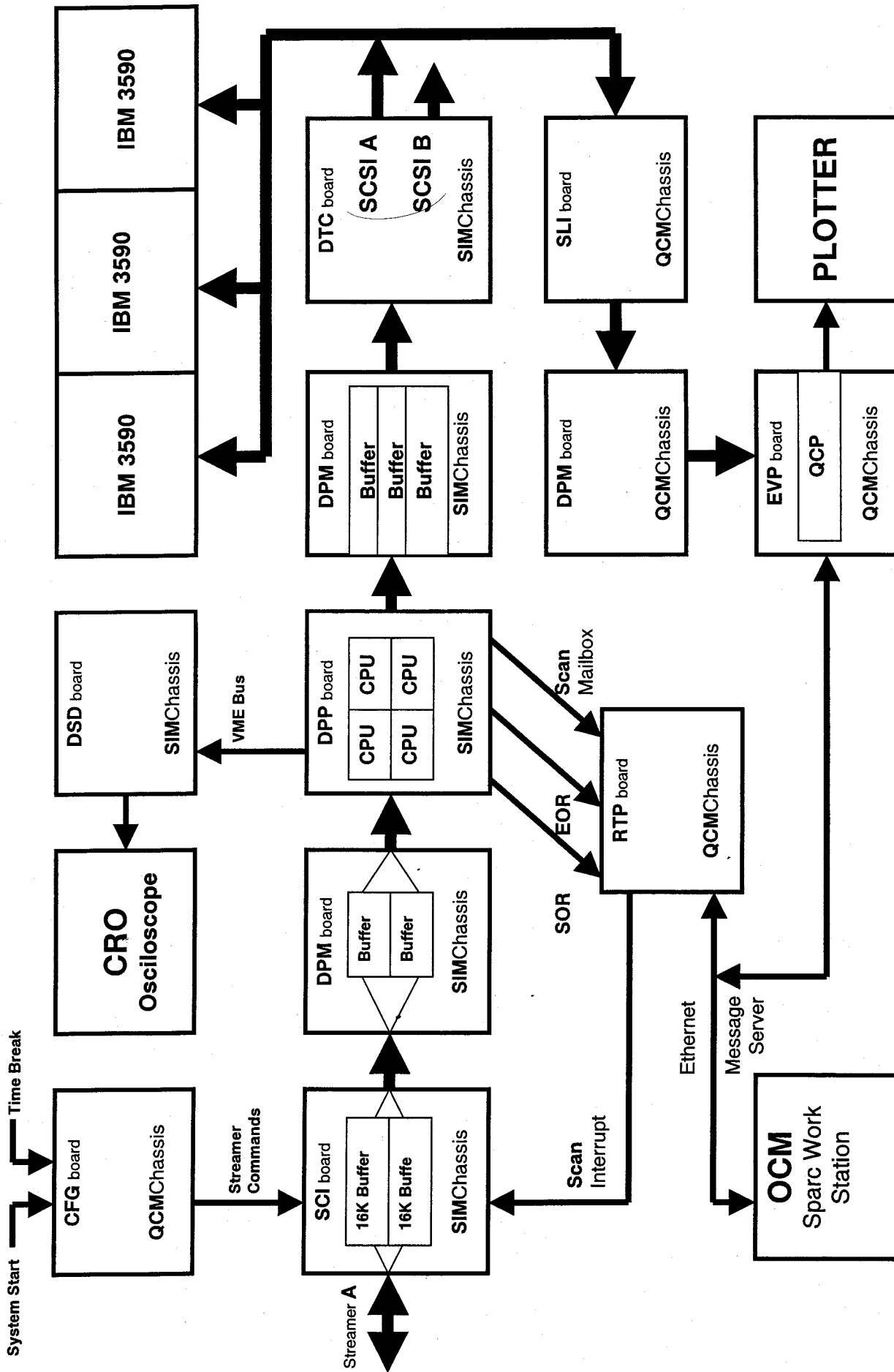
## MSX Data Flow Sequence

The data flow of Seismic data from cable module to tape drive is described below with reference to the drawing.

(Not all the MSX commands and messages are shown)

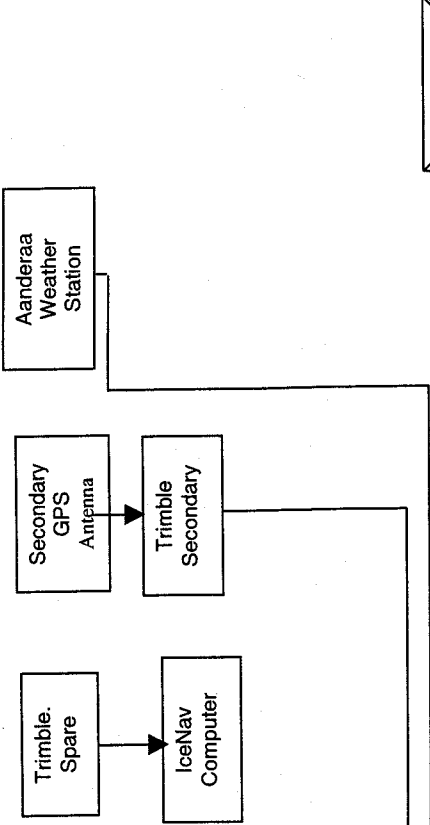
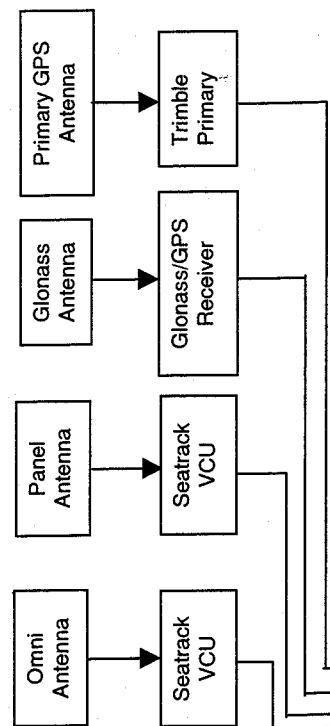
1. System Start is received by the CFG Board in the QCM Chassis.  
The Navigation System generates this signal when the boat is deemed over the hot point.
2. The CFG board issues a Fire Command to the Gun controller after 200mS.
3. The Gun controller fires the Guns and returns Time break or "Time Zero" (T0) Signal.
4. Upon receipt of 'T0' the CFG board aborts the current data scan and sets the time break bit in the Streamer commands going to the SCI board. This is the first scan of the Shot Point.
5. The SCI board sends fiber optic commands down the streamer to extract Seismic Data.
6. Returning fiber optic Seismic data is converted to electrical signals and stored in one of the two buffers on the SCI board.
7. The Seismic data is then transferred to one of the two buffers on the DPM board.
8. The DPP board de-multiplexes the data samples and applies the selected filters. If the DPP board detects the Time break or 'T0' bit as set, it sends an SOR message to the RTP board.
9. The DPP board sends the data to the DSD board for real time display.
10. The data flows from the DPP board to one of the three buffers on the DPM board.
11. The DTC board transfers the data from the DPM board to the SCSI bus.
12. Data on the SCSI bus goes to the SLI board of the QCM and the tape drives.
13. The SLI board stores the data on the DPM board.
14. The EVP displays the data and then sends it to the plotter if enabled.
15. The DPP board counts the data scans as they flow through. When the last scan is detected, the DPP board sends the EOR message to the RTP board.

# MSX Data Flow

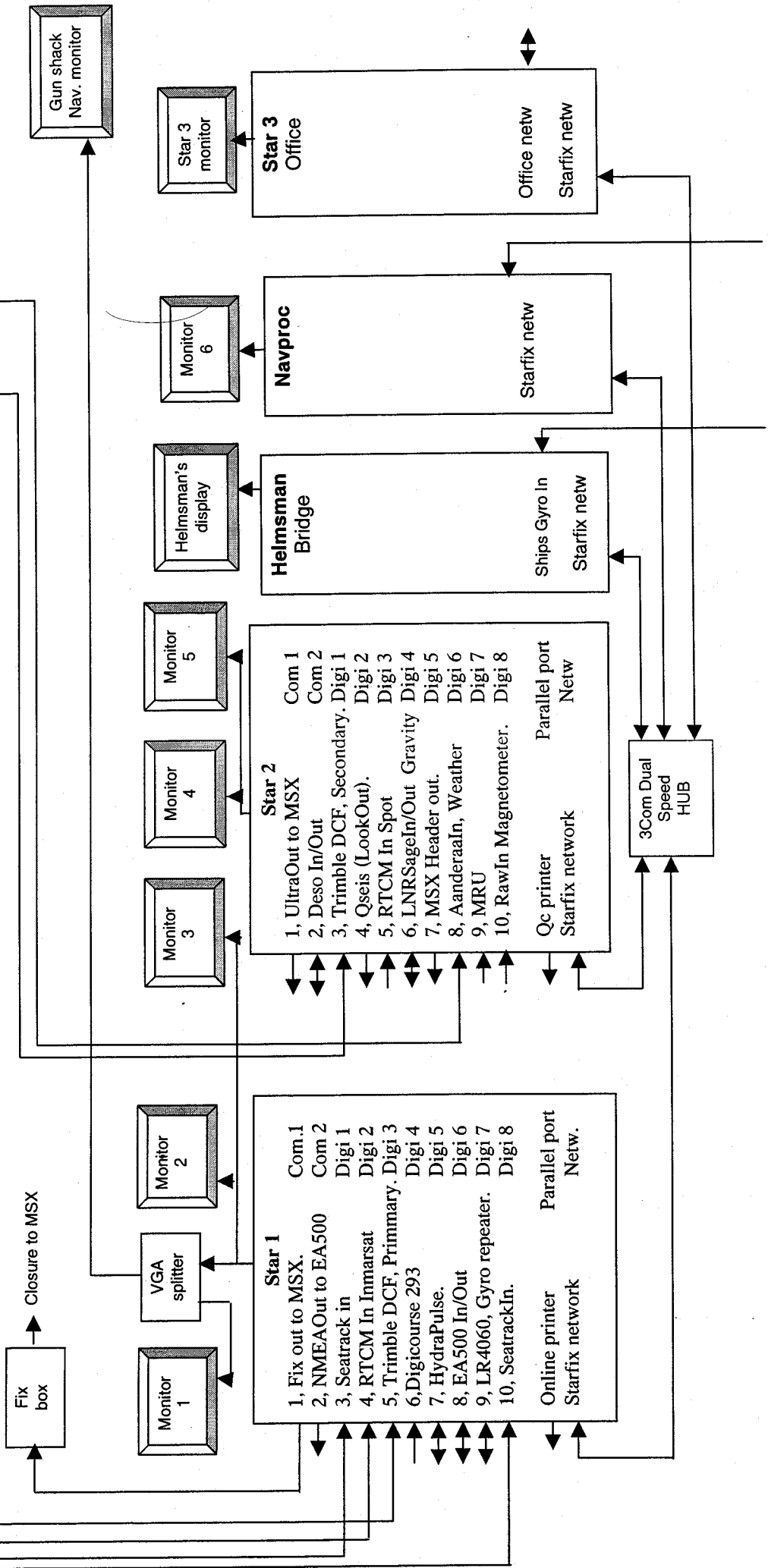




## 9.6 NAVIGATION LAYOUT



# ON-LINE NAVIGATION SYSTEM OUTLINE





## 9.7 SYSTEM TIMING

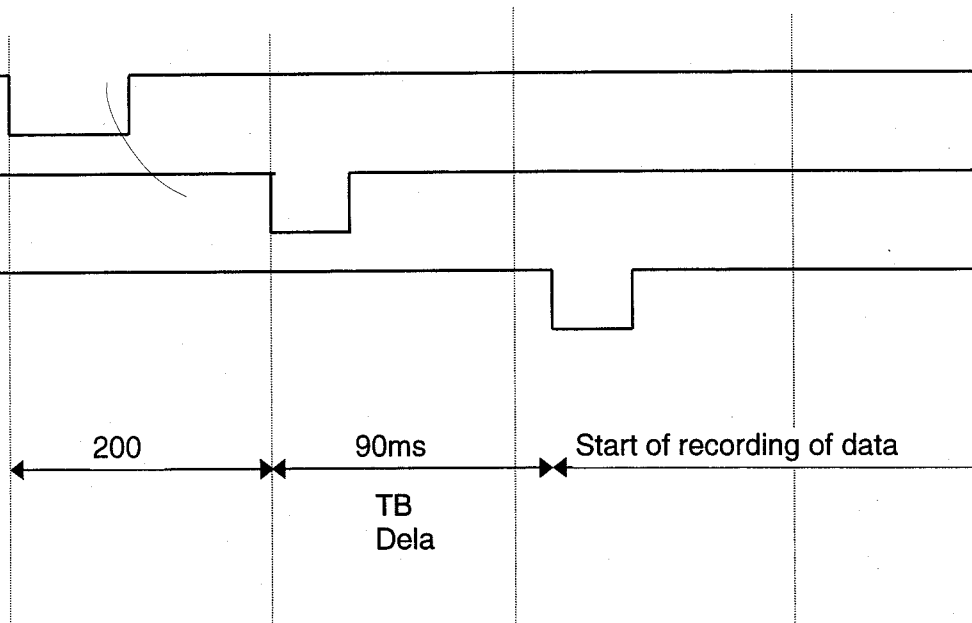


# External Interface Timing

Nav Start

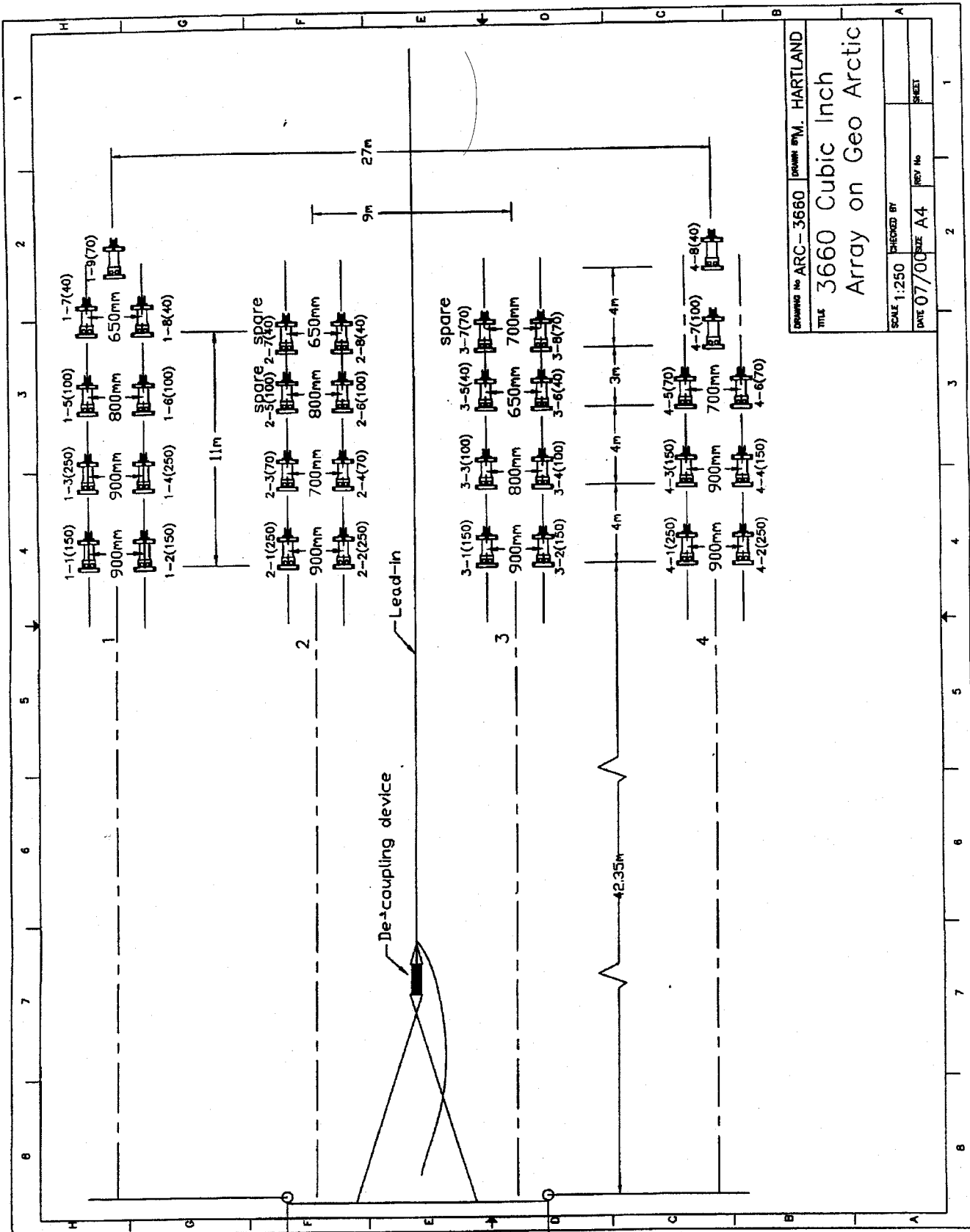
Fire

TB





## 9.8 SOURCE LAYOUT



DRAWING No ARC-3660 DRAWN BY M. HARTLAND

TITLE  
3660 Cubic Inch  
Array on Geo Arctic

SCALE 1:250 CHECKED BY  
DATE 07/00 SIZE A4 REV No SHEET





## **APPENDICES**

- 1. DAILY LOGS**
- 2. LINE SUMMARY**
- 3. LINE QC**
- 4. ENERGY SOURCE DROP OUT SPECIFICATION**
- 5. ORIGINAL DATA ACQUISITION PROGRAM**
- 6. WEATHER REPORTS**
- 7. SAFETY ACCIDENTS / NEAR MISS REPORTS - NIL**

### **POSITION**

- 8. PROFILES LOG**
- 9. PRODUCTION LOG**
- 10. NAV PROCESSING LOG**

### **PROCESSING**

- 11. SEISMIC QC PROCESSING LINE LOG**

## **APPENDIX 1**



## 1. DAILY LOGS

Time Zone: UTC+10 hours

### 12 June 2001

<u>Start</u>	<u>End</u>	<u>Charge</u>	<u>Hrs</u>	<u>Activity</u>	<u>Details</u>
00:00	23:59	Yes	24.00	Transit	Steaming east from Otway / Sorell basin.

### 13 June 2001

<u>Start</u>	<u>End</u>	<u>Charge</u>	<u>Hrs</u>	<u>Activity</u>	<u>Details</u>
00:00	00:10	Yes	0.17	Transit	Steaming to deployment area
00:10	04:00	Yes	3.83	Mob / Demob	Deploy 4km active cable.
04:00	10:45	No	6.75	Weather - Off	Stop deployment and turn to strong winds.
10:45	11:45	Yes	1.00	Mob / Demob	Testing cable and turn back into position.
11:45	13:10	Yes	1.42	Mob / Demob	Deploy guns and test array.
13:10	13:38	Yes	0.47	Mob / Demob	Line approach and soft start guns.
13:38	13:43	No	0.08	Source	Gun firing system hang up.
13:43	14:47	Yes	1.07	Production	EBR01-01 sp 132-502 Completed.
14:47	16:28	Yes	1.68	Line change	begin soft start on line approach
16:28	16:32	No	0.07	Compressor	ERB01-11 sp 101-128 compressor down NTBP
16:32	18:39	No	2.12	Compressor	Circle back for restart.
18:39	18:41	No	0.03	Weather - Off	ERB01-11A sp 1101-1117 Aborted, high winds.
18:41	19:10	No	0.48	Weather - Off	Turn into SW winds 20 m/s.
19:10	20:50	No	1.67	Weather - Off	Recover guns.
20:50	23:59	No	3.17	Weather - Off	Turn and run with seas, standby

### 14 June 2001

<u>Start</u>	<u>End</u>	<u>Charge</u>	<u>Hrs</u>	<u>Activity</u>	<u>Details</u>
00:00	23:59	No	24.00	Weather - Off	

### 15 June 2001

<u>Start</u>	<u>End</u>	<u>Charge</u>	<u>Hrs</u>	<u>Activity</u>	<u>Details</u>
00:00	23:10	Yes	23.17	Weather - On	Swell too much, standby onsite with cable
23:10	23:55	Yes	0.75	Weather - On	Deploy guns int 3m SW swell
23:55	23:59	Yes	0.08	Weather - On	Approaching line turn

### 16 June 2001

<u>Start</u>	<u>End</u>	<u>Charge</u>	<u>Hrs</u>	<u>Activity</u>	<u>Details</u>
00:00	01:41	Yes	1.68	Weather - On	Approaching line and soft start.
01:41	03:20	Yes	1.65	Production	EBR01-24 sp 101-702 complete
03:20	05:04	Yes	1.73	Line change	Standard turn
05:04	06:42	Yes	1.63	Production	EBR01-28 sp 101-702 complete
06:42	08:38	Yes	1.93	Line change	tight turn
08:38	10:16	Yes	1.63	Production	EBR01-26 sp 101-702 complete.
10:16	12:24	Yes	2.13	Line change	even tighter turn
12:24	14:02	Yes	1.63	Production	EBR01-27 sp 101-701 complete
14:02	16:29	Yes	2.45	Line change	Change to N/S line grid
16:29	17:35	Yes	1.10	Production	EBR01-22 sp 101-502 complete.
17:35	19:22	Yes	1.78	Line change	Standard turn
19:22	20:28	Yes	1.10	Production	EBR01-11B sp 2101-21502 complete
20:28	22:12	Yes	1.73	Line change	Standard turn
22:12	23:17	Yes	1.08	Production	EBR01-21 sp 101-502 Completed.
23:17	23:59	Yes	0.72	Line change	


**17 June 2001**

<u>Start</u>	<u>End</u>	<u>Charge</u>	<u>Hrs</u>	<u>Activity</u>	<u>Details</u>
00:00	01:04	Yes	1.07	Line change	
01:04	02:11	Yes	1.12	Production	EBR01-10 sp 101-502 completed.
02:11	03:56	Yes	1.75	Line change	
03:56	05:01	Yes	1.08	Production	EBR01-20 sp 101-502 completed.
05:01	07:06	Yes	2.08	Line change	
07:06	08:12	Yes	1.10	Production	EBR01-08 sp 101-502 completed.
08:12	10:17	Yes	2.08	Line change	
10:17	11:22	Yes	1.08	Production	EBR01-19 sp 101-502 completed.
11:22	13:30	Yes	2.13	Line change	
13:30	14:36	Yes	1.10	Production	EBR01-07 sp 101-502 completed.
14:36	16:20	Yes	1.73	Line change	
16:20	17:26	Yes	1.10	Production	EBR01-17 sp 101-502 completed.
17:26	19:10	Yes	1.73	Line change	
19:10	20:15	Yes	1.08	Production	EBR01-06 sp 101-502 completed.
20:15	22:01	Yes	1.77	Line change	
22:01	23:06	Yes	1.08	Production	EBR01-16 sp 101-502 completed.
23:06	23:59	Yes	0.90	Line change	

**18 June 2001**

<u>Start</u>	<u>End</u>	<u>Charge</u>	<u>Hrs</u>	<u>Activity</u>	<u>Details</u>
00:00	00:56	Yes	0.93	Line change	
00:56	02:00	Yes	1.07	Production	EBR01-05 sp 101-502 completed.
02:00	03:46	Yes	1.77	Line change	
03:46	04:50	Yes	1.07	Production	EBR01-15 sp 101-502 completed.
04:50	06:33	Yes	1.72	Line change	
06:33	07:39	Yes	1.10	Production	EBR01-04 sp 101-502 completed
07:39	09:26	Yes	1.78	Line change	
09:26	10:32	Yes	1.10	Production	EBR01-14 sp 101-502 completed.
10:32	12:19	Yes	1.78	Line change	
12:19	13:24	Yes	1.08	Production	EBR01-03 sp 101-502 completed.
13:24	14:56	Yes	1.53	Line change	
14:56	16:04	Yes	1.13	Production	EBR01-12 sp 101-502 completed
16:04	17:35	Yes	1.52	Line change	
17:35	18:43	Yes	1.13	Production	EBR01-02 sp 101-502 completed end f inner grid.
18:43	21:57	Yes	3.23	Line change	Changing line orientation
21:57	23:59	Yes	2.05	Production	EBR01-23 sp 101- 884 continuing
23:59	23:59	Yes	0.00	Production	Midnight sp 884

**19 June 2001**

<u>Start</u>	<u>End</u>	<u>Charge</u>	<u>Hrs</u>	<u>Activity</u>	<u>Details</u>
00:00	00:46	Yes	0.77	Production	EBR01-23 sp 884-1182 completed.
00:46	02:38	Yes	1.87	Line change	
02:38	04:52	Yes	2.23	Production	EBR01-34 sp 101 - 957 completed.
04:52	07:30	Yes	2.63	Line change	
07:30	10:23	Yes	2.88	Production	EBR01-30 sp 101-1216 completed.
10:23	11:56	Yes	1.55	Line change	
11:56	14:17	Yes	2.35	Production	EBR01-09 sp 101-999 completed.
14:17	15:45	Yes	1.47	Line change	
15:45	18:05	Yes	2.33	Production	EBR01-18 sp 101-994 completed.
18:05	19:44	Yes	1.65	Line change	



**19 June 2001**

<u>Start</u>	<u>End</u>	<u>Charge</u>	<u>Hrs</u>	<u>Activity</u>	<u>Details</u>
19:44	22:05	Yes	2.35	Production	EBR01-13 sp 101-999 completed.
22:05	23:59	Yes	1.90	Line change	
23:59	23:59	Yes	0.02	Production	EBR01-31 sp 101-106 continues.
23:59	23:59	Yes	0.00	Production	Midnight sp 106

**20 June 2001**

<u>Start</u>	<u>End</u>	<u>Charge</u>	<u>Hrs</u>	<u>Activity</u>	<u>Details</u>
00:00	00:54	Yes	0.90	Production	EBR01-31 sp 106-442 completed.
00:54	02:32	Yes	1.63	Line change	
02:32	03:26	Yes	0.90	Production	EBR01-33 sp 101-442 completed.
03:26	05:06	Yes	1.67	Line change	
05:06	06:01	Yes	0.92	Production	EBR01-32 sp 101-440 completed.
06:01	07:39	Yes	1.63	Line change	
07:39	09:17	Yes	1.63	Production	EBR01-25 sp 101-702 completed.
09:17	10:56	Yes	1.65	Line change	
10:56	12:39	Yes	1.72	Production	EBR01-29 sp 101-702 completed.
12:39	13:15	Yes	0.60	Mob / Demob	Turn into strong wind.
13:15	14:15	Yes	1.00	Mob / Demob	Pick up guns
14:15	18:00	Yes	3.75	Mob / Demob	Recover cable.
18:00	23:59	Yes	6.00	Mob / Demob	Steam towards Wollongong for demob.

**21 June 2001**

<u>Start</u>	<u>End</u>	<u>Charge</u>	<u>Hrs</u>	<u>Activity</u>	<u>Details</u>
00:00	20:00	Yes	20.00	Mob / Demob	Transit to Port Kembla
20:00	21:30	Yes	1.50	Mob / Demob	Arriving alongside Port Kembla
21:30	23:59	Yes	2.50	Mob / Demob	Demobilisation for project
23:59	23:59	Yes	0.00	Mob / Demob	** Project complete **

## **APPENDIX 2**



## 2. LINE SUMMARY

### Production

Date	Seq.	Line	Dir	Type	FSP	FCSP	LCSP	LSP	Charge	No Charge	Status
13/06/01	1	EBR01- 01	359	2D	101	132	502	502	9.2750	0.7750	COMPLETED
13/06/01	2	EBR01- 11	178	2D	101	0	0	128	0.0000	0.6750	NTBP
13/06/01	3	EBR01- 11A	178	2D	1001	0	0	1117	0.0000	2.9000	NTBP
16/06/01	4	EBR01- 24	270	2D	101	101	702	702	15.0500	0.0000	COMPLETED
16/06/01	5	EBR01- 28	90	2D	101	101	702	702	15.0500	0.0000	COMPLETED
16/06/01	6	EBR01- 26	270	2D	101	101	702	702	15.0500	0.0000	COMPLETED
16/06/01	7	EBR01- 27	90	2D	101	101	701	701	15.0250	0.0000	COMPLETED
16/06/01	8	EBR01- 22	358	2D	101	101	502	502	10.0500	0.0000	COMPLETED
16/06/01	9	EBR01- 11B	179	2D	2101	2101	2502	2502	10.0500	0.0000	COMPLETED
16/06/01	10	EBR01- 21	359	2D	101	101	502	502	10.0500	0.0000	COMPLETED
17/06/01	11	EBR01- 10	179	2D	101	101	502	502	10.0500	0.0000	COMPLETED
17/06/01	12	EBR01- 20	359	2D	101	101	502	502	10.0500	0.0000	COMPLETED
17/06/01	13	EBR01- 08	179	2D	101	101	502	502	10.0500	0.0000	COMPLETED
17/06/01	14	EBR01- 19	359	2D	101	101	502	502	10.0500	0.0000	COMPLETED
17/06/01	15	EBR01- 07	179	2D	101	101	502	502	10.0500	0.0000	COMPLETED
17/06/01	16	EBR01- 17	358	2D	101	101	502	502	10.0500	0.0000	COMPLETED
17/06/01	17	EBR01- 06	179	2D	101	101	502	502	10.0500	0.0000	COMPLETED
17/06/01	18	EBR01- 16	359	2D	101	101	502	502	10.0500	0.0000	COMPLETED
18/06/01	19	EBR01- 5	179	2D	101	101	502	502	10.0500	0.0000	COMPLETED
18/06/01	20	EBR01- 15	359	2D	101	101	502	502	10.0500	0.0000	COMPLETED
18/06/01	21	EBR01- 04	179	2D	101	101	502	502	10.0500	0.0000	COMPLETED
18/06/01	22	EBR01- 14	359	2D	101	101	502	502	10.0500	0.0000	COMPLETED
18/06/01	23	EBR01- 03	179	2D	101	101	502	502	10.0500	0.0000	COMPLETED
18/06/01	24	EBR01- 12	359	2D	101	101	502	502	10.0500	0.0000	COMPLETED
18/06/01	25	EBR01- 02	179	2D	101	101	502	502	10.0500	0.0000	COMPLETED
18/06/01	26	EBR01- 23	43	2D	101	101	884	884	19.6000	0.0000	Midnight SP
19/06/01	26	EBR01- 23	43	2D	885	885	1182	1182	7.4500	0.0000	COMPLETED
19/06/01	27	EBR01- 34	282	2D	101	101	957	957	21.4250	0.0000	COMPLETED
19/06/01	28	EBR01- 30	180	2D	101	101	1216	1216	27.9000	0.0000	COMPLETED
19/06/01	29	EBR01- 09	0	2D	101	101	999	999	22.4750	0.0000	COMPLETED
19/06/01	30	EBR01- 18	179	2D	101	101	994	994	22.3500	0.0000	COMPLETED
19/06/01	31	EBR01- 13	0	2D	101	101	999	999	22.4750	0.0000	COMPLETED
19/06/01	32	EBR01- 31	180	2D	101	101	106	106	0.1500	0.0000	Midnight SP
20/06/01	32	EBR01- 31	180	2D	107	107	442	442	8.4000	0.0000	COMPLETED
20/06/01	33	EBR01- 33	0	2D	101	101	442	442	8.5500	0.0000	COMPLETED
20/06/01	34	EBR01- 32	180	2D	101	101	440	440	8.5000	0.0000	COMPLETED
20/06/01	35	EBR01- 25	90	2D	101	101	702	702	15.0500	0.0000	COMPLETED
20/06/01	36	EBR01- 29	270	2D	101	101	702	702	15.0500	0.0000	COMPLETED

Total Production = **449.725** **4.350** km

Total acquisition on this project = **100.00%**

## **APPENDIX 3**





**3. LINE QC**



# NAVIGATION QC LOG



CLIENT:	Eagle Bay Resources Ltd	VESSEL:	RV Geo Arctic	NAV. SYSTEM 1:	Starfix Spot
PROJECT:	2D survey	AREA:	EBR01, Scorpion Field, Gippsland Basin	NAV. SYSTEM 2:	Starfix MN8
NAV PROG.:	Starfix Suite 3.1	PROJECT NO.:	34841	REF. STATS:	385,336,326,275,026,022,

Line Number	Sequence	Cross Course			Shot Point Interval			Satellites		PDOP			Fthr<°		Speed		Comments
		Min	Max	Mean	SD	Min	Max	Mean	SD	Max	Mean	SD	Min	Max	Mean	Max	
EBR01																	
01	001	-11.38	9.88	1.14	3.90	24.89	25.18	25.00	0.29	2.1	1.8	0.1	-3.3	1.0	4.70		Complete FGSP d/t MSX problem
11	002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Scratched aborted d/t LMF compressor
11A	003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Scratched aborted d/t bad weather
24	004	-7.83	8.70	-1.51	3.08	24.85	25.14	25.00	0.03	2.8	2.1	0.4	-1.1	6.2	4.92		Complete no tailbouy data this seq onwards
28	005	-11.61	9.81	-1.20	3.69	24.87	25.14	25.00	0.03	5.6	3.3	1.0	-2.7	0.2	5.00		Complete
26	006	-9.37	7.79	-0.55	3.31	24.85	25.14	25.00	0.03	6.0	2.4	0.6	1.1	4.0	5.00		Complete
27	007	-7.41	7.32	-0.35	2.78	24.84	25.10	25.00	0.02	2.7	1.8	0.1	-2.3	0.1	5.00		Complete
22	008	-6.76	10.31	1.82	2.66	24.83	25.23	25.00	0.04	2.9	1.9	0.5	1.9	7.8	4.91		Complete
11B	009	-8.98	13.00	0.91	4.08	24.67	25.25	25.00	0.06	3.4	2.9	0.4	-5.4	-0.8	5.18		Complete
21	010	-7.47	9.81	1.11	3.59	24.83	25.15	25.00	0.03	3.0	2.4	0.4	-2.4	2.3	4.98		Complete
10	011	-19.13	10.09	-0.93	5.12	24.54	25.35	25.00	0.07	2.8	2.2	0.4	-2.8	0.5	4.87		Complete
20	012	-7.09	8.99	-1.18	2.53	24.74	25.26	25.00	0.04	4.2	2.2	0.3	-0.6	3.7	5.01		Complete
08	013	-9.91	11.75	0.38	4.34	24.80	25.21	25.00	0.04	4.3	3.0	0.8	-4.3	-1.8	4.90		Complete
19	014	-6.69	5.79	-0.52	2.51	24.87	25.12	25.00	0.03	3.1	2.2	0.3	-3.5	-0.1	4.98		Complete
07	015	-7.16	6.08	-0.13	2.69	24.88	25.09	25.00	0.02	4.4	1.9	0.2	-2.2	1.6	4.96		Complete
17	016	-5.53	8.37	0.50	2.96	24.89	25.08	25.00	0.02	2.8	1.9	0.4	-0.8	1.7	4.98		Complete
06	017	-7.01	6.24	-0.54	2.34	24.90	25.09	25.00	0.02	3.4	2.9	0.4	-3.8	-0.4	4.96		Complete
16	018	-5.17	4.83	0.41	1.94	24.91	25.10	25.00	0.02	3.0	2.5	0.4	-2.7	1.0	5.02		Complete
05	019	-5.74	8.32	0.60	2.86	24.91	25.09	25.00	0.02	2.8	2.2	0.4	-4.6	0.2	5.02		Complete
15	020	-5.57	7.13	-0.52	2.64	24.88	25.08	25.00	0.02	2.7	2.2	0.3	-2.5	-1.3	5.06		Complete
04	021	-7.88	12.47	-0.57	3.28	24.89	25.13	25.00	0.02	4.5	2.8	0.5	-2.2	2.7	4.98		Complete
14	022	-5.43	5.31	-0.47	1.96	24.93	25.07	25.00	0.02	2.8	2.5	0.3	-4.8	-0.2	4.90		Complete
03	023	-4.23	10.93	-0.05	2.83	24.90	25.06	25.00	0.02	2.7	2.0	0.3	-6.7	1.1	5.04		Complete
12	024	-5.41	8.10	-0.80	2.72	24.91	25.06	25.00	0.02	2.6	2.4	0.1	-9.2	0.3	4.75		Complete
02	025	-5.52	3.78	-0.69	2.00	24.91	25.08	25.00	0.02	3.3	2.5	0.3	-10.3	1.5	4.81		Complete
23	026	-6.41	12.24	0.33	2.26	24.95	25.07	25.00	0.01	3.0	2.2	0.4	-5.9	0.0	5.17		Complete
34	027	-6.37	5.74	-0.28	1.93	24.90	25.11	25.00	0.01	2.7	3.3	0.3	-4.0	-1.2	5.17		Complete
30	028	-4.49	4.12	-0.14	1.84	24.93	25.06	25.00	0.01	4.3	2.4	0.6	-2.6	11.6	5.19		Complete
09	029	-5.79	5.06	-0.58	2.05	24.95	25.05	25.00	0.01	4.0	1.8	0.1	-9.4	3.4	5.15		Complete
18	030	-8.35	7.38	-0.47	2.78	24.92	25.06	25.00	0.01	3.3	2.2	0.5	-5.3	7.8	5.18		Complete



## NAVIGATION QC LOG



CLIENT:	Eagle Bay Resources Ltd	VESSEL:	RV Geo Arctic	NAV. SYSTEM 1:	Starfix Spot
PROJECT:	2D survey	AREA:	EBR01, Scorpion Field, Gippsland Basin	NAV. SYSTEM 2:	Starfix MN8
NAV PROG.:	Starfix Suite 3.1	PROJECT NO.:	34841	REF. STATS:	385,396,326,275,026,022,

Line Number	Sequence	Cross Course			Shot Point Interval			Satellites		PDOP		Fthr<°		Speed		Comments
EBR01		Min	Max	Mean	SD	Min	Max	Mean	SD	Max	Mean	Min	Max	Mean		
13	031	-7.47	7.24	0.14	2.65	24.90	25.10	25.00	0.02	3.4	2.5	-1.8	6.3	5.16	Complete	
31	032	-9.06	4.33	-0.88	2.53	24.89	25.10	25.00	0.02	2.8	1.8	-7.4	-0.5	4.95	Complete	
33	033	-13.86	2.43	-2.90	3.09	24.90	25.09	25.00	0.02	2.7	2.3	2.7	10.2	5.17	Complete	
32	034	-7.36	4.20	-0.97	2.40	24.90	25.12	25.00	0.02	5.6	3.7	-3.4	4.1	4.97	Complete	
25	035	-5.02	8.59	0.56	2.13	24.90	25.10	25.00	0.02	4.3	2.3	-10.2	1.7	5.01	Complete	
29	036	-10.69	10.25	-0.97	3.41	24.69	25.18	25.00	0.06	2.8	2.0	-3.3	3.9	4.76	Complete	

r/v Geo Arctic										SEISMIC QC , LINE SUMMARY									
Client : Eagle Bay Resources Ltd.										Project : 2D Exclusive      Group Interval : 12.5m									
Project # : 34841										Date Commenced : 13th June 2001      Group Number : 320									
Area : Scorpion field, Australia										Date Completed :      Cable Length : 4000m									
SP Interval: 25 m										Array : 3660 cu. in      Cable Depth : 8-10m									
Seq.	Date	Line I.D.	DIR	FSP	FCSP	LCSP	LSP	Charg'ble km	Gun Timing % out spec	SOL Noise uB	SOL Feather	EOL Feather	Max Feather	EOL Noise uB	Cable Depth m.	Depth % out spec.	Status		
1	13.06.2001	01	359	101	132	502	502	9.275	0.00%	6.4	-2	-0.1	-2.7	8.7	10	0.00%	Complete		
2	13.06.	02	178	101			128	0.000							10		NTBP		
3	13.06.	02A	178	101			117	0.000		38.0					10		NTBP		
4	16.06.	24	270	101	101	702	702	15.050	0.20%	6	6.2	-0.6	6.2	6.8	10	0.00%	Complete		
5	16.06.	28	270	101	101	702	702	15.050	0.20%	7.9	-2.2	-1.1	-2.2	10.3	10	0.00%	Complete		
6	16.06.	26	270	101	101	702	702	15.050	1.50%	9.7	2.6	1.4	3.4	6.9	10	0.00%	Complete		
7	16.06.	27	90	101	101	701	701	15.025	0.20%	10.3	-0.4	-1.5	-1.7	35	10	0.00%	Complete		
8	16.06.	22	358	101	101	502	502	10.050	4.20%	38.3	-7	5	-7.0	50.2	10	0.50%	Complete		
9	16.06.	11B	179	2101	2101	2502	2502	10.050	0.70%	68.0	-4	-4.5	-4.5	35.1	10	0.00%	Complete		
10	16.06.	21	359	101	101	502	502	10.050	2.00%	18.1	-1.1	1.1	1.8	17.5	10	0.00%	Complete		
11	17.06.	10	178	101	101	502	502	10.050	0.50%	49.5	-2.1	-1.3	-2.1	37.8	10	0.00%	Complete		
12	17.06.	20	358	101	101	502	502	10.050	0.10%	21	0	3.1	3.1	20.5	10	0.10%	Complete		
13	17.06.	8	178	101	101	502	502	10.050	1.20%	49.8	-2.9	-2.1	-3.7	19.3	10	0.00%	Complete		
14	17.06.	19	359	101	101	502	502	10.050	1.20%	11.5	-2.9	-0.8	-2.6	10	10	0.30%	Complete		
15	17.06.	7	178	101	101	502	502	10.050	1.00%	8.3	-2.3	1.2	-2.2	9.4	10	0.00%	Complete		
16	17.06.	17	359	101	101	502	502	10.050	1.00%	6	0	1.6	0	7.2	10	0.00%	Complete		
17	17.06.	6	178	101	101	502	502	10.050	1.20%	7.8	-2.1	-3.2	-3.6	3.8	10	0.50%	Complete		
18	17.06.	16	359	101	101	502	502	10.050	0.50%	5.5	-1.9	0.8	-1.9	13.1	10	0.00%	Complete		
19	18.06.	5	178	101	101	502	502	10.050	0.70%	6.7	-4.4	0.2	-4.4	4.4	10	0.00%	Complete		
20	18.06.	15	359	101	101	502	502	10.050	0.20%	7.8	-2.1	-1.4	-2.2	4.9	10	0.00%	Complete		
21	18.06.	4	178	101	101	502	502	10.050	0.20%	7.1	-1.9	-1.5	2.5	3.8	10	0.00%	Complete		
22	18.06.	14	359	101	101	502	502	10.050	0.20%	6.4	-4.1	0.4	-4.1	4.2	10	0.00%	Complete		
23	18.06.	3	178	101	101	502	502	10.050	0.70%	8.4	-5.8	-0.5	-5.8	3.6	10	0.00%	Complete		
24	18.06.	12	359	101	101	502	502	10.050	2.70%	5.7	-7.5	-0.1	-7.5	3.5	10	0.00%	Complete		
25	18.06.	2	178	101	101	502	502	10.050	0.20%	6.5	-8.1	1	-8.1	3	10	0.00%	Complete		
26	18.06.	23	43	101	101	1182	1182	27.050	0.40%	5.7	-5.2	-0.2	-5.2	4.5	10	0.00%	Complete		

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## r/v Geo Arctic



## **APPENDIX 4**





#### **4. ENERGY SOURCE DROP OUT SPECIFICATION**

- All one gun drop outs are acceptable
- All two gun drop outs are acceptable except when 250 cu. Inch guns are dropped in different clusters.

## **APPENDIX 5**



## 5. ORIGINAL DATA ACQUISITION PROGRAM

### Survey Area and Line Specifications

Enclosed in this Attachment are:

- Line Map
- Line Co-ordinates

Survey datum and relevant parameters will be specified by Client.  
Line Map from the file "Scorpion Layout.pdf"

Line				
EBR01-01	101 381653.4S	1485543.4E	668695	5761177
EBR01-01	1000 382218.2S	1485550.5E	668659	5751161
EBR01-02	101 381653.9S	1485604.6E	669209	5761151
EBR01-02	999 382218.2S	1485613.9E	669227	5751151
EBR01-03	101 381653.5S	1485625.1E	669709	5761152
EBR01-03	999 382217.8S	1485634.5E	669727	5751152
EBR01-04	101 381653.2S	1485645.7E	670209	5761153
EBR01-04	999 382217.4S	1485655.1E	670227	5751153
EBR01-05	101 381652.8S	1485706.3E	670709	5761153
EBR01-05	999 382217.0S	1485715.7E	670727	5751153
EBR01-06	101 381652.4S	1485726.8E	671209	5761154
EBR01-06	999 382216.7S	1485736.3E	671227	5751154
EBR01-07	101 381652.0S	1485747.4E	671709	5761155
EBR01-07	999 382216.3S	1485756.9E	671727	5751155
EBR01-08	101 381651.7S	1485808.0E	672209	5761156
EBR01-08	999 382215.9S	1485817.5E	672227	5751156
EBR01-10	101 381650.9S	1485849.1E	673209	5761158
EBR01-10	999 382215.2S	1485858.7E	673227	5751158
EBR01-11	101 381650.5S	1485909.7E	673709	5761159
EBR01-11	999 382214.8S	1485919.3E	673727	5751159
EBR01-12	101 381650.2S	1485930.2E	674209	5761160
EBR01-12	999 382214.4S	1485939.9E	674227	5751160
EBR01-14	101 381649.4S	1490011.4E	675209	5761162
EBR01-14	999 382213.6S	1490021.0E	675227	5751162
EBR01-15	101 381649.0S	1490031.9E	675709	5761163
EBR01-15	999 382213.3S	1490041.6E	675727	5751163
EBR01-16	101 381648.6S	1490052.5E	676209	5761164
EBR01-16	999 382212.9S	1490102.2E	676227	5751164
EBR01-17	101 381648.3S	1490113.1E	676709	5761164
EBR01-17	999 382212.5S	1490122.8E	676727	5751164
EBR01-19	101 381647.5S	1490154.2E	677709	5761166
EBR01-19	999 382211.7S	1490204.0E	677727	5751166
EBR01-20	101 381647.1S	1490214.8E	678209	5761167
EBR01-20	999 382211.3S	1490224.6E	678227	5751167
EBR01-21	101 381646.7S	1490235.3E	678709	5761168
EBR01-21	999 382210.9S	1490245.2E	678727	5751168
EBR01-22	101 381646.3S	1490255.9E	679209	5761169



Line				
EBR01-22	999 382210.5S	1490305.8E	679227	5751169
EBR01-24	101 381810.9S	1485411.5E	666413	5758834
EBR01-24	999 381810.1S	1490428.9E	681410	5758535
EBR01-25	101 381841.6S	1485412.3E	666413	5757888
EBR01-25	999 381843.5S	1490429.8E	681410	5757506
EBR01-26	101 381911.2S	1485411.7E	666379	5756975
EBR01-26	999 381911.5S	1490429.2E	681377	5756644
EBR01-27	101 381939.7S	1485411.7E	666363	5756096
EBR01-27	999 381937.9S	1490429.3E	681360	5755831
EBR01-28	101 381958.5S	1485412.9E	666379	5755516
EBR01-28	999 381959.4S	1490430.6E	681377	5755167
EBR01-29	101 382041.6S	1485413.4E	666363	5754188
EBR01-29	999 382045.1S	1490431.2E	681360	5753757
EBR01-23	101 382456.0S	1485158.8E	662937	5746413
EBR01-23	999 381417.7S	1490440.3E	681848	5765695
EBR01-33	101 380941.4S	1485107.9E	662268	5774631
EBR01-33	999 381417.7S	1485108.3E	662108	5766113
EBR01-32	101 380944.4S	1485230.0E	664263	5774496
EBR01-32	999 381419.2S	1485226.6E	664011	5766030
EBR01-31	101 380943.2S	1485350.4E	666222	5774496
EBR01-31	999 381418.9S	1485345.9E	665938	5765998
EBR01-34	101 381237.8S	1490241.0E	679017	5768838
EBR01-34	999 381016.2S	1484820.2E	658166	5773640
EBR01-19	101 382209.9S	1490142.9E	677216	5751232
EBR01-19	999 381006.8S	1490122.8E	677216	5773536
EBR01-13	101 382213.8S	1485954.9E	674594	5751169
EBR01-13	999 381006.0S	1490004.9E	675320	5773599
EBR01-09	101 382214.1S	1485836.9E	672698	5751201
EBR01-09	999 381006.5S	1485835.3E	673141	5773631
EBR01-30	101 382216.9S	1485524.7E	668034	5751215
EBR01-30	999 380713.5S	1485525.3E	668627	5779063

The map displays a geological area with a grid of latitude and longitude coordinates. The latitude ranges from 34° 30' 00" S to 34° 50' 00" S, and the longitude ranges from 143° 50' 00" E to 144° 30' 00" E. A dense area of seismicity is labeled 'VIC/P41' and is characterized by a grid of vertical and horizontal lines. A fault system is labeled 'VIC/RL3' and is characterized by a series of parallel lines. A scale bar at the bottom indicates distances of 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100. A north arrow is located at the bottom left of the map.

**Eagle Bay Resources N.L.**

**PROPOSED SCORPION 2D SEISMIC PROGRAM**

DP/February 2001

ESR01.13

## **APPENDIX 6**



## 6. WEATHER REPORTS

Weather Observations

Date	Time	WIND		SEA State Code	PRESSURE mBar
		Speed - m/s	Direction - Degs		
12-Jun-01	06:00	0		0	0
	12:00	0		0	0
	18:00	0		0	0
	24:00	0		0	0
13-Jun-01	06:00	15	280	4	1008
	12:00	12	270	5	1009
	18:00	16	270	6	1008
	24:00	20	250	7	1008
14-Jun-01	06:00	19	230	6	1010
	12:00	20	215	6	1015
	18:00	15	230	7	1017
	24:00	12	210	6	1017
15-Jun-01	06:00	18	230	7	1017
	12:00	20	210	7	1020
	18:00	12	200	7	1020
	24:00	11	230	6	1020
16-Jun-01	06:00	10	220	5	1022
	12:00	9	240	5	1023
	18:00	12	220	4	1023
	24:00	10	260	4	1023
17-Jun-01	06:00	13	250	5	1024
	12:00	7	270	4	1025
	18:00	6	280	3	1025
	24:00	6	290	3	1025
18-Jun-01	06:00	6	260	3	1024
	12:00	0	0	1	1023
	18:00	4	25	2	1023
	24:00	5	310	2	1023
19-Jun-01	06:00	4	310	3	1022
	12:00	6	320	3	1020
	18:00	8	290	3	1020
	24:00	10	300	3	1020
20-Jun-01	06:00	7	320	3	1014
	12:00	20	320	5	1013
	18:00	0		0	0
	24:00	0		0	0
21-Jun-01	06:00	0		0	0
	12:00	0		0	0
	18:00	0		0	0
	24:00	0		0	0

## **APPENDIX 7**





**7. SAFETY ACCIDENTS / NEAR MISS REPORTS – NIL**

## **APPENDIX 8**



**8. PROFILES LOG**



M.V. Geo Arctic, project no. 34841

Seq. #	Line Name EBR01-	Start of Line		End of Line		Chargeable Distance Km
		Easting	Northing	Easting	Northing	
001	01	668660.89	5751935.95	668693.02	5761185.40	9.250
002	11	-	-	-	-	scratched
003	11A	-	-	-	-	scratched
004	24	681409.84	5758532.76	666388.23	5758830.60	15.025
005	28	666379.14	5755521.29	681399.56	5755169.81	15.025
006	26	681376.95	5756642.08	666356.06	5756974.69	15.025
007	27	666362.89	5756095.31	681360.16	5755828.82	15.000
008	22	679229.43	5751169.04	679213.05	5761193.95	10.025
009	11B	673704.02	5761159.06	673728.30	5751134.31	10.025
010	21	678725.34	5751168.00	678702.70	5761192.95	10.025
011	10	673213.83	5761157.96	673226.78	5751133.56	10.025
012	20	678224.28	5751167.03	678210.20	5761191.85	10.025
013	08	672197.97	5761155.96	672229.59	5751131.38	10.025
014	19	677728.74	5751165.99	677707.43	5761190.87	10.025
015	07	671707.69	5761155.04	671731.47	5751130.39	10.025
016	17	676726.18	5751164.00	676711.64	5761188.82	10.025
017	06	671213.39	5761154.00	671228.82	5751129.44	10.025
018	16	676227.63	5751163.99	676207.52	5761188.81	10.025
019	05	670709.97	5761153.03	670729.24	5751128.44	10.025
020	15	675723.03	5751163.00	675706.75	5761187.77	10.025
021	04	670210.74	5761153.01	670227.53	5751153.47	10.025
022	14	675226.16	5751161.99	675209.88	5761186.77	10.025
023	03	669706.00	5761151.98	669729.51	5751127.51	10.025
024	12	674228.11	5751160.01	674209.88	5761184.71	10.025
025	02	669206.05	5761151.00	669226.69	5751126.51	10.025
026	23	662936.79	5746413.19	681859.24	5765706.76	27.025
027	34	679016.94	5768837.78	658164.42	5773642.68	21.400
028	30	668629.26	5779062.96	668036.01	5751195.64	27.875
029	09	672696.90	5751201.03	673141.61	5773645.88	22.450
030	18	677214.00	5773536.01	677223.12	5751211.21	22.325
031	13	674590.51	5751169.13	675323.66	5773606.59	22.450
032	31	666230.66	5774495.72	665941.67	5765976.14	8.525
033	33	662104.47	5766113.10	662264.81	5774635.91	8.525
034	32	664265.98	5774495.93	664015.64	5766025.17	8.475
035	25	681432.69	5757503.30	666412.98	5757887.14	15.025
036	29	681359.82	5753755.58	666341.65	5754189.86	15.025

## **APPENDIX 9**



**9. PRODUCTION LOG**



# NAVIGATION PRODUCTION LOG

## R/V GEO ARCTIC



Project : 34841 Eagle Bay - 2DSeismic Survey

SEQ	DATE	LINE NAME	FILE NAME	DIR deg.	TIME UTC		FSP	LSP	FCSP	LCSP	Prod Km	REMARKS
					START	END						
001	13.06.01	EBR01-01	PC164_01.RAW	359	13:38	14:47	101	502	132	502	9.250	Complete, FCSP d/t MSX problem
002	13.06.01	EBR01-11	PC164_02.RAW	178.7	16:28	16:32	-	-	-	-	-	Scratched aborted d/t LMF compressor
003	13.06.01	EBR01-11A	PC164_03.RAW	178.7	18:39	18:41	-	-	-	-	-	Scratched aborted d/t bad weather
004	16.06.01	EBR01-24	PC167_01.RAW	269.9	01:41	03:20	101	702	101	702	15.025	Complete.
005	16.06.01	EBR01-28	PC167_02.RAW	90.2	05:04	06:42	101	702	101	702	15.025	Complete,
006	16.06.01	EBR01-26	PC167_03.RAW	269.9	08:38	10:16	101	702	101	702	15.025	Complete
007	16.06.01	EBR01-27	PC167_04.RAW	89.8	12:24	14:02	101	701	101	701	15.000	Complete
008	16.06.01	EBR01-22	PC167_05.RAW	358.6	16:29	17:35	101	502	101	502	10.025	Complete
009	16.06.01	EBR01-11B	PC167_06.RAW	178.7	19:22	20:58	2101	2502	2101	2502	10.025	Complete
010	16.06.01	EBR01-21	PC167_07.RAW	358.6	22:12	23:17	101	502	101	502	10.025	Complete
011	17.06.01	EBR01-10	PC168_01.RAW	178.8	01:04	02:11	101	502	101	502	10.025	Complete
012	17.06.01	EBR01-20	PC168_02.RAW	358.6	03:56	05:01	101	502	101	502	10.025	Complete
013	17.06.01	EBR01-08	PC168_03.RAW	178.7	07:06	08:12	101	502	101	502	10.025	Complete
014	17.06.01	EBR01-19	PC168_04.RAW	358.6	10:17	11:22	101	502	101	502	10.025	Complete
015	17.06.01	EBR01-07	PC168_05.RAW	178.7	13:30	14:36	101	502	101	502	10.025	Complete
016	17.06.01	EBR01-17	PC168_06.RAW	358.6	16:20	17:26	101	502	101	502	10.025	Complete
017	17.06.01	EBR01-06	PC168_08.RAW	178.7	19:10	20:15	101	502	101	502	10.025	Complete
018	17.06.01	EBR01-16	PC168_09.RAW	358.6	22:01	23:06	101	502	101	502	10.025	Complete
019	18.06.01	EBR01-05	PC169_01.RAW	178.7	00:56	02:00	101	502	101	502	10.025	Complete
020	18.06.01	EBR01-15	PC169_02.RAW	358.7	03:56	05:50	101	502	101	502	10.025	Complete

GEOTEAM



# NAVIGATION PRODUCTION LOG

## RV GEO ARCTIC



Project : 34841 Eagle Bay - 2DSeismic Survey

SEQ	DATE	LINE NAME	FILE NAME	DIR deg.	TIME UTC		FSP	LSP	FCSP	LCSP	Prod Km	REMARKS
					START	END						
021	18.06.01	EBR01-04	PC169_03.RAW	178.7	06:33	07:39	101	502	101	502	10.025	Complete
022	18.06.01	EBR01-14	PC169_04.RAW	358.7	09:26	10:32	101	502	101	502	10.025	Complete
023	18.06.01	EBR01-03	PC169_05.RAW	178.7	12:19	13:24	101	502	101	502	10.025	Complete
024	18.06.01	EBR01-12	PC169_06.RAW	358.7	14:56	16:04	101	502	101	502	10.025	Complete
025	18.06.01	EBR01-02	PC169_07.RAW	178.7	17:35	18:43	101	502	101	502	10.025	Complete
026	18.06.01	EBR01-23	PC169_08.RAW	43.3	21:57	00:46	101	1182	101	1182	27.025	Complete
027	19.06.01	EBR01-34	PC170_01.RAW	281.7	02:38	04:52	101	957	101	957	21.400	Complete
028	19.06.01	EBR01-30	PC170_02.RAW	180.0	07:30	10:23	101	1216	101	1216	27.875	Complete
029	19.06.01	EBR01-09	PC170_03.RAW	359.9	11:56	14:17	101	999	101	999	22.450	Complete
030	19.06.01	EBR01-18	PC170_04.RAW	178.8	15:45	18:05	101	994	101	994	22.325	Complete
031	19.06.01	EBR01-13	PC170_05.RAW	0.6	19:44	22:05	101	999	101	999	22.450	Complete
032	19.06.01	EBR01-31	PC170_06.RAW	180.7	23:59	00:54	101	442	101	442	8.525	Complete
033	20.06.01	EBR01-33	PC171_01.RAW	359.9	02:32	03:26	101	442	101	442	8.525	Complete
034	20.06.01	EBR01-32	PC171_02.RAW	180.6	05:06	06:01	101	440	101	440	8.475	Complete
035	20.06.01	EBR01-25	PC171_03.RAW	90.3	07:39	09:17	101	702	101	702	15.025	Complete
036	20.06.01	EBR01-29	PC171_04.RAW	270.4	10:30	12:39	101	702	101	702	15.025	Complete



## **APPENDIX 10**



**10. NAVIGATION PROCESSING SUMMARY LOG**



Client: Eagle Bay

Job#: 34841 Area: Scorpion Field

Line Name	Seq #	P190 file name Sp range	P294 file Sp range	Status/Comments
EBR01-01	001	ebr01.p1 Sp 101-502	Ebr01-01.294 Sp101-502	OK FGSP 132
EBR01-11	002	-	-	Scratched, aborted d/t compressors
EBR01-11A	003	-	-	Scratched, aborted d/t weather
EBR01-24	004	ebr01-24.p1 Sp101-702	Ebr01.24.294 Sp 101-702	OK, tailbouy not working
EBR01-28	005	ebr01-28.p1 Sp 101-702	Ebr01-28.294 Sp 101-702	OK, no tailbouy data
EBR01-26	006	ebr01-26.p1 Sp101-702	Ebr01-26.294 Sp101-702	OK, no tailbout data
EBR01-27	007	ebr01-27.p1 Sp101-701	Ebr01-27.294 Sp101-701	OK, no tailbouy data
EBR01-22	008	ebr01-22.p1 Sp101-502	Ebr01-22.294 Sp101-502	OK, no tailbouy data, front compasses noisy
EBR01-11B	009	ebr01-11B.p1 Sp 2101-2502	EBR01-11B Sp2101-2502	OK no tailbouy data, all compasses noisy, no secondary gyro data
EBR01-21	010	ebr01-21.p1 Sp101-502	Ebr01-21.294 Sp101-502	OK no tailbouy data, all compasses noisy
EBR01-10	011	ebr01-10.p1 Sp101-502	Ebr01-10.294 Sp101-502	OK no tailbouy data, all compasses very noisy, E/S 1 bad data, set passive
EBR01-20	012	ebr01-20.p1 Sp101-502	Ebr01-20.294 Sp101-502	OK no tailbouy data compasses noisy
EBR01-08	013	ebr01-08.p1 Sp101-502	Ebr01-08.294 Sp101-502	Ok no tailbouy data E/S1 intermitant
EBR01-19	014	ebr01-19.p1 Sp101-502	Ebr01-19.294 Sp101-502	OK no tailbouy data
EBR01-07	015	ebr01-07.p1 Sp101-502	Ebr01-07.294 Sp101-502	OK no tailbouy data
EBR01-17	016	ebr01-17 Sp101-502	Ebr01.294 Sp101-502	OK no tailbouy data
EBR01-06	017	ebr01-06.p1 Sp101-502	Ebr01-06.294 Sp101-502	OK no tailbouy data
EBR01-16	018	ebr01-16.p1 Sp101-502	Ebr01-16.294 Sp101-502	OK no tailbouy data
EBR01-05	019	ebr01-05.p1 Sp101-502	Ebr01-05.294 Sp101-502	OK no tailbouy data
EBR01-15	020	ebr01-15.p1 Sp101-502	Ebr01-15.294 Sp101-502	OK no tailbouy data
EBR01-04	021	ebr01-04.p1 Sp101-502	Ebr01-04.294 Sp101-502	OK no tailbouy data
EBR01-14	022	ebr01-14.p1 Sp101-502	Ebr01-14.294 Sp101-502	OK no tailbouy data
EBR01-03	023	ebr01-03.p1 Sp101-502	Ebr01-03.294 Sp101-502	OK no tailbouy data
EBR01-12	024	ebr01-12.p1 Sp101-501	Ebr01-12.294 Sp101-502	OK no tailbouy data
EBR01-02	025	ebr01-02.p1 Sp101-502	Ebr01-02.294 Sp101-502	OK no tailbouy data
EBR01-23	026	ebr01-23.p1 Sp101-1182	Ebr01-23.294 Sp101-1182	OK no tailbouy data



Client: Eagle Bay

Job#: 34841

Area: Scorpion Field

Line Name	Seq #	P190 file name Sp range	P294 file Sp range	Status/Comments
EBR01-34	027	ebr01-34.p1 Sp101-957	Ebr01-34.294 Sp 101-957	OK no tailbouy data
EBR01-30	028	ebr01-30.p1 Sp101-1216	Ebr01-30.294 Sp101-1216	OK no tailbouy data
EBR01-09	029	ebr01-09.p1 Sp101-999	Ebr01-09.294 Sp101-999	OK no tailbouy data
EBR01-18	030	ebr01-18.p1 Sp101-994	Ebr01-18.294 Sp101-994	OK no tailbouy data
EBR01-13	031	ebr01-13.p1 Sp101-994	Ebr01.294 Sp101-999	OK no tailbouy data
EBR01-31	032	ebr01-31.p1 SP101-442	Ebr01-31.294 Sp101-442	OK no tailbouy data
EBR01-33	033	ebr01-33.p1 Sp101-442	Ebr01-33.294 Sp101-442	OK no tailbouy data
EBR01-32	034	ebr01-32.p1 Sp101-440	Ebr01-32.294 Sp101-440	OK no tailbouy data
EBR01-25	035	ebr01-25.p1 Sp101-702	Ebr01-25.294 Sp101-702	OK no tailbouy data
EBR01-29	036	ebr01-29.p1 Sp101-702	Ebr01-29.294 Sp101-702	OK no tailbouy data

## **APPENDIX 11**



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**PROCESSING****11. PROCESSING LINE SUMMARY LOG**

Client : Eagle Bay Resources Ltd.	Project : 2D Exclusive	Group Interval : 12.5 m
Project #: 34841	Date Commenced : 13th June 2001	Group Number : 320
Area: Gippsland Basin, Australia	Date Completed : 20th June 2001	Cable Length : 4000 m
SP Interval: 25 m	Array : 3660 cu.in.	Cable Depth : 8-10 m

Seq.	Date	Line I.D.	DIR	FSP	FCSP	LCSP	LSP	Charg'ble km	Status	Comments
1	13-Jun	01	359	101	132	502	502	9.275	Complete	First 31 shots lost due to a firing computer hang up. Client has accepted this line as complete.
2	13-Jun	02	178	101		128	128	0.000	NTBP	Aborted line start due to compressor failure.
3	13-Jun	02A	178	1101		1117	1117	0.000	NTBP	Aborted line start due to sudden increase in cross winds. Vessel off line by 150m
4	16-Jun	24	270	101	101	702	702	15.050	Complete	
5	16-Jun	28	270	101	101	702	702	15.050	Complete	
6	16-Jun	26	270	101	101	702	702	15.050	Complete	
7	16-Jun	27	90	101	101	701	701	15.025	Complete	Got noisy at the end of line
8	16-Jun	22	358	101	101	502	502	10.050	Complete	Gun 4-2 (200 cu in.) had 17 intermittent timing errors of about 1.5ms. Noisy through
9	16-Jun	11B	179	2101	2101	2502	2502	10.050	Complete	Very noisy line
10	16-Jun	21	359	101	101	502	502	10.050	Complete	Noisy line
11	17-Jun	10	178	101	101	502	502	10.050	Complete	Very noisy line
12	17-Jun	20	358	101	101	502	502	10.050	Complete	Some swell noise
13	17-Jun	8	178	101	101	502	502	10.050	Complete	Very noisy line
14	17-Jun	19	359	101	101	502	502	10.050	Complete	
15	17-Jun	7	178	101	101	502	502	10.050	Complete	
16	17-Jun	17	359	101	101	502	502	10.050	Complete	
17	17-Jun	6	178	101	101	502	502	10.050	Complete	
18	17-Jun	16	359	101	101	502	502	10.050	Complete	
19	18-Jun	5	178	101	101	502	502	10.050	Complete	
20	18-Jun	15	359	101	101	502	502	10.050	Complete	
21	18-Jun	4	178	101	101	502	502	10.050	Complete	
22	18-Jun	14	359	101	101	502	502	10.050	Complete	
23	18-Jun	3	178	101	101	502	502	10.050	Complete	
24	18-Jun	12	359	101	101	502	502	10.050	Complete	
25	18-Jun	2	178	101	101	502	502	10.050	Complete	
26	18-Jun	23	43	101	101	1182	1182	27.050	Complete	11 random spaced gun timing errors on various guns. still in spec.
27	19-Jun	27	281	101	101	957	957	21.425	Complete	
28	19-Jun	30	180	101	101	1216	1216	27.900	Complete	Feather angle high just for first few shots. Cable raised to 8m in calm conditions.
29	19-Jun	9	0	101	101	999	999	22.475	Complete	Gun 4-2 (250 cu in.) had 18 intermittent timing errors of about 1.5ms.
30	19-Jun	18	179	101	101	994	994	22.350	Complete	
31	19-Jun	13	0	101	101	999	999	22.475	Complete	
32	19-Jun	31	180	101	101	442	442	8.550	Complete	
33	20-Jun	33	0	101	101	442	442	8.550	Complete	
34	20-Jun	32	180	101	101	440	440	8.500	Complete	
35	20-Jun	25	90	101	101	702	702	15.050	Complete	Gun 4-2 (250 cu in.) had 28 intermittent timing errors of about 1.5ms.
36	20-Jun	29	270	101	101	702	702	15.050	Complete	Gun 4-2 (250 cu in.) switched off array volume 3410 cu in. Cable dropped to 10m-W22
								Total =	449.725	