

**SANTOS – STRIKE OIL**

**COMPILED FOR**

**SANTOS LIMITED**

*(A.B.N. 80 007 550 923)*

**CASINO-2**

**BASIC DATA REPORT**

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(Consultant)  
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# CASINO-2

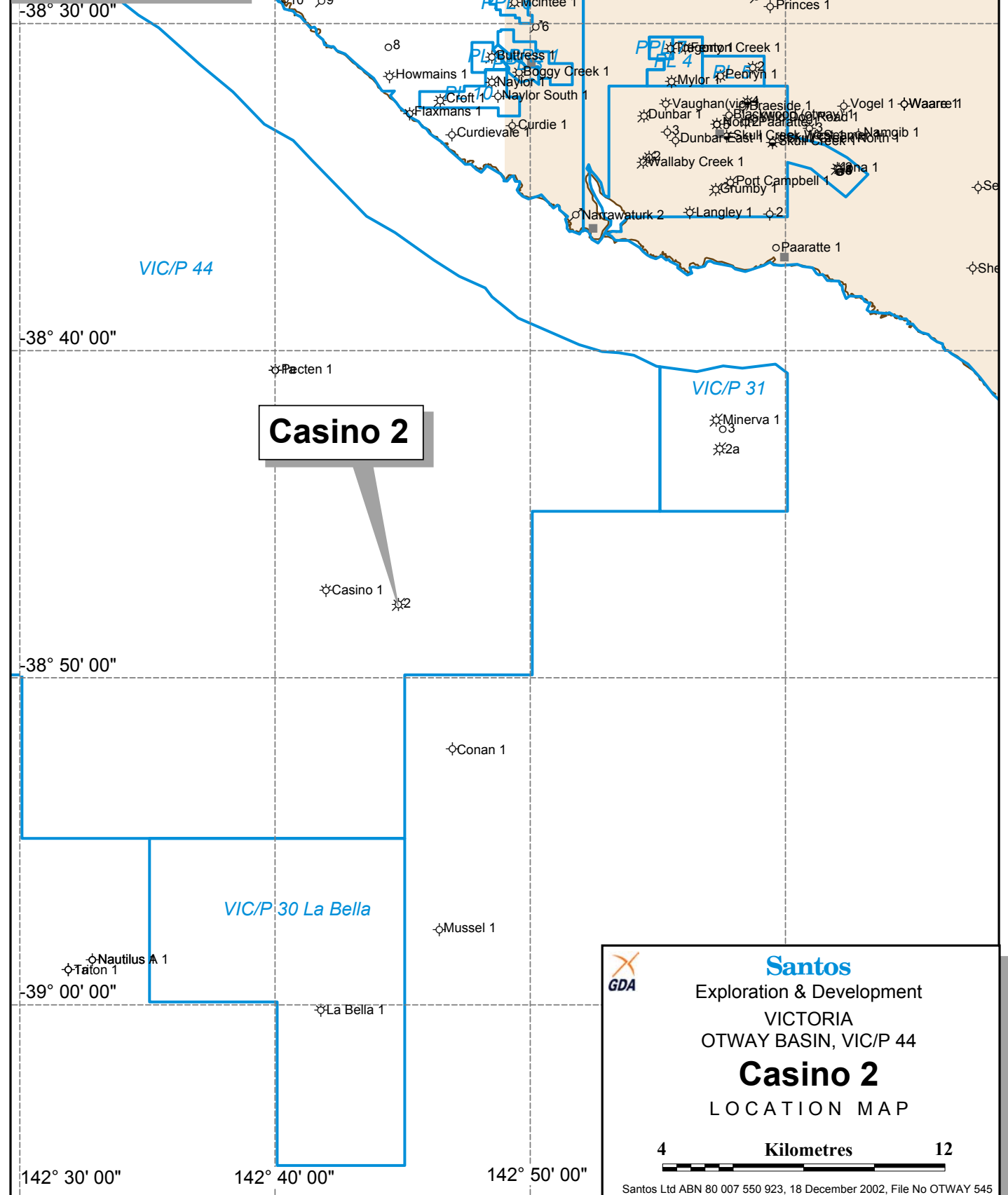
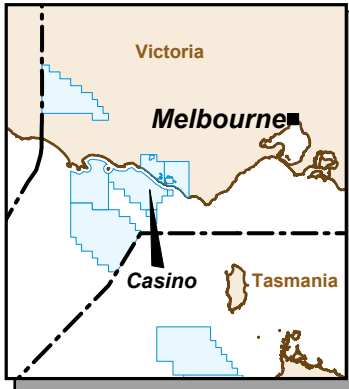
## BASIC DATA REPORT

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**LOCATION MAP**



**Casino 2**

VIC/P 31

VIC/P 30 La Bella

VIC/P 44

PEP 154 A

PEP 153



**Santos**

Exploration & Development

VICTORIA

OTWAY BASIN, VIC/P 44

**Casino 2**

LOCATION MAP

4 Kilometres 12

**SECTION 1:- WELL HISTORY**

## 1.1 INTRODUCTION

Casino-2 was drilled as an Otway Basin gas exploration well in the offshore VIC/P44 licence and was designed to test a sand that is interpreted to be absent at the proposed Casino-1 location. The well is contingent on the Casino-1 wildcat exploration well confirming that significant full stack amplitude and AVO anomalies indicate the presence of hydrocarbons within the prospect area. The Surface Location is Latitude: 38° 47' 43.887" S Longitude: 142° 44' 50.746" E (GDA94), Northing: 5704463.79m Easting: 651752.63m (MGA-94). The Seismic Reference is Inline 6136, CDP 2400. The Casino-2 location is 4.2km ESE of the proposed Casino-1 well and lies approximately 29 km south west of the town of Port Campbell, 21 km SW of the Minerva gas field and 23 km North of the LaBella gas field. The Casino structure is situated towards the western limit of the productive Waarre Sandstone play fairway of the Port Campbell Embayment. The water depth at the well location was 67.8m.

The VIC/P44 licence is held 50% Santos (Operator) and 50% Strike Oil NL. The Casino structure is a tilted fault block closure defined by the 2001 Casino 3D seismic dataset and the proposed location will test the eastern flank of the structure. The stratigraphic column for the Otway Basin is shown in Figure 2. The primary objective in the well is the Waarre Sandstone. The critical risk on the prospect prior to the drilling of Casino 1 was related to the nature of updip cross fault seal, however this was mitigated from success at the Casino-1 location. The main risks are now associated with the extent and quality of the reservoir. The prospect exhibits a significant full stack amplitude anomaly at the Waarre Sandstone with significant increase in amplitude with offset over the prospect. The prospect is interpreted as containing 2 separate Waarre sands. The Casino-2 well is placed to intersect the younger Waarre Sand (prognosed as being absent in Casino-1) in an up-dip location and appraise the older "non-amplitude" Waarre Sand in a down-dip location (relative to its proposed intersection in Casino-1). The aims of the Casino-2 well are:

1. Intersect the younger Waarre sand at its highest location on the structure and confirm the presence of hydrocarbons;
2. To obtain pressure data to confirm column height and gas samples to determine composition;
3. Provide an production point for any gas accumulation in the younger Waarre Sand;
4. To confirm the GWC in the older sand indicated by pressure measurements in Casino-2, correlated with Casino-1.

A successful hydrocarbon discovery at Casino-2 could confirm an economic gas accumulation in the Casino structure. This could lead to a further development well at the crest of the structure to produce gas reserves in the older Waarre Sand.

Casino-2 was drilled by the semi-submersible drilling rig "Diamond Offshore Ocean Bounty".

## 1.2 GENERAL DATA

Well Name:	CASINO-2	
Well Classification:	Offshore Gas Exploration	
Interest Holders:	Santos Ltd	50%
	Strike Oil NL	50%
Participating Interests:	Santos Ltd	50%
	Strike Oil NL	50%
Operator:	Santos Ltd.	

Location:	Offshore Victoria – Otway Basin VIC/P44.
Surveyed Location (GDA94)	Latitude: 38° 47' 43.887" South Longitude: 142° 44' 50.746" East Northing: 5704463.79m Easting: 651752.63m
Seismic Location: Seismic Survey:	Inline 6136, CDP 2400 2001 Casino 3D
Elevations:	Water Depth -67.8m AHD (Australian Height Datum) Rotary Table +25.0m LAT
Total Depth:	Driller : 2112m RT Logger : 2108m RT
Status:	Plugged and Abandoned
License:	VIC/P44 Offshore Victoria
Date Drilling Commenced:	09:30 hours on 24 <sup>th</sup> September 2002.
Date Drilling Completed:	23:15 hours on 3 <sup>rd</sup> October 2002.
Date Rig Released:	20:30 hours on 11 <sup>th</sup> October 2002.
Total Well Time:	17½ days
Contractor:	Diamond Offshore
Rig:	Ocean Bounty (semi-submersible)

### 1.3 **DRILLING SUMMARY**

#### (a) **Drilling Summary** (All Depths Driller's RT)

Casino-2 was spudded at 09:30 hrs on 24<sup>th</sup> September 2002 utilising the semi-submersible drilling facility "Ocean Bounty".

Bit 1, a 660mm (26") Smith DSJC, run in conjunction with a 914mm (36") hole opener, was used to drill the 914mm (36") phase from seafloor at 92.76m to section total depth at 140m. Returns were to the seafloor. A string of 762mm (30") (461 kg/m X56) casing was run and set at 137m. The casing running tool and 914mm (36") BHA were laid out.

Bit 2, a Smith MGSSH-C was run in hole to tag the cement top at 124.5m and was used to drill the entire 445mm (17.5") hole section from 140m to 700m. The hole was circulated clean and displaced with gel. Operations were suspended for 7.5 hours due to adverse weather conditions. A wiper trip was performed prior to running casing. A string of 340mm (13.375") (101 kg/m L80) casing was run and set at 691m. The casing running tool was released and laid out along with the cement head. The blowout preventers were installed on the marine riser and function tested. The 445 mm (17.5") BHA was laid out.

Thereafter, the 311 mm (12.25") BHA with Bit 3, HTC MX-03DX was run in hole along with MWD/LWD tools, to tag top of cement at 630m. The cement plugs, cement, casing shoe, rathole

and 3m of new hole from 700m to 703m were drilled. The hole was displaced to 1.05 SG PHPA mud system and circulated clean. A Leak-off Test was performed to 1.22 SG EMW. The 311mm (12.25") hole was then drilled from 703m to 1384m with partial losses which varied between 4.7 to 95.3 m<sup>3</sup>/hr (30 to 900 bbls/hr). The mud loss situation was remedied with LCM to obtain complete returns. Drilling continued from 1384m to 1646m where poor penetration rates required a bit change. Some tight hole was encountered on the bit trip which required minor remedial backreaming. Bit #4, Hycalog DSX195-DGUW was run in hole to drill from 1646m to core point in the Waarre Formation. However, the MWD/LWD tools failed at 1686m, 1686m and were unavailable for the critical picking of the core-point. It was decided to continue drilling to core point at 1763m. The bit was pulled out of hole. A core Bit #5, a Security CD-93, and core barrel assembly was run in hole and a 21m core was cut to 1784m and retrieved. Recovery was 19.3m (92%). Bit #6, a re-run Hycalog DSX195-DGUW was run in hole to drill ahead 311 mm (12.25") hole from 1763m to total depth at 2112m. Total depth was reached at 23:15hrs on 3/10/02. The 311mm (12 1/4") section from 700m to 2112m was logged while drilling with Anadrill Schlumberger MWD/LWD CDR/Isonic tools to record Gamma Ray, Resistivity, Sonic and Deviation Survey data. However, the MWD/LWD tools failed at 1686m and were unavailable for the critical picking of the core-point. The section with the lost data was re-logged on a subsequent bit trip.

At Total Depth, the hole was circulated clean and the drillstring was pulled out of hole to run wireline logs. Baker Atlas was rigged up and wireline logs were run as summarised in Table 1. After rigging down Baker Atlas, a cement stinger was run in the hole to set cement abandonment plugs as per program, Plug 1: 2100m-1825m, Plug 2: 1825m-1550m, Plug 3: 720m-640m and Plug 4: 177m-127m.

The rig was released at 20:30 hours on October 11, 2002.

**(b) Mudlogging Services**

Mudlogging services were provided by Baker Hughes Inteq Unit 503 with the following parameters monitored:

1. Total Gas
2. Chromatographic Gas Breakdown
3. Hydrogen Sulphide Levels
4. Depth/Rate of Penetration.
5. Pipe Speed/Block Position
6. Top drive RPM
7. Top drive Torque
8. Hook Load/Weight On Bit
9. Standpipe Pressure
10. Casing Shut-in Pressure
11. Mud Pump Rate (3 pumps)
12. Mud Flow Out
13. Mud Pit Levels (6 pits)
14. Mud Weight In and Out
15. Mud Temperature In and Out
16. Carbon Dioxide Detectors

Ditch cuttings were collected in the 311mm (12-1/4") phase at 5m intervals from 700m to 1700m. However very fast drilling rates required the sampling interval to be increased to 10m when necessary. In the zone of interest (1700m to total depth of 2112m), sampling was done at



3m intervals. In addition to microscopic examination of all drilled cuttings, samples were subjected to fluoroscope examination. Since no significant carbonate section was intersected in the 311mm (12-1/4") phase, calcimetry was not performed on a regular basis, but as required.

A catalogue of all wellsite samples is found in Section 4.3.

**(c) MWD Data**

Measurement while drilling (MWD) was acquired by Anadrill-Schlumberger in Casino-2. The CDR / Powerpulse was used in the 311mm (12.25") section from 700m to 2112m. Gamma Ray, Resistivity and Deviation Surveys data were acquired in this phase in 3 runs. However, the MWD/LWD tools failed at 1686m and were unavailable for the critical picking of the core-point. The section with the lost data was re-logged on a subsequent bit trip. Anadrill Schlumberger's detailed report is attached in Section 3.5: MWD/LWD END OF WELL REPORT

**(d) Testing**

No production tests were conducted at the Casino-2 location.

**(e) Coring**

One cores were cut in the Waarre Sandstone from 1762.9m to 1784m. Recovery was 19.3m. A detailed report from the core laboratory will be presented in the Interpreted Data Report for Casino-2, if not available earlier.

**(f) Biostratigraphy**

Micro-palaeontology studies were not conducted in Casino-2.

**(g) Electric Logging**

Electric Logging Services were provided by Schlumberger Wireline Services. One suite of electric logs were attempted at Casino-2 as follows:

**TABLE 1**

LOG	SUITE/ RUN	INTERVAL	BHT/TIME	OTHER
<b>PEX-DSI</b>	1 / 1		79.5°C / 9.0 hrs	
GR		TD to 93		
Spectral GR		TD to 1650		
Resistivity		TD to 690		
SP		TD to 690		
HCAL		TD to 690		
Sonic (Upper Dipole)		TD to 1650		
Dt (Full waveforms)		TD to Signal Loss	* recorded to surface	
Neutron-Density		TD to 690		

<b>MDT-GR</b> (TOTAL : 32, 13 Good, 14 Curtailed/Tight, 3 Lost Seals, 2 Unstable, 3 samples collected)	1 / 2	1753.7 to 1944.5		
<b>CST-GR</b> (26 of 30 shots recovered)	1 / 3	1016 to 2076		

(h) **MDT Pressure Data**

An MDT pressure survey was conducted at the Casino-2 location. A total of 32 pre-tests were attempted of which 13 were good tests, 14 were curtailed or tight, 3 were lost seals, 2 were unstable. In addition 6 samples were collected of which 2 PVT samples and one 1-gallon sample were accepted for purchase. Two sample chambers were sent for PVT analysis while one chamber was opened at the rigsite. The MDT Pressure Survey data are presented in Section 3.4: MDT PRESSURE SURVEY RESULTS

(i) **Hole Deviation**

Casino-2 was drilled as a vertical hole. Deviation Surveys were recorded using MWD/LWD tools in most of the 311mm (12.25") section while drilling, with the last survey being recorded at 2085.35m. Survey data are presented in Section 18: Deviation Surveys.

At Total Depth, the estimated displacement was 24m towards 251°T direction with the estimated TVD of 2111.63m.

(j) **Velocity Surveys**

A planned Velocity Survey was not cancelled. No velocity survey was conducted at the Casino-2 location.

(k) **Casing & Cementing Summary**

The following Table-2 summarises casing sizes, depths and cementing details for Casino-2. Casing and Cementing Reports for each casing run are detailed in Section 11: CASING & CEMENTING SUMMARY.

**TABLE 2**

HOLE SIZE	DEPTH	CASING SIZE	CASING DEPTH	JOINTS	CASING TYPE	CEMENT
914mm (36")	140m	762mm (30")	137m	3	461 kg/m X56 HD90	1040 sacks class "G" cement of total volume 34.4 bbl, mixed to a slurry weight of 1.89sg.
445mm (17.5")	700m	340 mm (13.375")	691m		101kg/m L80 BTC	Lead: 736 sacks class "G" cement of total volume 46.5m3, mixed to a slurry weight of 1.5sg. Tail: 637 sacks class "G" cement of total volume 21m3, mixed to a slurry weight of 1.89sg.

## **SECTION 2:- LITHOLOGICAL DESCRIPTIONS**

## **SECTION 2.1: CUTTINGS DESCRIPTIONS**

## 2.1 CASINO-2 - LITHOLOGICAL DESCRIPTIONS (Drillers depths)

<u>From (m)</u>	<u>To (m)</u>	<u>%</u>	<u>Description</u>
700	705	100	SANDSTONE: Medium brown, medium yellow brown, minor clear to translucent, medium to very coarse grained, poorly sorted, subrounded, occasionally rounded, partly subangular, weak siliceous cement, common Fe-staining, trace fossil (bryozoa?) fragments, loose in part, friable in part, moderately hard in part, fair to good inferred porosity, no hydrocarbon fluorescence.
705	710	100	SANDSTONE: Medium brown, medium yellow brown, minor clear to translucent, medium to very coarse grained, poorly sorted, subrounded, occasionally rounded, partly subangular, weak siliceous cement, common Fe-staining, trace fossil (bryozoa?) fragments, loose in part, friable in part, moderately hard in part, fair to good inferred porosity, no hydrocarbon fluorescence.
710	715	100	SANDSTONE: Medium to dark brown, medium yellow brown, medium to very coarse grained, moderately sorted, subrounded to rounded, minor subangular, weak siliceous cement, abundant Fe-staining, friable in part, generally loose, minor moderately hard aggregates, fair to good inferred porosity, no hydrocarbon fluorescence.
715	720	100	SANDSTONE: Medium to dark brown, medium yellow brown, medium to very coarse grained, moderately sorted, subrounded to rounded, minor subangular, weak siliceous cement, abundant Fe-staining, friable in part, generally loose, minor moderately hard aggregates, fair to good inferred porosity, no hydrocarbon fluorescence.
720	725	100	SANDSTONE: Medium to dark brown, medium yellow brown, medium to very coarse grained, increasing coarse to very coarse grained, poorly sorted, subrounded to rounded, minor subangular, weak siliceous cement, abundant Fe-staining, friable in part, generally loose, minor moderately hard aggregates, fair to good inferred porosity, no hydrocarbon fluorescence.
		Trace	CLAYSTONE: Medium to dark grey to minor grey brown, moderately hard, calcareous, grading to marl, trace quartz grains, subblocky to blocky, minor amorphous.
725	730	100	SANDSTONE: Medium to dark brown, medium yellow brown, medium to very coarse grained, increasing coarse to very coarse grained, poorly sorted, subrounded to rounded, minor subangular, weak siliceous cement, abundant Fe-staining, friable in part, generally loose, minor moderately hard aggregates, trace lithic fragments, fair to good inferred porosity, no hydrocarbon fluorescence.

		Trace	CLAYSTONE: Medium to dark grey to minor grey brown, moderately hard, calcareous, grading to marl, trace quartz grains, subblocky to blocky, minor amorphous.
730	735	100	SANDSTONE: Medium to dark brown, medium to dark yellow brown, medium to very coarse grained, increasing coarse to very coarse grained, poorly sorted, subrounded to rounded, minor subangular, moderate strong siliceous cement, trace dark brown Fe-rich argillaceous matrix, common to locally abundant Fe-staining, friable in part, generally loose, minor moderately hard aggregates, trace lithic fragments, fair to good inferred porosity, no hydrocarbon fluorescence.
735	740	100	SANDSTONE: As above
		Trace	CLAYSTONE: Medium to dark grey to minor grey brown, moderately hard, calcareous, grading to marl, trace quartz grains, subblocky to blocky, minor amorphous.
740	745	100	SANDSTONE: Medium brown, occasionally dark brown, medium to dark yellow brown, predominantly medium to coarse grained, moderately well sorted, subrounded to subangular, trace weak to moderately strong siliceous cement, common Fe-staining, common very dark brown to black brown rounded lithic fragments (5%), rare pyrite, friable in part, loose in part, moderately hard in part, poor to fair inferred porosity, no hydrocarbon fluorescence.
745	750	100	SANDSTONE: Generally as above, medium to very coarse grained, poorly sorted, minor white to light grey fine to medium aggregates with poor porosity, no hydrocarbon fluorescence.
750	755	100	SANDSTONE: Medium brown, occasionally dark brown, medium to dark yellow brown, predominantly medium to coarse grained, moderately well sorted, subrounded to subangular, trace weak to moderately strong siliceous cement, common Fe-staining, trace to common very dark brown to black brown rounded lithic fragments (5%), friable in part, loose in part, moderately hard in part, poor to fair inferred porosity, no hydrocarbon fluorescence.
755	760	100	SANDSTONE: Medium brown, occasionally dark brown, medium to dark yellow brown, predominantly medium to coarse grained, moderately well sorted, subrounded to subangular, trace weak to moderately strong siliceous cement, common Fe-staining, trace to common very dark brown to black brown rounded lithic fragments (5%), friable in part, loose in part, moderately hard in part, poor to fair inferred porosity, no hydrocarbon fluorescence.
760	765	100	SANDSTONE: Medium brown, occasionally dark brown, medium to dark yellow brown, predominantly medium to coarse grained, moderately well sorted, subrounded to subangular, trace weak to moderately strong siliceous cement, common Fe-

			staining, common very dark brown to black brown rounded lithic fragments (5%), friable in part, loose in part, moderately hard in part, poor to fair inferred porosity, no hydrocarbon fluorescence.
765	775	100	SANDSTONE: Medium brown, occasionally dark brown, medium to dark yellow brown, occasionally clear to translucent, predominantly medium to coarse grained, moderately well sorted, subrounded to subangular, trace weak to moderately strong siliceous cement, common Fe-staining, common very dark brown to black brown rounded lithic fragments (5%), friable in part, loose in part, moderately hard in part, poor to fair inferred porosity, no hydrocarbon fluorescence.
775	785	100	SANDSTONE: Medium to occasionally dark brown, medium to dark yellow brown, occasionally clear to translucent, predominantly medium to very coarse grained, poorly sorted, subrounded to subangular, trace weak to moderately strong siliceous cement, common Fe-staining, trace very dark brown to black rounded lithic fragments, friable in part, loose in part, moderately hard in part, poor to fair inferred porosity, no hydrocarbon fluorescence.
785	795	100	SANDSTONE: Medium to occasionally light brown, medium to dark yellow brown, occasionally clear to translucent, predominantly medium to very coarse grained, poorly sorted, subrounded to subangular, trace weak to moderately strong siliceous cement, common Fe-staining, trace very dark brown to black rounded lithic fragments, friable in part, loose in part, moderately hard in part, poor to fair inferred porosity, no hydrocarbon fluorescence.
795	805	100	SANDSTONE: Medium to occasionally light brown, medium to dark yellow brown, light to medium grey in part, occasionally clear to translucent, predominantly medium to very coarse grained, poorly sorted, subrounded to subangular, trace weak to moderately strong siliceous cement, locally common grey argillaceous matrix, common Fe-staining, trace very dark brown to black rounded lithic fragments, friable in part, loose in part, moderately hard in part, poor to fair inferred porosity, no hydrocarbon fluorescence.
		Trace	CLAYSTONE: Medium grey, arenaceous, trace lithic fragments, soft, dispersive, amorphous in part.
805	815	90	SANDSTONE: Medium to occasionally light brown, medium yellow brown, light to medium grey in part, occasionally clear to translucent, predominantly medium to very coarse grained, poorly sorted, subrounded to subangular, trace weak to moderately strong siliceous cement, locally common grey argillaceous matrix, common Fe-staining, trace very dark brown to black rounded lithic fragments, friable in part, loose in part, moderately hard in part, poor to fair inferred porosity, no hydrocarbon fluorescence.

		10	CLAYSTONE: Medium grey, arenaceous grading to arenaceous claystone, trace lithic fragments, soft, dispersive, amorphous in part.
815	825	90	SANDSTONE: Light grey, clear to translucent, minor light yellow brown, predominantly medium to coarse grained, moderately sorted, subangular to subrounded, moderately strong siliceous cement in aggregates, minor grey argillaceous to silty matrix, trace lithic fragments, common loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		10	CLAYSTONE: Medium grey, arenaceous grading to arenaceous claystone, trace lithic fragments, trace disseminated pyrite, generally soft, occasionally moderate hard, dispersive to amorphous, subblocky in part.
825	835	80	SANDSTONE: Light to medium grey, clear to translucent, light grey brown, minor light yellow brown, predominantly medium to coarse grained, moderately sorted, subangular to subrounded, moderately strong siliceous cement in aggregates, minor grey argillaceous to silty matrix, trace lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		20	CLAYSTONE: Medium grey, arenaceous grading to arenaceous claystone, trace lithic fragments, trace disseminated pyrite, generally soft, occasionally moderate hard, dispersive to amorphous, subblocky in part.
835	845	40	SANDSTONE: Light grey, clear to translucent, light grey brown, minor light yellow brown, predominantly medium to coarse grained, moderately sorted, subangular to subrounded, moderately strong siliceous cement in aggregates, minor grey argillaceous to silty matrix, trace lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		60	CLAYSTONE: Medium to dark grey brown, generally soft, occasionally moderate hard, dispersive to amorphous, subblocky in part.
845	850	50	SANDSTONE: Light grey, clear to translucent, light grey brown, minor light yellow brown, predominantly medium to coarse grained, moderately sorted, subangular to subrounded, moderately strong siliceous cement in aggregates, minor grey argillaceous to silty matrix, trace lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		50	CLAYSTONE: Medium to dark grey brown, generally soft,



			occasionally firm, dispersive to amorphous, subblocky in part.
850	860	80	SANDSTONE: Light grey, clear to translucent, medium to very coarse grained, generally coarse to very coarse, poorly sorted, subangular to predominantly subrounded, moderately strong siliceous cement in aggregates, minor grey brown argillaceous to silty matrix, trace rounded dark brown lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		20	CLAYSTONE: Medium to dark grey brown, generally soft, occasionally firm, dispersive to amorphous, subblocky in part.
860	870	70	SANDSTONE: Light grey, clear to translucent, medium to very coarse grained, generally coarse to very coarse, poorly sorted, subangular to predominantly subrounded, moderately strong siliceous cement in aggregates, minor grey brown argillaceous to silty matrix, trace pyrite, trace rounded dark brown lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		30	CLAYSTONE: Medium to dark grey brown, generally soft, occasionally firm, dispersive to amorphous, subblocky in part.
870	880	90	SANDSTONE: Light yellow brown, clear to translucent, rare red brown, medium to very coarse grained, generally coarse to very coarse, poorly sorted, subangular to predominantly subrounded, moderately strong siliceous cement in aggregates, minor grey brown argillaceous to silty matrix, trace pyrite, trace rounded dark brown lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		10	CLAYSTONE: Medium to dark grey brown, generally soft, occasionally firm, dispersive to amorphous, subblocky in part.
880	890	90	SANDSTONE: Light yellow brown, clear to translucent, rare red brown, medium to very coarse grained, generally coarse to very coarse, poorly sorted, subangular to predominantly subrounded, moderately strong siliceous cement in aggregates, minor grey brown argillaceous to silty matrix, trace pyrite, trace rounded dark brown lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		10	CLAYSTONE: Medium to dark grey brown, generally soft, occasionally firm, dispersive to amorphous, subblocky in part.
809	900	90	SANDSTONE: Clear to translucent, pale yellow brown, medium to very coarse grained, generally medium to coarse, moderately poorly sorted, subangular to predominantly subrounded, moderately strong siliceous cement in aggregates, minor grey brown argillaceous matrix, trace pyrite, trace carbonaceous specks, trace lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.

		10	CLAYSTONE: Medium to dark grey brown, generally soft, occasionally firm, dispersive to amorphous, subblocky in part.
900	910	90	SANDSTONE: Clear to translucent, pale yellow brown, medium to very coarse grained, generally medium to coarse, moderately poorly sorted, subangular to predominantly subrounded, moderately strong siliceous cement in aggregates, minor grey brown argillaceous matrix, trace pyrite, trace carbonaceous specks, trace lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		10	CLAYSTONE: Medium to dark grey brown, generally soft, occasionally firm, dispersive to amorphous, subblocky in part.
910	920	90	SANDSTONE: Clear to translucent, pale to occasionally medium grey, pale yellow brown, medium to very coarse grained, generally medium to coarse, moderately poorly sorted, subangular to predominantly subrounded, moderately strong siliceous cement in aggregates, minor grey brown argillaceous matrix, trace pyrite, trace carbonaceous specks, trace lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		10	CLAYSTONE: Medium to dark grey brown, generally soft, occasionally firm, dispersive to amorphous, subblocky in part.
920	930	100	SANDSTONE: Generally as above
930	940	70	SANDSTONE: As above, trace dolomite.
		30	CLAYSTONE: Medium to dark brown grey, soft to firm, dispersive, amorphous to subblocky in part.
940	950	90	SANDSTONE: As above
		10	CLAYSTONE: As above
950	960	80	SANDSTONE: As above, trace pyrite
		20	CLAYSTONE: As above
960	970	80	SANDSTONE: As above, trace pyrite
		20	CLAYSTONE: As above
970	980	80	SANDSTONE: As above.
		20	CLAYSTONE: As above
980	990	60	SANDSTONE: Clear to translucent, pale grey, medium to coarse, moderately sorted, subangular to predominantly subrounded, weak siliceous cement in aggregates, minor grey

			brown argillaceous matrix, trace calcite, trace pyrite, trace lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		40	CLAYSTONE: As above
990	1000	90	SANDSTONE: Clear to translucent, pale grey, medium to coarse, moderately sorted, subangular to predominantly subrounded, weak siliceous cement in aggregates, minor grey brown argillaceous matrix, trace calcite, trace pyrite, trace lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		10	CLAYSTONE: As above
1000	1005	90	SANDSTONE: Clear to translucent, pale grey, medium to coarse, moderately sorted, subangular to predominantly subrounded, weak siliceous cement in aggregates, minor grey brown argillaceous matrix, trace calcite, trace pyrite, trace lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		10	CLAYSTONE: As above
1005	1010	40	SANDSTONE: As above
		60	CLAYSTONE: Medium to dark brown, slightly arenaceous, silty, predominantly soft to firm, minor moderately hard, dispersive, amorphous to subblocky
1010	1015	30	SANDSTONE: As above
		70	CLAYSTONE: Medium to dark brown, slightly arenaceous, silty, predominantly soft to firm, minor moderately hard, dispersive, amorphous to subblocky
1015	1025	10	SANDSTONE: As above
		90	CLAYSTONE: Medium to dark brown, slightly arenaceous, silty, predominantly soft to firm, minor moderately hard, dispersive, amorphous to subblocky
1025	1030	10	SANDSTONE: Clear, translucent, light grey, coarse to very coarse, medium in part, moderately sorted, subangular to predominantly subrounded, trace weak siliceous cement, generally loose, fair inferred porosity, no hydrocarbon fluorescence.
		90	CLAYSTONE: Medium to dark brown, slightly arenaceous, silty, predominantly soft, minor firm, dispersive, amorphous to subblocky
1030	1035	10	SANDSTONE: Clear, translucent, light grey, coarse to very coarse, medium in part, moderately sorted, subangular to

			predominantly subrounded, trace weak siliceous cement, generally loose, fair inferred porosity, no hydrocarbon fluorescence.
		90	CLAYSTONE: Medium to dark brown, slightly arenaceous, silty, predominantly soft, minor firm, dispersive, amorphous to subblocky
1045	1045	10	SANDSTONE: Clear, translucent, light grey, coarse to very coarse, medium in part, moderately sorted, subangular to predominantly subrounded, trace weak siliceous cement, generally loose, fair inferred porosity, no hydrocarbon fluorescence.
		90	CLAYSTONE: Medium to dark brown, slightly arenaceous, silty, predominantly soft, minor firm, dispersive, amorphous to subblocky
1045	1055	20	SANDSTONE: Clear, translucent, light grey, coarse to very coarse, medium in part, moderately sorted, subangular to predominantly subrounded, trace weak siliceous cement, generally loose, fair inferred porosity, no hydrocarbon fluorescence.
		80	CLAYSTONE: Medium to dark brown, slightly arenaceous, silty, predominantly soft, minor firm, dispersive, amorphous to subblocky
1055	1065	10	SANDSTONE: Clear, translucent, light grey, coarse to very coarse, medium in part, moderately sorted, subangular to predominantly subrounded, trace weak siliceous cement, generally loose, fair inferred porosity, no hydrocarbon fluorescence.
		90	CLAYSTONE: Medium to dark brown, slightly arenaceous, silty, predominantly soft, minor firm, dispersive, amorphous to subblocky
1065	1075	10	SANDSTONE: As above
		90	CLAYSTONE: As above
1075	1080	10	SANDSTONE: As above
		90	CLAYSTONE: As above
1080	1085	30	SANDSTONE: Clear, translucent, light grey, coarse to very coarse, medium in part, moderately sorted, subangular to predominantly subrounded, trace weak siliceous cement, generally loose, fair inferred porosity, no hydrocarbon fluorescence.
		70	CLAYSTONE: Medium to dark brown, slightly arenaceous, silty, predominantly soft, minor firm, dispersive, amorphous to

			subblocky
1085	1095	80	SANDSTONE: Clear to translucent, opaque in part, light grey, minor pale yellow brown, medium to very coarse grained, minor fine, poorly sorted, subrounded to rounded, occasionally subangular, trace pyrite, trace weak siliceous cement, generally loose, poor to fair inferred porosity, no hydrocarbon fluorescence.
		20	CLAYSTONE: Medium grey, dark grey in part, trace glauconite, trace pyrite, trace lithic fragments, soft, dispersive, amorphous.
1095	1105	100	SANDSTONE: As above
1105	1115	90	SANDSTONE: As above, trace well rounded pebbles.
		10	CLAYSTONE: Medium grey, dark grey in part, trace glauconite, trace pyrite, trace lithic fragments, soft, dispersive, amorphous.
1115	1125	90	SANDSTONE: As above, trace well rounded pebbles.
		10	CLAYSTONE: Medium grey, dark grey in part, trace glauconite, trace pyrite, trace lithic fragments, soft, dispersive, amorphous, grades to siltstone.
1125	1135	90	SANDSTONE: As above.
		10	CLAYSTONE: Medium grey, dark grey in part, trace glauconite, trace pyrite, trace lithic fragments, soft, dispersive, amorphous, grades to siltstone.
1135	1145	80	SANDSTONE: As above.
		20	SILTSTONE: Medium grey, dark grey in part, trace glauconite, trace pyrite, trace lithic fragments, soft, dispersive, amorphous, grades to siltstone.
1145	1155	60	SANDSTONE: Pale to medium grey, clear to translucent, off white, fine to medium grained, partly coarse grained, occasional very coarse polished bit-fractured quartz fragments, poorly sorted, subangular to minor angular, occasionally subrounded, common moderate strong siliceous and slightly calcareous cement, locally common white argillaceous matrix, occasional medium grey silty matrix, common disseminated pyrite, rare glauconite ?, moderate hard to hard aggregates, occasionally very hard, no hydrocarbon fluorescence.
		40	SILTSTONE: Medium grey, medium to dark brown, arenaceous, trace carbonaceous specks, trace disseminated pyrite, soft to firm, occasionally moderately hard, subblocky
1155	1165	40	SANDSTONE: Pale to medium grey, clear to translucent, off white, fine to medium grained, partly coarse grained, occasional very coarse polished bit-fractured quartz fragments, poorly

sorted, subangular to minor angular, occasionally subrounded, common moderate strong siliceous and slightly calcareous cement, locally common white argillaceous matrix, occasional medium grey silty matrix, common disseminated pyrite, rare glauconite ?, moderate hard to hard aggregates, occasionally very hard, no hydrocarbon fluorescence.

		60	SILTSTONE: Medium grey, medium to dark brown, arenaceous, trace carbonaceous specks, trace disseminated pyrite, soft to firm, occasionally moderately hard, subblocky
1165	1175	40	SANDSTONE: Medium to dark grey to green grey in part, translucent, fine to very coarse, poorly sorted, subangular to predominantly subrounded, trace weak siliceous cement, common argillaceous matrix,
		60	SILTSTONE: Medium grey, medium to dark brown, arenaceous, trace carbonaceous specks, trace disseminated pyrite, soft to firm, occasionally moderately hard, subblocky
1175	1185	40	SANDSTONE: Medium to dark grey to green grey in part, translucent, fine to very coarse, poorly sorted, subangular to predominantly subrounded, trace weak siliceous cement, common argillaceous matrix, generally loose, poor visual porosity, no hydrocarbon fluorescence.
		60	SILTSTONE: Medium grey, medium to dark brown, arenaceous, trace carbonaceous specks, trace disseminated pyrite, soft to firm, occasionally moderately hard, subblocky
1185	1195	50	SANDSTONE: As above, rare red brown, increasing medium to coarse.
		50	SILTSTONE: As above.
1195	1205	60	SANDSTONE: As above, fine to medium, occasionally coarse, moderately sorted.
		40	SILTSTONE: As above.
1205	1215	60	SANDSTONE: As above, fine to medium, occasionally coarse, moderately sorted.
		40	SILTSTONE: As above.
1215	1225	70	SANDSTONE: Clear, translucent, opaque, pale grey, pale green grey, medium to coarse, minor fine grained, moderate poorly sorted, subangular to subrounded, moderate strong siliceous cement in aggregates, locally com white argillaceous matrix, trace rounded lithic fragments, occasionally grading to lithic sandstone, friable to moderately hard, poor visual porosity, no hydrocarbon fluorescence.
		30	SILTSTONE: Medium grey, medium to dark brown, arenaceous,

			trace carbonaceous specks, trace disseminated pyrite, soft to firm, occasionally moderately hard, subblocky
1225	1235	50	SANDSTONE: Clear, translucent, opaque, pale grey, pale green grey, medium to coarse, minor fine grained, moderate poorly sorted, subangular to subrounded, moderate strong siliceous cement in aggregates, locally common white argillaceous matrix, trace rounded lithic fragments, occasionally grading to lithic sandstone, friable to moderately hard, poor visual porosity, no hydrocarbon fluorescence.
		50	SILTSTONE: Medium grey, medium to dark brown, arenaceous, trace carbonaceous specks, trace disseminated pyrite, soft to firm, occasionally moderately hard, subblocky
1235	1245	50	SANDSTONE: Clear, translucent, opaque, pale grey, medium to coarse, moderately sorted, subangular to subrounded, weak siliceous cement in aggregates, trace rounded lithic fragments, friable to moderately hard, poor visual porosity, no hydrocarbon fluorescence.
		50	SILTSTONE: Medium grey, medium to dark brown, arenaceous, trace carbonaceous specks, trace disseminated pyrite, soft to firm, occasionally moderately hard, subblocky
1245	1255	40	SANDSTONE: As above
		60	SILTSTONE: As above
1255	1265	70	SANDSTONE: As above, trace pyritic cement.
		30	SILTSTONE: As above.
1265	1275	70	SANDSTONE: Clear, translucent, opaque, pale grey, minor pale yellow, medium to coarse, moderately sorted, subangular to subrounded, weak siliceous cement in aggregates, rare pyritic cement, trace lithic fragments, moderately hard to hard, poor visual porosity, no hydrocarbon fluorescence.
		30	SILTSTONE: As above
1275	1285	40	SANDSTONE: Clear to translucent, fine to medium grained, occasionally coarse, moderate sorted, predominantly subrounded, subangular in part, weak siliceous cement, trace pyrite cement, common light grey to off white calcareous matrix, friable to moderately hard, common loose, poor visual porosity, no hydrocarbon fluorescence.
		60	SILTSTONE: Medium to dark grey to green grey in part, brown grey in part, trace glauconite ?, trace disseminated pyrite, firm to soft, occasionally moderately hard, subblocky to amorphous in part.
1285	1295	20	SANDSTONE: Clear to translucent, fine to medium grained,

			occasionally coarse, moderate sorted, predominantly subrounded, subangular in part, weak siliceous cement, trace pyrite cement, common light grey to off white calcareous matrix, friable to moderately hard, common loose, poor visual porosity, no hydrocarbon fluorescence.
		80	SILTSTONE: Medium to dark grey to green grey in part, brown grey in part, trace glauconite ?, trace disseminated pyrite, firm to soft, occasionally moderately hard, subblocky to amorphous in part.
1295	1305	10	SANDSTONE: As above
		90	SILTSTONE: Medium to dark grey to brown grey, trace glauconite ?, trace disseminated pyrite, firm to soft, occasionally moderately hard, subblocky to amorphous in part.
1305	1315	100	SILTSTONE: Medium to dark grey to brown grey, trace glauconite ?, trace disseminated pyrite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1315	1325	100	SILTSTONE: Medium to dark grey to brown grey, trace glauconite ?, trace disseminated pyrite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1325	1335	100	SILTSTONE: Medium to dark grey to brown grey, trace glauconite ?, trace disseminated pyrite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1335	1345	100	SILTSTONE: Medium to dark grey to brown grey, trace glauconite ?, trace disseminated pyrite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1345	1355	100	SILTSTONE: Medium green grey, medium grey to brown grey, glauconitic, trace disseminated pyrite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1355	1365	100	SILTSTONE: Medium green grey, medium grey, light grey brown, trace glauconite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1365	1375	100	SILTSTONE: Light grey brown, medium green grey, medium grey, trace glauconite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1375	1395	100	SILTSTONE: Light to medium grey brown, medium green grey, medium grey, trace glauconite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1395	1405	100	SILTSTONE: Light to medium grey brown, medium green grey, medium grey, trace glauconite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
		Tr	SANDSTONE: Clear to translucent, medium to coarse grained,



			subangular to subrounded, generally loose grains, poor visual porosity, no hydrocarbon fluorescence.
1405	1415	100	SILTSTONE: Light to medium grey brown, medium green grey, medium grey, trace glauconite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
		Tr	SANDSTONE: Clear to translucent, medium to coarse grained, subangular to subrounded, generally loose grains, poor visual porosity, no hydrocarbon fluorescence.
1415	1425	100	SILTSTONE: Light to medium grey brown, medium green grey, medium grey, trace glauconite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
		Tr	SANDSTONE: Clear to translucent, medium to coarse grained, subangular to subrounded, generally loose grains, poor visual porosity, no hydrocarbon fluorescence.
1425	1435	100	SILTSTONE: Light to medium grey brown, medium green grey, medium grey, common glauconite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1435	1445	100	SILTSTONE: Light to medium grey brown, medium green grey, medium grey, common glauconite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1445	1450	100	SILTSTONE: Light to medium grey brown, medium green grey, medium grey, common glauconite, trace pyrite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1450	1455	30	SANDSTONE: Clear, translucent, fine to medium grained, occasionally coarse, moderately well sorted, subrounded to rounded, nil to trace weak siliceous cement, locally common white argillaceous matrix, generally loose grains, trace lithic fragments, trace glauconite, no fluorescence.
		70	SILTSTONE: Light to medium grey brown, medium green grey, medium grey, common glauconite, trace pyrite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1455	1460	30	SANDSTONE: Clear, translucent, fine to medium grained, occasionally coarse, moderately well sorted, subrounded to rounded, nil to trace weak siliceous cement, locally common white argillaceous matrix, generally loose grains, trace lithic fragments, trace glauconite, no fluorescence.
		70	SILTSTONE: Light to medium grey brown, medium green grey, medium grey, common glauconite, trace pyrite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.

1460	1465	100	SILTSTONE: Light to medium brown to grey brown, medium green grey, medium grey, trace glauconite, rare pyrite, generally argillaceous, slightly arenaceous, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1465	1470	100	SILTSTONE: Light to medium brown to grey brown, medium green grey, medium grey, trace glauconite, rare pyrite, generally argillaceous, slightly arenaceous, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.
1470	1475	100	SILTSTONE: As above
1475	1480	100	SILTSTONE: As above
1480	1485	100	SILTSTONE: As above
1485	1490	100	SILTSTONE: As above
1490	1495	100	SILTSTONE: As above
1495	1500	100	SILTSTONE: Medium to dark grey, medium to dark olive grey, brown grey, trace glauconite, trace pyrite, arenaceous, trace carbonaceous specks, soft to firm, subblocky.
1500	1505	100	SILTSTONE: As above
1505	1510	30	SANDSTONE: Clear to translucent, pale yellow, fine to very coarse, predominantly fine to medium, poorly sorted, subblocky to rounded, occasionally subangular, moderate strong siliceous cement, trace calcite, trace light grey silty matrix, friable to commonly loose, poor porosity, no hydrocarbon fluorescence.
		70	SILTSTONE: As above
1510	1515	30	SANDSTONE: Clear to translucent, pale yellow, fine to very coarse, predominantly fine to medium, poorly sorted, subblocky to rounded, occasionally subangular, moderate strong siliceous cement, trace calcite, trace light grey silty matrix, friable to commonly loose, poor porosity, no hydrocarbon fluorescence.
		70	SILTSTONE: As above
1515	1520	30	SANDSTONE: Clear to translucent, pale yellow, fine to very coarse, predominantly fine to medium, poorly sorted, subblocky to rounded, occasionally subangular, moderate strong siliceous cement, trace calcite, trace light grey silty matrix, friable to commonly loose, poor porosity, no hydrocarbon fluorescence.
		70	SILTSTONE: As above
1520	1525	20	SANDSTONE: Clear to translucent, pale yellow, fine to very coarse, predominantly coarse to very coarse, sorted, subblocky to rounded, occasionally subangular, moderate strong siliceous cement, trace calcite, nil to trace light grey silty matrix, trace

			lithic fragments, friable to commonly loose, poor porosity, no hydrocarbon fluorescence.
		80	SILTSTONE: As above
1525	1530	10	SANDSTONE: Clear to translucent, pale yellow, fine to very coarse, predominantly medium to coarse, sorted, subblocky to rounded, occasionally subangular, moderate strong siliceous cement, trace calcite, nil to trace light grey silty matrix, trace lithic fragments, friable to commonly loose, poor porosity, no hydrocarbon fluorescence.
		90	SILTSTONE: As above
1530	1535	10	SANDSTONE: Clear to translucent, pale yellow, fine to very coarse, predominantly medium to coarse, sorted, subblocky to rounded, occasionally subangular, moderate strong siliceous cement, trace calcite, nil to trace light grey silty matrix, trace lithic fragments, friable to commonly loose, poor porosity, no hydrocarbon fluorescence.
		90	SILTSTONE: As above
1535	1540	trace	SANDSTONE: Clear to translucent, pale yellow, fine to very coarse, predominantly medium to coarse, sorted, subblocky to rounded, occasionally subangular, moderate strong siliceous cement, trace calcite, nil to trace light grey silty matrix, trace lithic fragments, friable to commonly loose, poor porosity, no hydrocarbon fluorescence.
		100	SILTSTONE: As above
1540	1545	100	SILTSTONE: Medium to dark brown, brown grey, occasionally green grey, arenaceous, trace glauconite, trace lithic fragments, trace carbonaceous specks, soft to firm, occasionally moderate hard, subblocky, amorphous.
1545	1550	100	SILTSTONE: Medium to dark brown, brown grey, occasionally green grey, arenaceous, trace glauconite, trace lithic fragments, trace carbonaceous specks, soft to firm, occasionally moderate hard, subblocky, amorphous.
1550	1560	100	SILTSTONE: Medium to dark brown, brown grey, occasionally green grey, arenaceous, trace glauconite, trace lithic fragments, trace carbonaceous specks, soft to firm, occasionally moderate hard, subblocky, amorphous.
1560	1570	100	SILTSTONE: Medium to dark brown, brown grey, occasionally green grey, arenaceous, trace glauconite, trace lithic fragments, trace carbonaceous specks, soft to firm, occasionally moderate hard, subblocky, amorphous.
1570	1575	100	SILTSTONE: Medium to dark brown grey, medium to dark grey, trace glauconite, trace lithic fragments, trace carbonaceous

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			specks, firm to moderately hard, subblocky, occasionally subfissile.
1575	1580	100	SILTSTONE: Medium to dark brown grey, medium to dark grey, trace glauconite, trace lithic fragments, trace carbonaceous specks, firm to moderately hard, subblocky, occasionally subfissile.
1580	1585	100	SILTSTONE: Medium to dark brown grey, medium to dark grey, trace glauconite, trace lithic fragments, trace carbonaceous specks, weakly calcareous in part, trace dolomite, soft to firm to moderately hard, subblocky, occasionally subfissile.
1585	1590	100	SILTSTONE: As above
1590	1595	100	SILTSTONE: As above
1595	1600	100	SILTSTONE: As above
1600	1605	100	SILTSTONE: As above
1605	1610	100	SILTSTONE: As above
1610	1615	100	SILTSTONE: As above
1615	1620	100	SILTSTONE: As above
1620	1625	100	SILTSTONE: As above.
1625	1630	100	SILTSTONE: Medium to dark brown grey, medium to dark grey, trace glauconite, trace lithic fragments, trace carbonaceous specks, very weakly calcareous in part, trace calcite, rare dolomite, soft to firm to moderately hard, subblocky, occasionally subfissile.
1630	1635	100	SILTSTONE: As above
1635	1640	100	SILTSTONE: As above
1640	1645	100	SILTSTONE: As above.
1645	1650	100	SILTSTONE: As above.
1650	1655	100	SILTSTONE: As above.
1655	1660	100	SILTSTONE: As above.
1660	1665	100	SILTSTONE: As above.
1665	1670	100	SILTSTONE: As above.
1670	1675	100	SILTSTONE: As above.
1675	1680	100	SILTSTONE: As above.

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1680	1685	100	SILTSTONE: Medium to dark brown grey, medium to dark grey, olive brown, trace glauconite, trace lithic fragments, trace carbonaceous specks, very weakly calcareous in part, trace calcite, firm to moderately hard, minor hard, subblocky, occasionally subfissile.
		Trace	SANDSTONE: Clear, translucent ,opaque, pale grey, medium to very coarse, moderate poorly sorted, no visible cement or matrix, generally loose grained, trace lithic fragments, trace glauconite, poor porosity, no hydrocarbon fluorescence.
1685	1690	100	SILTSTONE: Medium to dark brown grey, medium to dark grey, olive brown, trace glauconite, trace lithic fragments, trace carbonaceous specks, weakly calcareous in part, trace calcite, firm to moderately hard, minor hard, subblocky, occasionally subfissile.
1690	1695	100	SILTSTONE: Medium to dark brown grey, medium to dark grey, olive brown, trace glauconite, trace lithic fragments, trace carbonaceous specks, weakly calcareous in part, trace calcite, firm to moderately hard, minor hard, subblocky, occasionally subfissile.
1695	1700	100	SILTSTONE: As above
1700	1703	100	SILTSTONE: As above, slight increase in glauconite
1703	1706	100	SILTSTONE: As above
1706	1709	100	SILTSTONE: As above
1709	1712	100	SILTSTONE: As above
1712	1715	100	SILTSTONE: As above
1715	1718	100	SILTSTONE: As above
1718	1721	100	SILTSTONE: As above
1721	1724	100	SILTSTONE: As above
1724	1727	100	SILTSTONE: Medium to dark brown grey, medium to dark grey, olive brown, trace to locally common, glauconite, trace lithic fragments, trace carbonaceous specks, weakly calcareous in part, trace calcite, moderately hard, minor hard, firm in part, subblocky, occasionally subfissile.
1727	1730	100	SILTSTONE: As above
1730	1733	100	SILTSTONE: As above
1733	1736	100	SILTSTONE: As above

1736	1739	100	SILTSTONE: As above
1739	1742	100	SILTSTONE: As above
1742	1745	100	SILTSTONE: As above
1745	1748	90	SILTSTONE: As above
		10	SANDSTONE: Pale brown grey, pale grey, fine to coarse grained, poorly sorted, subangular to subrounded, occasionally rounded, trace moderate strong calcareous cement, trace siliceous cement, trace glauconite, com white to light brown grey argillaceous matrix, friable to moderately hard, poor visual porosity, no hydrocarbon fluorescence.
1748	1751	90	SILTSTONE: As above
		10	SANDSTONE: Pale brown grey, pale grey, fine to coarse grained, poorly sorted, subangular to subrounded, occasionally rounded, trace moderate strong calcareous cement, trace siliceous cement, trace glauconite, common white to light brown grey argillaceous matrix, friable to moderately hard, poor visual porosity, no hydrocarbon fluorescence.
1751	1754	90	SILTSTONE: Light to medium olive grey brown, locally common glauconite, firm to hard, trace carbonaceous specks, trace pyrite, blocky to subblocky
		10	SANDSTONE: Pale brown grey, pale grey, fine to coarse grained, predominantly fine to medium grained, moderately poorly sorted, subangular to subrounded, occasionally rounded, trace moderate strong calcareous cement, trace siliceous cement, trace glauconite, common white to light brown grey argillaceous matrix, friable to moderately hard, occasionally loose clear coarse, quartz sand, poor visual porosity, no hydrocarbon fluorescence.
1754	1757	40	SANDSTONE: Light brown grey, light grey, fine to coarse grained, predominantly fine to medium grained, moderately poorly sorted, trace weak siliceous cement, common white to light grey argillaceous matrix, trace glauconite, trace lithic fragments, friable to occasionally moderately hard, poor visual porosity, poor inferred porosity, no hydrocarbon fluorescence.
		60	SILTSTONE: Light to medium olive grey brown, locally common glauconite, firm to hard, trace to locally common carbonaceous specks, trace pyrite, trace dark lithic fragments, blocky to subblocky
1757	1760	50	SANDSTONE: Light brown grey, light grey, fine to very coarse grained, predominantly fine to medium grained, moderately poorly sorted, trace weak siliceous cement, common white to light grey argillaceous matrix, trace glauconite, trace pyrite,

			trace lithic fragments, common loose coarse quartz grains, friable to occasionally moderately hard, poor visual porosity, poor inferred porosity, no hydrocarbon fluorescence.
		50	SILTSTONE: Light to medium olive grey brown, locally common glauconite, firm to hard, trace to locally common carbonaceous specks, trace pyrite, trace dark lithic fragments, blocky to subblocky
1760	1763	50	SANDSTONE: Light brown grey, light grey, fine to very coarse grained, predominantly fine to medium grained, moderately poorly sorted, trace weak siliceous cement, common white to light grey argillaceous matrix, trace glauconite, trace pyrite, trace lithic fragments, common loose coarse quartz grains, friable to occasionally moderately hard, poor visual porosity, poor inferred porosity, no hydrocarbon fluorescence.
		50	SILTSTONE: Light to medium olive grey brown, locally common glauconite, firm to hard, trace to locally common carbonaceous specks, trace pyrite, trace dark lithic fragments, blocky to subblocky
1763	1766	20	SANDSTONE: As above, very fine to fine grained, well sorted.
		80	SILTSTONE: As above.
1766	1769	30	SANDSTONE: Clear, translucent, occasionally yellow brown Fe-stained, medium to coarse, occasionally very coarse, moderately poorly sorted, subangular to subrounded, weak siliceous cement, trace to locally common white argillaceous matrix, trace glauconite, trace pyrite, poor visual porosity, no hydrocarbon fluorescence.
		80	SILTSTONE: Light to medium grey to grey brown, locally common glauconite, soft to firm, trace pyrite, trace carbonaceous specks, firm to hard, blocky to subblocky
1769	1772	70	SANDSTONE: Generally as above, very fine to coarse, predominantly medium to coarse, moderately poorly sorted, trace siliceous cement, trace to locally common white argillaceous matrix, trace calcite, trace pyrite, poor visual porosity, no hydrocarbon fluorescence.
		30	SILTSTONE: As above.
1772	1775	90	SANDSTONE: Clear to translucent, pale grey, very fine to coarse grained, rare very coarse, poorly sorted, predominantly fine to medium, subangular to commonly subrounded, minor rounded, trace weak siliceous cement, trace to locally common light grey argillaceous matrix, trace to locally common pyrite, trace glauconite, trace calcite, trace lithic fragments, poor to fair visual and inferred porosity, no hydrocarbon fluorescence.
		10	SILTSTONE: As above.

1775	1778	90	SANDSTONE: Clear to translucent, pale grey, very fine to coarse grained, rare very coarse, poorly sorted, predominantly fine to medium, subangular to commonly subrounded, minor rounded, trace weak siliceous cement, trace to locally common light grey argillaceous matrix, trace to locally common pyrite, trace to common glauconite, trace calcite, trace lithic fragments, moderately clean, poor to fair visual and inferred porosity, no hydrocarbon fluorescence.
		10	SILTSTONE: As above.
1778	1781	90	SANDSTONE: As above, fine to medium, moderate well sorted, fair inferred porosity, no hydrocarbon fluorescence.
		10	SILTSTONE: As above.
1781	1784	80	SANDSTONE: Clear to translucent, opaque, very fine to coarse grained, minor very coarse, predominantly medium to coarse, poorly sorted, subrounded to subangular, trace weak siliceous cement, trace calcareous cement, trace pyrite, trace glauconite, trace brown rounded polished lithic fragments, generally loose and clean, fair inferred porosity, no hydrocarbon fluorescence.
		20	SILTSTONE: As above.
1784	1787	20	SANDSTONE: Clear to translucent, opaque, very fine to fine grained, minor medium to coarse, moderately poorly sorted, subrounded to subangular, trace weak siliceous cement, trace calcareous cement, common white to light grey argillaceous matrix, trace pyrite, trace glauconite, poor visual porosity, no hydrocarbon fluorescence.
		70	SILTSTONE: As above
1787	1790	20	SANDSTONE: As above.
		70	SILTSTONE: As above, pale green, slightly calcareous.
1790	1793	30	SANDSTONE: As above.
		70	SILTSTONE: As above.
1793	1796	30	SANDSTONE: Pale brown, off white, fine to medium, occasionally loose coarse grained, moderately poorly sorted, subangular, trace weak siliceous cement, common calcareous cement, common off white argillaceous matrix, trace pyrite, trace lithic fragments, friable to moderately hard aggregates, poor visual porosity, no hydrocarbon fluorescence.
		80	SILTSTONE: As above.
1796	1799	20	SANDSTONE: As above.



		80	SILTSTONE: Light brown, light green brown, off white, very finely arenaceous, trace carbonaceous specks, firm to occasionally moderately hard, subblocky.
1799	1802	10	SANDSTONE: As above.
		90	SILTSTONE: Light brown, light green brown, off white, very finely arenaceous, trace carbonaceous specks, trace pyrite, firm to occasionally moderately hard, subblocky.
1802	1805	Trace	SANDSTONE: As above.
		100	SILTSTONE: Light brown, light green brown, off white, very finely arenaceous, trace carbonaceous specks, trace pyrite, firm to occasionally moderately hard, subblocky.
1805	1808	20	SANDSTONE: As above, very fine to fine grained, moderate well sorted, poor visual porosity, no hydrocarbon fluorescence.
		80	SANDSTONE: As above
1808	1811	100	SILTSTONE: Light brown to medium brown, pale green brown, common carbonaceous specks, trace glauconite, argillaceous, firm to occasionally moderate hard, subblocky.
1811	1814	100	SILTSTONE: As above
1814	1817	100	SILTSTONE: As above
1817	1820	100	SILTSTONE: As above
1820	1823	100	SILTSTONE: As above
1823	1826	100	SILTSTONE: As above
1826	1829	100	SILTSTONE: As above, arenaceous, grades into very fine sandstone in part.
1829	1832	80	SANDSTONE: Pale brown grey, off white, translucent, opaque in part, fine to medium, minor coarse grained, moderately well sorted, subangular, common calcareous cement, common to locally abundant white argillaceous matrix, trace pyrite, trace glauconite, friable to moderately hard, occasionally hard, poor visual porosity, no hydrocarbon fluorescence.
		30	SILTSTONE: As above, arenaceous, grades into very fine sandstone in part.
1832	1835	70	SANDSTONE: Pale brown grey, off white, translucent, opaque in part, fine to medium, moderately well sorted, subangular, common calcareous cement, common to locally abundant white argillaceous matrix, trace pyrite, trace glauconite, friable to moderately hard, occasionally hard to rarely very hard, poor visual porosity, no hydrocarbon fluorescence.

		50	SILTSTONE: As above, arenaceous, grades into very fine sandstone in part.
1835	1838	20	SANDSTONE: As above.
		90	SILTSTONE: Medium brown, trace green brown, very finely arenaceous in part, generally argillaceous, dispersive in part, soft to firm, com carbonaceous specks, slightly micro-micaceous, subblocky to amorphous.
1838	1841	30	SANDSTONE: as above, very fine to fine grained, grades to very finely arenaceous siltstone, poor porosity, no hydrocarbon fluorescence.
		70	SILTSTONE: as above.
1841	1844	60	SANDSTONE: as above, very fine to fine grained, grades to very finely arenaceous siltstone, micro-micaceous, poor porosity, no hydrocarbon fluorescence.
		40	SILTSTONE: as above.
1844	1847	40	SANDSTONE: as above, very fine to fine grained, grades to very finely arenaceous siltstone, micro-micaceous, poor porosity, no hydrocarbon fluorescence.
		60	SILTSTONE: as above.
1847	1853	50	SANDSTONE: as above, very fine to fine grained, grades to very finely arenaceous siltstone, micro-micaceous, poor porosity, no hydrocarbon fluorescence.
		50	SILTSTONE: as above.
1853	1859	60	SANDSTONE: as above, very fine to fine grained, grades to very finely arenaceous siltstone, micro-micaceous, poor porosity, no hydrocarbon fluorescence.
		40	SILTSTONE: as above.
1859	1965	70	SANDSTONE: Light grey, pale brown, clear to translucent, fine to medium grained, minor coarse grained, moderately well sorted, subangular to subrounded, trace moderate strong calcareous cement, siliceous cement in part, common white argillaceous matrix, friable to moderately hard, trace carbonaceous specks locally grading to coal, poor visual porosity, no hydrocarbon fluorescence.
		30	SILTSTONE: As above.
1865	1871	60	SANDSTONE: Light grey, pale brown, clear to translucent, fine to medium grained, minor coarse grained, moderately well sorted, subangular to subrounded, trace moderate strong

			calcareous cement, siliceous cement in part, common white argillaceous matrix, friable to moderately hard, trace carbonaceous specks and minor micro-laminations, trace lithic fragments, poor visual porosity, no hydrocarbon fluorescence.
		40	SILTSTONE: As above.
1871	1877	60	SANDSTONE: As above.
		40	SILTSTONE: As above.
1877	1883	70	SANDSTONE: As above.
		30	SILTSTONE: As above.
1883	1889	50	SANDSTONE: As above, grades to arenaceous siltstone in part.
		50	SILTSTONE: As above.
1889	1895	50	SANDSTONE: Off white to pale brown, translucent, fine to medium grained, rare coarse, moderately well sorted, common calcareous cement, common argillaceous matrix, silty in part, trace carbonaceous specks, friable, moderate hard, poor visual porosity, no hydrocarbon fluorescence.
		50	SILTSTONE: As above.
1895	1901	90	SANDSTONE: White to light grey brown, colourless to translucent, fine to medium grained, moderately well sorted, subangular to subrounded, weak siliceous cement, common white to light grey brown argillaceous matrix, trace carbonaceous specks, trace glauconite grains, friable aggregates, poor visual porosity, no hydrocarbon fluorescence.
		10	SILTSTONE: As above.
1901	1907	90	SANDSTONE: As above with light grey clay matrix and common white calcareous matrix.
		10	SILTSTONE: As above.
1907	1913	80	SANDSTONE: As above but with abundant white calcareous matrix
		20	SILTSTONE: Medium to dark grey, argillaceous, common carbonaceous fragments, hard, subblocky.
1913	1919	90	SANDSTONE: As above.
		10	SILTSTONE: As above.
1919	1925	60	SANDSTONE: As above.
		30	CLAYSTONE: Off white to pale grey, light grey in part, trace carbonaceous micro-specks, firm to locally hard, subblocky.

		10	SILTSTONE: As above.
1925	1931	80	CLAYSTONE: Light grey, light green, grades to SILTSTONE in part, glauconitic in part, trace carbonaceous specks, trace white lithic fragments, trace pyrite, firm to moderately hard, locally very hard, subblocky.
		20	SANDSTONE: Colourless to translucent, minor dark brown, trace pink to orange grains, fine to occasionally medium, moderately well sorted, subangular to subrounded, weak calcareous cement, minor white argillaceous matrix, friable to loose, fair visual porosity, no hydrocarbon fluorescence.
1931	1937	50	CLAYSTONE: As above.
		30	SANDSTONE: As above.
		10	SILTSTONE: As above.
1937	1943	90	SANDSTONE: Colourless to translucent, white to light green, light grey, fine to predominantly medium, well sorted, subrounded, weak calcareous cement, locally common white argillaceous matrix, common pyrite fragments, trace pyrite coated grains, common red lithic fragments and carbonaceous fragments, trace dolomite, friable to loose, poor visual and fair inferred porosity, no hydrocarbon fluorescence.
		10	SILTSTONE: As above.
1943	1949	70	SANDSTONE: As above.
		30	SILTSTONE: As above.
1949	1955	70	SANDSTONE: As above, but medium to coarse grained, common yellow and pink fragments, common dolomite.
		30	SILTSTONE: Light to medium grey, occasionally dark grey, grey brown in part, argillaceous, common carbonaceous fragments, trace micro-micaceous, moderately hard to hard, subblocky to blocky.
1955	1961	80	SANDSTONE: As above.
		20	SILTSTONE: As above.
1961	1967	60	CLAYSTONE: Light grey, light grey brown, light grey green, light to medium grey, argillaceous grading to SILTSTONE, minor arenaceous grading to very fine SANDSTONE, trace carbonaceous micro-specks, trace white lithic fragments, moderately hard to hard, subblocky to blocky.
		40	SANDSTONE: Colourless to translucent, white, fine, well sorted, subrounded, weak calcareous cement, minor white argillaceous matrix, common pyrite fragments, trace pyrite

			coated grains, common red lithic fragments and carbonaceous fragments, friable to generally loose, poor visual and fair inferred porosity, no hydrocarbon fluorescence.
1967	1973	70	CLAYSTONE: As above.
		30	SANDSTONE: As above.
1973	1979	50	CLAYSTONE: As above.
		50	SANDSTONE: As above.
1979	1985	60	CLAYSTONE: As above.
		40	SANDSTONE: As above.
1985	1991	80	CLAYSTONE: As above.
		20	SANDSTONE: As above.
1991	1997	90	CLAYSTONE: As above but dominantly light grey to light green..
		10	SANDSTONE: As above.
1997	2003	50	CLAYSTONE: Pale grey, grey green to light green, trace carbonaceous micro-specks and white lithic fragments, firm to moderately hard, subblocky to blocky.
		30	SANDSTONE: As above.
		20	SILTSTONE: Light to medium grey, light grey brown, occasional dark grey, argillaceous locally grading to CLAYSTONE, com carbonaceous specks and micro-laminations, soft to firm, subblocky.
2003	2009	80	SILTSTONE: As above but with calcareous bands and common pyrite.
		20	SANDSTONE: As above.
2009	2015	80	SANDSTONE: White to off white, light grey, colourless to translucent, medium to coarse, moderate sorting, subrounded, weak calcareous cement, common to locally abundant white matrix, trace to common carbonaceous fragments and red and yellow lithic fragments, friable to loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		20	SILTSTONE: As above.
2015	2021	80	SANDSTONE: White to off white, light grey, light green, colourless to translucent, minor red to orange and yellow grains, medium to coarse, moderate sorting, subrounded, weak calcareous cement, common to locally abundant white matrix,

			trace to common carbonaceous fragments, common glauconite grains, friable to loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		20	SILTSTONE: As above.
2021	2027	80	SANDSTONE: As above but with increasing green glauconitic grains, minor very coarse quartz fragments, dark red banded and purple lithic fragments (chert?), common disseminated pyrite coated grains.
		20	SILTSTONE: Purple, light to medium grey, dark grey brown, argillaceous, locally grading to CLAYSTONE, common carbonaceous specks and white lithic fragments, trace glauconite, moderately hard, subblocky.
2027	2033	80	SANDSTONE: As above.
		20	SILTSTONE: As above.
2033	2039	70	SANDSTONE: As above.
		30	SILTSTONE: As above.
2039	2045	70	SANDSTONE: As above.
		30	SILTSTONE: Light grey, light grey green to light green, medium to dark grey, occasionally black and purple, argillaceous grading to CLAYSTONE, trace carbonaceous specks and white lithic fragments, firm to moderately hard, subblocky to blocky.
2045	2051	70	SANDSTONE: As above.
		30	SILTSTONE: As above.
2051	2057	80	SANDSTONE: As above plus trace pyritic cement, trace Fe staining..
		20	SILTSTONE: As above.
2057	2063	70	SANDSTONE: As above.
		30	SILTSTONE: Light grey, light grey green to light green, light grey brown to light brown, occasionally medium to dark grey, minor purple, argillaceous grading to CLAYSTONE in part, trace carbonaceous specks and white lithic fragments, rare micro-micaceous, firm to moderately hard, locally hard, subblocky to blocky.
2063	2069	90	SANDSTONE: As above.
		10	SILTSTONE: As above.
2069	2075	70	SANDSTONE: As above.

		30	SILTSTONE: As above.
2075	2081	70	SANDSTONE: White to off white, light grey, light green, colourless to translucent, minor red to orange and yellow grains, trace to common Fe staining, medium to coarse, occasionally very coarse quartz fragments, fine in part, moderate sorting, subrounded, weak calcareous cement, common to locally abundant white matrix, common glauconite grains, trace to common carbonaceous fragments, friable to loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		30	SILTSTONE: As above, siliceous in part.
2081	2087	90	SANDSTONE: White to off white, light grey, light green grey, colourless to translucent, minor red to orange and yellow grains, trace Fe staining, predominantly medium to coarse, occasionally fine, moderate sorting, subangular to subrounded, weak calcareous cement, common to locally abundant white to light grey argillaceous matrix, trace glauconite grains, trace carbonaceous fragments, trace pyrite, friable to loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		10	SILTSTONE: Light grey, light grey green to light green, light grey brown to light brown, occasionally medium to dark grey, minor purple, argillaceous grading to CLAYSTONE in part, trace carbonaceous specks and white lithic fragments, siliceous in part, rare micro-micaceous, firm to moderately hard, locally hard, subblocky to blocky.
2087	2093	80	SANDSTONE: White to off white, light to medium grey, light green grey, colourless to translucent, minor red to orange and yellow grains, trace Fe staining, fine to predominantly medium grained, occasionally coarse, moderate sorting, subangular to subrounded, weak calcareous cement, common white to light grey argillaceous matrix, trace glauconite grains, trace carbonaceous specks, trace pyrite, friable to loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.
		20	SILTSTONE: Light grey, light grey green to light green, light grey brown to light brown, occasionally medium to dark grey, minor purple, argillaceous grading to CLAYSTONE in part, trace carbonaceous specks and white lithic fragments, siliceous in part, rare micro-micaceous, firm to moderately hard, locally hard, subblocky to blocky.
2093	2099	50	SANDSTONE: As above.
		50	SILTSTONE: As above.
2099	2105	80	SANDSTONE: As above.
		20	SILTSTONE: As above.

2105	2112	80	SANDSTONE: As above.
		20	SILTSTONE: As above.

**TOTAL DEPTH DRILLER : 2112m**

**TOTAL DEPTH LOGGER : 2108m**



## **SECTION 2.2:- SIDEWALL CORES DESCRIPTIONS**

## SANTOS LIMITED

## SIDEWALL CORE DESCRIPTION

<b>WELL:</b>	CASINO-2	<b>DATE</b>	05-10-02	<b>PAGES</b>	8
<b>GUN NO.:</b>	1	<b>SHOTS FIRED</b>	30	<b>SHOTS PURCHASED</b>	26
		<b>GEOLOGIST:</b>	M. D'Cruz / Subra		

CORE NO.	DEPTH (m)	REC. (cm)	PALYN. EVAL. REJECT	LITH.	COLOUR	GRAIN SIZE	HYDR. INDIC. (Y/N)	SUPPLEMENTARY INFORMATION
30	1016		N	CLYST	Med to dk brn	-	N	CLAYSTONE: Medium to dark brown, slightly arenaceous, silty, firm to moderately hard, dispersive, amorphous to subblocky
29	1060	4.5	N	CLYST	Dk gry	-	N	CLAYSTONE: Dark grey, firm to moderately hard, subblocky
28	1101	3.5	N	SST CLYST	Lt gy Dk gy	med to occ coarse	N	SANDSTONE: Light grey, pale brown, medium grained, rare coarse, moderately well sorted, subrounded to subangular, trace weak siliceous cement, poor to fair inferred porosity, no hydrocarbon fluorescence. CLAYSTONE: Dark grey, moderately hard, subblocky.

27	1152	4.0	N	SST SLTST	gry	fine	N	SANDSTONE: Pale to medium grey, very fine to fine grained, well sorted, grades to siltstone, white argillaceous matrix, occasional medium grey silty matrix, common disseminated pyrite, moderate hard to hard aggregates, no hydrocarbon fluorescence. SILTSTONE: Medium grey, arenaceous, trace carbonaceous specks, firm, occasionally moderately hard, subblocky
26	1303	2.5	N	SLTST	Med to dk gry to brn gry	-	N	SILTSTONE: Medium to dark grey to brown grey, firm to moderately hard, subblocky.
25	1500	2.25	N	SLTST	Med to dk gry to brn gry	-	N	SILTSTONE: Medium to dark grey to brown grey, soft to firm, subblocky.
24	1555	4.5	N	SLTST	Med brn gry	-	N	SILTSTONE: Medium brown grey, arenaceous, trace glauconite, soft to firm, grades to claystone, subblocky.
23	1700	3.5	N	SLTST	Med to dk brn gry	Arg	N	SILTSTONE: Medium to dark brown grey, medium to dark grey, olive brown, trace glauconite, trace lithic fragments, trace carbonaceous specks, moderately hard to hard, subblocky, occasionally subfissile.

22	1751	2.25	N	SLTST	Med brn gry	Arg	N	SILTSTONE: Medium brown grey, medium to dark grey, olive brown, very finely arenaceous, trace to locally common glauconite, trace lithic fragments, trace carbonaceous specks, moderately hard to hard, subblocky.
21	1810	2.5	N	SLTST	Lt grn gry	Arg	N	SILTSTONE: Light green, pale green grey, pale green brown, common carbonaceous specks, glauconitic, slightly very finely arenaceous, partly argillaceous, firm to occasionally moderate hard, subblocky.
20	1823	3	N	SLTST	Med gry brn	Arg	N	SILTSTONE: Medium grey brown, very finely arenaceous in part, generally argillaceous, dispersive in part, soft to firm, com carbonaceous specks, slightly micro-micaceous, subblocky to amorphous.
19	1836	2.5	N	SST 90% SLTST 10%	Wh	Fine	N	SANDSTONE: White to off white, very fine to fine grained, grades to arenaceous siltstone in part, well sorted, subangular to subrounded, weak strong calcareous cement, abundant white argillaceous matrix, friable to moderately hard, thin siltstone interbeds, trace carbonaceous specks, trace lithic fragments, poor visual porosity, no hydrocarbon fluorescence. SILTSTONE: Medium grey brown, argillaceous, common carbonaceous fragments and micro-laminations, firm to moderately hard, subblocky.

18	1838	2.0	N	SLTST	Med gry brn	Arg	N	SILTSTONE: Medium grey brown, common thin light grey interbeds, argillaceous, common carbonaceous fragments and micro-laminations, firm to moderately hard, subblocky.
17	1845	2.5	N	SST	Wh	Fine	N	SANDSTONE: White to off white, very fine to fine grained, grades to arenaceous siltstone in part, well sorted, subangular to subrounded, weak strong calcareous cement, abundant white argillaceous matrix, friable to moderately hard, trace carbonaceous specks, trace lithic fragments, poor visual porosity, no hydrocarbon fluorescence.
16	1854	2 (broken)	N	SLTST	Lt gry	Arg	N	SILTSTONE: Light grey, argillaceous, common carbonaceous fragments, firm to moderately hard, subblocky.
15	1857	2.5	N	SST	Wh to lt gry	Fine to medium	N	SANDSTONE: White to light grey, fine to medium grained, moderately well sorted, subangular to subrounded, moderately strong calcareous cement, siliceous cement in part, common white argillaceous matrix, friable to moderately hard, trace carbonaceous specks and minor micro-laminations, trace lithic fragments, poor visual porosity, no hydrocarbon fluorescence.

14	1866	2.5	N	SST	Wh to lt gry	Fine to medium	N	SANDSTONE: White to light grey, fine to medium grained, moderately well sorted, subangular to subrounded, moderately strong calcareous cement, siliceous cement in part, common white argillaceous and calcareous matrix, friable to moderately hard, trace carbonaceous specks and minor micro-laminations, trace lithic fragments, poor visual porosity, no hydrocarbon fluorescence.
13	1871	2.5	N	SST	Wh to lt gry	Fine to medium	N	SANDSTONE: White to light grey, fine to medium grained, moderately well sorted, subangular to subrounded, moderately strong calcareous cement, siliceous cement in part, common white argillaceous and calcareous matrix, friable to moderately hard, trace carbonaceous specks and minor micro-laminations, trace lithic fragments, poor visual porosity, no hydrocarbon fluorescence.
12	1880.5	2 (broken)	N	SST	Wh to lt gry	Fine to medium	N	SANDSTONE: White to light grey, fine to medium grained, moderately well sorted, subangular to subrounded, moderately strong calcareous cement, siliceous cement in part, common white argillaceous and calcareous matrix, friable to moderately hard, trace carbonaceous specks and minor micro-laminations, trace lithic fragments, poor visual porosity, no hydrocarbon fluorescence.
11	1887	Empty	-	-	-	-	-	

10	1890	3	N	SLTST	Lt to med gry	Arg	N	SILTSTONE: Light to medium grey, argillaceous, common white calcareous lithics, common carbonaceous fragments soft to firm, subblocky.
9	1894	4.5	N	SLTST	Lt to med gry	Arg	N	SILTSTONE: Light to medium grey, argillaceous, common carbonaceous fragments and lithics, soft to firm, subblocky.
8	1901	2	N	SST	Wh to lt gry	Fine	N	SANDSTONE: White to light grey, colourless to translucent, fine to occasionally medium grained, moderately well sorted, subangular to subrounded, weak siliceous cement, common white to light grey argillaceous and calcareous matrix, trace carbonaceous specks, trace glauconite grains, friable aggregates, poor visual porosity, no hydrocarbon fluorescence.
7	1917	2	N	SST	Wh to lt gry	Fine	N	SANDSTONE: White to light grey, colourless to translucent, fine to occasionally medium grained, moderately well sorted, subangular to subrounded, weak siliceous cement, common white to light grey argillaceous and calcareous matrix, trace carbonaceous specks, trace glauconite grains, friable aggregates, poor visual porosity, no hydrocarbon fluorescence.
6	1922	Empty	-	-	-	-	-	-
5	1925	Empty	-	-	-	-	-	-

4	1958	Empty	-	-	-	-	-	
3	1963	3	N	SLTST	Lt gry grn	Arg	N	SILTSTONE: Pale grey, grey green to light green, argillaceous, minor very fine arenaceous, trace carbonaceous micro-specks and white lithic fragments, firm to moderately hard, subblocky to blocky.
2	2000	3	N	SLTST	Lt gry grn	Arg	N	SILTSTONE: Pale grey, grey green to light green, argillaceous, minor very fine arenaceous, trace carbonaceous micro-specks and white lithic fragments, firm to moderately hard, subblocky to blocky.
1	2076	4.5	N	SLTST	Lt gry grn	Arg	N	SILTSTONE: Light grey, light grey green to light green, argillaceous grading to CLAYSTONE in part, trace carbonaceous specks and white lithic fragments, rare micro-micaceous, firm to moderately hard, subblocky to blocky.

## COMMENTS:

30 sidewall cores were attempted. 26 were recovered.  
3 correlation passes were performed.



## **SECTION 2.2:- CATALOGUE OF WELLSITE SAMPLES**

## Shipping Manifest

Santos: Casino-2

From:

BHI Unit 503

Location: *Ocean Bounty*

Telephone: 08 8218 5740

Shipped in Container No: 26690

SAMPLE TYPE	No. Of Sets	COMPOSITION			PACKING DETAILS
		Sample	Depth Interval (m)		
		Box No.	From	To	
Sets A,B,C: Washed & Air Dried Samples (100 g)	3	1	705	835	Small boxes 1 – 8 packed in large box 1 of 2
		2	835	965	
		3	965	1100	
		4	1100	1230	
		5	1230	1320	
		6	1320	1460	
		7	1460	1590	
		8	1590	1718	
	2	9	1718	1802	Small boxes 9 – 13 packed in large box 2 of 2
		10	1802	1871	
		11	1871	1949	
		12	1949	2030	
		13	2030	2112	
Sets D,E: Washed & Air Dried Samples (200 g)	2	1	705	800	Small boxes 1 – 8 packed in large box 1 of 2
		2	800	930	
		3	930	1030	
		4	1030	1115	
		5	1115	1210	
		6	1210	1300	
		7	1300	1420	
		8	1420	1535	
	1	9	1535	1670	Small boxes 9 – 16 packed in large box 2 of 2
		10	1670	1754	
		11	1754	1823	
		12	1823	1886	
		13	1886	1946	
		14	1946	2009	
		15	2009	2075	
		16	2075	2112	
Set F: Samplex Trays	1	1	700	2112	1 wooden box.
Set G: Samplex Trays	1	1	700	1205	4 small boxes in 1 large box.
		2	1205	1700	
		3	1700		
		4		2112	
Set H: Mud Samples	1	1	700	2112	1 box.
Set I: Misc paper work, logs and charts (Casino1 and Casino 2	1	1	-	-	2 Large boxes

Note: Mud samples taken at 760, 1703, 1752, 1763, 1771, 1825, 1834, 2112.  
Schlumberger MDT Sample from 1764m also packed in same container.

DISTRIBUTION	Destination & Address	Attention of:
Set A and B: Santos Washed & Dried (100g)	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013	Attn: Troy Prosser (Santos Core Librarian)
Set C: Strike Oil Washed & Dried (100g)	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013	Attn: Troy Prosser (Santos Core Librarian)
Set D: Vic DRNE Washed & Dried (200g)	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013 Fwd to Vic DNRE	Attn: Troy Prosser (Santos Core Librarian)
Set E: Geoscience Australia Washed & Dried (200g)	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013 Fwd to AGSO	Attn: Troy Prosser (Santos Core Librarian)
Set F, G: Santos and Strike Samplex Trays	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013 Fwd to AGSO	Attn: Troy Prosser (Santos Core Librarian)
Set H: Mud Samples	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013 Fwd to AGSO	Attn: Troy Prosser (Santos Core Librarian)
Set I: Misc paper work, logs and charts	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013 Fwd to AGSO	Attn: Attn: Troy Prosser (Santos Core Librarian)

## **SECTION 3: WIRELINE LOGGING REPORTS**

**SECTION 3.1:- SUITE 1 - LOGGING ORDER FORM**



**LOGS:**

PROGRAM CONFIRMED WITH OPERATIONS GEOLOGIST AT 07:30 hrs ON 04-10-02

PROGRAM VARIES FROM PRE-SPUD NOTES:

YES:

NO:

LOG	INTERVAL	REPEAT SECTION / Comments
<b><u>RUN 1: PEX-DSI</u></b> Resistivity-Caliper-SP Sonic (P&S WFT) Sonic (Dipole shear) Neutron Density Spectral Gamma GR	TD to casing shoe TD to loss of signal in casing TD to 1650m TD to casing shoe TD to 1650m TD to Seafloor	No repeat section required, check repeatability with down log.
<b><u>RUN 2: MDT-GR</u></b>	Points to be advised Sampling contingent. PVT module with resistivity monitoring required.	
<b><u>RUN 3: VSP</u></b>	Zero offset. TD to top of cement 20m levels.	Contingent
<b><u>RUN 4: SWC</u></b>	30 cores. Points to be advised	Second gun contingent

**REMARKS: (ALL OPERATIONS AS PER CURRENT SANTOS OPERATING PROCEDURES)**

1. TENSION CURVE - TO BE DISPLAYED ON LOG FROM T.D. TO CASING SHOE.
2. ALL CALIBRATIONS IN CASING MUST BE VERSUS DEPTH.
3. ALL THERMOMETER READINGS TO BE RECORDED ON LOG
4. ALL SCALES AND PRESENTATIONS TO CONFIRM TO STANDARDS UNLESS OTHERWISE ADVISED.
5. THE FIELD/EDIT TAPE MUST BE A MERGED COPY OF ALL LOGS RUN. SEPARATE TAPES ARE ONLY ACCEPTABLE AS AN INTERIM MEASURE.
6. ANY CHANGE FROM STANDARD PROCEDURES/SCALES TO BE NOTED IN REMARKS SECTION.
7. RM, RMF, RMC AND BHT MUST BE ANNOTATED ON FAXED LOGS. FAXED LOGS SHOULD ALSO INDICATE IF ON DEPTH OR NOT.
8. LOG DATA IS TO BE TRANSMITTED AS SOON AS POSSIBLE AFTER ACQUISITION. IF ANY DELAYS ARE LIKELY OR IF DATA TRANSMISSION WILL ADVERSELY EFFECT THE OPERATION THEN THE WELLSITE GEOLOGIST MUST BE IMMEDIATELY INFORMED.
9. THE WELLSITE GEOLOGIST MUST BE INFORMED IMMEDIATELY OF ANY TOOL OR HOLE PROBLEMS, LOST TIME OR ANY OTHER EVENT WHICH MAY AFFECT THE LOGGING OPERATIONS.

## **SECTION 3.2:- SUITE 1 - ELECTRIC LOGGING TIME SUMMARY**



**ELECTRIC LOGGING TIME SUMMARY**

LOGGING UNIT:	OSU-25
START DATE:	04-10-02
END DATE:	05-10-02
DEPTH DRILLER:	2112
DEPTH LOGGER:	2108

LEFT BASE:	02-10-02
ARRIVED AT THE WELLSITE:	02-10-02
INITIAL RIG UP:	04-10-02
FINAL RIG DOWN:	05-10-02
RETURN TO BASE:	

WELL NAME:	Casino-2
TRIP NUMBER:	1
WELLSITE GEOLOGIST:	R.Subra / M.D'Cruz
LOGGING ENGINEER:	Meshary / Hayman
PAGE / DATE:	1A 05/10/2002

DATE / TIME	RIG UP / DOWN	TOOL CHECK	RIH / POOH	LOGGING	DATA TX	LOST TIME SLB	I. O.	WIPER TRIP	LOST TIME OTHERS	OTHERS	COMMENTS / REMARKS
0:00				X							
				X							Pretest @ 1780.5m
:30				X							
				X							
1:00				X							
				X							Pretest @ 1836.7m
:30				X							
				X							
2:00				X							
				X							
:30				X							Pretest @ 1872m
				X							
3:00				X							
				X							Pretest @ 1906.5m
:30				X							
				X							
4:00				X							Finish tests at 04:15 hrs
				X							Sampling @ 1764m.
:30				X							Start pumpout @ 04:35hrs
				X							
5:00				X							
				X							
:30				X							
				X							
6:00				X							Sampling @ 1764m. 1 gal chamber
				X							
:30				X							
				X							Finish sampling @ 06:55
7:00			X								PULL OUT OF HOLE
			X								
:30			X								
			X								Tool at surface 07:45am
8:00	X										
	X										
:30	X										Rig down MDT-GR run
	X										RUN 3: CST-GR Safety Meeting
9:00	X										
			X								
:30			X								
			X								
10:00			X								
			X								
:30				X							Correlate at 2100m prior to SWC
				X							Start SWC
11:00				X							
				X							Correlate after 1810m SWC
:30				X							
				X							Correlate after 1500m SWC
										WSG (SIGN)	ENGINEER(SIGN)

TOTALS

TOTAL	8.75	0.75	1.00	7.00						
	3.25	0.50	1.25	1.50						

TOOLS RUN: MDT-GR

TOOLS RUN: CST-GR

TOOLS RUN:

DATE / TIME	RIG UP / DOWN	TOOL CHECK	RIH / POOH	LOGGING	DATA TX	LOST TIME SLB	I. O.	WIPER TRIP	LOST TIME OTHERS	OTHERS	COMMENTS / REMARKS	
12:00				X							Continue SWC @ 1303m	
				X							End of SWC run	
:30			X								POOH	
			X									
13:00	X										Rig down	
	X											
:30	X											
	X										Complete wireline operations @ 14:00 hrs	
14:00												
:30												
15:00												
:30												
16:00												
:30												
17:00												
:30												
18:00												
:30												
19:00												
:30												
20:00												
:30												
21:00												
:30												
22:00												
:30												
23:00												
:30												
TOTALS											WSG (SIGN)	ENGINEER (SIGN)

TOTAL 2.00

1.00	0.50	0.50										TOOLS RUN: CST-GR
												TOOLS RUN:
												TOOLS RUN:

SERVICE QUALITY SUMMARY

CLIENT WSG					ENGINEER					
1	2	3	4	5	1	2	3	4	5	
										SAFETY
										PROMPTNESS
										TOOL & SURFACE SYSTEM PERFORMANCE
										ATTITUDE & CO-OPERATION
										WELLSITE PRODUCTS / LOG QUALITY
										COMMUNICATIONS / TX PERFORMANCE
										OTHER (PLEASE SPECIFY)

1: Excellent - 2 - 3: Normal - 4 - 5: Very Poor

## **SECTION 3.3:- SUITE 1 – FIELD ELECTRIC LOGGING REPORT**

## SANTOS LIMITED

## FIELD ELECTRIC LOG REPORT

WELL: Casino-2 GEOLOGISTS: R. Subramanian and M. D'Cruz

LOGGING ENGINEERS: M. Al-Ayed / P. Hayman

RUN NO: Suite 1 / Run 1 to 3 DATE LOGGED: 04-10-02 to 05-10-02

DRILLERS DEPTH: 2112m LOGGERS DEPTH: 2108m

ARRIVED ON SITE: 02-10-02

ACTUAL LOG TIME: 16 hrs 15 mins LOST TIME LOGGER: 0 hrs 45 mins

TOTAL TIME: 27 hrs 45 mins LOST TIME OTHER: -

TYPE OF LOG	PEX-DSI (Run 1)	MDT-GR (Run 2)	CST-GR (Run 3)	
TIME CIRC. STOPPED	04:15 04/10/02	04:15 04/10/02	04:15 04/10/02	
TIME TOOL RIG UP	10:15 04/10/02	17:00 04/10/02	08:45 05/10/02	
TIME TOOL RIH	11:30 04/10/02	20:15 04/10/02	09:15 05/10/02	
TIME TOOL RIG DOWN	17:00 04/10/02	08:45 05/10/02	14:00 05/10/02	
TOTAL TIME	6 hrs 45 mins	15 hrs 45 mins	5 hrs 15 mins	

TYPE OF LOG	FROM (m)	TO (m)	REPEAT SECTION	TIME SINCE LAST CIRC	BHT
PEX-DSI GR Spectral GR Resistivity SP HCAL Sonic (Upper Dipole) Dt (Full waveforms)  Neutron-Density	TD TD TD TD TD TD TD TD	93 1650 690 690 690 1650 Loss of signal 690	Down log      * recorded to surface	9.0 hrs	79.5°C
MDT-GR (TOTAL : 32, 13 Good, 14 Curtailed/Tight, 3 Lost Seals, 2 Unstable, 3 samples collected)	1753.7	1944.5		-	-
CST-GR (26 of 30 shots recovered)	1016	2076		-	-

MUD SYSTEM: KCI – PHPA – GLYCOL

WEIGHT: 1.24 SG

HOLE CONDITIONS: Good

## WELLSITE LOG QUALITY CONTROL CHECKS

LOG ORDER FORM	O K	MUD SAMPLE RESISTIVITY	OK	TOOL NO. / CODE CHECK	OK
OFFSET WELL DATA	O K	CABLE DATA CARD	OK	LOG SEQUENCE CONFIRM.	OK

LOG TYPE	Run 1 PEX- HALS	Run 2 MDT	Run 3 CST-GR	REMARKS
CASING CHECK	Y			
SCALE CHECK	Y			
DEPTH Casing	Y			L=690.2m D=690.6m
CALIBRATIONS OK	Y		Y	
REPEATABILITY	Y			
LOGGING SPEED	1700/300 0			
OFFSET WELL REPEATABILITY	Y			Compares with MWD/LWD
NOISY/MISSING DATA	Y			
CURVES/LOGS Depth Matched	Y	Y		
Rm MEASUREMENT	Y			
LLS/LLD/CHECK	Y			
PERF/RHOB CHECK	Y			
LOG HEADER/TAIL	Y			OK
PRINT/FILM QUALITY				To be sent from town
CORRELATION PASSES		Y	Y	OK

### **COMMENTS:**

**Run 1 PEX-HALS:** Logger TD: 2108m vs Drillers TD 2112m

**Run 2 MDT:** Tool had problems powering up. 45 mins downtime.

2 x PVT samples forwarded to town for analysis.

1 x 1-gal chamber opened at the site.

(Note: A total of 5 PVT samples and one 1-gallon sample were collected. The first two PVT samples (collected at low resistivity) were collected as per directions of reservoir engineer in town. Additional 3 samples (at high resistivity) were collected by Schlumberger Engineer on his own initiative. The first two PVT samples (collected at low resistivity) were rejected on instructions of DOG. When discarding contents, found to contain approx. 50% sand, 50% water and small amount of gas. Only two PVT samples (collected at high resistivity) were accepted for purchase and forwarded to town for analysis.

**Run 3 CST.** 26 of 30 shots recovered.

**ENGINEERS COMMENTS (If this report has not been discussed with the Engineer state reason)**

## **SECTION 3.4: MDT PRESSURE SURVEY RESULTS**

# Santos

## PRESSURE SURVEY - RUSH

WELL: **Casino 2**

RT: 25.0 metres

Gauge Type : Quartz

Page : 1 OF 2

WITNESS: M. D'Cruz / R.Subramanian

Time since last circ : 18.0 hrs

Probe/Packer Type : Standard

Date : 4/10/02 - 5/10/02

	FORMATION	DEPTH RT MD m	DEPTH SUBSEA m	EXPECT FORM PRESS PSIA	EXPECT TEMP deg C	FILE NO	TEST RESULTS					INTERPRETATION			COMMENTS FLUID TYPE
							HYDRO BEFORE PSIA	FORM PRESS PSIA	HYDRO AFTER PSIA	TEMP deg C	D/D MOB MD/CP	TYPE D/D	TYPE BUILD UP	DEPL S/C	
<b>CORRELATION</b>															
1	Waarre Cb	1753.7	1728.7			54	3146.30	-	-	71.5	-	N	Slow		Curtailed
2	Waarre Cb	1757.8	1732.8			55	3153.60	2827.50	3152.80	72.5	N/A	N	Slow		Good
3	Waarre Cb	1757.8	1732.8			55	3152.80	2826.95	3152.50	73.1	135.9	N	Rapid		Reset, Good
4	Waarre Cb	1760.0	1735.0			56	3155.60	2827.71	3156.03	73.6	313.7	N	Slow		Good
5	Waarre Cb	1765.5	1740.5			57	3161.50	2828.35	3160.57	73.9	953.1	N	Slow		Good
6	Waarre Cb	1762.5	1737.5			58	3167.58	2829.84	3166.11	74.3	669.9	N	Rapid		Good
7	Waarre Cb	1768.5	1743.5			59	3173.30	2829.10	3171.88	74.5	N/A	N	Rapid		Good
8	Waarre Cb	1768.5	1743.5			59	3171.88	-	3172.20	74.7	2.80	N	Slow		Reset, Curtailed
9	Waarre Cb	1773.5	1748.5			60	3181.79	2830.14	3181.20	75.0	157.40	N	Fast		Good
<b>CORRELATION</b>															
10	Waarre Cb	1777.5	1752.5			62	3189.50	2831.05	3188.70	75.2	865.70	N	Rapid		Good
11	Waarre Cb	1780.5	1755.5			63	3194.70	2831.26	3194.43	75.5	109.50	N	Rapid		Good; Plugging ??
12	Waarre Cb	1785.3	1760.3			65	3203.79	2832.16	3202.95	75.8	176.60	N	Good		Good
13	Waarre Ca	1832.7	1807.7			66	3291.70	-	3287.15	76.9	0.60	N	Slow		Curtailed
14	Waarre Ca	1834.5	1809.5			67	3291.12	(2836)	3290.45	77.7	3.40	N	Slow		Curtailed
15	Waarre Ca	1836.7	1811.7			68	3294.78	-	3294.58	78.0	3.20	N	Slow		Curtailed
16	Waarre Ca	1844.8	1819.8			69	3311.04	2832.08	3309.03	78.5	9.30	N	Slow		Curtailed
17	Waarre Ca	1857.0	1832.0			70	3333.86	-	3331.09	78.3	-	N	Slow		Curtailed
18	Waarre Ca	1859.5	1834.5			71	3335.79	1831.41	3335.33	79.3	7.50	N	Slow		Curtailed
19	Waarre Ca	1862.3	1837.3			72	3340.84	2830.60	3340.53	79.1	14.60	N	Slow		Tight
20	Waarre Ca	1881.5	1856.5			73	3378.23	2853.66	3374.49	79.7	12.50	N	Slow		Tight
21	Waarre Ca	1872.0	1847.0			74	3359.00	-	-	79.9	-	N	Slow		Unstable
22	Waarre Ca	1872.0	1847.0			74	3359.00	-	-	79.3	-	N	Slow		Unstable, Reset

Expected Temp Gradient: 0.04

Expected Water Gradient: 0.43

Mud Weight : 1.24 sg

Normal Drawdown : Pressure does not drop to zero

Limited Drawdown : Pressure drops to zero

Build Up types: Immediate, Rapid, Good, Slow.

# Santos

## PRESSURE SURVEY - RUSH

WELL: **Casino 2**

RT: 25.0 metres

Gauge Type : Quartz

Page : 2 OF 2

WITNESS: R Subramanian/ M. D'Cruz

Time since last circ : 17.0 hrs

Probe/Packer Type : Standard

Date : 4/10/02 - 5/10/02

	FORMATION	DEPTH RT MD m	DEPTH SUBSEA m	EXPECT FORM PRESS PSIA	EXPECT TEMP deg C	FILE NO	TEST RESULTS					INTERPRETATION			COMMENTS  FLUID TYPE
							HYDRO BEFORE PSIA	FORM PRESS PSIA	HYDRO AFTER PSIA	TEMP deg C	D/D MOB MD/CP	TYPE D/D	TYPE BUILD UP	DEPL S/C	
23	Waarre Ca	1872.0	1847.0			74	3357.81	2840.89	3357.84	79.90	12.80	N	Good		Good. Reset, 40cc/min d/d
24	Waarre Ca	1884.5	1859.5			75	3383.50	2860.29	3380.03	80.10	5.50	N	Good		Good
25		1906.5	1881.5			76	3422.20	-	3419.20	80.30	-	N	-		Lost Seal
26		1906.5	1881.5			76	3419.20	-	3418.20	80.40	1.80	N	Fast		Tight 30 cc/min.
27		1909.5	1884.5			77	3425.40	-		80.50	-	-	-		Lost Seal
28		1909.5	1884.5			77	3425.40	-		80.50	-	-	-		Lost Seal again
29		1909.3	1884.3			78	3425.20	(1430)	3424.40	80.50	5.70	N	Slow		Curtailed
30		1915.0	1890.0			79	3435.20	-	3434.33	80.70	2.20	N	Slow		Curtailed
31		1944.5	1919.5			80	3490.60	-	3486.80	89.90	21.00	N	Slow		Curtailed
<b>CORRELATION</b>															
<b>SAMPLING</b>															
32	Waarre Cb	1764.0	1739.0			81	3165.00	2827.91	3167.50	77.00	(>1000)	N	Slow		Collected 4x450cc and 1 gallon
<b>TOTAL : 32 PRE-TESTS: 13-Good, 3 Lost Seals, 14 curtailed/tight, 2 Unstable</b>															

\* Note: Above readings noted real-time. Software picks could vary slightly. Refer final log presentation.

Expected Temp Gradient: 0.04

Expected Water Gradient: 0.43

Mud Weight : 1.24 sg

Normal Drawdown : Pressure does not drop to zero

Limited Drawdown : Pressure drops to zero

Build Up types: Immediate, Rapid, Good, Slow.

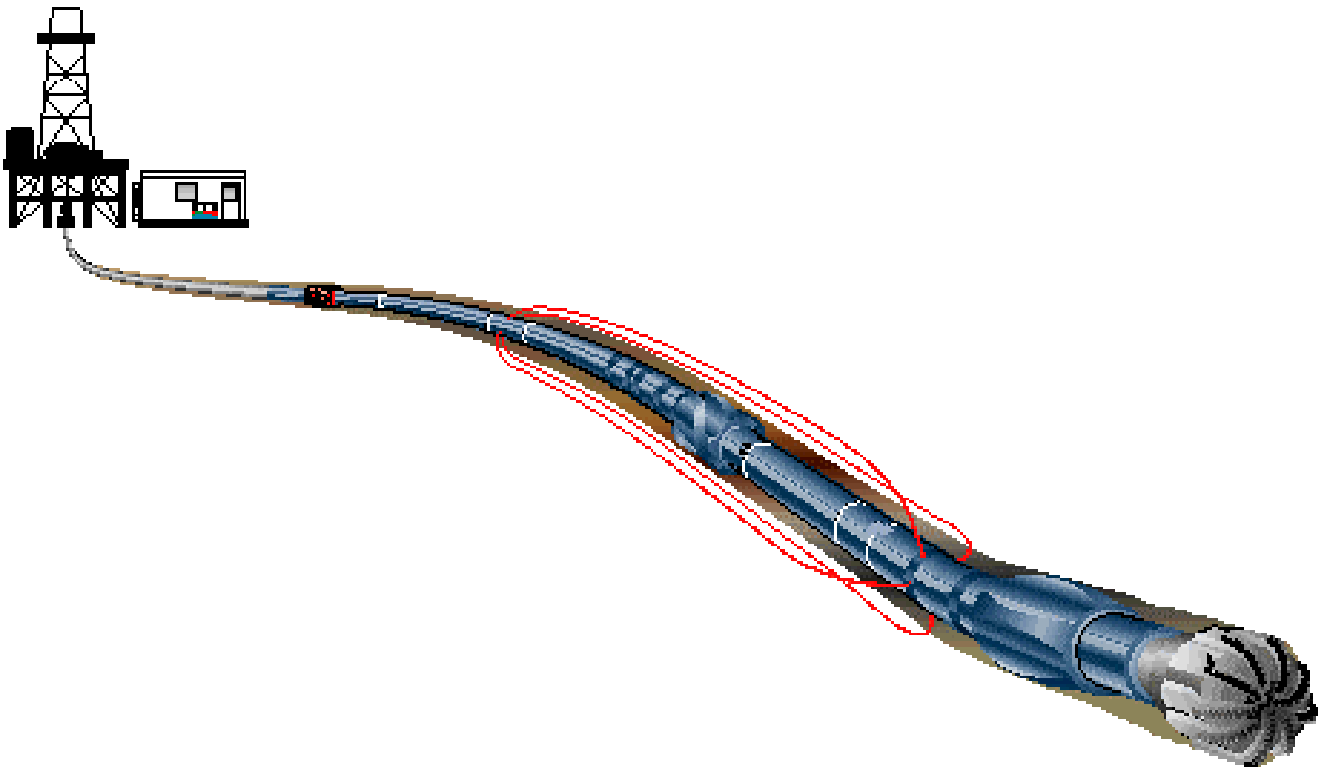


**SECTION 3.5:- MWD – LWD END OF WELL REPORT  
(Anadrill Schlumberger)**

# Santos

Casino-2

MWD/LWD End of Well Report

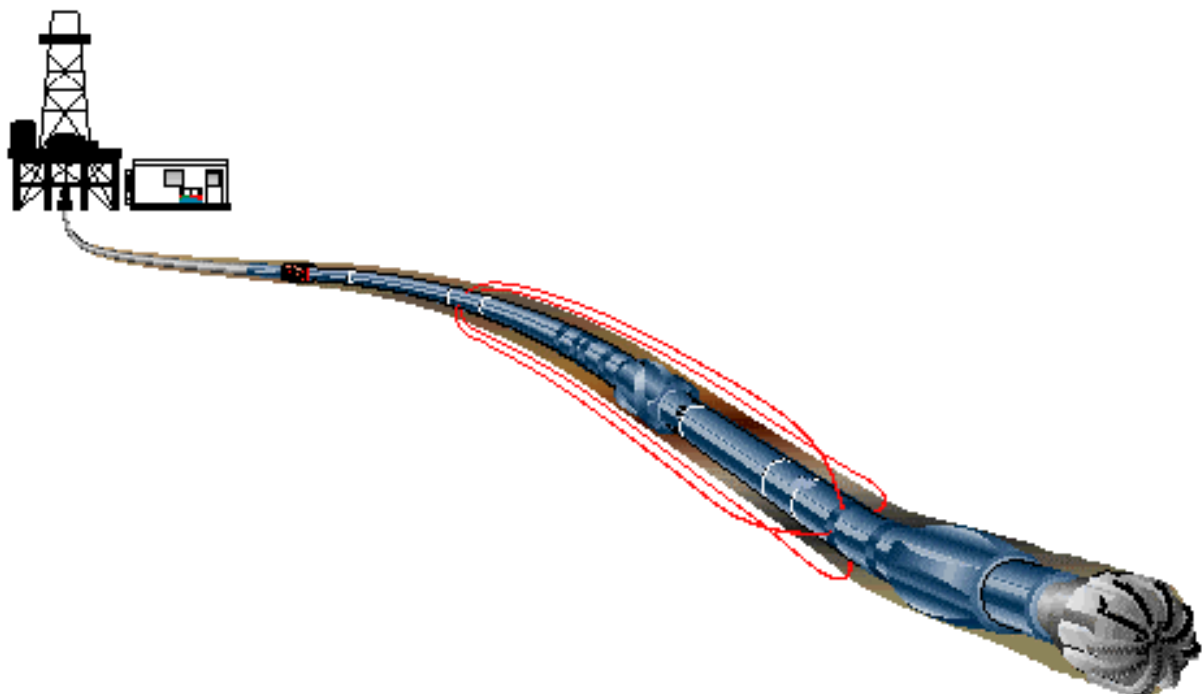


## End of Well Report for Casino-2

### Contents

- General Information
- MWD / LWD Overview
- Geomagnetic and Survey Reference Criteria
- Survey Report
- MWD/LWD Run Summary
- Failure Report and Analysis

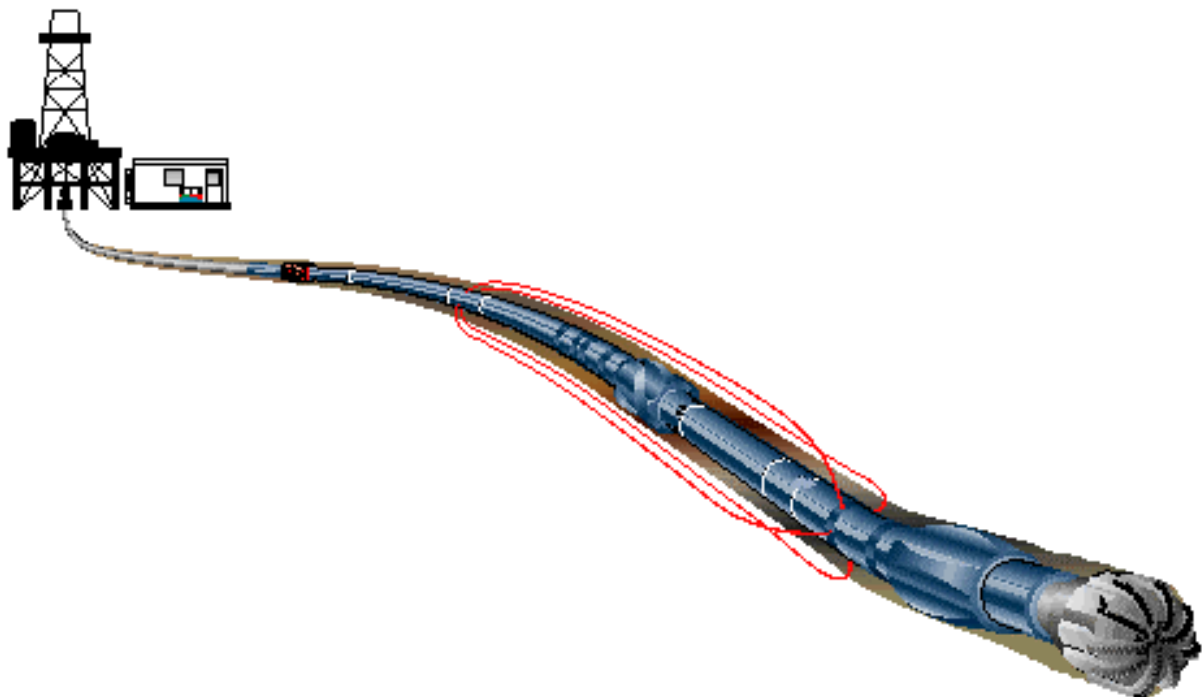
## General Information



## General Information

Well Name:	Casino-2	
Rig:	DOGC Ocean Bounty	
Field:	Otway Basin	
Location:	Vic/P 44	
Country:	Australia	
Cell Members:	Antonino Abad Chu Mhin Tue	MWD/LWD Engineer MWD/LWD Engineer
Town Contact:	Raymond Nanan Hrvoje Spoljaric Go Ching Lian Alex van den Tweel	Location Manager Service Quality Coach Field Service Manager DD Coordinator
Company Representatives:	Ron King Gavin Othen Steve Hodgetts Ram Subramaniam Melroy D'Cruz	Company Man Company Man Company Man Wellsite Geologist Wellsite Geologist

## MWD / LWD Overview



## Logging Overview Casino - 2

Schlumberger Drilling and Measurements provided LWD and MWD services in the 12-¼ in. section of the Casino- 1 well.

In the 12-¼ in. section, the following formation evaluation measurements were delivered in real time and memory modes:

- ❑ Phase Shift Resistivity (CDR)
- ❑ Attenuation Resistivity (CDR)
- ❑ Formation Gamma Ray (CDR)
- ❑ Phase Shift Resistivity (ARC)
- ❑ Attenuation Resistivity (ARC)
- ❑ Compressional Delta-T (ISONIC)

Furthermore survey data were transmitted in real time by the PowerPulse tool but not recorded in tool memory.

Run	Hole Size (in.)	Service	Start Depth (m)	Stop Depth (m)
1	12 ¼	PowerPulse / CDR / ISONIC	700	1646
2	12 ¼	PowerPulse / CDR / ISONIC	1646	1763
3	12 ¼	PowerPulse / CDR / ISONIC	1784	2112

### 12 ¼ in. Section (Runs 1 to 2, 700 to 1763 m MD):

The CDR / PowerPulse / ISONIC combination was used for formation evaluation in the drilling of Casino-2 well. CDR and ISONIC logs were also used to correlate formation evaluation logs from Casino-1 well that was drilled prior to this well. The MWD tool was programmed to transmit real time information at 6.4 bits per second and this allowed obtaining a good quality log in real time.

The ISONIC had been programmed to pick compressional Delta-T. Top interval of the ISONIC log from 700 meters to 900 meters measured depth has bad acoustic data due to high ROP and high level of shocks. Client was informed of high shocks and changed in drilling parameters were applied.

After making a connection at depth of 1696 meters in Run #2, the PowerPulse tools stopped transmitting data. Mud pumps were cycled a few times but without any success. Informed Company Man and Wellsite Geologist of the situation and a decision was made to continue drilling and keep on monitoring ROP for drilling break and gas return that would indicate coring point. Top of the Coring point was called at depth of 1763 meters.

After pulling out of hole, LWD recorded memory data were retrieved from the CDR and ISONIC tools. No problem was found in the LWD tools but PowerPulse MWD tool failed to communicate with the surface computers. Further failure analysis on root cause of failure will be conducted at the Repair and Maintenance (R&M) facility. Final result of failure analysis will be forwarded to the client as soon as possible.

**12 ¼ in. Section (Run 3, 1784 m to 2112 m MD):**

The back-up PowerPulse MWD tool was pick-up for run number 3 and CDR tool were laid down and replaced by the ARC tool. The CDR tool was laid out due to the fact that the back-up PowerPulse tool was originally set-up to run with the ARC tool.

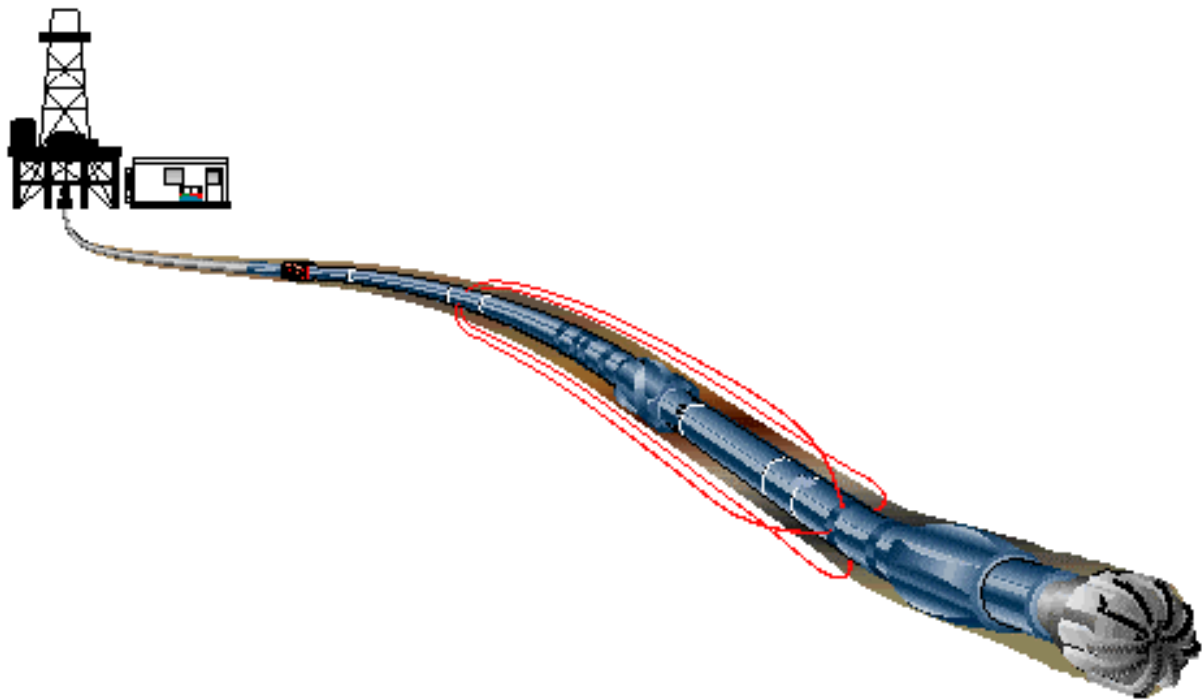
Reaming operation was performed in real time and recorded mode from depth of 1745 meters to coring run TD of 1784 meters. Reaming was kept at 30 to 40 m/hr to get good LWD data quality.

ISONIC compressional Delta-T looks spiky when drilling through sandstones interbedded with siltstones. ISONIC compressional Delta-T response was correlating well with the formation being drilled.

This run resulted to Casino-2 well TD.



## Geomagnetic and Survey Reference Criteria



## Geomagnetic and Survey Reference Criteria

### Geomagnetic Data

---

Magnetic Model:	BGGM version 2001
Magnetic Date:	27-Sep-2002
Magnetic Field Strength:	1220.24 HCNT
Magnetic Declination:	10.89 degrees
Magnetic Dip:	-70.02 degrees

### Survey Reference Criteria

---

Reference G:	1000.08 mgal
Reference H:	1220.24 HCNT
Reference Dip:	-70.02 degrees
G value Tolerance:	2.50 mgal
H value Tolerance:	6.00 HCNT
Dip Tolerance:	0.45 degrees

### Survey Corrections Applied

---

Reference North:	Grid North
Magnetic Declination:	10.89 degrees
Grid Convergence:	-1.09 degrees
Total Azimuth Correction:	11.98 degrees
Vertical Section Azimuth:	0.00 degrees

---

## Survey Reference Location

---

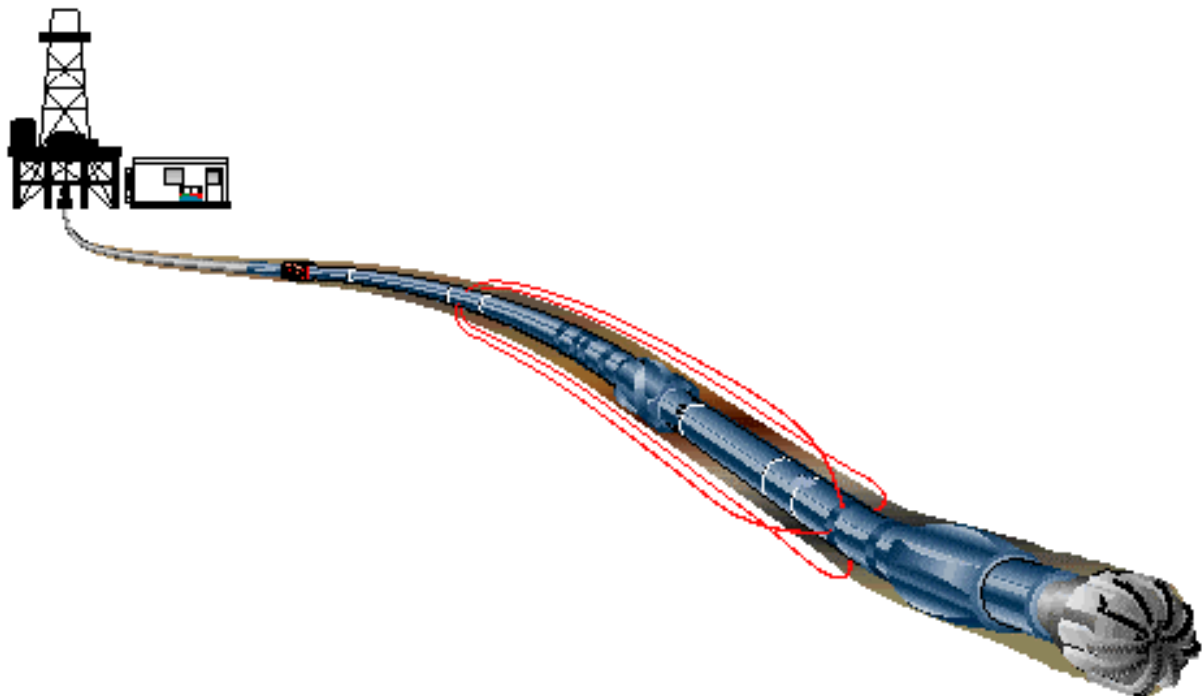
### Casino-2 Final Coordinates

Datum:	GDA94	
Latitude:	38 ° 47 ' 43.887"	South
Longitude:	142 ° 44 ' 50.746"	East
Projections:	MGA Zone 54, CM 141 ° East	
Easting:	651 752.63	meters
Northing:	5 704 463.79	meters

#### Note:

Data as per Thales Geosolution (Australia) Ltd. fax to Santos via Ole Moller, reference number F26927/3447A3 dated 26<sup>th</sup> September 2002.

# Survey Report



Casino-2\_Surveys.TXT  
SCHLUMBERGER - D&M

Survey report

Client..... Santos  
Field..... Exploration  
  
Well..... Casino-2  
API number.....  
Engineer..... A. Abad, C. Tue  
  
RIG..... Ocean Bounty  
STATE..... Victoria

Spud date..... 24 Sep 02  
Last survey date..... 04-Oct-02  
Total accepted surveys... 25  
MD of first survey..... 0.00 m  
MD of last survey..... 2112.00 m

----- Survey calculation methods-----  
Method for positions..... Minimum curvature  
Method for DLS..... Mason & Taylor

----- Geomagnetic data -----  
Magnetic model..... BGGM version 2001  
Magnetic date..... 27-Sep-2002  
Magnetic field strength... 1220.24 HCNT  
Magnetic dec (+E/W)..... 10.89 degrees  
Magnetic dip..... -70.02 degrees

----- Depth reference -----  
Permanent datum..... GROUND LEVEL  
Depth reference.....  
GL above permanent..... -68.00 m  
KB above permanent..... 0.00 m  
DF above permanent..... 25.00 m

----- MWD survey Reference Criteria -----  
Reference G..... 1000.08 mGal  
Reference H..... 1220.24 HCNT  
Reference Dip..... -70.02 degrees  
Tolerance of G..... (+/-) 2.50 mGal  
Tolerance of H..... (+/-) 6.00 HCNT  
Tolerance of Dip..... (+/-) 0.45 degrees

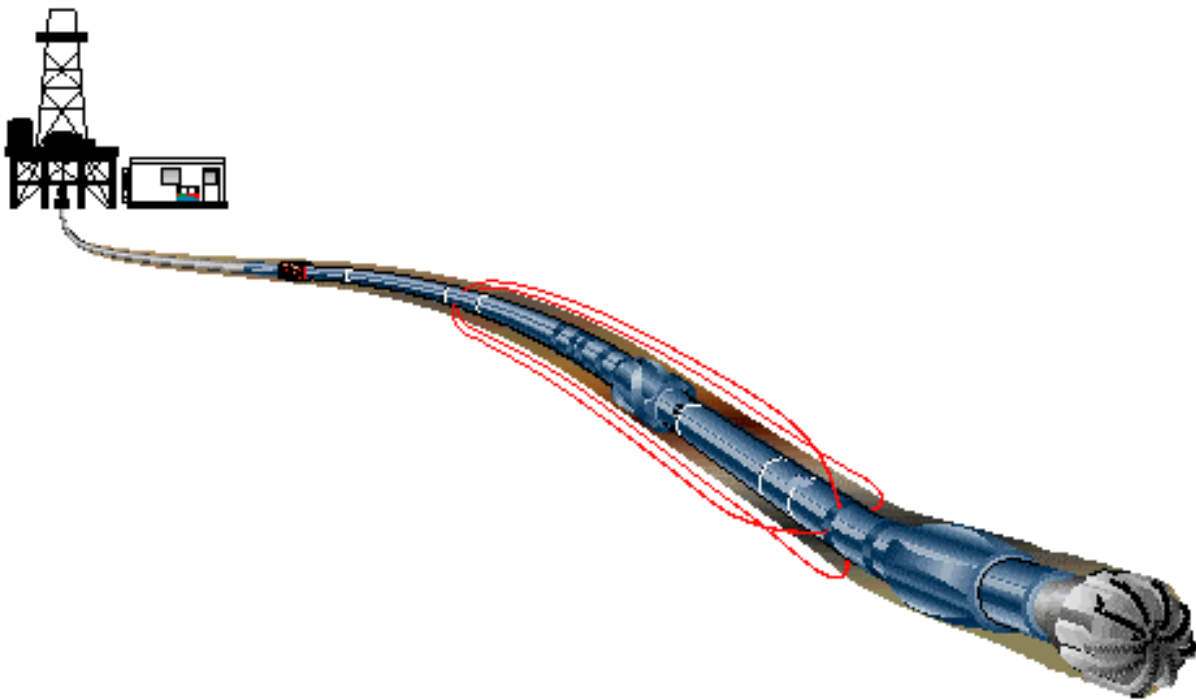
----- Vertical section origin-----  
Latitude (+N/S)..... 0.00 m  
Departure (+E/W)..... 0.00 m

----- Corrections -----  
Magnetic dec (+E/W)..... 10.89 degrees  
Grid convergence (+E/W).. -1.09 degrees  
Total az corr (+E/W)..... 11.98 degrees  
(Total az corr = magnetic dec - grid conv)  
Sag applied (Y/N)..... No degree: 0.0

----- Platform reference point-----  
Latitude (+N/S)..... 0.00 m  
Departure (+E/W)..... 0.00 m  
  
Azimuth from rotary table to target: 0.00 degrees

Seq #	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W (m)	Total displ (m)	At Azim (deg)	DLS (deg/10m)	Srvy tool type	Tool qual type
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIP	-
2	729.86	0.57	116.39	729.86	729.85	-1.61	-1.61	3.25	3.63	116.39	0.01	MWD	6-axis
3	842.72	0.61	203.59	112.86	842.70	-2.41	-2.41	3.51	4.26	124.48	0.07	MWD	6-axis
4	958.13	0.69	268.77	115.41	958.11	-2.99	-2.99	2.57	3.95	139.29	0.06	MWD	6-axis
5	1074.07	0.52	252.87	115.94	1074.04	-3.16	-3.16	1.37	3.45	156.52	0.02	MWD	6-axis
6	1130.64	0.79	283.25	56.57	1130.61	-3.15	-3.15	0.75	3.24	166.63	0.08	MWD	6-axis
7	1161.14	0.82	278.20	30.50	1161.10	-3.07	-3.07	0.33	3.09	173.91	0.03	MWD	6-axis
8	1188.85	0.76	272.62	27.71	1188.81	-3.03	-3.03	-0.05	3.03	180.99	0.04	MWD	6-axis
9	1217.68	0.78	286.97	28.83	1217.64	-2.97	-2.97	-0.43	3.00	188.27	0.07	MWD	6-axis
10	1247.53	0.88	282.51	29.85	1247.49	-2.86	-2.86	-0.85	2.98	196.55	0.04	MWD	6-axis
11	1277.80	0.94	274.80	30.27	1277.75	-2.79	-2.79	-1.32	3.08	205.41	0.05	MWD	6-axis
12	1364.44	1.05	276.88	86.64	1364.38	-2.63	-2.63	-2.82	3.86	226.98	0.01	MWD	6-axis
13	1421.10	1.45	272.46	56.66	1421.03	-2.54	-2.54	-4.05	4.78	237.93	0.07	MWD	6-axis
14	1450.24	1.55	270.01	29.14	1450.16	-2.52	-2.52	-4.81	5.43	242.35	0.04	MWD	6-axis
15	1508.96	1.49	255.36	58.72	1508.86	-2.72	-2.72	-6.35	6.90	246.84	0.07	MWD	6-axis
16	1565.71	1.58	268.16	56.75	1565.59	-2.93	-2.93	-7.84	8.37	249.53	0.06	MWD	6-axis
17	1622.24	1.67	265.96	56.53	1622.09	-3.01	-3.01	-9.44	9.91	252.32	0.02	MWD	6-axis
18	1652.08	1.45	267.41	29.84	1651.92	-3.06	-3.06	-10.25	10.70	253.40	0.07	MWD	6-axis
19	1796.08	1.43	253.78	144.00	1795.88	-3.64	-3.64	-13.80	14.27	255.22	0.02	MWD	6-axis
20	1853.43	1.50	250.23	57.35	1853.21	-4.10	-4.10	-15.19	15.74	254.91	0.02	MWD	6-axis
21	1911.17	1.48	243.72	57.74	1910.93	-4.68	-4.68	-16.57	17.22	254.23	0.03	MWD	6-axis
22	1998.68	1.91	243.21	87.51	1998.40	-5.84	-5.84	-18.89	19.77	252.82	0.05	MWD	6-axis
23	2028.08	2.08	243.11	29.40	2027.78	-6.30	-6.30	-19.80	20.78	252.35	0.06	MWD	6-axis
24	2085.35	2.47	242.08	57.27	2085.01	-7.35	-7.35	-21.82	23.02	251.39	0.07	MWD	6-axis
25	2112.00	2.47	242.08	26.65	2111.63	-7.89	-7.89	-22.83	24.16	250.94	0.00	TD Projection	

## MWD – LWD Bit Run Summary



Job Number		Company Rep.		Date In		Date Out		D&M Run Number		Rig Run Number									
AWA-02-17		SANTOS		28-Sep-02		30-Sep-02		1		3									
Company Schlumberger			Grid Corr			Brief Run Summary			Bit Run Number		Cell Manager								
Rig Name Ocean Bounty						Good Run			3		Antonino Abad								
Well Name Casino-2			Tot Corr			Hole Depth			D&M Crew										
Location Bass Strait						From 700 m To 1646 m			C. Tue										
Mapfile		Mag Dec		PP Slot ID		Inclination (Drift)			Pumping Hours		Below Rotary Tbl Hrs								
						From 0.57 deg To 1.67 deg			49.6 hrs.		93 hrs.								
BPS		Frequency		Mod Type		Azimuth			Rotary Hours		Rotary Distance								
6.4		16		QPSK		From deg To deg			38.55 hrs.		946 m								
Pump Type		Pump Output		Pump Strk Len.		True Vertical Depth			Slide Hours		Slide Distance								
12-P-160		603		12		From 700 m To 1646 m			0 hrs.		0 m								
Pump Liner ID		Min DLS		Max DLS		Hole Size		Water Depth		Air Gap		Drilling Hours							
6						12.25 in		68 m		25 m		38.55 hrs.							
Bent Sub Angle		Bent HSG Ang		Depth Max DLS		RKB Height		Ground Elev.		Mod Gap		Reaming Hours							
deg		deg		m		m		m		0.12 in		0 hrs.							
Pulse Ht Thresh		Min Pulse Wdt		Max Pulse Wdt		Digit Time		T/F Arc		T/F Angle		On Bottom Hours							
								in		deg		38.55 hrs.							
Conn Phase Ang		Rise Const		Fall Const		H2S In Well		Damp Press		Signal Streng.		Last Casing							
deg						<input type="checkbox"/>		1000 psi		38		Size 13.375 in Depth 690.5 m							
Directional Driller(s)						Turbine RPM @ Min Flow Rate			Turbine RPM @ Max Flow Rate										
						RPM 2812 FR			RPM 2265 FR										
Run Objective																			
Equipment Code																			
Pump Hrs		SW		Tool Size		Equipment Code		Pump Hrs		SW		Tool Size		Sensors		Real Time		Recorded Time	
Start Cum		Vers		Code		Start Cum		Start Cum		Vers		Code		Code		Hrs Fail Drilled		Hrs Fail Drilled	
MDC-DC-231		0 49.6		6.1 C00		8.00								MDC-DC-231		49.6		946	
RGS9-AA-9556		0 49.6		5.0B 05		9.50								RGS9-AA-9556		49.6		946 49.6	
SWD8-BA-829		0 49.6		5.0B 10		8.00								SWD8-BA-829		49.6		946 49.6	
SZR-PA-360716		0 49.6																	
Surface Sys		Version																	
Version		IDEAL/SPM ID7_0C_02																	
Manufacturer		Stage Length		m		Bit to Bend Dist.		m		Bearing Gap In									
Type		Rubber				RSS Mfr				Bearing Gap Out									
Size		Sleeve Position				RSS Type				Radial Bearing Play									
Serial Number		Sleeve Size		in		RSS Size				Thrust Bearing Play									
Lobe Config.		Motor Fail		<input type="checkbox"/>		RSS SN													
Max Circ Temp		57.00 C		Avg ROP		24.00 m/hr		Min Actl FlowRt		690.00 gpm		Max Shock Dur		1.66 sec.					
Min Circ Temp		35.00 C		Max ROP		200.00 m/hr		Avg PmpPres		3258.00 psi		Total DH Shocks (k)		9.41 k					
End Mud Wt		10.00 lb/gal		Avg Surf RPM		121.00		PmpPres On Bot		3800.00 psi		CHECK SHOT							
End Funnel Vis		60.00 CPS		Min RPM		110.00		PmpPres Off Bot		3200.00 psi		Type							
End Plastic Vis		23.00 CPS		Max RPM		131.00		Avg Surf WOB		44.00 lbs		Depth		m					
End Yield Point		29.00 CPS		Avg FlowRate		787.00 gpm		Avg Surf Torq		6333.00 ft-lbs		Inclination		deg					
End Mud Resist		0.188		Max Actl FlowRt		870.00 gpm		Max Shock Lev		3		Azimuth		deg					
Company		IDFS		PH		9.00		Percent Sand		0.50 %		Additives							
Brand				Chlorides		22000		Percent Solids		8.90 %		Clean		<input type="checkbox"/>					
Type		KICL		Other				Percent Oil		0.00 %									
LCM Type				LCM Size				LCM Concentration											
BHA Type		Other		Tur Rotor Prt #				Turbine Config				Surface Screen		<input type="checkbox"/>					
Int TF Offset				Stator Prt #				Pulser Config				DFS Used		<input type="checkbox"/>					
Low Oil Flag		<input type="checkbox"/>		Hrs @ Low Oil		hrs.		Stab Spacing		in		Formation							
DD Objectives Achieved		<input type="checkbox"/>		If not, why?															
Bit Type		Tri-con		Other															
Manufacturer		Model		IADC Code		No. of Jets		Size of Jets		Bit TFA		Total Revs		Stick/Slip					
HTC		MX03DX		589DC		3		16		0.589									
Inner Row		Outer Row		Dull Char		Location		Brng/Seals		Gauge (1/16")		Other Char		Reason Pulled					
8		8		LT		A		E		1/8		ER		15					
Trans Fail		<input type="checkbox"/>		Jamming		<input type="checkbox"/>		Client Inconv.		<input type="checkbox"/>		Surface Noise		<input type="checkbox"/>					
Pres Incr @ Fail		<input type="checkbox"/>		Jamming Time		hrs.		Lost Time		hrs.		Down Hole Noise		<input type="checkbox"/>					
Trip Due to D&M		<input type="checkbox"/>		Sync Hours		hrs.		Surface Vib		<input type="checkbox"/>		Surface Sys Failure		<input type="checkbox"/>					
SUMMARY																			
Good run. Excellent RT signal from PowerPulse. Some very high ROP in the range of 100-200 m/hr during the the drilling of top section that caused bad zone on the ISONIC log. Shock were encountered during and after drilling of the cement and plug but slowly disappeared once the BHA entered the new hole.																			



# DRILLING & MEASUREMENTS - BHA DATA

Job Number AWA-02-17  
 Run Number 1  
 BHA Number

Item	Description	Vendor	Material	Serial Number	Fishing Neck		Stab			Bot Connection		Top Connection		Len	Cum Len	TIME/DEPTH DETAILS										
					OD	Length	OD	OD	ID	Size	Type	Size	Type			1	2	3	4	5						
UNITS																Date/Time	9/28/2002	29-Sep	30-Sep							
1	Bit	HTC		589DC					12.25				6 5/8	Reg Pin	0.33	0.33	Field Engineer	A. Abad	A. Abad	Chu						
2	Near bit roller reamer			GU2151					12.25		3	6 5/8	Reg Box	6 5/8	Reg Box	2.44	2.77	Depth	1173	1594	1617					
3	CDR	Schlumberger		9556	10.125	4.68			9.4375	5.875		6 5/8	Reg Pin	7 5/8	H90 Box	7.54	10.31	Average ROP	60	7	5					
4	MWD	Schlumberger		231					8.375	5.875		7 5/8	H90 Pin	6 5/8	FH Box	8.38	18.69	Avg. Std. Pres.	2786	3992	2997					
5	Inline Stab	Schlumberger			12.25	1.082			12.25	8.5	4.25	6 5/8	FH Pin	6 5/8	FH Pin	1.783	20.473	Desurger 1			2000					
6	Isonic	Schlumberger		829	9	1.785			8.375	4.25		6 5/8	FH Box	6 5/8	Reg Box	7.282	27.755	Desurger 2			2000					
7																		Tur. RPM @ FR	2578	2812	2265					
8																		FR @ Tur. RPM	800	870	690					
9																		Avg. RPM	128	126	110					
10																		Max RPM	131	131	121					
11																		Total Shocks			208.729					
12																		Max Shock	70	10	1					
13																		Avg. Surf. WOB	30	50	51					
14																		Max Surf. WOB	50	54	55					
15																		Avg. DH WOB								
16																		Max DH WOB								
17																		Avg. Surf. Torq.	8000	8000	3700					
18																		Max Surf. Torq.	9000	9000	3880					
19																		Avg. DH Torq.								
20																		Max DH Torq.								
21																		Formation Type			Lime stone					
22																		Friction								
23																		Drag Up								
24																		Drag Down								
PREDICTED BHA TENDENCY										Hookload		lbs	Wt. Below Jars		76	lbs	Mud Weight		8.5	10	10.1					
										Pickup Wt.		lbs	Wt. Above Jars			lbs	Funnel Vis.									
										Slack Wt.		lbs	Total Air Wt.			lbs	Plastic Vis.									
																	Circ. Temp		38	50	57					
																	Signal Strength		29	38	21					
																	Bit Deviation		38	38	1.6					
							Differential Pres.																			
Stabilizer Description		Mid Pt To Bit	BLADE		GAUGE			Bit To Read Out Port		Bit To Measurement Port		BATTERY		Unloaded (V)		Loaded (V)		Run Hrs		Cum Hrs						
UNITS		m	Type	Length	Width	Length	In	Out	PPL	12.04 m	D&I PPL	14.43 m	Tool	Before	After	Before	After	BOT	AMP	BOT	AMP					
									CDR	6.21 m	GR PPL	13.82 m														
									ISONIC	25.25 m	GR LWD	8.53 m														
										m	RES LWD	5.05 m														
										m	SON LWD	25.65 m														
										m		m														
										m		m														





Job Number	Company Rep.	Date In	Date Out	D&M Run Number	Rig Run Number
AWA-02-17	SANTOS	30-Sep-02	1-Oct-02	2	4
Company	Grid Corr	Brief Run Summary		Bit Run Number	Cell Manager
Schlumberger		Trans Failure		4	Antonino Abad
Rig Name	Tot Corr	Hole Depth		D&M Crew	
Ocean Bounty		From 1646 m To 1763 m		C. Tue	
Well Name	Mapfile	Mag Dec	PP Slot ID	Inclination (Drift)	Pumping Hours
Casino-2				From 1.67 deg To 1.45 deg	9.1 hrs.
Location	BPS		Frequency	Mod Type	Azimuth
Bass Strait	6.4		16	OPSK	From deg To deg
	Pump Type	Pump Output	Pump Strk Len.	True Vertical Depth	
	12-P-160	603	12	From 1646 m To 1763 m	
	Pump Liner ID	Min DLS	Max DLS	Hole Size	Water Depth
	6			12.25 in	68 m
	Bent Sub Angle	Bent HSG Ang	Depth Max DLS	RKB Height	Ground Elev.
	deg	deg	m	25 m	-68 m
	Pulse Ht Thresh	Min Pulse Wdt	Max Pulse Wdt	Digit Time	T/F Arc
					in
	Conn Phase Ang	Rise Const	Fall Const	H2S In Well	Damp Press
	deg			<input type="checkbox"/>	1000 psi
	Directional Driller(s)	Turbine RPM @ Min Flow Rate		Turbine RPM @ Max Flow Rate	
		RPM 2382 FR		RPM 780 gpm RPM 2734 FR	
Run Objective					
Equipment Code					
MDC-DC-231	Pump Hrs Start	SW Cum	Tool Vers	Equipment Code	Pump Hrs Start
	49.6	58.7	6.1 C00	8.00	
RGS9-AA-9556	49.6	58.7	5.0B 05	9.50	
SWD8-BA-829	49.6	58.7	5.0B 10	8.00	
SZR-PA-360716	49.6	58.7			
Sensors					
Real Time					
Recorded Time					
Surface Sys					
Version					
IDEAL/SPM					
ID7_OC_02					
Manufacturer					
Stage Length					
m					
Bit to Bend Dist.					
m					
Bearing Gap In					
Type					
Rubber					
RSS Mfr					
Bearing Gap Out					
Size					
Sleeve Position					
RSS Type					
Radial Bearing Play					
Serial Number					
Sleeve Size					
in					
RSS Size					
Thrust Bearing Play					
Lobe Config.					
Motor Fail					
<input type="checkbox"/>					
RSS SN					
Max Circ Temp					
60.00 F					
Avg ROP					
18.28 m/hr					
Min Actl FlowRt					
800.00 gpm					
Max Shock Dur					
0.00 sec.					
Min Circ Temp					
40.00 F					
Max ROP					
30.00 m/hr					
Avg PmpPres					
3995.00 psi					
Total DH Shocks (k)					
0.00 k					
End Mud Wt					
10.10 lb/gal					
Avg Surf RPM					
120.00					
PmpPres On Bot					
psi					
CHECK SHOT					
End Funnel Vis					
57.00 CPS					
Min RPM					
110.00					
PmpPres Off Bot					
psi					
Type					
End Plastic Vis					
20.00 CPS					
Max RPM					
130.00					
Avg Surf WOB					
40.00 lbs					
Depth					
m					
End Yield Point					
38.00 CPS					
Avg FlowRate					
800.00 gpm					
Avg Surf Torq					
8.00 ft-lbs					
Inclination					
deg					
End Mud Resist					
0.132					
Max Actl FlowRt					
830.00 gpm					
Max Shock Lev					
0					
Azimuth					
deg					
Company					
IDFS					
PH					
9.00					
Percent Sand					
0.10 %					
Additives					
Brand					
Chlorides					
23000					
Percent Solids					
10.40 %					
Clean					
<input type="checkbox"/>					
Type					
KCl					
Other					
Percent Oil					
%					
LCM Type					
LCM Size					
LCM Concentation					
BHA Type					
Rotary					
Tur Rotor Prt #					
Turbine Config					
Surface Screen					
<input type="checkbox"/>					
Int TF Offset					
Stator Prt #					
Pulser Config					
DFS Used					
<input type="checkbox"/>					
Low Oil Flag					
<input type="checkbox"/>					
Hrs @ Low Oil					
hrs.					
Stab Spacing					
Formation					
DD Objectives Achieved					
<input type="checkbox"/>					
If not, why?					
Bit Type					
Tri-con					
Other					
Manufacturer					
HTC					
Model					
MX03DX					
IADC Code					
589DC					
No. of Jets					
3					
Size of Jets					
16					
Bit TFA					
0.552					
Total Revs					
Stick/Slip					
Yes					
Inner Row					
Outer Row					
Dull Char					
Location					
Brng/Seals					
Gauge (1/16")					
Other Char					
Reason Pulled					
1					
1					
CT					
N					
X					
1/8					
JD					
16					
Trans Fail					
<input checked="" type="checkbox"/>					
Jamming					
<input type="checkbox"/>					
Client Inconv.					
<input type="checkbox"/>					
Surface Noise					
<input type="checkbox"/>					
Pres Incr @ Fail					
<input type="checkbox"/>					
Jamming Time					
hrs.					
Lost Time					
hrs.					
Down Hole Noise					
<input type="checkbox"/>					
Trip Due to D&M					
<input type="checkbox"/>					
Sync Hours					
hrs.					
Surface Vib					
<input type="checkbox"/>					
Surface Sys Failure					
<input type="checkbox"/>					
PowerPulse transmission failure after drilling 60 meters into the formation. Continue drilling with constant parameters and monitor for drilling break and gas return that will indicate coring point. On surface 100% CDR and ISONIC recorded data were recovered from the tool memory and processed and given to wellsite geologist. Visual inspection of PowerPulse tool found no obvious reason on why the tool has failed.					



# DRILLING & MEASUREMENTS - BHA DATA

Job Number	AWA-02-17
Run Number	2
BHA Number	

Item	Description	Vendor	Material	Serial Number	Fishing Neck		Stab OD	OD	ID	Bot Connection		Top Connection		Len	Cum Len	TIME/DEPTH DETAILS						
					OD	Length				Size	Type	Size	Type			1	2	3	4	5		
UNITS																Date/Time	10/1/2002					
1	Bit	Reed		103926				12.25			6 5/8	Reg Pin	0.31	0.31	Field Engineer	Chu						
2	Near bit roller reamer			GU2151				12.25	3	6 5/8	Reg Box	6 5/8	Reg Box	2.44	2.75	Depth	1693					
3	CDR	Schlumberger		9556	10.125	4.68		9.4375	5.875	6 5/8	Reg Pin	7 5/8	H90 Box	7.54	10.29	Average ROP	27					
4	MWD	Schlumberger		231				8.375	5.875	7 5/8	H90 Pin	6 5/8	FH Box	8.38	18.67	Avg. Std. Pres.	3949					
5	Inline Stab	Schlumberger			12.25	1.082	12.25	8.5	4.25	6 5/8	FH Pin	6 5/8	FH Pin	1.783	20.453	Desurger 1	2600					
6	Isonic	Schlumberger		829	9	1.785		8.375	4.25	6 5/8	FH Box	6 5/8	Reg Box	7.282	27.735	Desurger 2	2600					
7	String Roller Reamer						12.25			6 5/8	Reg Pin	6 5/8	Reg Box	2.44	30.175	Tur. RPM @ FR	2578					
8																FR @ Tur. RPM	800					
9																Avg. RPM	120					
10																Max RPM	130					
11																Total Shocks	0					
12																Max Shock	0					
13																Avg. Surf. WOB	30					
14																Max Surf. WOB	35					
15																Avg. DH WOB						
16																Max DH WOB						
17																Avg. Surf. Torq.	8					
18																Max Surf. Torq.	10					
19																Avg. DH Torq.						
20																Max DH Torq.						
21																Formation Type						
22																Friction						
23																Drag Up						
24																Drag Down						
PREDICTED BHA TENDENCY								Hookload			Wt. Below Jars			Mud Weight	10.1							
								Pickup Wt.			Wt. Above Jars			Funnel Vis.								
								Slack Wt.			Total Air Wt.			Plastic Vis.								
															Circ. Temp	55						
															Signal Strength	38						
															Bit Deviation	90						
							Differential Pres.															
Stabilizer Description		Mid Pt To Bit	BLADE		GAUGE			Bit To Read Out Port		Bit To Measurement Port		BATTERY		Unloaded (V)		Loaded (V)		Run Hrs		Cum Hrs		
		Bit	Type	Length	Width	Length	In	Out	PPL	12.04 m	D&I PPL	14.43 m	Tool	Before	After	Before	After	BOT	AMP	BOT	AMP	
UNITS		m		in	in	in	in	in	CDR	6.21 m	GR PPL	13.82 m										
									ISONIC	25.25 m	GR LWD	8.53 m										
										m	RES LWD	5.05 m										
										m	SON LWD	25.65 m										
										m		m										
										m		m										





DRILLING & MEASUREMENTS - RUN SUMMARY

Job Number	Company Rep.	Date In	Date Out	D&M Run Number	Rig Run Number
AWA-02-17	SANTOS	2-Oct-02	4-Oct-02	3	6
Company	Grid Corr	Brief Run Summary		Bit Run Number	Cell Manager
Schlumberger		Good Run		2	Antonino Abad
Rig Name	Tot Corr	Hole Depth		D&M Crew	
Ocean Bounty		From 1784 m To 2112 m		C. Tue	
Well Name	Mapfile	Mag Dec	PP Slot ID	Inclination (Drift)	Pumping Hours
Casino-2				From 1.45 deg To 2.47 deg	21.7 hrs.
Location	Bass Strait		Rotary Hours		Below Rotary Tbl Hrs
			16 hrs.		36.5 hrs.
BPS	Frequency	Mod Type	Azimuth		Rotary Distance
6	16 Hz	FSK	From deg To deg		328 m
Pump Type	Pump Output	Pump Strk Len.	True Vertical Depth		Slide Hours
12-P-160	603	12	From 1763 m To 2085.01 m		Slide Distance
Pump Liner ID	Min DLS	Max DLS	Hole Size	Water Depth	Air Gap
6			12.25 in	68 m	25 m
Bent Sub Angle	Bent HSG Ang	Depth Max DLS	RKB Height	Ground Elev.	Mod Gap
deg	deg	m	25 m	-68 m	0.12 in
Pulse Ht Thresh	Min Pulse Wdt	Max Pulse Wdt	Digit Time	T/F Arc	T/F Angle
				in	deg
Conn Phase Ang	Rise Const	Fall Const	H2S In Well	Damp Press	Signal Streng.
deg			<input type="checkbox"/>	1000 psi	32
Directional Driller(s)	Turbine RPM @ Min Flow Rate		Turbine RPM @ Max Flow Rate		
	RPM 2617.19 FR 700 gpm		RPM 3476 FR 850 gpm		
Run Objective					
Equipment Code					
ARC8A-AA-8031	Pump Hrs Start	Pump Hrs Cum	SW Vers	Tool Size	Equipment Code
	0	21.7	6.4B01	8.25	
MDC-DB-130	0	21.7	61C00	8.25	
SWD8-BA-829	58.7	80.4	5.0B10	8.00	
SZR-PA-360716	58.7	80.4		8.25	
Sensors					
Real Time					
Recorded Time					
Surface Sys					
Version					
IDEAL/SPM					
ID7_OC_02					
Manufacturer					
Stage Length					
m					
Bit to Bend Dist.					
m					
Bearing Gap In					
Type					
Rubber					
RSS Mfr					
Bearing Gap Out					
Size					
Sleeve Position					
RSS Type					
Radial Bearing Play					
Serial Number					
Sleeve Size					
in					
RSS Size					
Thrust Bearing Play					
Lobe Config.					
Motor Fail					
<input type="checkbox"/>					
RSS SN					
Max Circ Temp					
70.00 C					
Avg ROP					
20.50 m/hr					
Min Actl FlowRt					
700.00 gpm					
Max Shock Dur					
0.20 sec.					
Min Circ Temp					
30.00 C					
Max ROP					
30.00 m/hr					
Avg PmpPres					
3215.00 psi					
Total DH Shocks (k)					
8.32 k					
End Mud Wt					
10.30 lb/gal					
Avg Surf RPM					
130.00					
PmpPres On Bot					
3186.00 psi					
CHECK SHOT					
End Funnel Vis					
57.00 CPS					
Min RPM					
120.00					
PmpPres Off Bot					
psi					
Type					
End Plastic Vis					
21.00 CPS					
Max RPM					
160.00					
Avg Surf WOB					
35.00 lbs					
Depth					
m					
End Yield Point					
23.00 CPS					
Avg FlowRate					
800.00 gpm					
Avg Surf Torq					
9.00 ft-lbs					
Inclination					
deg					
End Mud Resist					
0.1459					
Max Actl FlowRt					
850.00 gpm					
Max Shock Lev					
0					
Azimuth					
deg					
Company					
IDFS					
PH					
9.50					
Percent Sand					
0.50 %					
Additives					
Brand					
Chlorides					
31500					
Percent Solids					
10.80 %					
Clean					
<input type="checkbox"/>					
Type					
KCl					
Other					
Percent Oil					
0.00 %					
LCM Type					
LCM Size					
LCM Concentation					
BHA Type					
Rotary					
Tur Rotor Prt #					
Turbine Config					
Surface Screen					
<input type="checkbox"/>					
Int TF Offset					
Stator Prt #					
Pulser Config					
DFS Used					
<input type="checkbox"/>					
Low Oil Flag					
<input type="checkbox"/>					
Hrs @ Low Oil					
hrs.					
Stab Spacing					
Formation					
Sandstone					
DD Objectives Achieved					
<input type="checkbox"/>					
If not, why?					
BIT Type					
PDCcon					
Other					
Manufacturer					
Hycalog					
Model					
SX195					
IADC Code					
No. of Jets					
6					
Size of Jets					
15					
Bit TFA					
0.552					
Total Revs					
Stick/Slip					
Yes					
Inner Row					
Outer Row					
Dull Char					
Location					
Brng/Seals					
Gauge (1/16")					
Other Char					
Reason Pulled					
0					
4					
BT					
A					
X					
1					
JD					
16					
Trans Fail					
<input type="checkbox"/>					
Jamming					
<input type="checkbox"/>					
Client Inconv.					
<input type="checkbox"/>					
Surface Noise					
<input type="checkbox"/>					
Pres Incr @ Fail					
<input type="checkbox"/>					
Jamming Time					
hrs.					
Lost Time					
hrs.					
Down Hole Noise					
<input type="checkbox"/>					
Trip Due to D&M					
<input type="checkbox"/>					
Sync Hours					
hrs.					
Surface Vib					
<input type="checkbox"/>					
Surface Sys Failure					
<input type="checkbox"/>					
SUMMARY					
Excellent run with good real-time signal. Ream down log coring interval @ 30-40 m/hrs in realtime and recorded mode. Very little shocks monitored during reaming of the coring interval and drilling to TD. Recovered all memory data from the ARC and Isonic tools.					



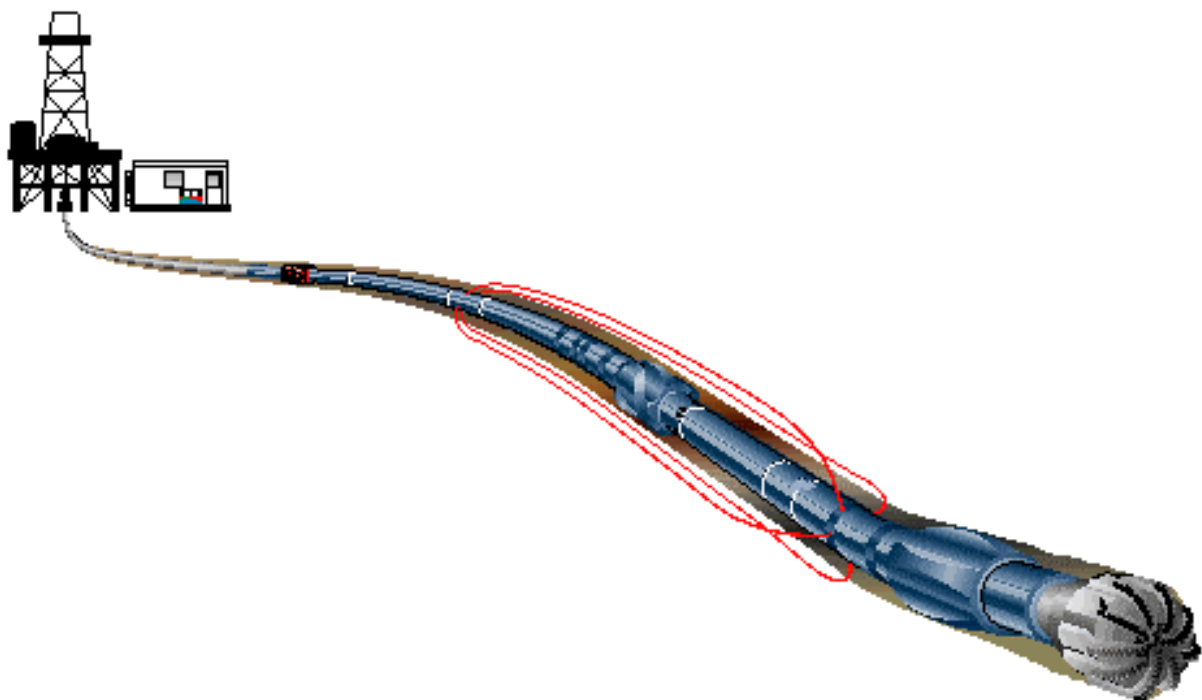
# DRILLING & MEASUREMENTS - BHA DATA

Job Number	AWA-02-17
Run Number	3
BHA Number	

Item	Description	Vendor	Material	Serial Number	Fishing Neck		Stab OD	OD	ID	Bot Connection		Top Connection		Len	Cum Len	TIME/DEPTH DETAILS						
					OD	Length				Size	Type	Size	Type			1	2	3	4	5		
UNITS																Date/Time	10/3/2002	3-Oct				
1	Bit	Reed		103926				12.25			6 5/8	Reg Pin	6 5/8	Reg Pin	0.31	0.31	Field Engineer	Chu	A. Abad			
2	Near bit roller reamer			GU2151				12.25		3	6 5/8	Reg Box	6 5/8	Reg Box	2.44	2.75	Depth	1836	2095.87			
3	ARC8	Schlumberger		9556	10.125	4.68		8.25			6 5/8	Reg Pin	6 5/8	FH	5.73	8.48	Average ROP	20	15			
4	MWD	Schlumberger		130				8.375			6 5/8	FH	6 5/8	FH Box	8.42	16.9	Avg. Std. Pres.	3165	3215			
5	Inline Stab	Schlumberger			12.25	1.082	12.25	8.5			6 5/8	FH Pin	6 5/8	FH Pin	1.783	18.683	Desurger 1	1000	1000			
6	Isonic	Schlumberger		829	9	1.785		8.375			6 5/8	FH Box	6 5/8	Reg Box	7.282	25.965	Desurger 2	1000	1000			
7	String Roller Reamer						12.25			3	6 5/8	Reg Pin	6 5/8	Reg Box	2.44	28.405	Tur. RPM @ FR	2773	2812			
8																	FR @ Tur. RPM	850	861			
9																	Avg. RPM	155	160			
10																	Max RPM	174	175			
11																	Total Shocks	0	8.32			
12																	Max Shock	0	0.2			
13																	Avg. Surf. WOB	19	30			
14																	Max Surf. WOB	21	35			
15																	Avg. DH WOB					
16																	Max DH WOB					
17																	Avg. Surf. Torq.	9	9			
18																	Max Surf. Torq.	10	10			
19																	Avg. DH Torq.					
20																	Max DH Torq.					
21																	Formation Type	Silty Sand	SiltySand			
22																	Friction					
23																	Drag Up					
24																	Drag Down					
PREDICTED BHA TENDENCY								Hookload			Wt. Below Jars			Mud Weight	10.1	10.1						
								Pickup Wt.			Wt. Above Jars			Funnel Vis.								
								Slack Wt.			Total Air Wt.			Plastic Vis.								
															Circ. Temp	70	70					
															Signal Strength	26	26.4					
															Bit Deviation	95	95					
							Differential Pres.															
Stabilizer Description		Mid Pt To Bit	BLADE		GAUGE			Bit To Read Out Port		Bit To Measurement Port		BATTERY		Unloaded (V)		Loaded (V)		Run Hrs		Cum Hrs		
		Bit	Type	Length	Width	Length	In	Out	PPL	10.41 m	D&I PPL	12.76 m	Tool	Before	After	Before	After	BOT	AMP	BOT	AMP	
UNITS		m		in	in	in	in	in	ARC	6.23 m	GR PPL	12.19 m										
									ISONIC	23.46 m	GR LWD	5.09 m										
										m	RES LWD	5.11 m										
										m	SON LWD	23.86 m										
										m		m										
										m		m										



## Failure Report and Analysis





Company:	Schlumberger	Well:	Casino-2	Job Number:	AWA-02-17
Rig Name:	Ocean Bounty	Location:	Bass Strait	Run Number:	2
Cell Manager:	Antonino Abad	Fail. Date:	1-Oct-02	Failure Number:	1
Hrs BRT @ Fail	11 hrs.	Pump Hrs @ Fail	5 hrs.	Drill Hrs @ Fail	4 hrs.
Service:	PP/CDR/ISONIC/IWW			Depth @ Fail	1696.0
Failed Equipment	MDC-DC-231				

**FAILURE DESCRIPTION & SYMPTOMS**

No signal from MWD tool after making connections at depth of 1696m.

Severity ID:	n	Completed By:	A. Abad	Date:	1-Oct-02
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**REMEDIAL ACTION ATTEMPTED ON LOCATION**

Inspected all surface sensors and cables but found nothing that can cause signal loss. HSPM scope meter reading pump harmonics from SPT1 and SPT2 indicating sensors are good. Cycle pumps a few times but no signal from MWD tool. Increased flow rate and no success either. Decision was made to drill ahead with constant drilling parameters and monitor for drilling break and gas return. On surface, attempted to communicate with the tool thru ROP with no success. LTB impedance present on the extender.

Lost Rig Time:	0.00	Completed By:	A. Abad	Date:	2-Oct-02
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**FAILURE ANALYSIS**

OBJECT (What Failed?)	<p>While a failure is developing at a wellsite, ensure that you apply your location's failure handling instructions. It is critical at this stage to record events, symptoms, tool snapshots, and any other diagnostic data. This will become invaluable for proper failure follow-up and for deciding the course of action to take. In the Base, it is important to reproduce the failure, debrief the events, and close the failure with an appropriate Corrective Action Plan that encompasses all causes.</p>
DAMAGE (How did it fail?)	
CAUSE (Why did it fail?)	
TASK (Action Plan to Take)	

## **SECTION 4:- PRODUCTION TEST REPORTS**

**No production tests were conducted at the Casino-2 location.**

## **SECTION 5:- DAILY GEOLOGICAL REPORTS**

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 27/09/02

REPORT NO: 1

DEPTH : 700 m  
(As at 2400 hours EST, 26/09/02)

PROGRESS: 0 m

DAYS FROM SPUD: 2.63

OPERATION : RUNNING BLOWOUT PREVENTERS STACK  
(0600 hours EST, 27/09/02)

#### AFE COST

#### CUMULATIVE COST

CASING DEPTH: 690.6m (340mm- 13 3/8")

RIG: OCEAN BOUNTY

RT – SEAFLOOR: 92.8m

PROGRAMMED TD: 2274m

ROTARY TABLE: 25m LAT

WATER DEPTH: 67.8m

MUD DATA	Type: (IN PITS)	Wt:	Vis:	FL:	PH:	KCl	Cl:	PV / YP:	Rmf:
(2400 Hours)	UNFLOC GEL	1.06	>100		10.0			25 / 65	

BIT DATA	PRESENT	No.	Make	Type	Size (mm)	Hours	Drilled	Condition
(2400 Hours)	LAST	2	SMITH	MGSSH-C	445	12.6	560	2-2-NO-A-E-I-NO-TD

SURVEYS:	<u>MD</u> (m)	<u>INC</u>	<u>AZIM</u> (T)
	700	0	-

#### PREVIOUS 24 HOURS OPERATIONS SUMMARY:

WAIT ON WEATHER FOR 6.5 HRS. RUN IN HOLE FROM 137m TO 684m, WASH & REAM TO 700m. SWEEP HOLE WITH 16m<sup>3</sup> (100BBLS) HI-VISCOSITY GEL MUD. DISPLACE HOLE WITH HI-VISCOSITY GEL MUD. PULL OUT OF HOLE TO RUN 340mm (13 3/8") CASING. RIG TO AND RUN 50 JOINTS OF 340mm (13 3/8") CASING. MAKE UP WELLHEAD ASSEMBLY & RUN IN HOLE WITH LANDING STRING. LAND WELLHEAD WITH CASING SHOE AT 690.6m. CONFIRM LATCHING WITH 23T (50 KIPS) OVERPULL. CIRCULATE CASING & HOLE CLEAN. PRESSURE TEST LINES. CEMENT CASING AS PER PROGRAM WITH 46.5 m<sup>3</sup> (293BBLS) OF 1.5 SG (12.5PPG) LEAD SLURRY AND 21 m<sup>3</sup> (132BBLS) OF 1.89 SG (15.8PPG) TAIL SLURRY. DISPLACE CEMENT WITH RIG PUMPS. UNABLE TO BUMP PLUG. FLOATS HELD OKAY. REMOVE CEMENT HOSE & RELEASE RUNNING TOOL.

#### 00:00 – 06:00 HOURS 27/09/02:

LAYOUT CEMENT HEAD AND WELLHEAD RUNNING TOOL. PREPARE TO RUN BOP STACK. MAKE UP MARINE RISER. MOVE BLOWOUT PREVENTERS & LOWER MARINE RISER PACKAGE TO MOONPOOL, INSTALL GUIDE LINES. PERFORM FUNCTION TEST. MAKE UP DOUBLE JOINT OF MARINE RISER TO LOWER MARINE RISER PACKAGE.

#### ANTICIPATED OPERATIONS:

RUN & TEST BLOWOUT PREVENTERS STACK. PICKUP 311mm (12.25") BIT & BOTTOM HOLE ASSEMBLY. DRILL SHOE TRACK, PERFORM LEAK-OFF TEST, DRILL AHEAD 311mm (12.25") HOLE.

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 27/09/02

REPORT NO: 1

#### SUMMARY OF OPERATIONS (0000 hours - 2400 hours):

FROM	TO	HRS	ACTIVITY DESCRIPTION
00:00	06:30	6.50	W.O.W. Conditions @06:00hrs - Heave 5.4m / Pitch 2.5deg / Roll 2deg / Wind 30-35 / Swell 4.8m
06:30	08:00	1.50	RIH F /- 137m to 684m ( Tagged fill @ 684m)
08:00	08:30	0.50	Washed and reamed F /- 684m to 700m
08:30	09:00	0.50	Pumped 16M3 (100 bbls) of Hi-vis and displaced hole with Unfloculated Gel
09:00	12:30	3.50	POOH F /- 700m (Hole good no drag)
12:30	13:00	0.50	Held JSA, rigged up to run casing.
13:00	17:30	4.50	Picked up and checked floats, installed Le-Fluer casing fill up tool. Ran 340mm (13-3/8") casing. (ROV observed stab in to well head)
17:30	20:00	2.50	Rigged down Le-Fluer and picked up 476mm (18-3/4") Well head assembly, RIH with landing string. Landed casing and confirmed with 50 Kips O-pull.
20:00	21:30	1.50	Circulated casing volume 1.5 times. (Returns observed at sea bed)
21:30	23:00	1.50	Pumped 1.6M3 (10 bbls) of sea water with dye, pressure tested lines to 24,133Kpa (3500psi) Released bottom plug & pumped 1.1M3 (7.4 bbls) to shear out plug with 6895Kpa (1000psi) pumped .8M3 (5 bbls) of sea water. Mixed and pumped 46.5M3 (293bbls) of Lead slurry (736sx) of 'G' cement @ 1.5sg (12.5ppg) with 36.5M3 (230bbls) of mix water. Followed by 21M3 (132bbls) of Tail slurry (637sx) of 'G' cement @ 1.89sg (15.8ppg) with 12.7M3 (80bbls) of Sea water. Released top dart, and pumped 1.1M3 (7bbls) of Sea water.
23:00	23:30	0.50	Displaced cement with rig pumps. Unable to Bump plug, checked floats held OK.
23:30	24:00	0.50	Removed cement hose and released running tool.

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 27/09/02

REPORT NO: 1

<b>FORMATION TOPS:</b>	MD RT	Subsea	H/L to Prognosis	H/L to Casino-1

HYDROCARBON SHOW SUMMARY		
<u>INTERVAL</u>	<u>LITHOLOGY</u>	<u>GAS</u>
	Nil	

GEOLOGICAL SUMMARY		
<u>INTERVAL</u>	<u>LITHOLOGY</u>	<u>GAS</u>

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 28/09/02

REPORT NO: 2

DEPTH : 700 m  
(As at 2400 hours EST, 27/09/02)

PROGRESS: 0 m

DAYS FROM SPUD: 3.63

OPERATION : DRILLING SHOE TRACK.  
(0600 hours EST, 28/09/02)

#### AFE COST

#### CUMULATIVE COST

CASING DEPTH: 690.6m (340mm- 13 3/8")

RIG: OCEAN BOUNTY

RT – SEAFLOOR: 92.8m

PROGRAMMED TD: 2274m

ROTARY TABLE: 25m LAT

WATER DEPTH: 67.8m

MUD DATA	Type: (IN PITS)	Wt:	Vis:	FL:	PH:	KCl	Cl:	PV / YP:	Rmf:
(2400 Hours)	PRE-HYD GEL	1.05	78		8.0	43200	42000	12 / 23	

BIT DATA	PRESENT	No.	Make	Type	Size (mm)	Hours	Drilled	Condition
(2400 Hours)	LAST	2	SMITH	MGSSH-C	445	12.6	560	2-2-NO-A-E-I-NO-TD

SURVEYS:	MD (m)	INC	AZIM (T)
	700	0	-

#### PREVIOUS 24 HOURS OPERATIONS SUMMARY:

LAYOUT CEMENT HEAD AND WELLHEAD RUNNING TOOL. PREPARE TO RUN BOP STACK. MAKE UP DOUBLE JOINT OF MARINE RISER. MOVE BLOWOUT PREVENTERS & LOWER MARINE RISER PACKAGE TO MOONPOOL, INSTALL GUIDE LINES. PERFORM FUNCTION TEST. MAKE UP DOUBLE JOINT OF MARINE RISER TO LOWER MARINE RISER PACKAGE. RUN BOP STACK, PRESSURE TEST CHOKE & KILL LINES. INSTALL SLIP JOINT. LAND BOP STACK & CONFIRM LATCH WITH 23T (50 KIPS) OVERPULL. PRESSURE TEST CONNECTOR. INSTALL DIVERTER. INSTALL WEAR BUSHING. PRESSURE TEST LOWER MARINE RISER PACKAGE CONNECTOR. LAYOUT 445mm (17.5") BOTTOM HOLE ASSEMBLY. MAKE UP 311mm (12.25") INSERT BIT & BOTTOM HOLE ASSEMBLY ALONG WITH MWD/LWD TOOLS. SHALLOW TEST MWD/LWD TOOLS – OKAY.

#### 00:00 – 06:00 HOURS 28/09/02:

CONTINUE TO MAKE UP 311mm (12.25") BOTTOM HOLE ASSEMBLY. RUN IN HOLE TO TAG CEMENT @ 630m. WASH & REAM TO 663m. TOOK 5T (10 KIPS) WEIGHT (FIRM CEMENT). DRILL CEMENT & SHOE TRACK.

#### ANTICIPATED OPERATIONS:

DRILL SHOE TRACK AND 3m FORMATION TO 703m. DISPLACE HOLE TO MUD. CONDUCT LEAK-OFF TEST. DRILL AHEAD 311mm (12.25") HOLE.

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 28/09/02

REPORT NO: 2

#### SUMMARY OF OPERATIONS (0000 hours - 2400 hours):

FROM	TO	HRS	ACTIVITY DESCRIPTION
00:00	01:00	1.00	POOH and laid out running tool.
01:00	01:30	0.50	Service broke & laid out cement head.
01:30	02:30	1.00	Held JSA. Rigged up to run BOP.
02:30	03:00	0.50	Picked up and made up a double joint of riser.
03:00	05:30	2.50	Moved BOP and LMRP to moon pool, installed guide lines & conducted function test. (Skidded rig 25 ft to Starboard)
05:30	06:30	1.00	Made up double joint of riser to LMRP.
06:30	08:30	2.00	Ran BOP (Pressure tested choke & kill lines 1379Kpa / 34475Kpa (200 / 5000psi)
08:30	14:00	5.50	Picked up slip joint, installed choke & kill goose necks, installed rucker tensioners.
14:00	15:00	1.00	Landed BOP and confirmed with 50 Kips O-pull. Pressure tested connector 1379Kpa / 34,475Kpa (200 / 3000psi)
15:00	17:30	2.50	Installed diverter and rigged down BOP handling equipment.
17:30	19:00	1.50	RIH set wear bushing & POOH. Test LMRP connector to 34475 Kpa (3000psi).
19:00	21:30	2.50	Laid out 445mm (17-1/2") B H A
21:30	24:00	2.50	Made up 311mm (12-1/4") B H A & Shallow test tools, OK.



# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 28/09/02

REPORT NO: 2

<b>FORMATION TOPS:</b>	MD RT	Subsea	H/L to Prognosis	H/L to Casino-1

HYDROCARBON SHOW SUMMARY		
<u>INTERVAL</u>	<u>LITHOLOGY</u>	<u>GAS</u>
	Nil	

GEOLOGICAL SUMMARY		
<u>INTERVAL</u>	<u>LITHOLOGY</u>	<u>GAS</u>

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 29/09/02

REPORT NO: 3

DEPTH : 1207 m  
(As at 2400 hours EST, 28/09/02)

PROGRESS: 507 m

DAYS FROM SPUD: 4.63

OPERATION : DRILLING 311mm (12.25") HOLE IN THE BASAL SKULL CREEK FORMATION @  
(0600 hours EST, 29/09/02) 1384m

#### AFE COST

#### CUMULATIVE COST

CASING DEPTH: 690.6m (340mm- 13 3/8")

RIG: OCEAN BOUNTY

RT – SEAFLOOR: 92.8m

PROGRAMMED TD: 2274m

ROTARY TABLE: 25m LAT

WATER DEPTH: 67.8m

MUD DATA	Type:	Wt:	Vis:	FL:	PH:	KCl	Cl:	PV / YP:	Rmf:
(2400 Hours)	KCL/ PHPA/ POLY/ GLYCOL	1.06	60	1.2	9.0	32400	29000	15 / 29	

BIT DATA	PRESENT	No.	Make	Type	Size (mm)	Hours	Drilled	Condition
(2400 Hours)	LAST	2	SMITH	MGSSH-C	445	12.6	560	2-2-NO-A-E-I-NO-TD

SURVEYS:	MD (m)	INC	AZIM (T)
	1364.4	1.05°	276.88°

#### PREVIOUS 24 HOURS OPERATIONS SUMMARY:

CONTINUED MAKING UP AND RUNNING IN WITH 311mm (12-1/4") BHA TO TAG CEMENT @ 630m. WASH & REAM TO 663m. TOOK FIRM WEIGHT @ 663m. DRILLED CEMENT & SHOE TRACK TO 700m. DRILLED 311mm (12-1/4") HOLE FROM 700m TO 703m. PUMPED HI-VIS PILL AND CHANGED TO PHPA MUD SYSTEM. PERFORMED LEAK-OFF TEST WITH 1.05SG (8.8PPG) MUD WEIGHT, PRESSURE 1240KPA (180PSI), EQUIVALENT MUD WEIGHT=1.22SG (10.2PPG). DRILL 311mm HOLE FROM 703m TO 772m (MUD LOSSES UP TO 95.3m<sup>3</sup>/HR (600BBLS/HR). CIRCULATE HOLE CLEAN. WORK STRING @ 772-743m. PULL BACK TO CASING SHOE, CLEAN MUD PUMP STRAINERS DUE TO LCM BUILD UP, MIX EXTRA MUD DUE TO LOSSES - TOTAL MUD LOST 101m<sup>3</sup> (640BBLS). RUN IN HOLE TO 772m. DRILL FROM 772m TO 1207m (MUD LOSSES REDUCED TO 5-6 m<sup>3</sup>/HR. (30-40BBLS/HR)

#### 00:00 – 06:00 HOURS 29/09/02:

DRILL AHEAD 311mm (12.25") HOLE FROM 1207m TO 1384m.

#### ANTICIPATED OPERATIONS:

DRILL AHEAD 311mm (12.25") HOLE TO CORE POINT.

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 29/09/02

REPORT NO: 3

#### SUMMARY OF OPERATIONS (0000 hours - 2400 hours):

FROM	TO	HRS	ACTIVITY DESCRIPTION
00:00	04:00	4.00	Continued making up BHA. RIH with 311mm (12-1/4") to 600m.
04:00	04:30	0.50	Serviced TDS
04:30	05:00	0.50	Continued RIH tag cement @ 630m (Washed and reamed with 5-10Kips down to 663m)
05:00	06:00	1.00	Took firm weight @ 663m. Drilled cement & shoe track to 700m.
06:00	06:30	0.50	Drilled 311mm (12-1/4") Hole F /- 700m to 703m
06:30	07:30	1.00	Pumped Hi-vis pill and changed to PHPA mud system. (Flushed Choke & kill lines)
07:30	09:00	1.50	Performed LOT With 1.05sg Mud weight Pressure 1240Kpa EQMW = 1.22sg. (8.8ppg 180psi =10.2ppg)
09:00	10:30	1.50	Drilled 311mm Hole F /- 703m to 772m (Losses up to 95.3M3 (600bbls) Per hour)
10:30	12:00	1.50	Attempted to make connection @ 772m. Torque 10Kips, Excessive drag. Continued to circulate hole clean. Worked string F /- 772 m back to 743m.
12:00	13:00	1.00	POOH F /- 772 back to 690m (340mm Shoe) Cleaned strainers due to LCM build up, mixed extra mud due to losses. (Total mud lost 101M3 / 640bbls) RIH to 772m
13:00	24:00	11.00	Drilled F /- 772m to 1207m (Losses reduced to 4.7M3 / 6.3M3 per/hr. (30/40bbls)

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 29/09/02

REPORT NO: 3

FORMATION TOPS:	MD RT (m)	Subsea (m)	H/L to Prognosis	H/L to Casino-1
MEPUNGA FORMATION	687	662	31m High	87m High
DILWYN FORMATION	764	739	43m High	79m High
PEMBER MUDSTONE	1005	980	-	87m High
PEBBLE POINT	1080	1055	1m High	22m High
MASSACRE SHALE	1132	1107	13m Low	22m High
SKULL CREEK	1271	1246	14m High	12m Low

#### HYDROCARBON SHOW SUMMARY

<u>INTERVAL</u>	<u>LITHOLOGY</u>	<u>GAS</u>
	Nil	

#### GEOLOGICAL SUMMARY

<u>INTERVAL</u> <u>(m/hr)</u>	<u>LITHOLOGY</u>	<u>GAS</u>
687-700m	<u>MEPUNGA FORMATION</u> Returns to seafloor. (MWD Gamma Ray Pick)	
700-764m ROP: 9-150 Ave: 80	<b>MASSIVE SANDSTONE INTERBEDDED WITH MINOR CLAYSTONE</b> <b>SANDSTONE:</b> Medium to dark brown, medium yellow brown, medium to very coarse grained, increasing coarse to very coarse grained, poorly sorted, subrounded to rounded, minor subangular, weak siliceous cement, abundant Fe-staining, friable in part, generally loose, minor moderately hard aggregates, trace lithic fragments, fair to good inferred porosity, no hydrocarbon fluorescence. <b>CLAYSTONE:</b> Medium to dark grey to minor grey brown, moderately hard, calcareous, grading to marl, trace quartz grains, subblocky to blocky, minor amorphous.	1-2 units 100% C1
764-790 ROP: 45-260 Ave: 110	<u>DILWYN FORMATION</u> <b>SANDSTONE:</b> Medium brown, occasionally dark brown, medium to dark yellow brown, occasionally clear to translucent, predominantly medium to coarse grained, moderately well sorted, subrounded to subangular, trace weak to moderately strong siliceous cement, common Fe-staining, common very dark brown to black brown rounded lithic fragments (5%), friable in part, loose in part, moderately hard in part, poor to fair inferred porosity, no hydrocarbon fluorescence.	1-2 units 100% C1

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 29/09/02

REPORT NO: 3

#### GEOLOGICAL SUMMARY

<u>INTERVAL</u> <u>(m/hr)</u>	<u>LITHOLOGY</u>	<u>GAS</u>
790-834 ROP: 29-180 Ave: 100	<p>INTERBEDDED SANDSTONE AND CLAYSTONE</p> <p>SANDSTONE: Light grey, clear to translucent, minor light yellow brown, predominantly medium to coarse grained, moderately sorted, subangular to subrounded, moderately strong siliceous cement in aggregates, minor grey argillaceous to silty matrix, trace lithic fragments, common loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.</p> <p>CLAYSTONE: Medium grey, arenaceous grading to arenaceous claystone, trace lithic fragments, trace disseminated pyrite, generally soft, occasionally moderate hard, dispersive to amorphous, subblocky in part.</p>	1 unit 100% C1
834-920 ROP: 8-200 Ave: 80	<p>SANDSTONE INTERBEDDED WITH MINOR CLAYSTONE</p> <p>SANDSTONE: Light grey, clear to translucent, medium to very coarse grained, generally coarse to very coarse, poorly sorted, subangular to predominantly subrounded, moderately strong siliceous cement in aggregates, minor grey brown argillaceous to silty matrix, trace rounded dark brown lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.</p> <p>CLAYSTONE: Medium to dark grey brown, generally soft, occasionally firm, dispersive to amorphous, subblocky in part.</p>	1-2 unit 100% C1
920-1005 ROP: 7-250 Ave: 140	<p>SANDSTONE INTERBEDDED WITH MINOR CLAYSTONE</p> <p>SANDSTONE: Clear to translucent, pale grey, medium to coarse, moderately sorted, subangular to predominantly subrounded, weak siliceous cement in aggregates, minor grey brown argillaceous matrix, trace calcite, trace pyrite, trace lithic fragments, commonly loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.</p> <p>CLAYSTONE: Medium to dark brown grey, soft to firm, dispersive, amorphous to subblocky in part.</p>	1-2 unit 100% C1
1005-1080 ROP: 12-50 Ave: 45	<p><u>PEMBER MUDSTONE</u></p> <p>CLAYSTONE WITH MINOR SANDSTONE</p> <p>CLAYSTONE: Medium to dark brown, slightly arenaceous, silty, predominantly soft to firm, minor moderately hard, dispersive, amorphous to subblocky</p> <p>SANDSTONE: Clear, translucent, light grey, coarse to very coarse, medium in part, moderately sorted, subangular to predominantly subrounded, trace weak siliceous cement, generally loose, fair inferred porosity, no hydrocarbon fluorescence.</p>	1-2 unit 100% C1

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A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 29/09/02

REPORT NO: 3

#### GEOLOGICAL SUMMARY

<u>INTERVAL</u> <u>(m/hr)</u>	<u>LITHOLOGY</u>	<u>GAS</u>
1080-1132 ROP: 40-250 Ave: 120	<p><b><u>PEBBLE POINT FORMATION</u></b> COARSE SANDSTONE WITH CLAYSTONE INTERBEDS SANDSTONE: Clear to translucent, opaque in part, light grey, minor pale yellow brown, medium to very coarse grained, minor fine, poorly sorted, subrounded to rounded, occasionally subangular, trace pyrite, trace weak siliceous cement, generally loose, poor to fair inferred porosity, no hydrocarbon fluorescence. CLAYSTONE: Medium grey, dark grey in part, trace glauconite, trace pyrite, trace lithic fragments, soft, dispersive, amorphous.</p>	1-6 units 100% C1
1132-1180 ROP: 35-270 Ave: 80	<p><b><u>MASSACRE SHALE (?? INCLUDING TIMBOON )</u></b> INTERBEDDED SANDSTONE AND SILTSTONE SANDSTONE: Pale to medium grey, clear to translucent, off white, fine to medium grained, partly coarse grained, occasional very coarse polished bit-fractured quartz fragments, poorly sorted, subangular to minor angular, occasionally subrounded, common moderate strong siliceous and slightly calcareous cement, locally common white argillaceous matrix, occasional medium grey silty matrix, common disseminated pyrite, rare glauconite ?, moderate hard to hard aggregates, occasionally very hard, no hydrocarbon fluorescence. SILTSTONE: Medium grey, medium to dark brown, arenaceous, grades to sandstone, carbonaceous in part, rare white argillaceous laminations, trace disseminated pyrite, moderately hard occasionally very hard, subblocky</p>	1-4 units 100% C1
1180-1271 ROP: 20-200 Ave: 100	<p>SANDSTONE INTERBEDDED WITH SILTSTONE SANDSTONE: Clear, translucent, opaque, pale grey, pale green grey, medium to coarse, minor fine grained, moderate poorly sorted, subangular to subrounded, moderate strong siliceous cement in aggregates, locally com white argillaceous matrix, trace rounded lithic fragments, occasionally grading to lithic sandstone, friable to moderately hard, poor visual porosity, no hydrocarbon fluorescence. SILTSTONE: Medium grey, medium to dark brown, arenaceous, grades to sandstone, carbonaceous in part, rare white argillaceous laminations, trace disseminated pyrite, moderately hard occasionally very hard, subblocky</p>	2-3 units 100% C1

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A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 29/09/02

REPORT NO: 3

#### GEOLOGICAL SUMMARY

<u>INTERVAL</u> <u>(m/hr)</u>	<u>LITHOLOGY</u>	<u>GAS</u>
1271-1299 ROP: 16-150 Ave: 40	<p><b><u>SKULL CREEK FORMATION</u></b> SILTSTONE: Light to medium brown to brown grey, medium green grey, argillaceous, arenaceous in part, slightly calcareous, trace carbonaceous specks, minor disseminated pyrite, soft to firm, amorphous to subblocky</p>	1-2 units 100% C1
1299-1360 ROP:10-110 Ave: 35	<p>INTERBEDDED SILTSTONE AND MINOR SANDSTONE SILTSTONE: Medium to dark grey, medium to dark brown grey, soft to firm, moderately hard in part, argillaceous, slightly dispersive, subblocky. SANDSTONE: Clear to translucent, fine to coarse, poorly sorted, subrounded to rounded, trace weak siliceous cement, generally loose, poor visual porosity, no fluorescence.</p>	1-3 units 100% C1

# Santos

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 30/09/02

REPORT NO: 4

DEPTH : 1610 m  
(As at 2400 hours EST, 29/09/02)

PROGRESS: 403 m

DAYS FROM SPUD: 5.63

OPERATION : DRILLING 311mm (12.25") HOLE IN THE BELFAST FORMATION @ 1638m (ROP: 3 m/hr)  
(0600 hours EST, 30/09/02)

#### AFE COST

#### CUMULATIVE COST

CASING DEPTH: 690.6m (340mm- 13 3/8")

RIG: OCEAN BOUNTY

RT – SEAFLOOR: 92.8m

PROGRAMMED TD: 2274m

ROTARY TABLE: 25m LAT

WATER DEPTH: 67.8m

MUD DATA	Type:	Wt:	Vis:	FL:	PH:	KCl	Cl :	PV / YP:	Rmf:
(2400 Hours)	KCL/ PHPA/ POLY/ GLYCOL	1.20	60	4.0	9.0	27000	22000	23 / 29	

BIT DATA	PRESENT	No.	Make	Type	Size (mm)	Hours	Drilled	Condition
(2400 Hours)	PRESENT	3	HTC	MX03DX	311	27.7	910	-
	LAST	2	SMITH	MGSSH-C	445	12.6	560	2-2-NO-A-E-I-NO-TD

SURVEYS:	MD (m)	INC	AZIM (T)
	1565.7	1.58°	268.16°

#### PREVIOUS 24 HOURS OPERATIONS SUMMARY:

DRILL AHEAD 311mm (12.25") HOLE FROM 1207m TO 1610m, GRADUALLY INCREASING MUD WEIGHT TO 1.2SG (10.0PPG). (WORKED FREE STUCK PIPE AT PIPE CONNECTION @ 1271m).

#### 00:00 – 06:00 HOURS 30/09/02:

DRILL AHEAD 311mm (12.25") HOLE FROM 1610m TO 1638m AT 06:00HRS.

#### ANTICIPATED OPERATIONS:

DRILL AHEAD 311mm (12.25") HOLE TO CORE POINT. IF SLOW ROP PERSISTS, POSSIBLE BIT TRIP.



# Santos

*A.C.N. 007 550 923*

## WELL PROGRESS REPORT

### CASINO 2

DATE: 30/09/02

REPORT NO: 4

#### SUMMARY OF OPERATIONS (0000 hours - 2400 hours):

FROM	TO	HRS	ACTIVITY DESCRIPTION
00:00	24:00	24.0	Continued drilling 311mm (12- 1/4") Hole F/- 1207m to 1610m. No losses. (While reaming prior connection, String stuck @ 1271m. Worked free). Loggers calibrated hole with carbide to 355.5mm (14")

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 30/09/02

REPORT NO: 4

FORMATION TOPS:	MD RT (m)	Subsea (m)	H/L to Prognosis	H/L to Casino-1
MEPUNGA FORMATION	687	662	31m High	87m High
DILWYN FORMATION	764	739	43m High	79m High
PEMBER MUDSTONE	1005	980	-	87m High
PEBBLE POINT	1080	1055	1m High	22m High
MASSACRE SHALE	1132	1107	13m Low	22m High
SKULL CREEK	1271	1246	14m High	12m Low
PAARATTE FORMATION	1369	1344	2m High	82m Low
BELFAST FORMATION	1507	1482	7m High	55m Low

#### HYDROCARBON SHOW SUMMARY

<u>INTERVAL</u>	<u>LITHOLOGY</u>	<u>GAS</u>
	Nil	

#### GEOLOGICAL SUMMARY

<u>INTERVAL</u> <u>(m/hr)</u>	<u>LITHOLOGY</u>	<u>GAS</u>
1360-1369 ROP:55-90 Ave: 60	SILTSTONE: Medium green grey, medium grey, light grey brown, trace glauconite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.	10-12 units 100% C1
1369-1460 ROP: 18-60 Ave: 30	<b><u>PAARATTE FORMATION</u></b> SILTSTONE WITH MINOR INTERBEDDED SANDSTONE SILTSTONE: Light to medium grey brown, medium green grey, medium grey, common glauconite, trace pyrite, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part. SANDSTONE: Clear, translucent, fine to medium grained, occasionally coarse, moderately well sorted, subrounded to rounded, nil to trace weak siliceous cement, locally common white argillaceous matrix, generally loose grains, trace lithic fragments, trace glauconite, no fluorescence.	11 -16 units 100% C1
1460-1507 ROP: 7-22 Ave: 17	SILTSTONE: Light to medium brown to grey brown, medium green grey, medium grey, trace glauconite, rare pyrite, generally argillaceous, slightly arenaceous, firm to soft, occasionally moderately hard to hard, subblocky to amorphous in part.	9-18 units 100% C1

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 30/09/02

REPORT NO: 4

#### GEOLOGICAL SUMMARY

<u>INTERVAL</u> <u>(m/hr)</u>	<u>LITHOLOGY</u>	<u>GAS</u>
1507-1519 ROP: 30-70 Ave: 50	<p><b><u>BELFAST FORMATION</u></b>  <b>SANDSTONE:</b> Clear to translucent, pale yellow, fine to very coarse, predominantly fine to medium, poorly sorted, subblocky to rounded, occasionally subangular, moderate strong siliceous cement, trace calcite, trace light grey silty matrix, friable to commonly loose, poor porosity, no hydrocarbon fluorescence.</p>	12 – 20 units 100% C1
1519-1550 ROP: 10-30 Ave: 20	<p><b>SILTSTONE:</b> Medium to dark brown, brown grey, occasionally green grey, arenaceous, trace glauconite, trace lithic fragments, trace carbonaceous specks, soft to firm, occasionally moderate hard, subblocky, amorphous.</p>	12 – 20 units 100% C1
1550-1630 ROP: 2-9 Ave: 4	<p><b>SILTSTONE:</b> Medium to dark brown grey, medium to dark grey, trace glauconite, trace lithic fragments, trace carbonaceous specks, weakly calcareous in part, trace dolomite, firm to moderately hard, subblocky, occasionally subfissile.</p>	7 – 22 units 100/tr/tr %

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 01/10/02

REPORT NO: 5

DEPTH : 1646 m  
(As at 2400 hours EST, 30/09/02)

24 hr PROGRESS 0000-2400: 36 m

DAYS FROM SPUD: 6.63

DEPTH : 1646 m  
(As at 0600 hours EST, 01/10/02)

24 hr PROGRESS 0600-0600: 8 m

OPERATION :  
(As at 0600 hours EST, 01/10/02)

DRILLING AHEAD 311mm (12.25") HOLE IN THE BELFAST FORMATION FROM 1646m, HAVING RUN IN WITH NEW PDC BIT

#### AFE COST

#### CUMULATIVE COST

CASING DEPTH: 690.6m (340mm- 13 3/8")

RIG: OCEAN BOUNTY

RT – SEAFLOOR: 92.8m

PROGRAMMED TD: 2274m

ROTARY TABLE: 25m LAT

WATER DEPTH: 67.8m

MUD DATA	Type:	Wt:	Vis:	FL:	PH:	KCl	Cl :	PV / YP:	Rmf:
(2400 Hours)	KCL/ PHPA/ POLY/ GLYCOL	1.24	72	4.4	9.0	27000	23000	26 / 41	

BIT DATA	PRESENT	No.	Make	Type	Size (mm)	Hours	Drilled	Condition
(2400 Hours)	PRESENT	4	HYC	DSX195	311	-	-	-
	LAST	3	HTC	MX03DX	311	36.4	946	8-8-LT-A-E-1/8-ER-PR

SURVEYS:	<u>MD</u> (m)	<u>INC</u>	<u>AZIM</u> (T)
	1622.24	1.67°	265.96°

#### PREVIOUS 24 HOURS OPERATIONS SUMMARY:

DRILL AHEAD 311mm (12.25") HOLE FROM 1610m TO 1646m. PULL OUT OF HOLE TO 1543m. BACKREAM OUT OF TIGHT HOLE FROM 1543m TO 800m. PULL OUT OF HOLE FROM 800m. DOWNLOAD MWD/LWD TOOL. MAKE UP NEW PDC BIT, SHALLOW TEST MWD/LWD TOOLS, COMMENCE RUNNING IN HOLE.

#### 00:00 – 06:00 HOURS 01/10/02:

RUN IN HOLE TO CASING SHOE. SLIP & CUT DRILLING LINE. CONTINUE TO RUN IN HOLE TO 1615m. WASH & REAM FROM 1615m TO BOTTOM AT 1646m.

#### ANTICIPATED OPERATIONS:

DRILL AHEAD 311mm (12.25") HOLE FROM 1646m TO CORE POINT IN THE TOP OF WAARRE FORMATION. PULL OUT HOLE. RUN IN HOLE WITH CORING ASSEMBLY TO CUT 27m OF CORE .

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 01/10/02

REPORT NO: 5

#### SUMMARY OF OPERATIONS (0000 hours - 2400 hours):

FROM	TO	HRS	ACTIVITY DESCRIPTION
00:00	09:00	9.00	Continued Drilling 311mm (12-1/4") Hole F/- 1610m to 1646m
09:00	09:30	0.50	Flow checked well. POOH F/- 1646m to 1543m (50 Kips O-pull @1543m)
09:30	18:30	9.00	Backreamed F/- 1543m to 800m (Max hole drag 50 Kips O-pull, String torquing up 12,000ft/lbs)
18:30	21:00	2.50	Continued POOH F/- 800m. Broke off bit.
21:00	23:30	2.50	Down loaded data from LWD & Process. Initialise tool. (Serviced TDS)
23:30	24:00	0.50	Made up bit & RIH

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 01/10/02

REPORT NO: 5

#### \*\* PRELIMINARY FIELD PICKS

<b>FORMATION TOPS: **</b>	<b>MD RT (m)</b>	<b>Subsea (m)</b>	<b>H/L to Prognosis</b>	<b>H/L to Casino-1</b>
MEPUNGA FORMATION	687	662	31m High	87m High
DILWYN FORMATION	764	739	43m High	79m High
PEMBER MUDSTONE	1005	980	-	87m High
PEBBLE POINT	1080	1055	1m High	22m High
MASSACRE SHALE	1132	1107	13m Low	22m High
SKULL CREEK	1271	1246	14m High	12m Low
PAARATTE FORMATION	1369	1344	2m High	82m Low
BELFAST FORMATION	1507	1482	7m High	55m Low
WAARRE FORMATION				

#### HYDROCARBON SHOW SUMMARY

<b><u>INTERVAL</u></b>	<b><u>LITHOLOGY</u></b>	<b><u>GAS</u></b>
	Nil	

#### GEOLOGICAL SUMMARY

<b><u>INTERVAL</u></b> <b><u>(m/hr)</u></b>	<b><u>LITHOLOGY</u></b>	<b><u>GAS</u></b>
1630-1646 ROP: 2-5 Ave: 3	SILTSTONE: Medium to dark brown grey, medium to dark grey, trace glauconite, trace lithic fragments, trace carbonaceous specks, very weakly calcareous in part, trace calcite, rare dolomite (1-2 grains), firm to moderately hard, subblocky, rarely subfissile.	7 – 22 units 100/tr/tr %

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 02/10/02

REPORT NO: 6

DEPTH : 1763 m  
(As at 2400 hours EST, 01/10/02)

24 hr PROGRESS 0000-2400: 117 m

DAYS FROM SPUD: 7.63

DEPTH : 1763 m  
(As at 0600 hours EST, 02/10/02)

24 hr PROGRESS 0600-0600: 117 m

OPERATION :  
(As at 0600 hours EST, 02/10/02)

REAMING TO BOTTOM @ 1753m, PRIOR TO CUTTING CORE

#### AFE COST

#### CUMULATIVE COST

CASING DEPTH: 690.6m (340mm- 13 3/8")

RIG: OCEAN BOUNTY

RT – SEAFLOOR: 92.8m

PROGRAMMED TD: 2274m

ROTARY TABLE: 25m LAT

WATER DEPTH: 67.8m

MUD DATA	Type:	Wt:	Vis:	FL:	PH:	KCl	Cl :	PV / YP:	Rmf:
(2400 Hours)	KCL/ PHPA/ POLY/ GLYCOL	1.24	57	5.4	9.5	37800	31000	21 / 33	

BIT DATA	PRESENT	No.	Make	Type	Size (mm)	Hours	Drilled	Condition
(2400 Hours)	LAST	4	HYC	DSX195	311	6.4	117	1-1-CT-N-X-I-NO-CP

SURVEYS:      MD (m)                      INC                      AZIM (T)

#### PREVIOUS 24 HOURS OPERATIONS SUMMARY:

DRILL AHEAD 311mm (12.25") HOLE FROM 1646m TO 1763m. CIRCULATE BOTTOMS UP FOR SAMPLE AND CONFIRM CORE POINT. PUMP OUT OF HOLE FROM 1763m TO 1620m. PULL OUT OF HOLE FROM 1620m TO PICK UP CORING ASSEMBLY. LAYOUT ANADRILL MWD/LWD TOOLS. MAKE UP CORE BARREL.

#### 00:00 – 06:00 HOURS 02/10/02:

CONTINUE TO MAKE UP CORING ASSEMBLY, RUN IN HOLE TO 1708m, WORKING TIGHT SPOT @ 1140-1160m. PRECAUTIONARY WASH & REAM FROM 1708m TO 1730m. WASH & REAM FROM 1730m TO 1753m AT 06:00HRS (TAKING 10-15 KIPS TO REAM). TRIP GAS 935 UNITS.

#### ANTICIPATED OPERATIONS:

REAM TO BOTTOM. CUT 27m CORE. PULL OUT HOLE & RETRIEVE CORE. RUN IN HOLE WITH 311mm DRILLING ASSEMBLY AND DRILL AHEAD.

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A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 02/10/02

REPORT NO: 6

#### SUMMARY OF OPERATIONS (0000 hours - 2400 hours):

FROM	TO	HRS	ACTIVITY DESCRIPTION
00:00	01:30	1.50	Continued RIH to 690m (340mm Shoe)
01:30	03:00	1.50	Slipped & cut drilling line.
03:00	05:00	2.00	Continued RIH to 1615m (Took weight @ 1615m)
05:00	06:00	1.00	Wash and reamed F /- 1615m to 1646m (5-10 Kips Required to ream)
06:00	14:00	8.00	Drilled 311mm (12-1/4") Hole F /- 1646m to 1763m
14:00	15:30	1.50	Circulated sample to surface & confirmed correct core point.
15:30	21:00	5.50	Pumped out F /- 1763m to 1620m. Continued POOH F /- 1620m
21:00	22:00	1.00	Service broke LWD tool and laid out.
22:00	24:00	2.00	Held JSA, Picked up & made up core barrel assembly.



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## WELL PROGRESS REPORT

### CASINO 2

DATE: 02/10/02

REPORT NO: 6

#### \*\* PRELIMINARY FIELD PICKS

FORMATION TOPS: **	MD RT (m)	Subsea (m)	H/L to Prognosis	H/L to Casino-1
WAARRE FORMATION (MWD PICK)	1746	1721	23m High	-

#### HYDROCARBON SHOW SUMMARY

<u>INTERVAL</u>	<u>LITHOLOGY</u>	<u>GAS</u>
1755-1763 Ave: 35	<p><b>WAARRE FORMATION</b></p> <p>SANDSTONE: Pale brown grey, pale grey, translucent, opaque, very fine to very coarse grained, predominantly fine to medium grained, poorly sorted, subangular to subrounded, occasionally rounded, trace moderate strong calcareous cement, trace siliceous cement, trace glauconite, trace to locally common white to light brown grey argillaceous matrix, occasionally grades to arenaceous siltstone, friable to moderately hard, occasionally hard, common loose clear coarse quartz sand, poor visual porosity, no hydrocarbon fluorescence.</p>	<p>562 / 25 units 98/tr/1.5/tr/tr</p> <p>C02: 40 ppm</p>

#### GEOLOGICAL SUMMARY

<u>INTERVAL</u> <u>(m/hr)</u>	<u>LITHOLOGY</u>	<u>GAS</u>
1646-1746 ROP: 8-37 Ave: 25	<p>SILTSTONE: Medium to dark brown grey, medium to dark grey, olive brown, trace to locally common, glauconite, trace lithic fragments, trace carbonaceous specks, weakly calcareous in part, trace calcite, moderately hard, minor hard, firm in part, subblocky, occasionally subfissile.</p>	<p>10 – 18 units 100/tr %</p>
1746-1763 ROP: 15-41 Ave: 35	<p><b>WAARRE FORMATION</b></p> <p>SANDSTONE INTERBEDDED WITH SILTSTONE</p> <p>SANDSTONE: Pale brown grey, pale grey, translucent, opaque, very fine to very coarse grained, predominantly fine to medium grained, poorly sorted, subangular to subrounded, occasionally rounded, trace moderate strong calcareous cement, trace siliceous cement, trace glauconite, trace pyrite, trace to locally common white to light brown grey argillaceous matrix, occasionally grades to arenaceous siltstone, friable to moderately hard, occasionally hard, (appears to be cleaning up with depth), common loose clear coarse quartz sand, poor visual porosity, no hydrocarbon fluorescence.</p> <p>SILTSTONE: Light to medium olive grey brown, locally common glauconite, firm to hard, trace to locally common carbonaceous specks, trace pyrite, trace dark lithic fragments, blocky to subblocky</p>	<p>32 - 562 units 98/tr/1.5/tr/tr</p> <p>C02: 40 ppm</p>

# Santos

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 03/10/02

REPORT NO: 7

DEPTH : 1784 m  
(As at 2400 hours EST, 02/10/02)

24 hr PROGRESS 0000-2400: 21 m

DAYS FROM SPUD: 8.63

DEPTH : 1803 m  
(As at 0600 hours EST, 03/10/02)

24 hr PROGRESS 0600-0600: 40 m

OPERATION :  
(As at 0600 hours EST, 03/10/02)

DRILLING AHEAD 311mm (12 ¼") HOLE @ 18 M/HR

#### AFE COST

#### CUMULATIVE COST

CASING DEPTH: 690.6m (340mm- 13 3/8")

RIG: OCEAN BOUNTY

RT – SEAFLOOR: 92.8m

PROGRAMMED TD: 2274m

ROTARY TABLE: 25m LAT

WATER DEPTH: 67.8m

MUD DATA	Type:	Wt:	Vis:	FL:	PH:	KCl	Cl:	PV / YP:	Rmf:
(2400 Hours)	KCL/ PHPA/ POLY/ GLYCOL	1.24	50	5.2	10.0	32400	31200	19 / 25	

BIT DATA	PRESENT	No.	Make	Type	Size (mm)	Hours	Drilled	Condition
(2400 Hours)	LAST	6 (4RR)	HYC	DSX195	311	-	-	-
		5	SEC	CD93	311	4.6	21	1-1-CT-N-X-I-JD-TD

SURVEYS:      MD (m)                      INC                      AZIM (T)

#### PREVIOUS 24 HOURS OPERATIONS SUMMARY:

WASH & REAM FROM 1753m TO 1763m. CUT CORE FROM 1763m TO 1784m, UNABLE TO CORE FURTHER. CIRCULATE BOTTOMS UP. PULL OUT OF HOLE FROM 1784m. RETRIEVE CORE. TOTAL CORE CUT=21m, RECOVERED=19.3m, RECOVERY=92% (ASSUMING 2 x 9m CORE BARRELS ARE FULL). LAYOUT CORING ASSEMBLY. RUN IN HOLE WITH RE-RUN PDC BIT AND BOTTOM HOLE ASSEMBLY, AFTER SHALLOW TESTING ANADRILL MWD/LWD TOOLS.

#### 00:00 – 06:00 HOURS 03/10/02:

CONTINUE TO RUN IN HOLE WITH RE-RUN PDC BIT. WASH & RECORD MWD/LWD DATA OVER CORE INTERVAL. DRILL AHEAD 311mm (12 ¼") HOLE FROM 1784m TO 1803m AT 06:00HRS.

#### ANTICIPATED OPERATIONS:

DRILL AHEAD 311mm HOLE.

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 03/10/02

REPORT NO: 7

#### SUMMARY OF OPERATIONS (0000 hours - 2400 hours):

FROM	TO	HRS	ACTIVITY DESCRIPTION
00:00	00:30	0.50	Continued to Make up Core barrel
00:30	04:30	4.00	RIH to 1708m (Worked through tight spot @ 1120m, Wash and reamed 1140m to 1160m)
04:30	05:00	0.50	Precautionary wash and reamed F /- 1708m to 1730m (Took weight @ 1730m)
05:00	07:00	2.00	Wash and reamed F /- 1730m to 1763m (Taking 10-15Kips to ream) Max gas 18.72%
07:00	07:30	0.50	Recorded up & down weights, dropped ball and monitored pressures. Took SCRs.
07:30	12:30	5.00	Cut core F /- 1763m to 1784m.
12:30	14:30	2.00	Circulated bottoms up. Max gas 5%
14:30	19:00	4.50	POOH F /- 1784m.
19:00	21:30	2.50	Held JSA. Laid out inner core barrel & Laid out outer barrels. (Cut 21m Recovered 19.3m = 92%)
21:30	24:00	2.50	Picked up and surface tested FEWD tools. RIH with BHA.

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 03/10/02

REPORT NO: 7

#### \*\* PRELIMINARY FIELD PICKS

FORMATION TOPS: **	MD RT (m)	Subsea (m)	H/L to Prognosis	H/L to Casino-1
WAARRE FORMATION	1746	1721	23m High	-

#### HYDROCARBON SHOW SUMMARY

<u>INTERVAL</u>	<u>LITHOLOGY</u>	<u>GAS</u>
1769-1784 ROP: 5-38 Ave: 13	<u>WAARRE FORMATION</u> SANDSTONE: Clear to translucent, pale grey, very fine to coarse grained, rare very coarse, poorly sorted, predominantly fine to medium, subangular to commonly subrounded, minor rounded, trace weak siliceous cement, trace to locally common light grey argillaceous matrix, trace to locally common pyrite, trace to common glauconite, trace dolomite, trace calcite, trace lithic fragments, moderately clean, increasingly clean with depth, poor to fair visual and inferred porosity, no hydrocarbon fluorescence.	350 / 30 units 99/tr/1/tr/tr %  CO2: 20-40 ppm

#### GEOLOGICAL SUMMARY

<u>INTERVAL</u> <u>(m/hr)</u>	<u>LITHOLOGY</u>	<u>GAS</u>
1763-1784 ROP: 5-38 Ave: 13	SANDSTONE INTERBEDDED WITH SILTSTONE SANDSTONE: Clear to translucent, pale grey, very fine to coarse grained, rare very coarse, poorly sorted, predominantly fine to medium, subangular to commonly subrounded, minor rounded, trace weak siliceous cement, trace to locally common light grey argillaceous matrix, trace to locally common pyrite, trace to common glauconite, trace dolomite, trace calcite, trace lithic fragments, moderately clean, increasingly clean with depth, poor to fair visual and inferred porosity, no hydrocarbon fluorescence. SILTSTONE: Light to medium grey to grey brown, locally common glauconite, soft to firm, trace pyrite, trace carbonaceous specks, firm to hard, blocky to subblocky.	25-350 units 99/tr/1/tr/tr %  CO2: 20-40 ppm

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 04/10/02

REPORT NO: 8

DEPTH : 2112 m (TD)  
(As at 2400 hours EST, 03/10/02)

24 hr PROGRESS 0000-2400: 328 m

DAYS FROM SPUD: 9.63

DEPTH : 2112 m (TD)  
(As at 0600 hours EST, 04/10/02)

24 hr PROGRESS 0600-0600: 309 m

OPERATION :  
(As at 0600 hours EST, 04/10/02)

PULLING OUT OF HOLE TO RUN WIRELINE LOGS

#### AFE COST

#### CUMULATIVE COST

CASING DEPTH: 690.6m (340mm- 13 3/8")

RIG: OCEAN BOUNTY

RT – SEAFLOOR: 92.8m

PROGRAMMED TD: 2274m

ROTARY TABLE: 25m LAT

WATER DEPTH: 67.8m

MUD DATA	Type:	Wt:	Vis:	FL:	PH:	KCl	Cl:	PV / YP:	Rmf:
(2400 Hours)	KCL/ PHPA/ POLY/ GLYCOL	1.24	57	5.2	9.5	32400	31500	21 / 23	

BIT DATA	PRESENT	No.	Make	Type	Size (mm)	Hours	Drilled	Condition
(2400 Hours)	LAST	5	SEC	CD93	311	4.6	21	1-1-CT-N-X-I-JD-TD

SURVEYS:	MD (m)	INC	AZIM (T)
	2028	2.08	243
	2085	2.47	242

#### PREVIOUS 24 HOURS OPERATIONS SUMMARY:

DRILL AHEAD 311mm (12 1/4") HOLE FROM 1803m TO 2112m. TOTAL DEPTH REACHED AT 23:15 HRS ON 03/10/02. CIRCULATE BOTTOMS UP.

#### 00:00 – 06:00 HOURS 04/10/02:

PULL OUT OF HOLE ON WIPER TRIP TO 1755m (BACKREAM TIGHT HOLE 1895m-1794m). RUN BACK TO BOTTOM. CIRCULATE HOLE CLEAN. PULL OUT OF HOLE TO RUN WIRELINE LOGS.

#### ANTICIPATED OPERATIONS:

COMPLETE PULLING OUT OF HOLE. LAYOUT MWD/LWD. RIG UP SCHLUMBERGER & RUN WIRELINE LOGS AS PER PROGRAM.

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 04/10/02

REPORT NO: 8

#### SUMMARY OF OPERATIONS (0000 hours - 2400 hours):

FROM	TO	HRS	ACTIVITY DESCRIPTION
00:00	01:00	1.00	Continued RIH to 690m (340mm Shoe)
01:00	01:30	0.50	Serviced TDS
01:30	03:00	1.50	Continued RIH to 1745m
03:00	04:00	1.50	Logged hole F /- 1745m to 1784m at 30m/hr. Took SCR at 1784m.
04:00	23:15	18.75	Drilled 311mm (12-1/4") hole from 1784m to 2112m.
23:15	24:00	0.75	Circulated bottoms up at TD.

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 04/10/02

REPORT NO: 8

#### \*\* PRELIMINARY FIELD PICKS

FORMATION TOPS: **	MD RT (m)	Subsea (m)	H/L to Prognosis	H/L to Casino-1
WAARRE FORMATION	1746	1721	23m High	-

#### HYDROCARBON SHOW SUMMARY

<u>INTERVAL</u>	<u>LITHOLOGY</u>	<u>GAS</u>
1830-1865 ROP: 13-41 Ave: 27	<b><u>WAARRE FORMATION</u></b> SANDSTONE: White to very light grey, rare pale brown, clear to translucent quartz grains, occasionally opaque, predominantly fine to medium grained, occasional coarse grains, moderately sorted, angular to occasionally subangular, common weak to moderately strong calcareous cement, common white to light grey argillaceous matrix, trace pyrite, trace glauconite, trace lithic fragments, predominantly loose, minor friable to moderately hard aggregates, poor visual and fair inferred porosity, no hydrocarbon fluorescence.	500 / 20 units 99/tr/1/tr/tr %  CO2: 30-50 ppm
1895-1919 ROP: 13-35 Ave: 20	SANDSTONE: White to light grey brown, clear to translucent, fine to medium grained, moderately well sorted, subangular to subrounded, weak siliceous cement, common to locally abundant white argillaceous matrix, calcareous matrix in part, trace carbonaceous specks, trace glauconite grains, friable aggregates, poor visual porosity, no hydrocarbon fluorescence.	100 / 20 units 99/tr/1/tr/tr %  CO2: 20 ppm
1937-1947 ROP: 4-42 Ave: 35	SANDSTONE: Clear to translucent, white to light green, light grey, fine to predominantly medium, well sorted, subrounded, weak calcareous cement, locally common white argillaceous matrix, common pyrite fragments, trace pyrite coated grains, common red lithic fragments and carbonaceous fragments, trace dolomite, friable to loose, poor visual and fair inferred porosity, no hydrocarbon fluorescence.	200 / 12 units 100/tr/tr %

#### GEOLOGICAL SUMMARY

<u>INTERVAL (m/hr)</u>	<u>LITHOLOGY</u>	<u>GAS</u>
1784-1830 ROP: 10-30 Ave: 20	SILTSTONE INTERBEDDED WITH SANDSTONE SILTSTONE: Light brown, light green brown, off white, very finely arenaceous, trace carbonaceous specks, firm to occasionally moderately hard, subblocky. SANDSTONE: Pale brown, off white, fine to medium, occasionally loose coarse grained, moderately poorly sorted, subangular, trace weak siliceous cement, common calcareous cement, common off white argillaceous matrix, trace pyrite, trace lithic fragments, friable to moderately hard aggregates, poor visual porosity, no hydrocarbon fluorescence.	12-50 units 100/tr/tr %  CO2: 30-40 ppm

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 04/10/02

REPORT NO: 8

#### GEOLOGICAL SUMMARY

<u>INTERVAL</u> <u>(m/hr)</u>	<u>LITHOLOGY</u>	<u>GAS</u>
1830-1865 ROP: 13-41 Ave: 27	<p>SANDSTONE INTERBEDDED WITH SILTSTONE</p> <p>SANDSTONE: White to very light grey, rare pale brown, clear to translucent quartz grains, occasionally opaque, predominantly fine to medium grained, occasional coarse grains, moderately sorted, angular to occasionally subangular, common weak to moderately strong calcareous cement, common white to light grey argillaceous matrix, trace pyrite, trace glauconite, trace lithic fragments, predominantly loose, minor friable to moderately hard aggregates, poor visual and fair inferred porosity, no hydrocarbon fluorescence.</p> <p>SILTSTONE: Medium brown, trace green brown, very finely arenaceous in part, generally argillaceous, dispersive in part, soft to firm, com carbonaceous specks, slightly micro-micaceous, subblocky to amorphous.</p>	<p>30-500 units 99/tr/1/tr/tr %</p> <p>CO<sub>2</sub>: 30-50 ppm</p>
1865-1895 ROP: 9-40 Ave: 25	<p>INTERBEDDED SILTSTONE AND SANDSTONE</p> <p>SANDSTONE: Light grey, pale brown, clear to translucent, fine to medium grained, minor coarse grained, moderately well sorted, subangular to subrounded, trace moderate strong calcareous cement, siliceous cement in part, common white argillaceous matrix, friable to moderately hard, trace carbonaceous specks and minor micro-laminations, trace lithic fragments, poor visual porosity, no hydrocarbon fluorescence.</p> <p>SILTSTONE: Medium brown, trace green brown, very finely arenaceous in part, generally argillaceous, dispersive in part, soft to firm, com carbonaceous specks, slightly micro-micaceous, subblocky to amorphous.</p>	<p>15-30 units 100/0/tr %</p>
1895-1919 ROP: 13-35 Ave: 20	<p>SANDSTONE: White to light grey brown, clear to translucent, fine to medium grained, moderately well sorted, subangular to subrounded, weak siliceous cement, common to locally abundant white argillaceous matrix, calcareous matrix in part, trace carbonaceous specks, trace glauconite grains, friable aggregates, poor visual porosity, no hydrocarbon fluorescence.</p>	<p>10 - 100 units 99/tr/1/tr/tr %</p> <p>CO<sub>2</sub>: 20 ppm</p>
1919-1957 ROP: 4-42 Ave: 35	<p>SANDSTONE INTERBEDDED WITH CLAYSTONE AND SILTSTONE</p> <p>SANDSTONE: Clear to translucent, white to light green, light grey, fine to predominantly medium, coarse in part, well sorted, subrounded, weak calcareous cement, locally common white argillaceous matrix, common pyrite fragments, trace pyrite coated grains, common red lithic fragments and carbonaceous fragments, trace dolomite, friable to loose, poor visual and fair inferred porosity, no hydrocarbon fluorescence.</p> <p>CLAYSTONE: Light grey, light green, grades to siltstone in part, glauconitic in part, trace carbonaceous specks, trace white lithic fragments, trace pyrite, firm to moderately hard, locally very hard, subblocky.</p> <p>SILTSTONE: Medium to dark grey, argillaceous, common carbonaceous fragments, hard, subblocky.</p>	<p>10-200 units 100/tr/tr %</p>



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## WELL PROGRESS REPORT

### CASINO 2

DATE: 04/10/02

REPORT NO: 8

#### GEOLOGICAL SUMMARY

<u>INTERVAL</u> <u>(m/hr)</u>	<u>LITHOLOGY</u>	<u>GAS</u>
1957-2007 ROP: 15-50 Ave: 25	<p>CLAYSTONE WITH MINOR INTERBEDDED SANDSTONE</p> <p>CLAYSTONE: Light grey, light grey brown, light grey green, light to medium grey, argillaceous grading to SILTSTONE, minor arenaceous grading to very fine SANDSTONE, trace carbonaceous micro-specks, trace white lithic fragments, moderately hard to hard, subblocky to blocky.</p> <p>SANDSTONE: Clear to translucent, white, fine, well sorted, subrounded, weak calcareous cement, minor white argillaceous matrix, common pyrite fragments, trace pyrite coated grains, common red lithic fragments and carbonaceous fragments, friable to generally loose, poor visual and fair inferred porosity, no hydrocarbon fluorescence.</p>	8 – 20 units 100/0/tr %
2007-2056 ROP: 15-35 Ave: 25	<p>SANDSTONE INTERBEDDED WITH SILTSTONE</p> <p>SANDSTONE: White to off white, light grey, clear to translucent, medium to coarse, moderate sorting, subrounded, weak calcareous cement, common to locally abundant white matrix, trace to common carbonaceous fragments and red and yellow lithic fragments, friable to loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence.</p> <p>SILTSTONE: Light to medium grey, light grey brown, occasional dark grey, argillaceous locally grading to claystone, com carbonaceous specks and micro-laminations, soft to firm, subblocky.</p>	8-20 units 100% C1
2056-2112 ROP: 14-30 Ave: 20	<p>INTERBEDDED SANDSTONE AND SILTSTONE</p> <p>SANDSTONE: White to off white, light grey, light green, clear to translucent, minor red to orange and yellow grains, trace to common Fe staining, medium to coarse, occasionally very coarse quartz fragments, fine in part, moderate sorting, subrounded, weak calcareous cement, common to locally abundant white matrix, common glauconite grains, trace to common carbonaceous fragments, friable to loose, poor visual porosity, fair inferred porosity, no hydrocarbon fluorescence</p> <p>SILTSTONE: Light grey, light grey green to light green, light grey brown to light brown, occasionally medium to dark grey, minor purple, argillaceous grading to claystone in part, trace carbonaceous specks and white lithic fragments, siliceous in part, rare micro-micaceous, firm to moderately hard, locally hard, subblocky to blocky.</p>	7-15 units 100% C1

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 05/10/02

REPORT NO: 9

DEPTH : 2112 m (TD)  
(As at 2400 hours EST, 04/10/02)

24 hr PROGRESS 0000-2400: 0 m

DAYS FROM SPUD: 10.63

DEPTH : 2112 m (TD)  
(As at 0600 hours EST, 05/10/02)

24 hr PROGRESS 0600-0600: 0 m

OPERATION :  
(As at 0600 hours EST, 05/10/02)

RUNNING WIRELINE MDT PRESSURE SURVEY.

#### AFE COST

#### CUMULATIVE COST

CASING DEPTH: 690.6m (340mm- 13 3/8")

RIG: OCEAN BOUNTY

RT – SEAFLOOR: 92.8m

PROGRAMMED TD: 2274m

ROTARY TABLE: 25m LAT

WATER DEPTH: 67.8m

MUD DATA	Type:	Wt:	Vis:	FL:	PH:	KCl	Cl:	PV / YP:	Rmf:
(2400 Hours)	KCL/ PHPA/ POLY/ GLYCOL	1.24	57	5.2	9.5	32400	31500	21 / 23	

BIT DATA	PRESENT	No.	Make	Type	Size (mm)	Hours	Drilled	Condition
(2400 Hours)	LAST	6 (4RR)	HYC	DSX195	311	16.0	328	-
		5	SEC	CD93	311	4.6	21	1-1-CT-N-X-I-JD-TD

SURVEYS:	<u>MD (m)</u>	<u>INC</u>	<u>AZIM (T)</u>
	2028	2.08	243
	2085	2.47	242

#### PREVIOUS 24 HOURS OPERATIONS SUMMARY:

PULL OUT OF HOLE ON WIPER TRIP TO 1755m (BACKREAM TIGHT HOLE 1895m-1794m). RUN BACK TO BOTTOM. CIRCULATE HOLE CLEAN. PULL OUT OF HOLE TO RUN WIRELINE LOGS. LAYOUT MWD/LWD. RIG UP SCHLUMBERGER & RUN WIRELINE LOGS AS PER PROGRAM. RUN 1: PEX-DSI. RIG UP RUN 2: MDT PRESSURE SURVEY.

#### 00:00 – 06:00 HOURS 05/10/02:

CONTINUE TO RECORD MDT PRESSURE SURVEY.

#### ANTICIPATED OPERATIONS:

COMPLETE MDT PRESSURE SURVEY. RIG UP RUN 3: CST-GR, CUT 30 SIDEWALL CORES. RIG DOWN SCHLUMBERGER.

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 05/10/02

REPORT NO: 9

#### SUMMARY OF OPERATIONS (0000 hours - 2400 hours):

FROM	TO	HRS	ACTIVITY DESCRIPTION
00:00	01:00	1.00	Flow checked. Made wiper trip to 1755m. Worked tight hole from 1957m 20.5 tonne (45kip) overpull. Back reamed out of hole from 1895m to 1794m.
01:00	02:30	1.50	Worked tight hole from 1957m 20.5 tonne (45kip) overpull. Back reamed out of hole from 1895m to 1794m.
02:30	03:00	0.50	Run back to bottom, no problems, no fill.
03:00	04:30	1.50	Circulated bottoms up until clean. Boosted riser.
04:30	10:00	5.50	Flow checked well and POOH to log, hole good. Laid down LWD tools and broke out bit.
10:00	11:30	1.50	Held JSA and rigged up to run wireline logs.
11:30	18:00	6.50	Ran log #1 (PEX-HALS-DSI-HNGS). L/O tools.
18:00	19:00	1.00	Prepared to run log #2. Power problem during surface checks.
19:00	19:45	0.75	Resolved power problem, completed surface checks.
19:45	24:00	4.25	Ran log #2 (MDT).

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## WELL PROGRESS REPORT

### CASINO 2

DATE: 05/10/02

REPORT NO: 9

FORMATION TOPS: **	MD RT (m)	Subsea (m)	H/L to Prognosis	H/L to Casino-1

HYDROCARBON SHOW SUMMARY		
<u>INTERVAL</u>	<u>LITHOLOGY</u>	<u>GAS</u>

GEOLOGICAL SUMMARY		
<u>INTERVAL</u> <u>(m/hr)</u>	<u>LITHOLOGY</u>	<u>GAS</u>

# Santos

A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 06/10/02

REPORT NO: 10

DEPTH : 2112 m (TD)  
(As at 2400 hours EST, 05/10/02)

24 hr PROGRESS 0000-2400: 0 m

DAYS FROM SPUD: 11.63

DEPTH : 2112 m (TD)  
(As at 0600 hours EST, 06/10/02)

24 hr PROGRESS 0600-0600: 0 m

OPERATION :  
(As at 0600 hours EST, 06/10/02)

LAYING OUT EXCESS DRILLPIPE WHILE WAITING ON CEMENT PLUG #2:  
1825-1550m.

#### AFE COST

#### CUMULATIVE COST

CASING DEPTH: 690.6m (340mm- 13 3/8")

RIG: OCEAN BOUNTY

RT – SEAFLOOR: 92.8m

PROGRAMMED TD: 2274m

ROTARY TABLE: 25m LAT

WATER DEPTH: 67.8m

MUD DATA	Type:	Wt:	Vis:	FL:	PH:	KCl	Cl :	PV / YP:	Rmf:
(2400 Hours)	KCL/ PHPA/ POLY/ GLYCOL	1.24	57	5.2	9.5	32400	31500	21 / 23	

BIT DATA	PRESENT	No.	Make	Type	Size (mm)	Hours	Drilled	Condition
(2400 Hours)	LAST	6 (4RR)	HYC	DSX195	311	16.0	328	0-4-BT-A-X-I-JD-TD

SURVEYS:	<u>MD</u> (m)	<u>INC</u>	<u>AZIM</u> (T)
	2085	2.47	242

#### PREVIOUS 24 HOURS OPERATIONS SUMMARY:

COMPLETE WIRELINE LOGGING RUN #2: MDT-GR PRESSURE SURVEY (TOTAL 32 PRE-TESTS, 13 GOOD TESTS, 3 LOST SEALS, 14 TIGHT/CURTAILED, 2 UNSTABLE). RIG UP RUN #3: CST-GR & CUT 30 SIDEWALL CORES AS PER PROGRAM. PULL OUT OF HOLE AND RIG DOWN SCHLUMBERGER. UNLOAD SIDEWALL CORES (RECOVERED 26 OF 30 CORES). RIG DOWN ANADRILL MANIFOLD FROM STANDPIPE. MAKE UP 89mm (3.5") CEMENT STINGER, RUN IN HOLE TO BOTTOM ON DRILLPIPE. BREAK CIRCULATION AND SPOT 50 BBLs HI-VISCOSITY PILL ON BOTTOM.

#### 00:00 – 06:00 HOURS 06/10/02:

PULL OUT OF HOLE TO 2000m. SET CEMENT PLUG #1: 2000m-1825m. PULL OUT OF HOLE SLOWLY TO 1825m. SET CEMENT PLUG #2: 1825m-1550m. PULL OUT OF HOLE SLOWLY TO 1520m. REVERSE CIRCULATE STRING DUMPING CONTAMINATED MUD. LAYOUT EXCESS DRILLPIPE WHILE WAITING ON CEMENT.

#### ANTICIPATED OPERATIONS:

CONTINUE TO LAYOUT EXCESS PIPE AND BOTTOM HOLE ASSEMBLY. CONTINUE WITH P&A PROGRAM, CEMENT PLUG #3: 720m-640m ACROSS CASING SHOE, SET BRIDGE PLUG @177m, SET CEMENT PLUG #4: 177m-127m.

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A.C.N. 007 550 923

## WELL PROGRESS REPORT

### CASINO 2

DATE: 06/10/02

REPORT NO: 10

#### SUMMARY OF OPERATIONS (0000 hours - 2400 hours):

FROM	TO	HRS	ACTIVITY DESCRIPTION
00:00	08:30	8.50	Continued running log #2 (MDT).
08:30	14:00	5.50	Ran log #3 (CST), shot 30, rec 26, empty 4, lost 0. Rigged down wireline.
14:00	17:00	3.00	Rigged down coflexip test lines and Anadrill 'T' manifold from standpipe.
17:00	23:00	6.00	Picked up 89mm (3.5") tubing cement stinger and RIH on DP.
23:00	24:00	1.00	Break circulation and spot 50bbl Hivis pill on bottom.

## **SECTION 6:- DAILY DRILLING REPORTS**

<b>Well Data</b>		M.DEPTH (m BRT) 0.0	CUR.HOLE SIZE (mm) 0	AFE COST \$ 12,100,000
COUNTRY Australia		TVD (m BRT)	CASING OD (mm) 0	AFE BASIS : P&A
FIELD Casino		PROGRESS (m)	SHOE TVD (m BRT) 0	DAILY COST : \$484,453
DRILL CO. Diamond Offshore		DAYS FROM SPUD	FIT (sg) 0.00	CUM COST : \$484,453
RIG Ocean Bounty		DAYS +/- CURVE	LOT (sg) 0.00	
RT ABOVE SL (m) 0.0		CURRENT OP @ 0400 Anchor handling. Replacing parted chain chasing collar on # 8		
WATER DEPTH (m) LAT .0		PLANNED OP. Run Anchors / Spud Casino #2 / Run & Cement 762mm (30") Casing.		
RT TO SEABED (m) .0				

<b>Summary of period 00:00 to 24:00 hrs</b> Rig move to Casino #2 Start Running Anchors.	FORMATION	TOP(m BRT)

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Sep 23, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
PS	P		MOV	12:00	17:30	5.50	0	Rig on tow to Casino #2 @ 12:00hrs. (Average speed 1.5 knots)
PS	P		MOV	17:30	24:00	6.50	0	'Anchor handling' Dropped #6 on bottom @ 17:22hrs. Start #2 @ 18:00hrs finished @ 21:06hrs (Re-ran #2 from 810ft) / Start #7 @ 21:16hrs finished @ 22:14hrs / Start # 3 @ 22:28hrs finished @ 23:22hrs / Start # 5 @ 23:30hrs. (Pacific Sentinel disconnected from tow bridle @ 23:46hrs)

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Sep 24, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
PS	P		MOV	00:00	02:45	2.75	0	'Anchor handling' Finished #5 @ 00:20hrs / Start #4 @ 00:30hrs / Start #8 @ 00:37hrs / #8 Chain chaser parted @ 01:13hrs / Finished #4 @ 01:29hrs / Start #1 @ 01:44hrs finished #1 @ 02:42hrs.
PS	U		MOV	02:45	06:00	3.25	0	Passed 'J' Hook to P.Sentinel & skidded rig 500 ft Strb, paid out on # 8 Anchor winch. P.Sentinel commenced to grapple for #8 anchor @ 04:20hrs / #8 Anchor on deck @ 04:30hrs. Changing out broken collar. (Commenced to skid rig back over location @ 04:55hrs)

<b>Survey</b> (Method : Min Curvature)	MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
Last Tool Type :										
Magnetic Declination :	0.00									

Bulk Stocks On Rig	STOCK TYPE & UNITS				STOCK TYPE & UNITS				
	START	USED	REC'D	STOCK	START	USED	REC'D	STOCK	
Fuel Oil - Rig	M3	483.4		483.4	Drill Water - Rig	MT	469.0	469.0	
Pot Water - Rig	MT	98.0		98.0	Cement 'G' - Rig	sxs	901.0	901.0	
Cement HTB - Rig	sxs			0.0	Bentonite - Rig	sxs	670.0	670.0	
Barite - Rig	sxs	2387.0		2387.0	Brine - Rig	MT		0.0	
Helifuel - Rig	ltr	1346.0		1346.0	Fuel Oil - Conqueror	M3	460.5	6.3	454.2
Drill Water - Conqueror	MT	640.0		640.0	Pot Water - Conqueror	MT	215.0	5.0	210.0
Cement 'G' - Conqueror	sxs			0.0	Cement HTB - Conqueror	sxs			0.0
Bentonite - Conqueror	sxs			0.0	Barite - Conqueror	sxs			0.0
Brine - Conqueror	MT			0.0	Fuel Oil - Sentinel	M3	459.0	17.0	442.0
Drill Water - Sentinel	MT	620.0	20.0	600.0	Pot Water - Sentinel	MT	225.0	5.0	220.0
Cement 'G' - Sentinel	sxs	1338.0		1338.0	Cement HTB - Sentinel	sxs			0.0
Bentonite - Sentinel	sxs	873.0		873.0	Barite - Sentinel	sxs	364.0		364.0
Brine - Sentinel	MT			0.0					



Pump Data										
Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152		97	0	0	30	0		
2	Nat'l 12-P-160	152		97	0	0	40	0		
3	Nat'l 12-P-160	152		97	0	0	50	0		
		0			0	0	30	0		
		0			0	0	40	0		
		0			0	0	50	0		

Casing						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT

Personnel : on Site =76				
2 Santos	34 DOGC	22 TMT (marine)	2 DOGC (other)	
1 Anadrill	2 BHI	1 DriIQuip	1 Halliburton	
1 IDFS	3 TMT (ROV)	4 Expro	3 Surveyor	

Safety, Inspections and Drills		Summary
1 days since last	Fire and Abandon Ship Drill	
1819 days since last	Lost Workday Case	
52 days since last	Medical Treatment Case	
18 days since last	First Aid Case	
5 days since last	Weekly Safety Meeting	
9 days since last	Trip/Pit Drill	
0 days since last	BOP Test	Tested BOP on stump

Anchors						RIS. TENS. (MT) :	
Anc 1 :	0	Anc 2 :	0	Anc 3 :	0	Anc 4 :	0
Anc 5 :	0	Anc 6 :	0	Anc 7 :	0	Anc 8 :	0
Anc 9 :	0	Anc 10 :	0				
						RISER ANGLE (deg):	
						STACK ANGLE(deg):	
						V.D.L. (MT) :	1,915.0
						AVE HEAVE (m) :	0.0
						MAX HEAVE (m) :	0.0
						AVE PITCH (deg) :	1.0
						MAX PITCH (deg) :	1.5
						AVE ROLL (deg) :	0.5
						MAX ROLL (deg) :	1.2

Workboats			Weather		
Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)	EstimatedArrival (Port) (Date)(Time)	VISIBILITY(nm) :	WIND SP. (kts) :	WIND DIR (deg) :
Pacific Conqueror 22.09.02 22:30			14	30.0	100
Pacific Sentinel 19.09.02 20:00			PRES.(mbars):	1011	AIR TEMP (C) :
					15.0

COMMENTS : Pax on/off Flt #1 8/8

<b>Well Data</b>		M.DEPTH (m BRT)	140.0	CUR.HOLE SIZE (mm)	914	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	140.0	CASING OD (mm)	762	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	47.2	SHOE TVD (m BRT)	137	DAILY COST :	\$703,362
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	0.63	FIT (sg)	0.00	CUM COST :	\$1,187,815
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	0.00		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0400 Drilling 17-1/2" Hole. (06:00hrs Depth 232m)					
WATER DEPTH (m) LAT	67.8	PLANNED OP. RIH, Drill out 20' shoe. Drill 17-1/2"Hole					
RT TO SEABED (m)	92.8						

<b>Summary of period 00:00 to 24:00 hrs</b> Completed Anchor handling / Drilled 36" Hole / Ran and Cemented 30" Casing.	FORMATION	TOP(m BRT)

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Sep 24, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
PS	P		ANC	00:00	02:45	2.75	0	'Anchor handling' Finished #5 @00:20hrs / Start #4 @00:30hrs / Start #8 @00:37hrs / #8 Chain chaser parted @01:13hrs / Finished #4 @ 01:29hrs / Start #1 @ 01:44hrs finished #1 @ 02:42hrs.
PS	U		ANC	02:45	08:00	5.25	0	Passed 'J' Hook to P.Sentinel & skidded rig 500 ft Strb, paid out on # 8 Anchor winch. P.Sentinel commenced to grapple for #8 anchor @04:20hrs / #8 Anchor on deck @ 04:30hrs. Changing out broken collar. (Commenced to skid rig back over location @04:55hrs)
PS	P		ANC	08:00	08:30	0.50	0	'Anchor handling' Start #8 @08:05 finished @09:10hrs (Completed cross tensioning anchors @09:00hrs) 'Final rig heading 242deg' Lat 38deg-47min-43.887sec / Long 142deg-44min-50.746sec (2.9m @ 012.3 deg True from intended location). ROV carried out Sea bed survey.
SH	P		TI	08:30	09:30	1.00	93	RIH with 660mm x 914mm (26"x36") BHA. Took survey 3m above sea bed 1/2deg. Tagged sea bed @ 92.76m
SH	P		D	09:30	13:00	3.50	140	Spudded Casino #2 Drilled F /- 92.76m to 140m. (TD Survey 1deg)
SH	P		CIR	13:00	13:30	0.50	140	Spotted 44.5M3 (280bbbls) of Hi-vis Gel in hole.
SH	P		TO	13:30	14:30	1.00	140	POOH F /- 140m (Hole good)
SC	P		RC	14:30	18:00	3.50	140	Held JSA. Rigged up and ran 762mm (30") Casing. Installed PGB and cement stinger, made up running tool and landed casing. (No hole problems) Rigged up cement hose.
SC	P		CIR	18:00	19:30	1.50	140	Circulated 1.5 times casing volume. ROV to check bulleye reading 1deg forward.
SC	P		CMC	19:30	20:30	1.00	140	Pumped .8M3 (5bbbls) of sea water with dye, tested cement line to 6895kpa (1000psi) Pumped .8M3 (5bbbls) of sea water with dye. Mixed & pumped 34.4M3 (216.8bbbls) of 'G' grade cement (1040sx) @ 1.89sg (15.8ppg) Displaced with 2.2M3 (14bbbls) of sea water. Checked floats OK. ROV observed dye in returns at sea bed, continual returns through out cement job.
SC	P		WOC	20:30	22:00	1.50	140	Waited on cement samples to firm up. ROV Verified bulleye 3/4deg forward. (PGB Heading 240deg)
SC	P		TO	22:00	22:30	0.50	140	Released running tool & POOH, laid out tool.
SC	P		TO	22:30	24:00	1.50	140	Broke out 914mm (36") Hole opener and 660mm (26") Bit. Made up 445mm (17-1/2") Drilling assembly.

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Sep 25, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
SC	P		TI	00:00	02:00	2.00	140	RIH with 445mm (17-1/2") Drilling assembly, ROV assist stab in to well head. Continued RIH tagged cement @ 134m
SC	P		DC	02:00	02:30	0.50	140	Drilled shoe track & rat hole F /- 134m to 140m (Firm cement)
IH1	P		D	02:30	06:00	3.50	232	Drilled 445mm (17-1/2") Hole F /- 140m to 232m (Pumping Guar-Gum & PHG sweeps as required) "Maximum Survey 1 deg"

<b>WBM Data</b>		COST TODAY : \$14,334		CUM. WB MUD COST: \$14,334		CUM. WBM+OBM COST: \$14,334			
<b>Type :</b>	<b>PHG</b>	VISCOCITY (sec/ltr) :	135	API FLUID LOSS (cm3/30min) :	0	CI :	1,400	SOLIDS (%vol) :	3.4
FROM :	Pit	PV (Pa.s) :	0	FILTER CAKE (mm) :	0	K+C*1000 :		H2O (%vol) :	96.5
TIME :	22:00	YP (Pa.s) :	32	HTHPFL (cm3/30min) :		HARD/Ca :	80	OIL (%vol) :	
WEIGHT (sg) :	1.06	GEL10s/10m/100m (Pa.s) :	28 28 0	HTHP CAKE (mm) :	0	MBT (ppb) :	28.0	SAND :	
TEMP (C) :		Fann 3/6/100 :	55 57 71			PM :		PH :	10.0
						PF :	.3	PHPA (ppb) :	

<b>Bit Data for Bit # 1 IADC # 1 1 1</b>				<b>Wear</b>							
<b>SIZE (") :</b>	<b>26.00</b>			I	O1	D	L	B	G	O2	R
MANUFACTURER :	SM	AVE WOB (MT) :	4	1	1	NO	A	E	I	NO	TD
TYPE :	DSJC	AVE RPM :	65	<b>NOZZLES</b>							
SERIAL # :	KP-2374	FLOW (lpm) :	3,974	Drilled over the last 24 hrs				Calculated over the bit run			
DEPTH IN (mRT) :	93	PUMP PRESS.(Kpa) :	8,150	3 X 18	METERAGE (m) :	47	CUM.METERAGE (m) :	47			
DEPTH OUT (mRT) :	140	HSI (kW/cm2) :	0.000	3 X 22	ON BOTTOM HRS :	2.3	CUM. ON BOT. HRS :	2.3			
				X 0	IADC DRILL. HRS :	3.5	CUM.IADC DR. HRS:	3.5			
				X 0	TOTAL REVS :	8,970	CUM.TOT. REVS :	8,970			
				X 0	ROP (m/hr) :	20.5	ROP (m/hr) :	20.5			

<b>BHA # 1 Length (m): 83.6</b>				D.C. (1) ANN. VELOCITY (mpm) :	6
WT BLW JAR (MT) :	0	STRING WT (MT) :	23	TRQE MAX (Nm) :	3,390
BHA WT (MT) :	0	PICK UP WT (MT) :	23	TRQE ON (Nm) :	1,356
		SLK OFF WT (MT) :	23	TRQE OFF (Nm) :	1,356
				D.C. (2) ANN VELOCITY (mpm) :	7
				H.W.D.P. ANN VELOCITY (mpm) :	6
				D.P. ANN VELOCITY (mpm) :	6

BHA DESCRIPTION : 26"Bit,36"Hole Opener,Bit sub,Anderdrift tool,3x9-1/2 DC,X/Over,5x8-1/4DC,X/Over,

TOOL DESCRIPTION	LENGTH	OD	ID	SERIAL #	HRS	COMMENT
Anderdrift Survey Tool				ABN-905	4.0	

<b>Survey</b> (Method : Min Curvature)	MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
Last Tool Type :										
Magnetic Declination :	0.00									

Bulk Stocks On Rig	STOCK TYPE & UNITS				START USED REC'D STOCK				STOCK TYPE & UNITS				START USED REC'D STOCK						
	Fuel Oil - Rig	M3	479.2	14.3	464.9	Drill Water - Rig	MT	464.0	711.0	1000.0	753.0	Cement 'G' - Rig	sxs	901.0	1042.0	1338.0	1197.0		
Pot Water - Rig	MT	98.0		98.0	Bentonite - Rig	sxs	670.0	690.0	873.0	853.0	Brine - Rig	MT				0.0			
Cement HTB - Rig	sxs			2387.0	Fuel Oil - Conqueror	M3	454.2	8.0	446.2	Drill Water - Conqueror	MT	640.0	620.0	20.0	Pot Water - Conqueror	MT	210.0	5.0	205.0
Barite - Rig	sxs	2387.0		2387.0	Cement 'G' - Conqueror	sxs			0.0	Cement HTB - Conqueror	sxs				0.0	Bentonite - Conqueror	sxs		0.0
Helifuel - Rig	ltr	1346.0	370.0	976.0	Brine - Conqueror	MT			0.0	Fuel Oil - Sentinel	M3	442.0	10.4	431.6	Drill Water - Sentinel	MT	600.0	380.0	220.0
Drill Water - Conqueror	MT	640.0	620.0	20.0	Pot Water - Sentinel	MT	220.0	5.0	215.0	Cement 'G' - Sentinel	sxs	1338.0	1338.0	0.0	Cement HTB - Sentinel	sxs			0.0
Cement 'G' - Conqueror	sxs			0.0	Bentonite - Sentinel	sxs	873.0	873.0	0.0	Brine - Sentinel	MT			0.0	Barite - Sentinel	sxs	364.0		364.0
Bentonite - Conqueror	sxs			0.0															
Brine - Conqueror	MT			0.0															

Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152	86	97	1323	8150	30	0		
2	Nat'l 12-P-160	152	86	97	1323	8150	40	0		
3	Nat'l 12-P-160	152	86	97	1323	8150	50	0		
		0			0	0	30	0		
		0			0	0	40	0		
		0			0	0	50	0		

Casing								
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)		SHOE TVD (plan/Actual)		LOT (pl/Act)	FIT (pl/Act)	COMMENT
30.0	762	137.1	137.1	137.1	137.1			Pumped .8M3 (5bbls) of Sea water with dye, pressure tested lines to 6895kpa (1000psi) Pumped .8M3 (5bbls) of sea water with dye. Mixed and pumped 34.4M3 (216.8M3) of 'G' grade cement (1040sx) @ 1.89sg (15.8ppg) Displaced with 2.2M3 (14bbls) of sea water.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	11.92	686	459.8		HD-90 Box
Intermediate Joint	11.56	686	459.8		HD-90 Box
Intermediate Joint	11.53	711	459.8		HD-90 Box
Shoe Joint	11.15	711	459.8		HD-90 Box

**Personnel : on Site =77**

2 Santos	34 DOGC	22 TMT (marine)	1 DOGC (other)
1 Anadrill	2 BHI	1 DrilQuip	1 Halliburton
2 IDFS	6 TMT (ROV)	2 Weatherford	3 Surveyor

Safety, Inspections and Drills		Summary
2 days since last	Fire and Abandon Ship Drill	
1820 days since last	Lost Workday Case	
53 days since last	Medical Treatment Case	
19 days since last	First Aid Case	
6 days since last	Weekly Safety Meeting	
10 days since last	Trip/Pit Drill	
1 days since last	BOP Test	Tested BOP on stump

Shakers, Volumes and Losses Data				ENGINEER Carl Jensen / Jasdeep Sing			
SHAKER 1	VOLUME AVAILABLE (m3) = 393			LOSSES (m3) = 115		COMMENTS Flocculated Gel & Guar Gum sweeps. Displaced hole to Unflocculated Gel prior running casing.	
SHAKER 2	ACTIVE	349.7	MIXING	0.0	DOWNHOLE		115.25
SHAKER 3	HOLE	43.7	SLUG	0.0	SURF.+EQUIP		0.00
SHAKER 4	RESERVE	0.0	HEAVY	0.0	DUMPED		0.00
SHAKER 5							

Anchors							RIS. TENS. (MT) : 0		
Anc 1 : 168	Anc 2 : 172	Anc 3 : 127	Anc 4 : 143	Anc 5 : 132	Anc 6 : 143	Anc 7 : 143	Anc 8 : 163	Anc 9 : 0	Anc 10 : 0
Workboats							RISER ANGLE (deg):		
Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)		EstimatedArrival (Port) (Date)(Time)		Weather		STACK ANGLE(deg):		
Pacific Conqueror	24.09.02 22:00		25.09.02 7:00		VISIBILITY(nm) : 14		V.D.L. (MT) : 2,247.C		
Pacific Sentinel	19.09.02 20:00				WIND SP. (kts) : 30.0		AVE HEAVE (m) : 0.0		
					WIND DIR (deg) : 300		MAX HEAVE (m) : 0.0		
					PRES.(mbars): 1012		AVE PITCH (deg) : 0.8		
					AIR TEMP (C) : 15.0		MAX PITCH (deg) : 0.5		
COMMENTS : Pax on/off Flt #1 7/6							AVE ROLL (deg) : 0.4		
							MAX ROLL (deg) : 0.6		

**DATE : Sep 25, 2002**

**FROM : R.King / G.Other**  
**TO : Ole Moller.**

**CASINO 2**  
**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	700.0	CUR.HOLE SIZE (mm)	445	AFE COST \$	13,024,000
COUNTRY	Australia	TVD (m BRT)	700.0	CASING OD (mm)	762	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	560.0	SHOE TVD (m BRT)	137	DAILY COST :	\$327,211
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	1.63	FIT (sg)	0.00	CUM COST :	\$1,515,026
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	0.00		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0400 W.O.W.					
WATER DEPTH (m) LAT	67.8	PLANNED OP. W.O.W / Wiper trip, POOH & run 13-3/8" Casing					
RT TO SEABED (m)	92.8						

<b>Summary of period 00:00 to 24:00 hrs</b> RIH with 17-1/2" Drilling assembly, drill to 700m POOH to shoe & Wait on weather.	FORMATION	TOP(m BRT)

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Sep 25, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
SC	P		TI	00:00	02:00	2.00	140	RIH with 445mm (17-1/2") Drilling assembly, ROV assist stab in to well head. Continued RIH tagged cement @ 134m
SC	P		DC	02:00	02:30	0.50	140	Drilled shoe track & rat hole F /- 134m to 140m (Firm cement)
IH1	P		D	02:30	20:00	17.50	700	Drilled 445mm (17-1/2") Hole F /- 140m to 700m (Pumping Guar-Gum & PHG sweeps as required) "Maximum Survey 1 deg"
IH1	P		CIR	20:00	21:00	1.00	700	Swept 16M3 (100bbbls) of Hi-vis PHG, and displaced hole to Unflocculated Gel.
IH1	P		TO	21:00	23:00	2.00	700	POOH F /- 700m to 137m (Tight sections from 600m - 590m / 508m - 488m / 458m - 450m) 40 Kips O-pull, Wiped sections clean.
IH1	U		WOW	23:00	24:00	1.00	700	W.O.W. Weather deteriorated, making conditions unsuitable to run casing. Conditions @ Midnight Heave 4.5m / Pitch 2.8deg / Roll 2.5deg / Wind 30-60knots.

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Sep 26, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH1	U		WOW	00:00	06:00	6.00	700	W.O.W. Conditions @06:00hrs - Heave 5.4m / Pitch 2.5deg / Roll 2deg / Wind 30-40.

<b>WBM Data</b>	COST TODAY : \$13,346	CUM. WB MUD COST: \$27,680	CUM. WBM+OBM COST: \$27,680						
<b>Type :</b>	<b>PHG</b>	VISCOCITY (sec/ltr) :	100	API FLUID LOSS (cm3/30min) :	0	CI :	2,900	SOLIDS (%vol) :	2.5
FROM :	Pit	PV (Pa.s) :	0	FILTER CAKE (mm) :	0	K+C*1000 :		H2O (%vol) :	97.4
TIME :	22:00	YP (Pa.s) :	61	HTHPFL (cm3/30min) :		HARD/Ca :	80	OIL (%vol) :	
WEIGHT (sg):	1.04	GEL10s/10m/100m (Pa.s) :	19 22 0	HTHP CAKE (mm) :	0	MBT (ppb) :	24.0	SAND :	
TEMP (C) :		Fann 3/6/100 :	43 74 128			PM :		PH :	10.5
						PF :	.3	PHPA (ppb) :	

<b>Bit Data for Bit # 2 IADC # 1 1 5</b>				<b>Wear</b>											
				I	O1	D	L	B	G	O2	R				
<b>SIZE (") :</b>	<b>17.50</b>			<b>NOZZLES</b>				Drilled over the last 24 hrs				Calculated over the bit run			
MANUFACTURER :	SM	AVE WOB (MT) :	11	1 X 18	METERAGE (m) :			560	CUM.METERAGE (m) :			560			
TYPE :	MGSSHC	AVE RPM :	140	3 X 20	ON BOTTOM HRS :			12.6	CUM. ON BOT. HRS :			12.6			
SERIAL # :	MM0005	FLOW (lpm) :	4,016	X 0	IADC DRILL. HRS :			17.5	CUM.IADC DR. HRS :			17.5			
DEPTH IN (mRT):	140	PUMP PRESS.(Kpa):	16,665	X 0	TOTAL REVS :			105,840	CUM.TOT. REVS :			105,840			
DEPTH OUT (mRT):	700	HSI (kW/cm2) :	0.199	X 0	ROP (m/hr) :			44.4	ROP (m/hr) :			44.4			

<b>BHA # 2</b>	<b>Length (m): 261.5</b>					D.C. (1) ANN. VELOCITY (mpm):	35
WT BLW JAR (MT):	0	STRING WT (MT):	47	TRQE MAX (Nm):	8,135	D.C. (2) ANN VELOCITY (mpm):	38
BHA WT (MT) :	0	PICK UP WT (MT):	48	TRQE ON (Nm):	2,034	H.W.D.P. ANN VELOCITY (mpm):	29
		SLK OFF WT (MT):	45	TRQE OFF (Nm):	1,356	D.P. ANN VELOCITY (mpm) :	29

BHA DESCRIPTION : Bit,NBStab,Anderdrift,Stab,1x9-1/2"DC,Stab,2x9-1/2"DC,X/O,6x8"DC,Jars,5x8"DC,X/O,12xHWDP,

TOOL DESCRIPTION	LENGTH	OD	ID	SERIAL #	HRS	COMMENT
Anderdrift Survey Tool				ABN-905	21.5	
Jars				DAH-3434	17.5	

Survey (Method : Min Curvature)		MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
Last Tool Type :	Anderdrift										Anderdrift
Magnetic Declination :	0.00	473.0		0.00							Anderdrift
		525.0		0.00							Anderdrift
		616.0		0.00							Anderdrift
		700.0		0.00							Anderdrift

Bulk Stocks On Rig	STOCK TYPE & UNITS				STOCK TYPE & UNITS				
	START	USED	REC'D	STOCK	START	USED	REC'D	STOCK	
Fuel Oil - Rig	M3	464.9	13.2	451.7	Drill Water - Rig	MT	753.0	92.0	661.0
Pot Water - Rig	MT	98.0		98.0	Cement 'G' - Rig	sxs	1197.0		1197.0
Cement HTB - Rig	sxs			0.0	Bentonite - Rig	sxs	853.0		853.0
Barite - Rig	sxs	2387.0		2387.0	Brine - Rig	MT			0.0
Helifuel - Rig	ltr	976.0		976.0	Fuel Oil - Conqueror	M3	446.2		446.2
Drill Water - Conqueror	MT	20.0		20.0	Pot Water - Conqueror	MT	205.0		205.0
Cement 'G' - Conqueror	sxs			0.0	Cement HTB - Conqueror	sxs			0.0
Bentonite - Conqueror	sxs			0.0	Barite - Conqueror	sxs			0.0
Brine - Conqueror	MT			0.0	Fuel Oil - Sentinel	M3	431.6	8.8	422.8
Drill Water - Sentinel	MT	220.0		220.0	Pot Water - Sentinel	MT	215.0	5.0	210.0
Cement 'G' - Sentinel	sxs	0.0		0.0	Cement HTB - Sentinel	sxs			0.0
Bentonite - Sentinel	sxs	0.0		0.0	Barite - Sentinel	sxs	364.0		364.0
Brine - Sentinel	MT			0.0					

**Pump Data**

Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152	86	97	1391	16665	30	0		
2	Nat'l 12-P-160	152	86	97	1391	16665	40	0		
3	Nat'l 12-P-160	152	86	97	1391	16665	50	0		
		0			0	0	30	0		
		0			0	0	40	0		
		0			0	0	50	0		

**Casing**

DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)		SHOE TVD (plan/Actual)		LOT (pl/Act)	FIT (pl/Act)	COMMENT
30.0	762	137.1	137.1	137.1	137.1			Pumped .8M3 (5bbls) of Sea water with dye,pressure tested lines to 6895kpa (1000psi) Pumped .8M3 (5bbls) of sea water with dye. Mixed and pumped 34.4M3 (216.8M3) of 'G' grade cement (1040sx) @ 1.89sg (15.8ppg) Displaced with 2.2M3 (14bbls) of sea water.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	11.92	686	459.8		HD-90 Box
Intermediate Joint	11.56	686	459.8		HD-90 Box
Intermediate Joint	11.53	711	459.8		HD-90 Box
Shoe Joint	11.15	711	459.8		HD-90 Box

**Personnel : on Site =76**

2 Santos	34 DOGC	22 TMT (marine)	1 DOGC (other)
1 Anadrill	4 BHI	1 DrilQuip	1 Halliburton
2 IDFS	6 TMT (ROV)	2 Weatherford	

Safety, Inspections and Drills		Summary
3 days since last	Fire and Abandon Ship Drill	
1821 days since last	Lost Workday Case	
54 days since last	Medical Treatment Case	
20 days since last	First Aid Case	
0 days since last	Weekly Safety Meeting	Held Today
11 days since last	Trip/Pit Drill	
2 days since last	BOP Test	Tested BOP on stump

Shakers, Volumes and Losses Data				ENGINEER Carl Jensen / Jasdeep Sing			
SHAKER 1	VOLUME AVAILABLE (m3) =			226	LOSSES (m3) =	375	COMMENTS
SHAKER 2	ACTIVE	127.2	MIXING	0.0	DOWNHOLE	374.53	Flocculated Gel & Guar Gum sweeps.
SHAKER 3	HOLE	98.4	SLUG	0.0	SURF.+EQUIP	0.00	Displaced hole to Unflocculated Gel
SHAKER 4	RESERVE	0.0	HEAVY	0.0	DUMPED	0.00	prior running casing.
SHAKER 5							

Anchors						Weather					
Anc 1 :	141	Anc 2 :	175	Anc 3 :	125	Anc 4 :	113	Anc 5 :	120	RIS. TENS. (MT) :	0
Anc 6 :	127	Anc 7 :	98	Anc 8 :	93	Anc 9 :	0	Anc 10 :	0	RISER ANGLE (deg):	
						STACK ANGLE(deg):					
						V.D.L. (MT) :		2,118.0			
						AVE HEAVE (m) :		4.0			
						MAX HEAVE (m) :		4.5			
						AVE PITCH (deg) :		2.5			
						MAX PITCH (deg) :		3.0			
						AVE ROLL (deg) :		2.5			
						MAX ROLL (deg) :		2.5			

Workboats		Arrived @ Rig (Date)(Time)		Depart from Rig (Date)(Time)		EstimatedArrival (Port) (Date)(Time)	
Pacific Conqueror				24.09.02	22:00	25.09.02	7:00
Pacific Sentinel	19.09.02	20:00					

COMMENTS : Pax on/off Flt #1 2/3 (Pacific to stay in port Wait on weather conditions)

<b>Well Data</b>		M.DEPTH (m BRT)	700.0	CUR.HOLE SIZE (mm)	445	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	700.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	560.0	SHOE TVD (m BRT)	691	DAILY COST :	\$532,824
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	2.63	FIT (sg)	0.00	CUM COST :	\$2,047,850
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	0.00		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0400 Running BOP.					
WATER DEPTH (m) LAT	67.8	PLANNED OP. Run BOP / Make up 12-1/4" Drilling assembly, RIH & Drill 12-1/4" Hole.					
RT TO SEABED (m)	92.8						

<b>Summary of period 00:00 to 24:00 hrs</b>	FORMATION	TOP(m BRT)
Waited on weather for 6-1/2hrs. Wiper trip, Ran 13-3/8"Casing & Cemented.		

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Sep 26, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH1	U		WOW	00:00	06:30	6.50	700	W.O.W. Conditions @06:00hrs - Heave 5.4m / Pitch 2.5deg / Roll 2deg / Wind 30-35 / Swell 4.8m
IH1	P		WT	06:30	08:00	1.50	700	RIH F /- 137m to 684m ( Tagged fill @ 684m)
IH1	P		RW	08:00	08:30	0.50	700	Washed and reamed F /- 684m to 700m
IH1	P		CIR	08:30	09:00	0.50	700	Pumped 16M3 (100 bbls) of Hi-vis and displaced hole with Unflocculated Gel
IH1	P		WT	09:00	12:30	3.50	700	POOH F /- 700m (Hole good no drag)
IH1	P		RRC	12:30	13:00	0.50	700	Held JSA, rigged up to run casing.
IH1	P		RC	13:00	17:30	4.50	700	Picked up and checked floats, installed Le-Fluer casing fill up tool. Ran 340mm (13-3/8") casing. (ROV observed stab in to well head)
IH1	P		RC	17:30	20:00	2.50	700	Rigged down Le-Fluer and picked up 476mm (18-3/4") Well head assembly, RIH with landing string. Landed casing and confirmed with 50 Kips O-pull.
IH1	P		CIC	20:00	21:30	1.50	700	Circulated casing volume 1.5 times. (Returns observed at sea bed)
IH1	P		CMT	21:30	23:00	1.50	700	Pumped 1.6M3 (10 bbls) of sea water with dye, pressure tested lines to 24,133Kpa (3500psi) Released bottom plug & pumped 1.1M3 (7.4 bbls) to shear out plug with 6895Kpa (1000psi) pumped .8M3 (5 bbls) of sea water. Mixed and pumped 46.5M3 (293bbls) of Lead slurry (736sx) of 'G' cement @ 1.5sg (12.5ppg) with 36.5M3 (230bbls) of mix water. Followed by 21M3 (132bbls) of Tail slurry (637sx) of 'G' cement @ 1.89sg (15.8ppg) with 12.7M3 (80bbls) of Sea water. Released top dart, and pumped 1.1M3 (7bbls) of Sea water.
IH1	P		CMT	23:00	23:30	0.50	700	Displaced cement with rig pumps. Unable to Bump plug, checked floats held OK.
IC1	P		WH	23:30	24:00	0.50	700	Removed cement hose and released running tool.

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Sep 27, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH1	P		TO	00:00	01:00	1.00	700	POOH and laid out running tool.
IH1	P		HT	01:00	01:30	0.50	700	Service broke & laid out cement head.
IH1	P		BOP	01:30	02:30	1.00	700	Held JSA. Rigged up to run BOP.
IH1	P		BOP	02:30	03:00	0.50	700	Picked up and made up a double joint of riser.
IH1	P		BOP	03:00	05:30	2.50	700	Moved BOP and LMRP to moon pool, installed guide lines & conducted function test. (Skidded rig 25 ft to Starboard)
IH1	P		BOP	05:30	06:00	0.50	700	Made up double joint of riser to LMRP.



<b>WBM Data</b>		COST TODAY : \$37		CUM. WB MUD COST: \$27,716		CUM. WBM+OBM COST: \$27,716			
<b>Type :</b>	<b>PHG</b>	VISCOCITY (sec/ltr) :	100	API FLUID LOSS (cm3/30min) :	0	Cl :	2,000	SOLIDS (%vol) :	3.3
FROM :	Pit	PV (Pa.s) :	0	FILTER CAKE (mm) :	0	K+C*1000 :		H2O (%vol) :	96.6
TIME :	22:00	YP (Pa.s) :	31	HTHPFL (cm3/30min) :	0	HARD/Ca :	80	OIL (%vol) :	
WEIGHT (sg) :	1.06	GEL10s/10m/100m (Pa.s) :	24 25 0	HTHP CAKE	0	MBT (ppb) :	25.0	SAND :	
TEMP (C) :		Fann 3/6/100 :	50 60 75			PM :		PH :	10.0
						PF :	.3	PHPA (ppb) :	

<b>Bit Data for Bit # 2</b> IADC # 1 1 5				<b>Wear</b>		I	O1	D	L	B	G	O2	R
						2	2	NO	A	E	I	NO	TD
<b>SIZE (") :</b>	<b>17.50</b>			<b>NOZZLES</b>	Drilled over the last 24 hrs		Calculated over the bit run						
MANUFACTURER :	SM	AVE WOB (MT) :	14	1 X 18	METERAGE (m) :	0	CUM.METERAGE (m) :	560					
TYPE :	MGSSHC	AVE RPM :	110	3 X 20	ON BOTTOM HRS :	.0	CUM. ON BOT. HRS :	12.6					
SERIAL # :	MM0005	FLOW (lpm) :	4,542	X 0	IADC DRILL. HRS :	.0	CUM.IADC DR. HRS:	17.5					
DEPTH IN (mRT):	140	PUMP PRESS.(Kpa):	16,665	X 0	TOTAL REVS :	0	CUM.TOT. REVS :	83,160					
DEPTH OUT (mRT):	700	HSI (kW/cm2) :	0.288	X 0	ROP (m/hr) :		ROP (m/hr) :	44.4					

<b>BHA # 2 Length (m): 261.5</b>				D.C. (1) ANN. VELOCITY (mpm):		0	
WT BLW JAR (MT):	0	STRING WT (MT):	47	TRQE MAX (Nm):	8,135	D.C. (2) ANN VELOCITY (mpm):	0
BHA WT (MT) :	0	PICK UP WT (MT):	48	TRQE ON (Nm):	2,034	H.W.D.P. ANN VELOCITY (mpm):	0
		SLK OFF WT (MT):	45	TRQE OFF (Nm):	1,356	D.P. ANN VELOCITY (mpm) :	0
BHA DESCRIPTION : Bit,NBStab,Anderdrift,Stab,1x9-1/2"DC,Stab,2x9-1/2"DC,X/O,6x8"DC,Jars,5x8"DC,X/O,12xHWDP,							
TOOL DESCRIPTION		LENGTH	OD	ID	SERIAL #	HRS	COMMENT
Anderdrift Survey Tool					ABN-905	21.5	
Jars					4890-C	24.0	Used to drill 12-1/4" Hole on Casino #1

<b>Survey</b> (Method : Min Curvature)		MD	TVD	INCL	AZ	CORR.	'V'	DOGLEG	N/S	E/W	TOOL TYPE
Last Tool Type :	Anderdrift	(mBRT)	(mBRT)	DEG	(deg)	AZ (deg)	SECT (m)	(deg/30m)	(m)	(m)	
Magnetic Declination :	0.00										
		473.0		0.00							Anderdrift
		525.0		0.00							Anderdrift
		616.0		0.00							Anderdrift
		700.0		0.00							Anderdrift

<b>Bulk Stocks On Rig</b>	<b>STOCK TYPE &amp; UNITS</b>	<b>START</b>	<b>USED</b>	<b>REC'D</b>	<b>STOCK</b>	<b>STOCK TYPE &amp; UNITS</b>	<b>START</b>	<b>USED</b>	<b>REC'D</b>	<b>STOCK</b>	
	Fuel Oil - Rig	M3	451.7	10.8	440.9	Drill Water - Rig	MT	661.0	82.0	579.0	
	Pot Water - Rig	MT	98.0		98.0	Cement 'G' - Rig	sxs	1197.0	1578.0	1871.0	1490.0
	Cement HTB - Rig	sxs			0.0	Bentonite - Rig	sxs	853.0	222.0		631.0
	Barite - Rig	sxs	2387.0		2387.0	Brine - Rig	MT				0.0
	Helifuel - Rig	ltr	976.0	296.0	680.0	Fuel Oil - Conqueror	M3	435.0	3.8		431.2
	Drill Water - Conqueror	MT	535.0	535.0	0.0	Pot Water - Conqueror	MT	200.0	5.0		195.0
	Cement 'G' - Conqueror	sxs	1871.0	1871.0	0.0	Cement HTB - Conqueror	sxs				0.0
	Bentonite - Conqueror	sxs	1692.0	1692.0	0.0	Barite - Conqueror	sxs				0.0
	Brine - Conqueror	MT			0.0	Fuel Oil - Sentinel	M3	422.8	11.8		411.0
	Drill Water - Sentinel	MT	220.0		220.0	Pot Water - Sentinel	MT	210.0	5.0		205.0
	Cement 'G' - Sentinel	sxs	0.0		0.0	Cement HTB - Sentinel	sxs				0.0
	Bentonite - Sentinel	sxs	0.0		0.0	Barite - Sentinel	sxs	364.0			364.0
	Brine - Sentinel	MT			0.0						

<b>Pump Data</b>										
<b>Pump Data - last 24 hrs</b>							<b>Slow Pump Data</b>			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152		97	0	0	30	0		
2	Nat'l 12-P-160	152		97	0	0	40	0		
3	Nat'l 12-P-160	152		97	0	0	50	0		
		0			0	0	30	0		
		0			0	0	40	0		
		0			0	0	50	0		

Casing						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6			Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 132 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.
TYPE		LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head		10.70	319	107.1	N-80	Buttress
Non cross joint		12.11	319	107.1	N-80	Buttress
Casing joints		540.92	319	101.2	N-80	Buttress
Float collar joint		36.78	319	107.1	N-80	Buttress
Intermediate joint		24.49	319	107.1	N-80	Buttress
Shoe joint		12.41	321	107.1	N-80	Buttress

**Personnel : on Site =80**

3 Santos	34 DOGC	22 TMT (marine)	1 DOGC (other)
2 Anadrill	6 BHI	1 DrilQuip	1 Halliburton
2 IDFS	6 TMT (ROV)	2 Weatherford	

**Safety, Inspections and Drills Summary**

4 days since last	Fire and Abandon Ship Drill
1822 days since last	Lost Workday Case
55 days since last	Medical Treatment Case
21 days since last	First Aid Case
1 days since last	Weekly Safety Meeting
12 days since last	Trip/Pit Drill
3 days since last	BOP Test Tested BOP on stump

**Shakers, Volumes and Losses Data**

ENGINEER Carl Jensen / Jasdeep Singh

SHAKER	VOLUME AVAILABLE (m3) =	48	LOSSES (m3) =	222	COMMENTS
SHAKER 1	ACTIVE	0.0	MIXING	0.0	DOWNHOLE
SHAKER 2	HOLE	48.0	SLUG	0.0	SURF.+EQUIP
SHAKER 3	RESERVE	0.0	HEAVY	0.0	DUMPED
SHAKER 4					
SHAKER 5					

Anchors			Weather			RIS. TENS. (MT) :	
Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)	EstimatedArrival (Port) (Date)(Time)	VISIBILITY(nm) :	WIND SP. (kts) :	WIND DIR (deg) :	PRES.(mbars):	AIR TEMP (C) :
Pacific Conqueror	26.09.02 11:30		8	35.0	300	1014	14.0
Pacific Sentinel	19.09.02 20:00						
COMMENTS : Pax on/off Flt #1 8/4			RISER ANGLE (deg):		STACK ANGLE(deg):		V.D.L. (MT) : 1,956.C
			AVE HEAVE (m) : 4.0		AVE PITCH (deg) : 2.0		MAX PITCH (deg) : 3.5
			AVE ROLL (deg) : 2.0		MAX ROLL (deg) : 2.5		

**DATE : Sep 27, 2002**

**FROM : R.King / G.Othen**  
**TO : Ole Moller.**

**CASINO 2**  
**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	700.0	CUR.HOLE SIZE (mm)	445	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	700.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	560.0	SHOE TVD (m BRT)	691	DAILY COST :	\$393,887
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	3.63	FIT (sg)	0.00	CUM COST :	\$2,441,737
RIG	Ocean Bounty	DAYS +/- CURVE	-1.50	LOT (sg)	0.00		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0400 Drilling shoe track.					
WATER DEPTH (m) LAT	67.8	PLANNED OP. RIH Drill out cement, perform LOT. Drill 12-1/4" Hole.					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**

Ran BOP / Laid out 17-1/2" Drilling assembly / Make up & RIH with 12-1/4" Drilling assembly.

FORMATION	TOP(m BRT)
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**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Sep 27, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH1	P		TO	00:00	01:00	1.00	700	POOH and laid out running tool.
IH1	P		HT	01:00	01:30	0.50	700	Service broke & laid out cement head.
IH1	P		BOP	01:30	02:30	1.00	700	Held JSA. Rigged up to run BOP.
IH1	P		BOP	02:30	03:00	0.50	700	Picked up and made up a double joint of riser.
IH1	P		BOP	03:00	05:30	2.50	700	Moved BOP and LMRP to moon pool, installed guide lines & conducted function test. (Skidded rig 25 ft to Starboard)
IH1	P		BOP	05:30	06:30	1.00	700	Made up double joint of riser to LMRP.
IH1	P		BOP	06:30	08:30	2.00	700	Ran BOP (Pressure tested choke & kill lines 1379Kpa / 34475Kpa (200 / 5000psi)
IH1	P		BOP	08:30	14:00	5.50	700	Picked up slip joint, installed choke & kill goose necks, installed rucker tensioners.
IH1	P		BOP	14:00	15:00	1.00	700	Landed BOP and confirmed with 50 Kips O-pull. Pressure tested connector 1379Kpa / 34,475Kpa (200 / 3000psi)
IH1	P		BOP	15:00	17:30	2.50	700	Installed diverter and rigged down BOP handling equipment.
IH1	P		WH	17:30	19:00	1.50	700	RIH set wear bushing & POOH (Pressure tested LMRP Connector 1379Kpa / 34,475Kpa (200 / 3000psi)
IH1	P		HBH	19:00	21:30	2.50	700	Laid out 445mm (17-1/2") BHA
IH1	P		HBH	21:30	24:00	2.50	700	Made up 311mm (12-1/4") BHA & Shallow test tools, OK.

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Sep 28, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH1	P		TI	00:00	04:00	4.00	700	Continued making up BHA. RIH with 311mm (12-1/4") to 600m.
IH1	P		RS	04:00	04:30	0.50	700	Serviced TDS
IH1	P		DFS	04:30	05:00	0.50	700	Continued RIH tag cement @ 630m (Washed and reamed down to 663m taking 10Kips)
IH1	P		DFS	05:00	06:00	1.00	700	Took weight @ 663m firm cement, drilled shoe track. Firm cement down to shoe.

<b>WBM Data</b>		COST TODAY : \$35,896	CUM. WB MUD COST: \$63,612	CUM. WBM+OBM COST: \$63,612					
<b>Type :</b>		VISCOCITY (sec/ltr) :	78	API FLUID LOSS (cm3/30min) :	0	CI :	42,000	SOLIDS (%vol) :	.77
	<b>PHG</b>	PV (Pa.s) :	0	FILTER CAKE (mm) :	0	K+C*1000 :	43200	H2O (%vol) :	99.2
FROM :	Pit	YP (Pa.s) :	11	HTHPFL (cm3/30min) :	0	HARD/Ca :	240	OIL (%vol) :	
TIME :	22:00	GEL10s/10m/100m (Pa.s) :	3	HTHP CAKE (mm) :	0	MBT (ppb) :		SAND :	
WEIGHT (sg):	1.06	Fann 3/6/100 :	6			PM :		PH :	8.0
TEMP (C) :			8			PF :	.0	PHPA (ppb) :	1.6

<b>Bit Data for Bit # 2</b> IADC # 1 1 5				<b>Wear</b>											
				I	O1	D	L	B	G	O2	R				
				2	2	NO	A	E	I	NO	TD				
<b>SIZE (") :</b>	<b>17.50</b>			<b>NOZZLES</b>				Drilled over the last 24 hrs				Calculated over the bit run			
MANUFACTURER :	SM	AVE WOB (MT) :	14	1 X 18	METERAGE (m) :				0	CUM.METERAGE (m) :				560	
TYPE :	MGSSHC	AVE RPM :	110	3 X 20	ON BOTTOM HRS :				.0	CUM. ON BOT. HRS :				12.6	
SERIAL # :	MM0005	FLOW (lpm) :	4,542	X 0	IADC DRILL. HRS :				.0	CUM.IADC DR. HRS :				17.5	
DEPTH IN (mRT):	140	PUMP PRESS.(Kpa):	16,665	X 0	TOTAL REVS :				0	CUM.TOT. REVS :				83,160	
DEPTH OUT (mRT):	700	HSI (kW/cm2) :	0.288	X 0	ROP (m/hr) :					ROP (m/hr) :				44.4	

<b>BHA # 2</b>	<b>Length (m): 261.5</b>										
WT BLW JAR (MT):	0	STRING WT (MT):	47	TRQE MAX (Nm):	8,135	D.C. (1) ANN. VELOCITY (mpm):	0				
BHA WT (MT) :	0	PICK UP WT (MT):	48	TRQE ON (Nm):	2,034	D.C. (2) ANN VELOCITY (mpm):	0				
		SLK OFF WT (MT):	45	TRQE OFF (Nm):	1,356	H.W.D.P. ANN VELOCITY (mpm):	0				
						D.P. ANN VELOCITY (mpm) :	0				

BHA DESCRIPTION : Bit,NBStab,Anderdrift,Stab,1x9-1/2"DC,Stab,2x9-1/2"DC,X/O,6x8"DC,Jars,5x8"DC,X/O,12xHWDP,

TOOL DESCRIPTION	LENGTH	OD	ID	SERIAL #	HRS	COMMENT
Anderdrift Survey Tool				ABN-905	21.5	
Jars				4890-C	24.0	Used to drill 12-1/4" Hole on Casino #1

<b>Survey</b> (Method : Min Curvature)	MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
Last Tool Type : Anderdrift	473.0		0.00							Anderdrift
Magnetic Declination : 0.00	525.0		0.00							Anderdrift
	616.0		0.00							Anderdrift
	700.0		0.00							Anderdrift

Bulk Stocks On Rig	STOCK TYPE & UNITS				START USED REC'D STOCK				STOCK TYPE & UNITS				START USED REC'D STOCK			
	Fuel Oil - Rig	M3	440.9	7.2	433.7	Drill Water - Rig	MT	579.0	291.0	535.0	823.0					
Pot Water - Rig	MT	98.0		98.0	Cement 'G' - Rig	sxs	1490.0			1490.0						
Cement HTB - Rig	sxs			0.0	Bentonite - Rig	sxs	631.0			631.0						
Barite - Rig	sxs	2387.0	364.0	2751.0	Brine - Rig	MT				0.0						
Helifuel - Rig	ltr	680.0	2820.0	3500.0	Fuel Oil - Conqueror	M3	431.2	8.2		423.0						
Drill Water - Conqueror	MT	535.0	535.0	0.0	Pot Water - Conqueror	MT	195.0	5.0		190.0						
Cement 'G' - Conqueror	sxs	0.0		0.0	Cement HTB - Conqueror	sxs				0.0						
Bentonite - Conqueror	sxs	1692.0		1692.0	Barite - Conqueror	sxs				0.0						
Brine - Conqueror	MT			0.0	Fuel Oil - Sentinel	M3	411.0	6.0		405.0						
Drill Water - Sentinel	MT	220.0		220.0	Pot Water - Sentinel	MT	205.0			205.0						
Cement 'G' - Sentinel	sxs	0.0		0.0	Cement HTB - Sentinel	sxs				0.0						
Bentonite - Sentinel	sxs	0.0		0.0	Barite - Sentinel	sxs	364.0	364.0		0.0						
Brine - Sentinel	MT			0.0												

Pump Data										
Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152		97	0	0	30	0		
2	Nat'l 12-P-160	152		97	0	0	40	0		
3	Nat'l 12-P-160	152		97	0	0	50	0		
		0			0	0	30	0		
		0			0	0	40	0		
		0			0	0	50	0		

Casing						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6			Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.
TYPE		LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head		10.70	319	107.1	N-80	Buttress
Non cross joint		12.11	319	107.1	N-80	Buttress
Casing joints		540.92	319	101.2	N-80	Buttress
Float collar joint		36.78	319	107.1	N-80	Buttress
Intermediate joint		24.49	319	107.1	N-80	Buttress
Shoe joint		12.41	321	107.1	N-80	Buttress

Personnel : on Site =78			
3 Santos	34 DOGC	22 TMT (marine)	1 DOGC (other)
2 Anadrill	6 BHI	1 DrilQuip	1 Halliburton
2 IDFS	6 TMT (ROV)		

Safety, Inspections and Drills		Summary
5 days since last	Fire and Abandon Ship Drill	
1823 days since last	Lost Workday Case	
56 days since last	Medical Treatment Case	
22 days since last	First Aid Case	
2 days since last	Weekly Safety Meeting	
13 days since last	Trip/Pit Drill	
4 days since last	BOP Test	Tested BOP on stump

Shakers, Volumes and Losses Data				ENGINEER Carl Jensen / Jasdeep Singh	
SHAKER 1	VOLUME AVAILABLE (m3) =		223	LOSSES (m3) = 0	COMMENTS Mixed 1400 bbls of new mud.
SHAKER 2	ACTIVE	222.6	MIXING	0.0	
SHAKER 3	HOLE	0.0	SLUG	0.0	
SHAKER 4	RESERVE	0.0	HEAVY	0.0	
SHAKER 5					

Anchors						RIS. TENS. (MT) : 0	
Anc 1 : 125	Anc 2 : 145	Anc 3 : 122	Anc 4 : 118	Anc 5 : 129	Anc 6 : 122	Anc 7 : 134	Anc 8 : 91
						Anc 9 : 0	Anc 10 : 0
Workboats			Weather			RISER ANGLE (deg):	
Arrived @ Rig (Date)(Time)		Depart from Rig (Date)(Time)	EstimatedArrival (Port) (Date)(Time)		STACK ANGLE(deg):		
Pacific Conqueror	26.09.02 11:30	27.09.02 12:30	27.09.02	18:00	V.D.L. (MT) : 1,956.0		
Pacific Sentinel					AVE HEAVE (m) : 4.0		
					MAX HEAVE (m) : 4.5		
					AVE PITCH (deg) : 2.0		
					MAX PITCH (deg) : 3.5		
					AVE ROLL (deg) : 2.0		
					MAX ROLL (deg) : 2.5		
COMMENTS : Pax on/off Flt #1 2/4							

**DATE : Sep 28, 2002**

**FROM : R.King / G.Other**  
**TO : Ole Moller.**

**CASINO 2**  
**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	1,207.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	1,207.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	507.0	SHOE TVD (m BRT)	691	DAILY COST :	\$369,048
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	4.63	FIT (sg)	0.00	CUM COST :	\$2,810,785
RIG	Ocean Bounty	DAYS +/- CURVE	-1.50	LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0400 Drilling 12-1/4" Hole (06:00 Depth 1384m)					
WATER DEPTH (m) LAT	67.8	PLANNED OP. Continue to Drill 12-1/4" Hole to Core Point.					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**

M-up & RIH with 12-1/4" Drilling assembly / Drilled shoe track / LOT / Drill 12-1/4" Hole.

FORMATION	TOP(m BRT)
DILWYN FM	764
PEMBER	1,005
PEBBLE POINT FM	1,080
MASSACRE	1,132

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Sep 28, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH1	P		TI	00:00	04:00	4.00	700	Continued making up BHA. RIH with 311mm (12-1/4") to 600m.
IH1	P		RS	04:00	04:30	0.50	700	Serviced TDS
IH1	P		DFS	04:30	05:00	0.50	700	Continued RIH tag cement @ 630m (Washed and reamed with 5-10Kips down to 663m)
IH1	P		DFS	05:00	06:00	1.00	700	Took firm weight @ 663m. Drilled cement & shoe track to 700m.
IH2	P		D	06:00	06:30	0.50	703	Drilled 311mm (12-1/4") Hole F /- 700m to 703m
IH2	P		CIR	06:30	07:30	1.00	703	Pumped Hi-vis pill and changed to PHPA mud system. (Flushed Choke & kill lines)
IH2	P		LOT	07:30	09:00	1.50	703	Performed LOT With 1.05sg Mud weight Pressure 1240Kpa EQMW = 1.22sg. (8.8ppg 180psi =10.2ppg)
IH2	P		D	09:00	10:30	1.50	772	Drilled 311mm Hole F /- 703m to 772m (Losses up to 95.3M3 (600bbls) Per hour)
IH2	P		D	10:30	12:00	1.50	772	Attempted to make connection @ 772m. Torque 10Kips, Excessive drag. Continued to circulate hole clean. Worked string F /- 772 m back to 743m.
IH2	P		WT	12:00	13:00	1.00	772	POOH F /- 772 back to 690m (340mm Shoe) Cleaned strainers due to LCM build up, mixed extra mud due to losses. (Total mud lost 101M3 / 640bbls) RIH to 772m
IH2	P		D	13:00	24:00	11.00	1,207	Drilled F /- 772m to 1207m (Losses reduced to 4.7M3 / 6.3M3 per/hr. (30/40bbls)

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Sep 29, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH2	P		D	00:00	06:00	6.00	1,384	Continued drilling 311mm (12-1/4") Hole F /- 1207m to 1384m. No losses. (While reaming prior connection, String stuck @1271m. Worked free) Loggers calibrated hole with carbide to 355.5mm (14")

<b>WBM Data</b>	COST TODAY : \$39,837	CUM. WB MUD COST: \$103,450	CUM. WBM+OBM COST: \$103,450
<b>Type :</b>	PHG	API FLUID LOSS (cm3/30min) :	8
FROM :	Pit	CL :	29,000
TIME :	22:00	K+C*1000 :	32400
WEIGHT (sg):	1.06	HARD/Ca :	300
TEMP (C) :	27	MBT (ppb) :	3.0
		PM :	
		PF :	.1
		SOLIDS (%vol) :	1.6
		H2O (%vol) :	98.4
		OIL (%vol) :	
		SAND :	4
		PH :	9.0
		PHPA (ppb) :	1.5

<b>Bit Data for Bit # 3</b> IADC # 1 1 5				<b>Wear</b>																			
				I	O1	D	L	B	G	O2	R												
<b>SIZE (") :</b>	12.25			<b>NOZZLES</b>				Drilled over the last 24 hrs				Calculated over the bit run											
MANUFACTURER :	OT			3 X 16				METERAGE (m) :				507				CUM.METERAGE (m) :				507			
TYPE :	MX-03DX			X 0				ON BOTTOM HRS :				8.7				CUM. ON BOT. HRS :				8.7			
SERIAL # :	589 DC			X 0				IADC DRILL. HRS :				13.0				CUM.IADC DR. HRS :				13.0			
DEPTH IN (mRT):	700			X 0				TOTAL REVS :				69,948				CUM.TOT. REVS :				69,948			
DEPTH OUT (mRT):				X 0				ROP (m/hr) :				58.3				ROP (m/hr) :				58.3			
	AVE WOB (MT) :			14																			
	AVE RPM :			134																			
	FLOW (lpm) :			3,066																			
	PUMP PRESS.(Kpa):			15,596																			
	HSI (kW/cm2) :			0.712																			

<b>BHA # 3</b>				<b>Length (m): 311.7</b>				D.C. (1) ANN. VELOCITY (mpm):				74																			
WT BLW JAR (MT):				34				STRING WT (MT):				64				TRQE MAX (Nm):				17				D.C. (2) ANN VELOCITY (mpm):				101			
BHA WT (MT) :				41				PICK UP WT (MT):				66				TRQE ON (Nm):				6				H.W.D.P. ANN VELOCITY (mpm):				48			
								SLK OFF WT (MT):				61				TRQE OFF (Nm):				3				D.P. ANN VELOCITY (mpm) :				48			

BHA DESCRIPTION : 12.25 Bit,12.25RR,CDR,Pulse tool,ILS,Sonic,12.25RR,1x8"DC,12.25RR,14x8"DC,Jars,2x8"DC,X/O,12Xhwdp

TOOL DESCRIPTION	LENGTH	OD	ID	SERIAL #	HRS	COMMENT
CDR				9556	17.0	
Pulse				231	17.0	
ILS				520	17.0	
ISonic				829	17.0	
Jars				WDAH-02872	17.0	

<b>Survey</b> (Method : Min Curvature)		MD	TVD	INCL	AZ	CORR.	'V'	DOGLEG	N/S	E/W	TOOL TYPE
Last Tool Type :	FEWD	(mBRT)	(mBRT)	DEG	(deg)	AZ (deg)	SECT (m)	(deg/30m)	(m)	(m)	
Magnetic Declination :	0.00										
		698.7		0.40	108.4	108.4					FEWD
		727.6		0.72	137.8	137.8					FEWD
		842.7		0.61	203.6	203.6					FEWD
		958.1		0.69	268.8	268.8					FEWD
		1074.1		0.52	252.9	252.9					FEWD
		1130.6		0.79	283.3	283.3					FEWD
		1161.1		0.82	278.2	278.2					FEWD
		1181.9		0.76	272.6	272.6					FEWD

Bulk Stocks On Rig	STOCK TYPE & UNITS				START USED REC'D STOCK				STOCK TYPE & UNITS				START USED REC'D STOCK			
	Fuel Oil - Rig	M3	433.7	10.8	422.9	Drill Water - Rig	MT	823.0	312.0	511.0						
Pot Water - Rig	MT	98.0		98.0	Cement 'G' - Rig	sxs	1490.0		1490.0							
Cement HTB - Rig	sxs			0.0	Bentonite - Rig	sxs	631.0		631.0							
Barite - Rig	sxs	2751.0		2751.0	Brine - Rig	MT			0.0							
Helifuel - Rig	ltr	3500.0		3500.0	Fuel Oil - Conqueror	M3	423.0	1.0	422.0							
Drill Water - Conqueror	MT	0.0		0.0	Pot Water - Conqueror	MT	190.0	5.0	185.0							
Cement 'G' - Conqueror	sxs	0.0		0.0	Cement HTB - Conqueror	sxs			0.0							
Bentonite - Conqueror	sxs	1692.0		1692.0	Barite - Conqueror	sxs			0.0							
Brine - Conqueror	MT			0.0	Fuel Oil - Sentinel	M3	405.0		405.0							
Drill Water - Sentinel	MT	220.0		220.0	Pot Water - Sentinel	MT	205.0		205.0							
Cement 'G' - Sentinel	sxs	0.0		0.0	Cement HTB - Sentinel	sxs			0.0							
Bentonite - Sentinel	sxs	0.0		0.0	Barite - Sentinel	sxs	0.0		0.0							
Brine - Sentinel	MT			0.0												

<b>Pump Data</b>										
Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152	66	97	1021	15596	30	827	1032.0	1.05
2	Nat'l 12-P-160	152	66	97	1021	15596	40	1379	1032.0	1.05
3	Nat'l 12-P-160	152	66	97	1021	15596	50	1793	1032.0	1.05
		0			0	0	30	965	1032.0	1.05
		0			0	0	40	1379	1032.0	1.05
		0			0	0	50	1931	1032.0	1.05

Casing						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.
TYPE		LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head		10.70	319	107.1	N-80	Buttress
Non cross joint		12.11	319	107.1	N-80	Buttress
Casing joints		540.92	319	101.2	N-80	Buttress
Float collar joint		36.78	319	107.1	N-80	Buttress
Intermediate joint		24.49	319	107.1	N-80	Buttress
Shoe joint		12.41	321	107.1	N-80	Buttress

Personnel : on Site =78			
3 Santos	34 DOGC	22 TMT (marine)	1 DOGC (other)
2 Anadrill	6 BHI	1 DrilQuip	1 Halliburton
2 IDFS	6 TMT (ROV)		

Safety, Inspections and Drills		Summary
6 days since last	Fire and Abandon Ship Drill	
1824 days since last	Lost Workday Case	
57 days since last	Medical Treatment Case	
0 days since last	First Aid Case	Derrickman dislocated finger.Finger back in socket
3 days since last	Weekly Safety Meeting	
0 days since last	Trip/Pit Drill	
5 days since last	BOP Test	Tested BOP on stump

Shakers, Volumes and Losses Data				ENGINEER Carl Jensen / Jasdeep Singh	
SHAKER 1 4x84	VOLUME AVAILABLE (m3) =		242	LOSSES (m3) = 273	COMMENTS Running Desander & Desilter.
SHAKER 2 4x84	ACTIVE	84.3	MIXING	0.0	
SHAKER 3 4x84	HOLE	94.0	SLUG	0.0	
SHAKER 4 4x84	RESERVE	63.6	HEAVY	0.0	
SHAKER 5					
				DOWNHOLE	251.65
				SURF.+EQUIP	13.67
				DUMPED	7.95

Anchors						Weather					
Anc 1 : 134	Anc 2 : 156	Anc 3 : 120	Anc 4 : 104	Anc 5 : 118	Anc 6 : 122	Anc 7 : 145	Anc 8 : 100	Anc 9 : 0	Anc 10 : 0	RIS. TENS. (MT) :	105
										RISER ANGLE (deg):	0.0
										STACK ANGLE(deg):	0.0
										V.D.L. (MT) :	1,991.0
										AVE HEAVE (m) :	1.5
										MAX HEAVE (m) :	2.4
										AVE PITCH (deg) :	1.0
										MAX PITCH (deg) :	1.5
										AVE ROLL (deg) :	1.0
										MAX ROLL (deg) :	1.5
Workboats		Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)	EstimatedArrival (Port) (Date)(Time)		Weather					
Pacific Conqueror	26.09.02	11:30	27.09.02	12:30	27.09.02	18:00	VISIBILITY(nm) :	8			
Pacific Sentinel							WIND SP. (kts) :	40.0			
							WIND DIR (deg) :	210			
							PRES.(mbars):	1022			
							AIR TEMP (C) :	13.0			
COMMENTS : Pax on/off Flt #1											



**DATE : Sep 29, 2002**

**FROM : R.King / G.Other**  
**TO : Ole Moller.**

**CASINO 2**

**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	1,610.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	1,610.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	403.0	SHOE TVD (m BRT)	691	DAILY COST :	\$408,717
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	5.63	FIT (sg)	0.00	CUM COST :	\$3,219,502
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0400 Drilling 12-1/4" Hole (06:00 Depth 1638m)					
WATER DEPTH (m) LAT	67.8	PLANNED OP. Continue to Drill 12-1/4" Hole to Core Point.					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**  
Drilled 12-1/4" Hole F /- 1207m to 1610m.

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Sep 29, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH2	P		D	00:00	24:00	24.00	1,610	Continued drilling 311mm (12-1/4") Hole F /- 1207m to 1610m. No losses. (While reaming prior connection, String stuck @1271m. Worked free) Loggers calibrated hole with carbide to 355.5mm (14")

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Sep 30, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH2	P		D	00:00	06:00	6.00	1,638	Continued Drilling 311mm (12-1/4") Hole F /- 1610m to 1638m

<b>WBM Data</b>	COST TODAY : \$60,818	CUM. WB MUD COST: \$164,268	CUM. WBM+OBM COST: \$164,268						
<b>Type :</b>	PHG	VISCOCITY (sec/ltr) :	60	API FLUID LOSS (cm3/30min) :	4	CI :	22,000	SOLIDS (%vol) :	8.9
FROM :	Pit	PV (Pa.s) :	0	FILTER CAKE (mm) :	1	K+C*1000 :	27000	H2O (%vol) :	91.1
TIME :	22:00	YP (Pa.s) :	14	HTHPFL (cm3/30min) :	22	HARD/Ca :	360	OIL (%vol) :	
WEIGHT (sg):	1.20	GEL10s/10m/100m (Pa.s) :		HTHP CAKE (mm) :	0	MBT (ppb) :	9.0	SAND :	.5
TEMP (C) :	54	Fann 3/6/100 :	8 11 31			PM :		PH :	9.0
						PF :	.5	PHPA (ppb) :	1.9

<b>Bit Data for Bit # 3 IADC # 1 1 5</b>	<b>Wear</b>	I	O1	D	L	B	G	O2	R
<b>SIZE (") :</b>	12.25								
MANUFACTURER :	HU	<b>NOZZLES</b>	3 x 16						
TYPE :	MX-03DX	Drilled over the last 24 hrs		Calculated over the bit run					
SERIAL # :	589 DC	METERAGE (m) :	403	CUM.METERAGE (m) :	910				
DEPTH IN (mRT):	700	ON BOTTOM HRS :	19.0	CUM. ON BOT. HRS :	27.7				
DEPTH OUT (mRT):		IADC DRILL. HRS :	20.0	CUM.IADC DR. HRS:	33.0				
		TOTAL REVS :	125,400	CUM.TOT. REVS :	182,820				
		ROP (m/hr) :	21.2	ROP (m/hr) :	32.9				

<b>BHA # 3 Length (m): 311.7</b>	WT BLW JAR (MT):	34	STRING WT (MT):	73	TRQE MAX (Nm):	12	D.C. (1) ANN. VELOCITY (mpm):	77
	BHA WT (MT) :	41	PICK UP WT (MT):	75	TRQE ON (Nm):	5	D.C. (2) ANN VELOCITY (mpm):	105
			SLK OFF WT (MT):	73	TRQE OFF (Nm):	3	H.W.D.P. ANN VELOCITY (mpm):	50
							D.P. ANN VELOCITY (mpm) :	50

BHA DESCRIPTION : 12.25 Bit,12.25RR,CDR,Pulse tool,ILS,Sonic,12.25RR,1x8"DC,12.25RR,14x8"DC,Jars,2x8"DC,X/O,12Xhwdp

TOOL DESCRIPTION	LENGTH	OD	ID	SERIAL #	HRS	COMMENT
CDR				9556	41.0	
Pulse				231	41.0	
ILS				520	41.0	
ISonic				829	41.0	
Jars				WDAH-02872	41.0	

<b>Survey</b> (Method : Min Curvature) Last Tool Type : Magnetic Declination : 0.00	MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
	1130.6		0.79	283.3	283.3					FEWD
	1161.1		0.82	278.2	278.2					FEWD
	1181.9		0.76	272.6	272.6					FEWD
	1217.7		0.78	287.0	287.0					
	1277.8		0.94	274.8	274.8					
	1421.1		1.45	272.5	272.5					
	1509.0		1.49	255.4	255.4					
	1565.7		1.58	268.2	268.2					

Bulk Stocks On Rig	STOCK TYPE & UNITS				START USED REC'D STOCK				STOCK TYPE & UNITS				START USED REC'D STOCK			
	Fuel Oil - Rig	M3	422.9	22.7	400.2	Drill Water - Rig	MT	511.0	113.0	519.0	917.0	Cement 'G' - Rig	sxs	1490.0		1490.0
Pot Water - Rig	MT	98.0		98.0	Bentonite - Rig	sxs	631.0		238.0	869.0	Brine - Rig	MT			0.0	
Cement HTB - Rig	sxs			0.0	Fuel Oil - Conqueror	M3	422.0	3.8		418.2	Pot Water - Conqueror	MT	185.0	130.0	55.0	
Barite - Rig	sxs	2751.0	1374.0	3197.0	4574.0	Cement HTB - Conqueror	sxs			0.0	Bentonite - Conqueror	sxs	1692.0		1692.0	
Helifuel - Rig	ltr	3500.0		3500.0	Brine - Conqueror	MT				0.0	Fuel Oil - Sentinel	M3	396.0	5.5	390.5	
Drill Water - Conqueror	MT	0.0		0.0	Drill Water - Sentinel	MT	400.0	400.0		0.0	Pot Water - Sentinel	MT	237.0	2.0	235.0	
Cement 'G' - Conqueror	sxs	0.0		0.0	Cement 'G' - Sentinel	sxs	0.0			0.0	Cement HTB - Sentinel	sxs			0.0	
Bentonite - Conqueror	sxs	1692.0		1692.0	Bentonite - Sentinel	sxs	238.0			238.0	Barite - Sentinel	sxs	3197.0		3197.0	
Brine - Conqueror	MT			0.0	Brine - Sentinel	MT				0.0						

Pump Data										
Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152	66	97	1058	24290	30	1379	1610.0	1.20
2	Nat'l 12-P-160	152	66	97	1058	24290	40	1655		
3	Nat'l 12-P-160	152	66	97	1058	24290	50	2413		
		0			0	0	30	1207	1610.0	1.20
		0			0	0	40	1724		
		0			0	0	50	2413		

Casing						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	10.70	319	107.1	N-80	Buttress
Non cross joint	12.11	319	107.1	N-80	Buttress
Casing joints	540.92	319	101.2	N-80	Buttress
Float collar joint	36.78	319	107.1	N-80	Buttress
Intermediate joint	24.49	319	107.1	N-80	Buttress
Shoe joint	12.41	321	107.1	N-80	Buttress

Personnel : on Site =75			
3 Santos	34 DOGC	22 TMT (marine)	1 DOGC (other)
2 Anadrill	6 BHI	1 Core Eng	1 Halliburton
2 IDFS	3 TMT (ROV)		

Safety, Inspections and Drills		Summary
0 days since last	Fire and Abandon Ship Drill	
1825 days since last	Lost Workday Case	
58 days since last	Medical Treatment Case	
1 days since last	First Aid Case	Derrickman dislocated finger.Finger back in socket
4 days since last	Weekly Safety Meeting	
1 days since last	Trip/Pit Drill	
6 days since last	BOP Test	Tested BOP on stump

Shakers, Volumes and Losses Data				ENGINEER Carl Jensen / Jasdeep Sing				
SHAKER 1	4x145	<b>VOLUME AVAILABLE (m3) =</b>		<b>279</b>	<b>LOSSES (m3) =</b>	<b>82</b>	<b>COMMENTS</b>	
SHAKER 2	4x145	ACTIVE	79.5	MIXING	0.0	DOWNHOLE		11.60
SHAKER 3	4x145	HOLE	123.2	SLUG	0.0	SURF.+EQUIP		70.42
SHAKER 4	4x115	RESERVE	76.3	HEAVY	0.0	DUMPED		0.00
SHAKER 5								

Anchors						RIS. TENS. (MT) :					
Anc 1 :	127	Anc 2 :	150	Anc 3 :	127	Anc 4 :	111	Anc 5 :	127	RISER ANGLE (deg):	0.0
Anc 6 :	122	Anc 7 :	141	Anc 8 :	98	Anc 9 :	0	Anc 10 :	0	STACK ANGLE(deg):	0.0
Workboats						Weather		V.D.L. (MT) :		2,121.0	
	Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)		EstimatedArrival (Port) (Date)(Time)		VISIBILITY(nm) :	10	AVE HEAVE (m) :		1.2	
Pacific Conqueror		29.09.02 15:50		20.09.02 21:00		WIND SP. (kts) :	28.0	MAX HEAVE (m) :		1.8	
Pacific Sentinel	29.09.02 11:46					WIND DIR (deg) :	210	AVE PITCH (deg) :		0.8	
						PRES.(mbars):	1027	MAX PITCH (deg) :		1.5	
						AIR TEMP (C) :	15.0	AVE ROLL (deg) :		0.5	
COMMENTS : Pax on/off Flt #1 1/4								MAX ROLL (deg) :		1.5	

**DATE : Sep 30, 2002**

**FROM : R.King / G.Other**  
**TO : Ole Moller.**

**CASINO 2**  
**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	1,646.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	1,646.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	36.0	SHOE TVD (m BRT)	691	DAILY COST :	\$419,532
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	6.63	FIT (sg)	0.00	CUM COST :	\$3,639,034
RIG	Ocean Bounty	DAYS +/- CURVE	0.50	LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0600 Drilling 12-1/4" Hole F /- 1646m					
WATER DEPTH (m) LAT	67.8	PLANNED OP. RIH Continue to drill to Core point.					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**  
Drilled 12-1/4" Hole, POOH.

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Sep 30, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH2	P		D	00:00	09:00	9.00	1,646	Continued Drilling 311mm (12-1/4") Hole F /- 1610m to 1646m
IH2	P		DO	09:00	09:30	0.50	1,646	Flow checked well. POOH F /- 1646m to 1543m (50 Kips O-pull @1543m)
IH2	P		TOT	09:30	18:30	9.00	1,646	Backreamed F /- 1543m to 800m (Max hole drag 50 Kips O-pull, String torquing up 12,000ft/lbs)
IH2	P		TO	18:30	21:00	2.50	1,646	Continued POOH F /- 800m. Broke off bit.
IH2	P		S	21:00	23:30	2.50	1,646	Down loaded data from LWD & Process. Initialise tool. (Serviced TDS)
IH2	P		TI	23:30	24:00	0.50	1,646	Made up bit & RIH

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Oct 01, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH2	P		TI	00:00	01:30	1.50	1,646	Continued RIH to 690m (340mm Shoe)
IH2	P		SC	01:30	03:00	1.50	1,646	Slipped & cut drilling line.
IH2	P		TI	03:00	05:00	2.00	1,646	Continued RIH to 1615m (Took weight @ 1615m)
IH2	P		RW	05:00	06:00	1.00	1,646	Wash and reamed F /- 1615m to 1646m (5-10 Kips Required to ream)

<b>WBM Data</b>	COST TODAY : \$20,292	CUM. WB MUD COST: \$184,560	CUM. WBM+OBM COST: \$184,560						
<b>Type :</b>	PHG	VISCOCITY (sec/ltr) :	72	API FLUID LOSS (cm3/30min) :	4	CI :	23,000	SOLIDS (%vol) :	10.
FROM :	Pit	PV (Pa.s) :	0	FILTER CAKE (mm) :	1	K+C*1000 :	27000	H2O (%vol) :	89.6
TIME :	22:00	YP (Pa.s) :	20	HTHPFL (cm3/30min) :	22	HARD/Ca :	280	OIL (%vol) :	
WEIGHT (sg):	1.24	GEL10s/10m/100m (Pa.s) :	6 7 2	HTHP CAKE (mm) :	0	MBT (ppb) :	12.0	SAND :	.1
TEMP (C) :	40	Fann 3/6/100 :	12 14 41			PM :		PH :	9.0
						PF :	.5	PHPA (ppb) :	1.8

<b>Bit Data for Bit # 3 IADC # 1 1 5</b>		<b>Wear</b>		I	O1	D	L	B	G	O2	R	
SIZE ("):	12.25	NOZZLES		8	8	LT	A	E	1/8	ER	PR	
MANUFACTURER :	HU	Drilled over the last 24 hrs		Calculated over the bit run								
TYPE :	MX-03DX	METERAGE (m) :	36	CUM.METERAGE (m) :								946
SERIAL # :	589 DC	ON BOTTOM HRS :	8.7	CUM. ON BOT. HRS :								36.4
DEPTH IN (mRT):	700	IADC DRILL. HRS :	9.0	CUM.IADC DR. HRS:								42.0
DEPTH OUT (mRT):	1646	TOTAL REVS :	57,420	CUM.TOT. REVS :								240,240
		ROP (m/hr) :	4.1	ROP (m/hr) :								26.0

<b>BHA # 3</b>		<b>Length (m): 311.7</b>				D.C. (1) ANN. VELOCITY (mpm):	77
WT BLW JAR (MT):	34	STRING WT (MT):	73	TRQE MAX (Nm):	12	D.C. (2) ANN VELOCITY (mpm):	105
BHA WT (MT) :	41	PICK UP WT (MT):	75	TRQE ON (Nm):	5	H.W.D.P. ANN VELOCITY (mpm):	50
		SLK OFF WT (MT):	73	TRQE OFF (Nm):	3	D.P. ANN VELOCITY (mpm) :	50

BHA DESCRIPTION : 12.25 Bit,12.25RR,CDR,Pulse tool,ILS,Sonic,12.25RR,1x8"DC,12.25RR,14x8"DC,Jars,2x8"DC,X/O,12Xhwdp

TOOL DESCRIPTION	LENGTH	OD	ID	SERIAL #	HRS	COMMENT
CDR				9556	59.0	
Pulse				231	59.0	
ILS				520	59.0	
ISonic				829	59.0	
Jars				WDAH-02872	59.0	

<b>Survey</b> (Method : Min Curvature)	MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
Last Tool Type :										
Magnetic Declination :	0.00									
	1130.6		0.79	283.3	283.3					FEWD
	1161.1		0.82	278.2	278.2					FEWD
	1181.9		0.76	272.6	272.6					FEWD
	1217.7		0.78	287.0	287.0					
	1277.8		0.94	274.8	274.8					
	1421.1		1.45	272.5	272.5					
	1509.0		1.49	255.4	255.4					
	1565.7		1.58	268.2	268.2					

Bulk Stocks On Rig	STOCK TYPE & UNITS				START USED REC'D STOCK				STOCK TYPE & UNITS				START USED REC'D STOCK			
	Fuel Oil - Rig	M3	400.2	13.2	387.0	Drill Water - Rig	MT	917.0	136.0	781.0	Cement 'G' - Rig	sxs	1490.0		1490.0	
Pot Water - Rig	MT	98.0		98.0	Bentonite - Rig	sxs	869.0		869.0	Brine - Rig	MT			0.0		
Cement HTB - Rig	sxs			0.0	Fuel Oil - Conqueror	M3	409.8	0.5	409.3	Pot Water - Conqueror	MT	180.0		180.0		
Barite - Rig	sxs	4574.0	470.0	4104.0	Cement 'G' - Conqueror	sxs	0.0		0.0	Cement HTB - Conqueror	sxs			0.0		
Helifuel - Rig	ltr	3500.0		3500.0	Bentonite - Conqueror	sxs	1692.0		1692.0	Barite - Conqueror	sxs			0.0		
Drill Water - Conqueror	MT	200.0		200.0	Brine - Conqueror	MT			0.0	Fuel Oil - Sentinel	M3	390.5	5.8	384.7		
Cement 'G' - Conqueror	sxs	0.0		0.0	Drill Water - Sentinel	MT	0.0		0.0	Pot Water - Sentinel	MT	235.0	5.0	230.0		
Bentonite - Conqueror	sxs	1692.0		1692.0	Cement 'G' - Sentinel	sxs	0.0		0.0	Cement HTB - Sentinel	sxs			0.0		
Brine - Conqueror	MT			0.0	Bentonite - Sentinel	sxs	238.0		238.0	Barite - Sentinel	sxs	3197.0		3197.0		
Drill Water - Sentinel	MT	0.0		0.0	Brine - Sentinel	MT			0.0							

Pump Data										
#	TYPE	Pump Data - last 24 hrs					Slow Pump Data			
		LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152	66	97	979	25042	30	1379	1610.0	1.20
2	Nat'l 12-P-160	152	66	97	979	25042	40	1655		
3	Nat'l 12-P-160	152	66	97	979	25042	50	2413		
		0			0	0	30	1207	1610.0	1.20
		0			0	0	40	1724		
		0			0	0	50	2413		

Casing						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	10.70	319	107.1	N-80	Buttress
Non cross joint	12.11	319	107.1	N-80	Buttress
Casing joints	540.92	319	101.2	N-80	Buttress
Float collar joint	36.78	319	107.1	N-80	Buttress
Intermediate joint	24.49	319	107.1	N-80	Buttress
Shoe joint	12.41	321	107.1	N-80	Buttress

Personnel : on Site =75			
3 Santos	34 DOGC	22 TMT (marine)	1 DOGC (other)
2 Anadrill	6 BHI	1 Core Eng	1 Halliburton
2 IDFS	3 TMT (ROV)		

Safety, Inspections and Drills		Summary
1 days since last	Fire and Abandon Ship Drill	
1826 days since last	Lost Workday Case	
59 days since last	Medical Treatment Case	
2 days since last	First Aid Case	Derrickman dislocated finger.Finger back in socket
5 days since last	Weekly Safety Meeting	
2 days since last	Trip/Pit Drill	
7 days since last	BOP Test	Tested BOP on stump

Shakers, Volumes and Losses Data				ENGINEER Carl Jensen / Jasdeep Sing		
SHAKER 1 4x145	VOLUME AVAILABLE (m3) =		310	LOSSES (m3) = 32	COMMENTS	
SHAKER 2 4x145	ACTIVE	79.5 MIXING	0.0	DOWNHOLE		5.40
SHAKER 3 4x145	HOLE	125.6 SLUG	0.0	SURF.+EQUIP		4.77
SHAKER 4 4x115	RESERVE	104.9 HEAVY	0.0	DUMPED		22.26
SHAKER 5						

Anchors						RIS. TENS. (MT) :					
Anc 1 :	127	Anc 2 :	147	Anc 3 :	122	Anc 4 :	111	Anc 5 :	125	RISER ANGLE (deg):	0.0
Anc 6 :	136	Anc 7 :	1429	Anc 8 :	95	Anc 9 :	0	Anc 10 :	0	STACK ANGLE(deg):	0.0
Workboats						Weather					
	Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)	EstimatedArrival (Port) (Date)(Time)			VISIBILITY(nm) :	12	V.D.L. (MT) :	2,070.0	AVE HEAVE (m) :	0.3
Pacific Conqueror	30.09.02 21:30					WIND SP. (kts) :	20.0	MAX HEAVE (m) :	0.3	AVE PITCH (deg) :	0.5
Pacific Sentinel	29.09.02 11:46					WIND DIR (deg) :	230	MAX PITCH (deg) :	0.6	AVE ROLL (deg) :	0.3
						PRES.(mbars):	1025	MAX ROLL (deg) :	0.3		
						AIR TEMP (C) :	15.0				
COMMENTS : Pax on/off Flt #1 4/4											

**DATE : Oct 01, 2002**

**FROM : R.King / G.Other**  
**TO : Ole Moller.**

**CASINO 2**

**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	1,763.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	10,800,000
COUNTRY	Australia	TVD (m BRT)	1,763.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	117.0	SHOE TVD (m BRT)	691	DAILY COST :	\$370,829
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	7.63	FIT (sg)	0.00	CUM COST :	\$4,009,863
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0600 Reaming to bottom prior coring. Depth 1753m.					
WATER DEPTH (m) LAT	67.8	PLANNED OP. RIH Cut Core / POOH / RIH Drill 12-1/4" Hole to TD					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**  
Drilled 12-1/4" Hole to Core point / POOH & Made up Core barrel.

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Oct 01, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH2	P		TI	00:00	01:30	1.50	1,646	Continued RIH to 690m (340mm Shoe)
IH2	P		SC	01:30	03:00	1.50	1,646	Slipped & cut drilling line.
IH2	P		TI	03:00	05:00	2.00	1,646	Continued RIH to 1615m (Took weight @ 1615m)
IH2	P		RW	05:00	06:00	1.00	1,646	Wash and reamed F /- 1615m to 1646m (5-10 Kips Required to ream)
IH2	P		D	06:00	14:00	8.00	1,763	Drilled 311mm (12-1/4") Hole F /- 1646m to 1763m
IH2	P		CIR	14:00	15:30	1.50	1,763	Circulated sample to surface & confirmed correct core point.
IH2	P		TO	15:30	21:00	5.50	1,763	Pumped out F /- 1763m to 1620m. Continued POOH F /- 1620m
IH2	P		HT	21:00	22:00	1.00	1,763	Service broke LWD tool and laid out.
IH2	P		HBH	22:00	24:00	2.00	1,763	Held JSA, Picked up & made up core barrel assembly.

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Oct 02, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH2	P		HBH	00:00	00:30	0.50	1,763	Continued to Make up Core barrel
IH2	P		TI	00:30	04:30	4.00	1,763	RIH to 1708m (Worked through tight spot @ 1120m, Wash and reamed 1140m to 1160m)
IH2	P		TI	04:30	05:00	0.50	1,763	Precautionary wash and reamed F /- 1708m to 1730m (Took weight @ 1730m)
IH2	P		RW	05:00	06:00	1.00	1,763	Wash and reamed F /- 1730m to 1753m (Taking 10-15Kips to ream) Max gas 18.72%

<b>WBM Data</b>	COST TODAY : \$18,272	CUM. WB MUD COST: \$202,832	CUM. WBM+OBM COST: \$202,832						
<b>Type :</b>	<b>PHG</b>	VISCOCITY (sec/ltr) :	57	API FLUID LOSS (cm3/30min) :	5	CI :	30,960	SOLIDS (%vol) :	11.
FROM :	Pit	PV (Pa.s) :	0	FILTER CAKE (mm) :	1	K+C*1000 :	37800	H2O (%vol) :	88.8
TIME :	22:00	YP (Pa.s) :	16	HTHPFL (cm3/30min) :	22	HARD/Ca :	160	OIL (%vol) :	
WEIGHT (sg):	1.24	GEL10s/10m/100m (Pa.s) :	5 9 2	HTHP CAKE	0	MBT (ppb) :	12.0	SAND :	.2
TEMP (C) :		Fann 3/6/100 :	8 10 33			PM :		PH :	9.5
						PF :	.1	PHPA (ppb) :	1.4

<b>Bit Data for Bit # 4 IADC # 1 1 5</b>				<b>Wear</b>								
<b>SIZE (") :</b>	<b>12.25</b>			<b>I</b>	<b>O1</b>	<b>D</b>	<b>L</b>	<b>B</b>	<b>G</b>	<b>O2</b>	<b>R</b>	
MANUFACTURER :	HY	AVE WOB (MT) :	5	<b>1</b>	<b>1</b>	<b>CT</b>	<b>N</b>	<b>X</b>	<b>I</b>	<b>NO</b>	<b>CP</b>	
TYPE :	DSX195DGUW	AVE RPM :	120	<b>NOZZLES</b>				Drilled over the last 24 hrs				
SERIAL # :	103926	FLOW (lpm) :	2,975	3 X 16	METERAGE (m) :			117	Calculated over the bit run			
DEPTH IN (mRT):	1646	PUMP PRESS.(Kpa):	27,545	X 0	ON BOTTOM HRS :			6.4	CUM.METERAGE (m) :			117
DEPTH OUT (mRT):	1763	HSI (kW/cm2) :	0.761	X 0	IADC DRILL. HRS :			8.0	CUM. ON BOT. HRS :			6.4
				X 0	TOTAL REVS :			46,080	CUM.IADC DR. HRS :			8.0
				X 0	ROP (m/hr) :			18.3	CUM.TOT. REVS :			46,080
									ROP (m/hr) :			18.3

<b>Bit Data for Bit # IADC #</b>				<b>Wear</b>											
				I	O1	D	L	B	G	O2	R				
<b>SIZE (" ):</b>				<b>NOZZLES</b>				Drilled over the last 24 hrs				Calculated over the bit run			
MANUFACTURER :	AVE WOB (MT) :	0		X	0	METERAGE (m) :				CUM.METERAGE (m) :					
TYPE :	AVE RPM :			X	0	ON BOTTOM HRS :				CUM. ON BOT. HRS :					
SERIAL # :	FLOW (lpm) :	0		X	0	IADC DRILL. HRS :				CUM.IADC DR. HRS :					
DEPTH IN (mRT):	PUMP PRESS.(Kpa):	0		X	0	TOTAL REVS :				CUM.TOT. REVS :					
DEPTH OUT (mRT):	HSI (kW/cm2) :	0.000		X	0	ROP (m/hr) :				ROP (m/hr) :					

<b>BHA # 4</b>	<b>Length (m): 311.7</b>							D.C. (1) ANN. VELOCITY (mpm):				72
WT BLW JAR (MT):	34	STRING WT (MT):	82	TRQE MAX (Nm):	11	D.C. (2) ANN VELOCITY (mpm):				98		
BHA WT (MT) :	41	PICK UP WT (MT):	84	TRQE ON (Nm):	3	H.W.D.P. ANN VELOCITY (mpm):				47		
		SLK OFF WT (MT):	79	TRQE OFF (Nm):	3	D.P. ANN VELOCITY (mpm) :				47		

BHA DESCRIPTION : 12.25 Bit,12.25RR,CDR,Pulse tool,ILS,Sonic,12.25RR,1x8"DC,12.25RR,14x8"DC,Jars,2x8"DC,X/O,12Xhwdp

TOOL DESCRIPTION	LENGTH	OD	ID	SERIAL #	HRS	COMMENT
CDR				9556	68.0	
Pulse				231	68.0	
ILS				520	68.0	
ISonic				829	68.0	
Jars				WDAH-02872	68.0	

<b>Survey</b> (Method : Min Curvature)	MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
Last Tool Type :										
Magnetic Declination :	0.00									
	1130.6		0.79	283.3	283.3					FEWD
	1161.1		0.82	278.2	278.2					FEWD
	1181.9		0.76	272.6	272.6					FEWD
	1217.7		0.78	287.0	287.0					
	1277.8		0.94	274.8	274.8					
	1421.1		1.45	272.5	272.5					
	1509.0		1.49	255.4	255.4					
	1565.7		1.58	268.2	268.2					

Bulk Stocks On Rig	STOCK TYPE & UNITS				STOCK TYPE & UNITS				STOCK TYPE & UNITS			
	START	USED	REC'D	STOCK	START	USED	REC'D	STOCK	START	USED	REC'D	STOCK
Fuel Oil - Rig	M3	387.0	14.3	372.7	Drill Water - Rig	MT	781.0	73.0	708.0			
Pot Water - Rig	MT	98.0		98.0	Cement 'G' - Rig	sxs	1490.0		1490.0			
Cement HTB - Rig	sxs			0.0	Bentonite - Rig	sxs	869.0		869.0			
Barite - Rig	sxs	4104.0	561.0	3543.0	Brine - Rig	MT			0.0			
Helifuel - Rig	ltr	3500.0		3500.0	Fuel Oil - Conqueror	M3	409.3	5.4	403.9			
Drill Water - Conqueror	MT	200.0		200.0	Pot Water - Conqueror	MT	180.0	5.0	175.0			
Cement 'G' - Conqueror	sxs	0.0		0.0	Cement HTB - Conqueror	sxs			0.0			
Bentonite - Conqueror	sxs	1692.0		1692.0	Barite - Conqueror	sxs			0.0			
Brine - Conqueror	MT			0.0	Fuel Oil - Sentinel	M3	384.7	2.5	382.2			
Drill Water - Sentinel	MT	0.0		0.0	Pot Water - Sentinel	MT	230.0	5.0	225.0			
Cement 'G' - Sentinel	sxs	0.0		0.0	Cement HTB - Sentinel	sxs			0.0			
Bentonite - Sentinel	sxs	238.0		238.0	Barite - Sentinel	sxs	3197.0		3197.0			
Brine - Sentinel	MT			0.0								

Pump Data										
Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152	66	97	990	27545	30	1379	1966.0	1.23
2	Nat'l 12-P-160	152	66	97	990	27545	40	2137		
3	Nat'l 12-P-160	152	66	97	990	27545	50	2930		
		0			0	0	30	1379	1966.0	1.23
		0			0	0	40	2206		
		0			0	0	50	2930		



Casing						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	10.70	319	107.1	N-80	Buttress
Non cross joint	12.11	319	107.1	N-80	Buttress
Casing joints	540.92	319	101.2	N-80	Buttress
Float collar joint	36.78	319	107.1	N-80	Buttress
Intermediate joint	24.49	319	107.1	N-80	Buttress
Shoe joint	12.41	321	107.1	N-80	Buttress

Personnel : on Site =75			
3 Santos	34 DOGC	22 TMT (marine)	1 DOGC (other)
2 Anadrill	6 BHI	1 Core Eng	1 Halliburton
2 IDFS	3 TMT (ROV)		

Safety, Inspections and Drills		Summary
2 days since last	Fire and Abandon Ship Drill	
1827 days since last	Lost Workday Case	
60 days since last	Medical Treatment Case	
3 days since last	First Aid Case	Derrickman dislocated finger.Finger back in socket
6 days since last	Weekly Safety Meeting	
3 days since last	Trip/Pit Drill	
8 days since last	BOP Test	Tested BOP on stump

Shakers, Volumes and Losses Data				ENGINEER Carl Jensen / Jasdeep Sing		
SHAKER 1 4x145	VOLUME AVAILABLE (m3) =		326	LOSSES (m3) = 29	COMMENTS	
SHAKER 2 4x145	ACTIVE	91.4	MIXING	0.0		DOWNHOLE 22.10
SHAKER 3 4x145	HOLE	134.2	SLUG	0.0		SURF.+EQUIP 6.84
SHAKER 4 4x115	RESERVE	100.2	HEAVY	0.0		DUMPED 0.00
SHAKER 5						

Anchors				Weather	
Anc 1 :	Anc 2 :	Anc 3 :	Anc 4 :	Anc 5 :	RIS. TENS. (MT) :
Anc 6 :	Anc 7 :	Anc 8 :	Anc 9 :	Anc 10 :	RISER ANGLE (deg):
Workboats				STACK ANGLE(deg):	
Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)	EstimatedArrival (Port) (Date)(Time)		V.D.L. (MT) :	
				AVE HEAVE (m) :	
				MAX HEAVE (m) :	
				AVE PITCH (deg) :	
				MAX PITCH (deg) :	
				AVE ROLL (deg) :	
				MAX ROLL (deg) :	
COMMENTS :					

**DATE : Oct 02, 2002**

**FROM : R.King / G.Othen**  
**TO : Ole Moller.**

**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	1,784.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	10,800,000
COUNTRY	Australia	TVD (m BRT)	1,784.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	21.0	SHOE TVD (m BRT)	691	DAILY COST :	\$412,010
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	8.63	FIT (sg)	0.00	CUM COST :	\$4,421,873
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0600 Drilling 12-1/4" Hole.(06:00hrs Depth 1803m)					
WATER DEPTH (m) LAT	67.8	PLANNED OP. RIH / Drill 12-1/4" Hole to TD					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**

Made up Core barrel,RIH / Cut Core / POOH / Prepared 12-1/4" BHA & RIH

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Oct 02, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH2	P		HBH	00:00	00:30	0.50	1,763	Continued to Make up Core barrel
IH2	P		TI	00:30	04:30	4.00	1,763	RIH to 1708m (Worked through tight spot @ 1120m, Wash and reamed 1140m to 1160m)
IH2	P		TI	04:30	05:00	0.50	1,763	Precautionary wash and reamed F /- 1708m to 1730m (Took weight @ 1730m)
IH2	P		RW	05:00	07:00	2.00	1,763	Wash and reamed F /- 1730m to 1763m (Taking 10-15Kips to ream) Max gas 18.72%
IH2	P		CIC	07:00	07:30	0.50	1,763	Recorded up & down weights, dropped ball and monitored pressures. Took SCRs.
IH2	P		COR	07:30	12:30	5.00	1,784	Cut core F /- 1763m to 1784m.
IH2	P		CIR	12:30	14:30	2.00	1,784	Circulated bottoms up. Max gas 5%
IH2	P		TO	14:30	19:00	4.50	1,784	POOH F /- 1784m.
IH2	P		HT	19:00	21:30	2.50	1,784	Held JSA. Laid out inner core barrel & Laid out outter barrels. (Cut 21m Recovered 19.3m = 92%)
IH2	P		HBH	21:30	24:00	2.50	1,784	Picked up and surface tested FEWD tools. RIH with BHA.

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Oct 03, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH2	P		TI	00:00	01:00	1.00	1,784	Continued RIH to 690m (340mm Shoe)
IH2	P		RS	01:00	01:30	0.50	1,784	Serviced TDS
IH2	P		TI	01:30	03:00	1.50	1,784	Continued RIH to 1745m
IH2	P		S	03:00	04:30	1.50	1,784	Logged hole F /- 1745m to 1784m @ 30m/hr
IH2	P		D	04:30	06:00	1.50	1,803	Took SCRs. Drilled 311mm (12-1/4") Hole F /- 1784m to 1803m

<b>WBM Data</b>		COST TODAY : \$4,313		CUM. WB MUD COST: \$207,145		CUM. WBM+OBM COST: \$207,145	
<b>Type :</b>	<b>KCL-PHPA</b>	VISCOCITY (sec/ltr) :	50	API FLUID LOSS (cm3/30min) :	5	Cl :	31,200
FROM :	Pit	PV (Pa.s) :	0	FILTER CAKE (mm) :	1	K+C*1000 :	32400
TIME :	22:00	YP (Pa.s) :	12	HTHPFL (cm3/30min) :	23	HARD/Ca :	160
WEIGHT (sg):	1.24	GEL10s/10m/100m (Pa.s) :	3 5 2	HTHP CAKE (mm) :	0	MBT (ppb) :	11.0
TEMP (C) :		Fann 3/6/100 :	5 7 24			PM :	
						PF :	.2
						SOLIDS (%vol) :	11.
						H2O (%vol) :	88.9
						OIL (%vol) :	
						SAND :	.3
						PH :	10.0
						PHPA (ppb) :	1.4

Bit Data for Bit # 5 IADC #				Wear											
				I	O1	D	L	B	G	O2	R				
				1	1	CT	N	X	I	JD	TD				
SIZE ("):	12.25			NOZZLES				Drilled over the last 24 hrs				Calculated over the bit run			
MANUFACTURER :	SE	AVE WOB (MT) :	2	X	0	METERAGE (m) :				21	CUM.METERAGE (m) :				21
TYPE :	CD-93	AVE RPM :	50	X	0	ON BOTTOM HRS :				4.6	CUM. ON BOT. HRS :				4.6
SERIAL # :	7960859	FLOW (lpm) :	1,200	X	0	IADC DRILL. HRS :				5.0	CUM.IADC DR. HRS :				5.0
DEPTH IN (mRT):	1763	PUMP PRESS.(Kpa):	7,929	X	0	TOTAL REVS :				13,800	CUM.TOT. REVS :				13,800
DEPTH OUT (mRT):	1784	HSI (kW/cm2) :	0.000	X	0	ROP (m/hr) :				4.6	ROP (m/hr) :				4.6

BHA # 4 Length (m): 234.3				D.C. (1) ANN. VELOCITY (mpm):				29					
WT BLW JAR (MT):	15	STRING WT (MT):	66	TRQE MAX (Nm):	27	D.C. (2) ANN VELOCITY (mpm):				40			
BHA WT (MT) :	25	PICK UP WT (MT):	68	TRQE ON (Nm):	14	H.W.D.P. ANN VELOCITY (mpm):				19			
		SLK OFF WT (MT):	64	TRQE OFF (Nm):	7	D.P. ANN VELOCITY (mpm) :				19			

BHA DESCRIPTION : 12.25 Core Head,12.218Stab,CoreBarrel,12.218Stab,CoreBarrel,12.218Stab,CoreBarrel,12.218Stab,X/O,Safety joint,7 x 8"DC,Jars,2 x 8"DC,,X/O,12Xhwdp

TOOL DESCRIPTION	LENGTH	OD	ID	SERIAL #	HRS	COMMENT
JARS				WDAH-02872	75.0	

Survey (Method : Min Curvature)		MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
Last Tool Type :											
Magnetic Declination :	0.00	1130.6		0.79	283.3	283.3					FEWD
		1161.1		0.82	278.2	278.2					FEWD
		1181.9		0.76	272.6	272.6					FEWD
		1217.7		0.78	287.0	287.0					
		1277.8		0.94	274.8	274.8					
		1421.1		1.45	272.5	272.5					
		1509.0		1.49	255.4	255.4					
		1565.7		1.58	268.2	268.2					

Bulk Stocks On Rig	STOCK TYPE & UNITS				START	USED	REC'D	STOCK	STOCK TYPE & UNITS				START	USED	REC'D	STOCK
	Fuel Oil - Rig	M3	372.7	8.3	364.4	Drill Water - Rig	MT	708.0	77.0	631.0	Cement 'G' - Rig	sxs	1490.0		1490.0	
Pot Water - Rig	MT	98.0		98.0	Cement HTB - Rig	sxs		0.0	869.0	Bentonite - Rig	sxs	869.0		869.0		
Barite - Rig	sxs	3543.0		3543.0	Brine - Rig	MT		0.0	0.0					0.0		
Helifuel - Rig	ltr	3500.0	705.0	2795.0	Fuel Oil - Conqueror	M3	403.9	7.5	396.4	Pot Water - Conqueror	MT	175.0	5.0	170.0		
Drill Water - Conqueror	MT	200.0		200.0	Cement HTB - Conqueror	sxs		0.0	0.0	Barite - Conqueror	sxs			0.0		
Cement 'G' - Conqueror	sxs	0.0		0.0	Fuel Oil - Sentinel	M3	382.2	5.9	376.3	Drill Water - Sentinel	MT	225.0	5.0	220.0		
Bentonite - Conqueror	sxs	1692.0		1692.0	Pot Water - Sentinel	MT	225.0	5.0	220.0	Cement 'G' - Sentinel	sxs	0.0		0.0		
Brine - Conqueror	MT			0.0	Cement HTB - Sentinel	sxs			0.0	Bentonite - Sentinel	sxs	238.0		238.0		
Drill Water - Sentinel	MT	0.0		0.0	Barite - Sentinel	sxs	3197.0		3197.0	Brine - Sentinel	MT			0.0		
Cement 'G' - Sentinel	sxs	0.0		0.0												

Pump Data										
Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152	66	97	401	7929	30	1931	1763.0	1.23
2	Nat'l 12-P-160	152	66	97	401	7929	40	2689		
3	Nat'l 12-P-160	152	66	97	401	7929	50	3447		
		0			0	0	30	1896	1763.0	1.23
		0			0	0	40	2689		
		0			0	0	50	3689		

Casing						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.
TYPE		LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head		10.70	319	107.1	N-80	Buttress
Non cross joint		12.11	319	107.1	N-80	Buttress
Casing joints		540.92	319	101.2	N-80	Buttress
Float collar joint		36.78	319	107.1	N-80	Buttress
Intermediate joint		24.49	319	107.1	N-80	Buttress
Shoe joint		12.41	321	107.1	N-80	Buttress

Personnel : on Site =84			
4 Santos	34 DOGC	22 TMT (marine)	2 DOGC (other)
2 Anadrill	6 BHI	1 Core Eng	1 Halliburton
2 IDFS	3 TMT (ROV)	7 Schlumberger	

Safety, Inspections and Drills		Summary
3 days since last	Fire and Abandon Ship Drill	
1828 days since last	Lost Workday Case	
61 days since last	Medical Treatment Case	
4 days since last	First Aid Case	Derrickman dislocated finger.Finger back in socket
0 days since last	Weekly Safety Meeting	
4 days since last	Trip/Pit Drill	
9 days since last	BOP Test	Tested BOP on stump

Shakers, Volumes and Losses Data				ENGINEER	Carl Jensen / Jasdeep Sing
SHAKER 1 4x145	VOLUME AVAILABLE (m3) =		309	LOSSES (m3) =	16
SHAKER 2 4x145	ACTIVE	95.4	MIXING	0.0	DOWNHOLE
SHAKER 3 4x145	HOLE	137.7	SLUG	0.0	SURF.+EQUIP
SHAKER 4 4x115	RESERVE	76.3	HEAVY	0.0	DUMPED
SHAKER 5					0.00

Anchors				RIS. TENS. (MT) :		105
Anc 1 : 125	Anc 2 : 143	Anc 3 : 118	Anc 4 : 111	Anc 5 : 127		
Anc 6 : 134	Anc 7 : 145	Anc 8 : 98	Anc 9 : 0	Anc 10 : 0		
Workboats			Weather		RISER ANGLE (deg):	
Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)	EstimatedArrival (Port) (Date)(Time)	VISIBILITY(nm) :	12	0.0	
Pacific Conqueror 30.09.02 21:30			WIND SP. (kts) :	30.0	STACK ANGLE(deg): 0.0	
Pacific Sentinel 29.09.02 11:46			WIND DIR (deg) :	320	V.D.L. (MT) : 20,640.0	
			PRES.(mbars):	1015	AVE HEAVE (m) : 0.9	
			AIR TEMP (C) :	16.0	MAX HEAVE (m) : 1.2	
					AVE PITCH (deg) : 0.4	
					MAX PITCH (deg) : 0.6	
					AVE ROLL (deg) : 0.3	
					MAX ROLL (deg) : 0.3	
COMMENTS : Pax on/off Flt #1 8/7 Flt #2 8 / 0						

**DATE : Oct 03, 2002**

**FROM : R.King / S.Hodgetts**  
**TO : Ole Moller.**

**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	2,112.0	CUR.HOLE SIZE (mm)	51	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	2,112.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	328.0	SHOE TVD (m BRT)	691	DAILY COST :	\$325,562
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	9.63	FIT (sg)	0.00	CUM COST :	\$4,747,435
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0600 POOH from TD.					
WATER DEPTH (m) LAT	67.8	PLANNED OP. Continued POOH. Rig & run wireline logs.					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**

Continued RIH to 1784m. Drilled 311mm (12.25") hole to TD at 2112m. Circulated bottoms up.

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Oct 03, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH2	P		TI	00:00	01:00	1.00	1,784	Continued RIH to 690m (340mm Shoe)
IH2	P		RS	01:00	01:30	0.50	1,784	Serviced TDS
IH2	P		TI	01:30	03:00	1.50	1,784	Continued RIH to 1745m
IH2	P		S	03:00	04:30	1.50	1,784	Logged hole F /- 1745m to 1784m at 30m/hr. Took SCR at 1784m.
IH2	P		D	04:30	23:15	18.75	2,112	Drilled 311mm (12-1/4") hole from 1784m to 2112m.
IH2	P		CS	23:15	24:00	0.75	2,112	Circulated bottoms up at TD.

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Oct 04, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH2	P		WT	00:00	01:00	1.00	2,112	Flow checked. Made wiper trip to 1755m. Worked tight hole from 1957m 20.5 tonne (45kip) overpull. Back reamed out of hole from 1895m to 1794m.
IH2	TP	TTE	WTH	01:00	02:30	1.50	2,112	Worked tight hole from 1957m 20.5 tonne (45kip) overpull. Back reamed out of hole from 1895m to 1794m.
IH2	P		WT	02:30	03:00	0.50	2,112	Run back to bottom, no problems, no fill.
IH2	P		CIR	03:00	04:30	1.50	2,112	Circulated bottoms up until clean. Boosted riser.
IH2	P		TO	04:30	06:00	1.50	2,112	POOH to log, hole good.

<b>00:00 TO 24:00 HRS ON :</b>	<b>3/10/2002</b>	
Comments	Recommendations	Rig Requirements
Note correction to Barite and Gel figures on Sentinel now zero, transferred to rig 29/9/02 as per barge report.		

<b>WBM Data</b>	COST TODAY : \$21,313	CUM. WB MUD COST: \$228,458	CUM. WBM+OBM COST: \$228,458					
<b>Type :</b>	VISCOACITY (sec/ltr) :	57	API FLUID LOSS (cm3/30min) :	5	Cl :	31,500	SOLIDS (%vol) :	10.
<b>KCL-PHPA</b>	PV (Pa.s) :	0	FILTER CAKE (mm) :	1	K+C*1000 :	32400	H2O (%vol) :	89.2
FROM :	YP (Pa.s) :	11	HTHPFL (cm3/30min) :	20	HARD/Ca :	160	OIL (%vol) :	.5
TIME :	GEL10s/10m/100m (Pa.s) :	3 5 2	HTHP CAKE (mm) :	2	MBT (ppb) :	12.0	SAND :	.5
WEIGHT (sg):	Fann 3/6/100 :	5 7 25			PM :		PH :	9.5
TEMP (C) :					PF :	.1	PHPA (ppb) :	1.5

Bit Data for Bit # 4RR IADC #				Wear								
				I	O1	D	L	B	G	O2	R	
SIZE (") :	12.25			NOZZLES				Drilled over the last 24 hrs Calculated over the bit run				
MANUFACTURER :	HY	AVE WOB (MT) :	3	5 X 15	METERAGE (m) :			328	CUM.METERAGE (m) :			328
TYPE :	DSX195DGUW	AVE RPM :	175	X 0	ON BOTTOM HRS :			16.0	CUM. ON BOT. HRS :			16.0
SERIAL # :	103926	FLOW (lpm) :	3,232	X 0	IADC DRILL. HRS :			18.0	CUM.IADC DR. HRS :			18.0
DEPTH IN (mRT):	1763	PUMP PRESS.(Kpa):	21,932	X 0	TOTAL REVS :			168,000	CUM.TOT. REVS :			168,000
DEPTH OUT (mRT):	2112	HSI (kW/cm2) :	0.455	X 0	ROP (m/hr) :			20.5	ROP (m/hr) :			20.5

BHA # 6 Length (m): 310.0							
WT BLW JAR (MT):	34	STRING WT (MT):	159	TRQE MAX (Nm):	14	D.C. (1) ANN. VELOCITY (mpm):	72
BHA WT (MT) :	40	PICK UP WT (MT):	161	TRQE ON (Nm):	10	D.C. (2) ANN VELOCITY (mpm):	80
		SLK OFF WT (MT):	156	TRQE OFF (Nm):	5	H.W.D.P. ANN VELOCITY (mpm):	47
						D.P. ANN VELOCITY (mpm) :	47

BHA DESCRIPTION : 311mm (12.25") bit, 311mm (12.25")RR, ARC, Pulse t ool, ILS, Sonic, 311mm (12.25")RR, 1 x 203mm (8")DC,311mmm (12.25")RR, 14 x 203mm (8")DC, Jars, 2 x 203mm (8")DC, x/o, 12 x HWDP

TOOL DESCRIPTION	LENGTH	OD	ID	SERIAL #	HRS	COMMENT
ARC				8031	21.0	
Pulse				130	21.0	
ILS				520	89.0	
ISonic				829	89.0	
Jars				WDAH-02872	96.0	

Survey (Method : Min Curvature)		MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
Last Tool Type :	FEWD										
Magnetic Declination :	0.00										
		1622.2	1622.1	1.67	268.2	268.2	-2.1	0.0	-2.1	-12.4	FEWD
		1652.1	1651.9	1.45	253.8	253.8	-2.2	0.4	-2.2	-13.2	FEWD
		1796.1	1795.9	1.43	250.2	250.2	-3.3	0.0	-3.3	-16.6	FEWD
		1853.4	1853.2	1.50	250.2	250.2	-3.8	0.0	-3.8	-18.0	FEWD
		1911.2	1910.9	1.48	243.7	243.7	-4.4	0.1	-4.4	-19.4	FEWD
		1998.7	1998.4	1.91	243.2	243.2	-5.5	0.1	-5.5	-21.7	FEWD
		2028.1	2027.8	2.08	243.1	243.1	-6.0	0.2	-6.0	-22.6	FEWD
		2085.4	2085.0	2.47	242.1	242.1	-7.1	0.2	-7.1	-24.6	FEWD

Bulk Stocks On Rig	STOCK TYPE & UNITS				START	USED	REC'D	STOCK	STOCK TYPE & UNITS				START	USED	REC'D	STOCK
	Fuel Oil - Rig	M3	364.4	14.5	349.9	Drill Water - Rig	MT	631.0	87.0	542.0	Pot Water - Rig	MT	98.0	26.0	26.0	98.0
Cement HTB - Rig	sxs			0.0	Cement 'G' - Rig	sxs	1490.0		1490.0	Bentonite - Rig	sxs	869.0			869.0	
Barite - Rig	sxs	3543.0	450.0	3093.0	Brine - Rig	MT			0.0	Fuel Oil - Conqueror	M3	396.4			396.4	
Helifuel - Rig	ltr	2795.0		2795.0	Fuel Oil - Conqueror	M3	396.4		396.4	Pot Water - Conqueror	MT	170.0			170.0	
Drill Water - Conqueror	MT	200.0		200.0	Pot Water - Conqueror	MT	170.0		170.0	Cement HTB - Conqueror	sxs				0.0	
Cement 'G' - Conqueror	sxs	0.0		0.0	Cement HTB - Conqueror	sxs			0.0	Barite - Conqueror	sxs				0.0	
Bentonite - Conqueror	sxs	1692.0		1692.0	Barite - Conqueror	sxs			0.0	Brine - Conqueror	MT				0.0	
Brine - Conqueror	MT			0.0	Fuel Oil - Sentinel	M3	376.3	1.0	375.3	Drill Water - Sentinel	MT	0.0			0.0	
Drill Water - Sentinel	MT	0.0		0.0	Pot Water - Sentinel	MT	220.0	5.0	215.0	Cement 'G' - Sentinel	sxs	0.0			0.0	
Cement 'G' - Sentinel	sxs	0.0		0.0	Cement HTB - Sentinel	sxs			0.0	Bentonite - Sentinel	sxs	0.0			0.0	
Bentonite - Sentinel	sxs	0.0		0.0	Barite - Sentinel	sxs	0.0		0.0	Brine - Sentinel	MT				0.0	
Brine - Sentinel	MT			0.0												

Pump Data										
Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152	100	97	1610	22477	30	862	1784.0	1.25
2	Nat'l 12-P-160	152	100	97	1610	22477	40	1379		
3	Nat'l 12-P-160	152		97	0	0	50	2068		
		0			0	0	30	1034	1784.0	1.25
		0			0	0	40	1551		
		0			0	0	50	1896		

Casing						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.
TYPE		LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head		10.70	319	107.1	N-80	Buttress
Non cross joint		12.11	319	107.1	N-80	Buttress
Casing joints		540.92	319	101.2	N-80	Buttress
Float collar joint		36.78	319	107.1	N-80	Buttress
Intermediate joint		24.49	319	107.1	N-80	Buttress
Shoe joint		12.41	321	107.1	N-80	Buttress

Personnel : on Site =86			
4 Santos	34 DOGC	22 TMS (marine)	4 DOGC (other)
2 Anadrill	6 BHI	1 Halliburton	2 IDFS
3 TMT (ROV)	7 Schlumberger	1 Sec DBS core	

Safety, Inspections and Drills		Summary
4 days since last	Fire and Abandon Ship Drill	
1829 days since last	Lost Workday Case	
62 days since last	Medical Treatment Case	
5 days since last	First Aid Case	Derrickman dislocated finger.Finger back in socket
1 days since last	Weekly Safety Meeting	
5 days since last	Trip/Pit Drill	
10 days since last	BOP Test	Tested BOP on stump

Shakers, Volumes and Losses Data				ENGINEER	Carl Jensen / Jasdeep Sing
SHAKER 1 4x145	VOLUME AVAILABLE (m3) =		318	LOSSES (m3) =	61
SHAKER 2 4x145	ACTIVE	87.4	MIXING	0.0	DOWNHOLE
SHAKER 3 4x145	HOLE	159.4	SLUG	0.0	SURF.+EQUIP
SHAKER 4 4x115	RESERVE	71.5	HEAVY	0.0	DUMPED
SHAKER 5					0.00

Anchors						RIS. TENS. (MT) :	
Anc 1 : 129	Anc 2 : 147	Anc 3 : 116	Anc 4 : 104	Anc 5 : 122	Anc 6 : 132	Anc 7 : 152	105
Anc 8 : 102	Anc 9 : 0	Anc 10 : 0					RISER ANGLE (deg): 0.0
							STACK ANGLE(deg): 0.0
Workboats			Weather			V.D.L. (MT) :	
Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)	EstimatedArrival (Port) (Date)(Time)	VISIBILITY(nm) :	12	AVE HEAVE (m) :	1.2	1,967.7
Pacific Conqueror 30.09.02 21:30	3.10.02 0:50	3.10.02 7:00	WIND SP. (kts) :	25.0	MAX HEAVE (m) :	1.2	
Pacific Sentinel 29.09.02 11:46			WIND DIR (deg) :	120	AVE PITCH (deg) :	0.6	
			PRES.(mbars):	1015	MAX PITCH (deg) :	0.6	
			AIR TEMP (C) :	13.0	AVE ROLL (deg) :	0.5	
COMMENTS : Pax on/off Flt #1 6/4.						MAX ROLL (deg) :	
						0.5	

**DATE : Oct 04, 2002**

**FROM : R.King / S.Hodgetts**

**CASINO 2**

**TO : Ole Moller.**

<b>Well Data</b>		M.DEPTH (m BRT)	2,112.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	2,112.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	328.0	SHOE TVD (m BRT)	691	DAILY COST :	\$850,733
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	10.63	FIT (sg)	0.00	CUM COST :	\$5,598,168
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0600 Running wireline logs.					
WATER DEPTH (m) LAT	67.8	PLANNED OP. Continue wireline logging programme.					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**

Completed circulating bottoms up. POOH to log. Ran log #1 and commenced running log #2.

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Oct 04, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
IH2	P		WT	00:00	01:00	1.00	2,112	Flow checked. Made wiper trip to 1755m. Worked tight hole from 1957m 20.5 tonne (45kip) overepull. Back reamed out of hole from 1895m to 1794m.
IH2	TP	TTE	WTH	01:00	02:30	1.50	2,112	Worked tight hole from 1957m 20.5 tonne (45kip) overepull. Back reamed out of hole from 1895m to 1794m.
IH2	P		WT	02:30	03:00	0.50	2,112	Run back to bottom, no problems, no fill.
IH2	P		CIR	03:00	04:30	1.50	2,112	Circulated bottoms up until clean. Boosted riser.
IH2	P		TO	04:30	10:00	5.50	2,112	Flow checked well and POOH to log, hole good. Laid down LWD tools and broke out bit.
E2	P		LOG	10:00	11:30	1.50	2,112	Held JSA and rigged up to run wireline logs.
E2	P		LOG	11:30	18:00	6.50	2,112	Ran log #1 (PEX-HALS-DSI-HNGS). L/O tools.
E2	P		LOG	18:00	19:00	1.00	2,112	Prepared to run log #2. Power problem during surface checks.
E2	TP	LOG	LOG	19:00	19:45	0.75	2,112	Resolved power problem, completed surface checks.
E2	P		LOG	19:45	24:00	4.25	2,112	Ran log #2 (MDT).

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Oct 05, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
E2	P		LOG	00:00	06:00	6.00	2,112	Continued running log #2 (MDT).

<b>WBM Data</b>	COST TODAY : (\$4,846)	CUM. WB MUD COST: \$223,611	CUM. WBM+OBM COST: \$223,611						
<b>Type :</b>	<b>KCL-PHPA</b>	VISCOCITY (sec/ltr) :	57	API FLUID LOSS (cm3/30min) :	5	CI :	33,000	SOLIDS (%vol) :	10.
FROM :	Pit	PV (Pa.s) :	0	FILTER CAKE (mm) :	1	K+C*1000 :	37800	H2O (%vol) :	89.2
TIME :	21:00	YP (Pa.s) :	11	HTHPFL (cm3/30min) :	22	HARD/Ca :	400	OIL (%vol) :	
WEIGHT (sg):	1.24	GEL10s/10m/100m (Pa.s) :	3 5 2	HTHP CAKE	2	MBT (ppb) :	13.0	SAND :	.4
TEMP (C) :		Fann 3/6/100 :	5 7 25			PM :		PH :	9.0
						PF :	.4	PHPA (ppb) :	1.5
COMMENT: negative daily cost due to stock correction.									

<b>Bit Data for Bit # 4RR IADC #</b>				<b>Wear</b>								
<b>SIZE (") :</b>	<b>12.25</b>	<b>AVE WOB (MT) :</b>	<b>0</b>	<b>NOZZLES</b>	<b>5 X 15</b>	Drilled over the last 24 hrs			Calculated over the bit run			
MANUFACTURER :	HY	<b>AVE RPM :</b>	<b>0</b>	<b>X 0</b>	<b>METERAGE (m) :</b>	<b>0</b>	<b>CUM.METERAGE (m) :</b>			<b>328</b>		
TYPE :	DSX195DGUW	<b>FLOW (lpm) :</b>	<b>0</b>	<b>X 0</b>	<b>ON BOTTOM HRS :</b>	<b>.0</b>	<b>CUM. ON BOT. HRS :</b>			<b>16.0</b>		
SERIAL # :	103926	<b>PUMP PRESS.(Kpa):</b>	<b>0</b>	<b>X 0</b>	<b>IADC DRILL. HRS :</b>	<b>.0</b>	<b>CUM.IADC DR. HRS:</b>			<b>18.0</b>		
DEPTH IN (mRT):	1763	<b>HSI (kW/cm2) :</b>	<b>0.000</b>	<b>X 0</b>	<b>TOTAL REVS :</b>	<b>0</b>	<b>CUM.TOT. REVS :</b>			<b>0</b>		
DEPTH OUT (mRT):	2112			<b>X 0</b>	<b>ROP (m/hr) :</b>		<b>ROP (m/hr) :</b>			<b>20.5</b>		



<b>Survey</b> (Method : Min Curvature)		MD	TVD	INCL	AZ	CORR.	'V'	DOGLEG	N/S	E/W	TOOL TYPE
Last Tool Type : FEWD		(mBRT)	(mBRT)	DEG	(deg)	AZ	SECT	(deg/30m)	(m)	(m)	
Magnetic Declination : 0.00						(deg)	(m)				
		1622.2	1622.1	1.67	268.2	268.2	-2.1	0.0	-2.1	-12.4	FEWD
		1652.1	1651.9	1.45	253.8	253.8	-2.2	0.4	-2.2	-13.2	FEWD
		1796.1	1795.9	1.43	250.2	250.2	-3.3	0.0	-3.3	-16.6	FEWD
		1853.4	1853.2	1.50	250.2	250.2	-3.8	0.0	-3.8	-18.0	FEWD
		1911.2	1910.9	1.48	243.7	243.7	-4.4	0.1	-4.4	-19.4	FEWD
		1998.7	1998.4	1.91	243.2	243.2	-5.5	0.1	-5.5	-21.7	FEWD
		2028.1	2027.8	2.08	243.1	243.1	-6.0	0.2	-6.0	-22.6	FEWD
		2085.4	2085.0	2.47	242.1	242.1	-7.1	0.2	-7.1	-24.6	FEWD

<b>Bulk Stocks On Rig</b>	<b>STOCK TYPE &amp; UNITS</b>		<b>START</b>	<b>USED</b>	<b>REC'D</b>	<b>STOCK</b>	<b>STOCK TYPE &amp; UNITS</b>		<b>START</b>	<b>USED</b>	<b>REC'D</b>	<b>STOCK</b>
	Fuel Oil - Rig	M3	349.9	12.0		337.9	Drill Water - Rig	MT	542.0	29.0		513.0
	Pot Water - Rig	MT	98.0	23.0	23.0	98.0	Cement 'G' - Rig	sxs	1490.0			1490.0
	Cement HTB - Rig	sxs				0.0	Bentonite - Rig	sxs	869.0			869.0
	Barite - Rig	sxs	3093.0	34.0		3059.0	Brine - Rig	MT				0.0
	Helifuel - Rig	ltr	2795.0	198.0		2597.0	Fuel Oil - Conqueror	M3	396.4			396.4
	Drill Water - Conqueror	MT	200.0			200.0	Pot Water - Conqueror	MT	170.0			170.0
	Cement 'G' - Conqueror	sxs	0.0			0.0	Cement HTB - Conqueror	sxs				0.0
	Bentonite - Conqueror	sxs	1692.0			1692.0	Barite - Conqueror	sxs				0.0
	Brine - Conqueror	MT				0.0	Fuel Oil - Sentinel	M3	375.3	5.6		369.7
	Drill Water - Sentinel	MT	0.0			0.0	Pot Water - Sentinel	MT	215.0	5.0		210.0
	Cement 'G' - Sentinel	sxs	0.0			0.0	Cement HTB - Sentinel	sxs				0.0
	Bentonite - Sentinel	sxs	0.0			0.0	Barite - Sentinel	sxs	0.0			0.0
	Brine - Sentinel	MT				0.0						

<b>Pump Data</b>										
Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152		97	0	0	30	862	1784.0	1.25
		0			0	0	40	1379		
		0			0	0	50	2068		
2	Nat'l 12-P-160	152		97	0	0	30	1034	1784.0	1.25
		0			0	0	40	1551		
		0			0	0	50	1896		
3	Nat'l 12-P-160	152		97	0	0		0		

<b>Casing</b>						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	10.70	319	107.1	N-80	Buttress
Non cross joint	12.11	319	107.1	N-80	Buttress
Casing joints	540.92	319	101.2	N-80	Buttress
Float collar joint	36.78	319	107.1	N-80	Buttress
Intermediate joint	24.49	319	107.1	N-80	Buttress
Shoe joint	12.41	321	107.1	N-80	Buttress

<b>Personnel : on Site =85</b>			
4 Santos	34 DOGC	22 TMS (marine)	3 DOGC (other)
2 Anadrill	6 BHI	1 Halliburton	2 IDFS
3 TMT (ROV)	7 Schlumberger	1 Sec DBS core	

Safety, Inspections and Drills		Summary
5 days since last	Fire and Abandon Ship Drill	
1830 days since last	Lost Workday Case	
63 days since last	Medical Treatment Case	
6 days since last	First Aid Case	Derrickman dislocated finger.Finger back in socket
2 days since last	Weekly Safety Meeting	
6 days since last	Trip/Pit Drill	
11 days since last	BOP Test	Tested BOP on stump

Shakers, Volumes and Losses Data				ENGINEER Carl Jensen / Jasdeep Sing				
SHAKER 1	4x145	<b>VOLUME AVAILABLE (m3) =</b>		<b>316</b>	<b>LOSSES (m3) =</b>	<b>3</b>	<b>COMMENTS</b>	
SHAKER 2	4x145	ACTIVE	79.5	MIXING	0.0	DOWNHOLE		1.27
SHAKER 3	4x145	HOLE	172.6	SLUG	0.0	SURF.+EQUIP		1.59
SHAKER 4	4x115	RESERVE	63.6	HEAVY	0.0	DUMPED		0.00
SHAKER 5								

Anchors							RIS. TENS. (MT) :		105	
Anc 1 :	136	Anc 2 :	154	Anc 3 :	116	Anc 4 :	100	Anc 5 :	113	
Anc 6 :	127	Anc 7 :	159	Anc 8 :	109	Anc 9 :	0	Anc 10 :	0	
Workboats							Weather		RISER ANGLE (deg):	0.0
	Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)	EstimatedArrival (Port) (Date)(Time)				VISIBILITY(nm) :	10	STACK ANGLE(deg):	0.0
Pacific Conqueror	30.09.02 21:30	3.10.02 0:50	3.10.02	7:00			WIND SP. (kts) :	30.0	V.D.L. (MT) :	1,925.3
Pacific Sentinel	29.09.02 11:46						WIND DIR (deg) :	130	AVE HEAVE (m) :	1.2
							PRES.(mbars):	1017	MAX HEAVE (m) :	1.8
							AIR TEMP (C) :	13.0	AVE PITCH (deg) :	0.8
COMMENTS : Pax on/off Flt #1 7/8.									MAX PITCH (deg) :	0.8
									AVE ROLL (deg) :	0.7
									MAX ROLL (deg) :	0.7

**DATE : Oct 05, 2002**

**FROM : R.King / S.Hodgetts**  
**TO : Ole Moller.**

**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	2,112.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	2,112.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	328.0	SHOE TVD (m BRT)	691	DAILY COST :	\$340,136
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	11.63	FIT (sg)	0.00	CUM COST :	\$5,938,304
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0600 Laying out tubulars while waiting on cement plug #2.					
WATER DEPTH (m) LAT	67.8	PLANNED OP. Continue P & A programme.					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**

Completed running log #2. Run Log #3. Rigged down Coflexip hose. RIH with 89mm tubing on DP. Prepare to set plug #1.

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Oct 05, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
E2	P		LOG	00:00	08:30	8.50	2,112	Continued running log #2 (MDT).
E2	P		LOG	08:30	14:00	5.50	2,112	Ran log #3 (CST), shot 30, rec 26, empty 4, lost 0. Rigged down wireline.
ABN	P		HBH	14:00	17:00	3.00	2,112	Rigged down coflexip test lines and Anadrill 'T' manifold from standpipe.
ABN	P		TI	17:00	23:00	6.00	2,112	Picked up 89mm (3.5") tubing cement stinger and RIH on DP.
ABN	P		CIR	23:00	24:00	1.00	2,112	Break circulation and spot 50bbl Hivis pill on bottom.

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Oct 06, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
ABN	P		CMP	00:00	01:30	1.50	2,112	POOH to 2000m. Set cement plug #1 (452sx) from 2000 to 1825m.
ABN	P		TO	01:30	02:00	0.50	2,112	POOH slowly to 1825m.
ABN	P		CMP	02:00	03:00	1.00	2,112	Set cement plug #2 (904sx) from 1825 to 1550m.
ABN	P		TO	03:00	04:00	1.00	2,112	POOH slowly to 1520m.
ABN	P		CIR	04:00	05:00	1.00	2,112	Reverse circulated string clean dumping contaminated mud.
ABN	P		CIR	05:00	06:00	1.00	2,112	POOH laying out excess tubulars while waiting on cement.

<b>WBM Data</b>	COST TODAY : \$2,441	CUM. WB MUD COST: \$226,052	CUM. WBM+OBM COST: \$226,052					
<b>Type :</b>	VISCOACITY (sec/ltr) :	57	API FLUID LOSS (cm3/30min) :	5	Cl :	33,000	SOLIDS (%vol) :	10.
<b>KCL-PHPA</b>	PV (Pa.s) :	0	FILTER CAKE (mm) :	1	K+C*1000 :	37800	H2O (%vol) :	89.2
FROM : Pit	YP (Pa.s) :	11	HHPFL (cm3/30min) :	22	HARD/Ca :	400	OIL (%vol) :	
TIME : 23:00	GEL10s/10m/100m (Pa.s) :	3 5 2	HHP CAKE	2	MBT (ppb) :	13.0	SAND :	.4
WEIGHT (sg): 1.24	Fann 3/6/100 :	5 7 25			PM :		PH :	9.0
TEMP (C) :					PF :	.4	PHPA (ppb) :	1.5

<b>Survey</b> (Method : Min Curvature)	MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
Last Tool Type :	FEWD									
Magnetic Declination :	0.00									
	1622.2	1622.1	1.67	268.2	268.2	-2.1	0.0	-2.1	-12.4	FEWD
	1652.1	1651.9	1.45	253.8	253.8	-2.2	0.4	-2.2	-13.2	FEWD
	1796.1	1795.9	1.43	250.2	250.2	-3.3	0.0	-3.3	-16.6	FEWD
	1853.4	1853.2	1.50	250.2	250.2	-3.8	0.0	-3.8	-18.0	FEWD
	1911.2	1910.9	1.48	243.7	243.7	-4.4	0.1	-4.4	-19.4	FEWD
	1998.7	1998.4	1.91	243.2	243.2	-5.5	0.1	-5.5	-21.7	FEWD
	2028.1	2027.8	2.08	243.1	243.1	-6.0	0.2	-6.0	-22.6	FEWD
	2085.4	2085.0	2.47	242.1	242.1	-7.1	0.2	-7.1	-24.6	FEWD

Bulk Stocks On Rig	STOCK TYPE & UNITS					STOCK	STOCK TYPE & UNITS					STOCK
	START	USED	REC'D	START	USED		REC'D	START	USED	REC'D		
Fuel Oil - Rig	M3	337.9	4.8		333.1	Drill Water - Rig	MT	513.0	61.0		452.0	
Pot Water - Rig	MT	98.0	22.0	22.0	98.0	Cement 'G' - Rig	sxs	1490.0			1490.0	
Cement HTB - Rig	sxs				0.0	Bentonite - Rig	sxs	869.0			869.0	
Barite - Rig	sxs	3059.0			3059.0	Brine - Rig	MT				0.0	
Helifuel - Rig	ltr	2597.0	209.0		2388.0	Fuel Oil - Conqueror	M3	342.9	8.3		334.6	
Drill Water - Conqueror	MT	200.0		400.0	600.0	Pot Water - Conqueror	MT	170.0	5.0		165.0	
Cement 'G' - Conqueror	sxs	0.0		971.0	971.0	Cement HTB - Conqueror	sxs				0.0	
Bentonite - Conqueror	sxs	1692.0			1692.0	Barite - Conqueror	sxs				0.0	
Brine - Conqueror	MT				0.0	Fuel Oil - Sentinel	M3	369.7	9.6		360.1	
Drill Water - Sentinel	MT	0.0			0.0	Pot Water - Sentinel	MT	210.0	5.0		205.0	
Cement 'G' - Sentinel	sxs	0.0			0.0	Cement HTB - Sentinel	sxs				0.0	
Bentonite - Sentinel	sxs	0.0			0.0	Barite - Sentinel	sxs	0.0			0.0	
Brine - Sentinel	MT				0.0							

**Pump Data**

Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152		97	0	0	30	862	1784.0	1.25
		0			0	0	40	1379		
		0			0	0	50	2068		
2	Nat'l 12-P-160	152		97	0	0	30	1034	1784.0	1.25
		0			0	0	40	1551		
		0			0	0	50	1896		
3	Nat'l 12-P-160	152		97	0	0		0		

**Casing**

DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	10.70	319	107.1	N-80	Buttress
Non cross joint	12.11	319	107.1	N-80	Buttress
Casing joints	540.92	319	101.2	N-80	Buttress
Float collar joint	36.78	319	107.1	N-80	Buttress
Intermediate joint	24.49	319	107.1	N-80	Buttress
Shoe joint	12.41	321	107.1	N-80	Buttress

**Personnel : on Site =81**

4 Santos	33 DOGC	22 TMS (marine)	2 DOGC (other)
1 Anadrill	3 BHI	1 Halliburton	1 IDFS
3 TMT (ROV)	7 Schlumberger	3 Expro	1 DrillQuip

**Safety, Inspections and Drills Summary**

6 days since last	Fire and Abandon Ship Drill
1831 days since last	Lost Workday Case
64 days since last	Medical Treatment Case
7 days since last	First Aid Case Derrickman dislocated finger.Finger back in socket
3 days since last	Weekly Safety Meeting
7 days since last	Trip/Pit Drill
12 days since last	BOP Test Tested BOP on stump

Shakers, Volumes and Losses Data							ENGINEER Carl Jensen	
SHAKER 1 4x145	VOLUME AVAILABLE (m3) =			297	LOSSES (m3) =		0	COMMENTS
SHAKER 2 4x145	ACTIVE	79.5	MIXING	0.0	DOWNHOLE	0.00		
SHAKER 3 4x145	HOLE	154.4	SLUG	0.0	SURF.+EQUIP	0.00		
SHAKER 4 4x115	RESERVE	63.6	HEAVY	0.0	DUMPED	0.00		
SHAKER 5								

Anchors							RIS. TENS. (MT) : 105	
Anc 1 : 127	Anc 2 : 145	Anc 3 : 118	Anc 4 : 107	Anc 5 : 127			RISER ANGLE (deg): 0.0	
Anc 6 : 136	Anc 7 : 145	Anc 8 : 98	Anc 9 : 0	Anc 10 : 0			STACK ANGLE(deg): 0.0	

Workboats				EstimatedArrival (Port)		Weather	
	Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)		(Date)(Time)	(Date)(Time)		
Pacific Conqueror	5.10.02 2:30	5.10.02 20:25		6.10.02 2:00		VISIBILITY(nm) : 10	AVE HEAVE (m) : 0.9
Pacific Sentinel	29.09.02 11:46					WIND SP. (kts) : 25.0	MAX HEAVE (m) : 1.5
						WIND DIR (deg) : 140	AVE PITCH (deg) : 0.5
						PRES.(mbars): 1015	MAX PITCH (deg) : 0.8
						AIR TEMP (C) : 13.0	AVE ROLL (deg) : 0.3
							MAX ROLL (deg) : 0.7

COMMENTS : Pax on/off Flt #1 4/8.

**DATE : Oct 06, 2002**

**FROM : R.King / S.Hodgetts**  
**TO : Ole Moller.**

**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	2,112.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	2,112.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)		SHOE TVD (m BRT)	691	DAILY COST :	\$351,248
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	12.63	FIT (sg)	0.00	CUM COST :	\$6,289,552
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0600 Laying out remaining drill string.					
WATER DEPTH (m) LAT	67.8	PLANNED OP. Continue P & A programme. Pull BOP, recover wellhead, backload, pull anchors.					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**  
Set P & A cement plugs #1 & 2. Tagged #2, pulled out laying out excess tubulars. Set plug #3 across shoe. Continued laying out DP. Tagged plug #3.

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Oct 06, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
ABN	P		CMP	00:00	01:30	1.50	2,112	POOH to 2000m. Set 175m 1.9sg (15.8ppg) cement plug #1, 14.8 m3 (94bbl) slurry (452sx 'G' cement) from 2000 to 1825m.
ABN	P		TO	01:30	02:00	0.50	2,112	POOH slowly to 1825m.
ABN	P		CMP	02:00	03:00	1.00	2,112	Set 275m 1.9sg (15.8ppg) cement plug #2, 29.7 m3 (187bbl) slurry (904sx 'G' cement) from 1825 to 1550m.
ABN	P		TO	03:00	04:00	1.00	2,112	POOH slowly to 1520m.
ABN	P		CIR	04:00	05:00	1.00	2,112	Reverse circulated string clean dumping contaminated mud.
ABN	P		LDP	05:00	11:30	6.50	2,112	POOH laying out excess tubulars while waiting on cement.
ABN	P		TI	11:30	12:00	0.50	2,112	RIH and tagged TOC plug #2 at 1520m with 4.5 tonne (10 kip).
ABN	P		LDP	12:00	14:30	2.50	2,112	POOH to 780m. Laid out excess DP. Spotted (30bbl) hi vis pill. POOH to 720m.
ABN	P		CMP	14:30	15:30	1.00	2,112	Set 80m 1.9sg (15.8ppg) cement plug #3, 720-640m, 12.7m3 (80bbbl) slurry (387sx 'G' cement).
ABN	P		CMP	15:30	16:00	0.50	2,112	Pulled back to 605m and reverse circulated the 6.4m3 (40bbbls) at 2.7 MPa (400psi).
ABN	P		LDP	16:00	21:00	5.00	2,112	Laid out DP from 605 to 185m.
ABN	P		CMP	21:00	22:00	1.00	2,112	RIH and tagged TOC plug #3 at 608m with 4.5 tonne (10 kip).
ABN	P		LDP	22:00	24:00	2.00	2,112	POOH laying out 127mm (5") DP and 89mm (3.5") tubing stinger.

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Oct 07, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
ABN	P		LDP	00:00	01:00	1.00	2,112	Continued laying out 89mm (3.5") tubing stinger.
ABN	P		BOP	01:00	02:00	1.00	2,112	M/U wearbushing R/T, RIH. Latched wearbushing and pulled with 27.2 tonne (60kip) overpull. POOH.
ABN	P		CMP	02:00	03:30	1.50	2,112	M/U 340mm (13.3/8") bridge plug, RIH. Set packer at 177m, pulled back above packer and rigged to set cement plug.
ABN	P		CMP	03:30	04:00	0.50	2,112	Pumped (5bbbls) water ahead. Tested packer and cement lines to 6.9 MPa (1000psi). Set 50m 1.9sg (15.8ppg) cement plug #4, 177-127m, 3.9m3 (24.7bbbl) slurry (120sx 'G' cement).
ABN	P		CIR	04:00	05:30	1.50	2,112	Pulled back to 120m and reverse circulated. Displaced hole to seawater, flushed lines.
ABN	P		LDP	05:30	06:00	0.50	2,112	POOH laying out remaining tubulars.

<b>Survey</b> (Method : Min Curvature)		MD	TVD	INCL	AZ	CORR.	'V'	DOGLEG	N/S	E/W	TOOL TYPE
Last Tool Type : FEWD		(mBRT)	(mBRT)	DEG	(deg)	AZ	SECT	(deg/30m)	(m)	(m)	
Magnetic Declination : 0.00						(deg)	(m)				
		1622.2	1622.1	1.67	268.2	268.2	-2.1	0.0	-2.1	-12.4	FEWD
		1652.1	1651.9	1.45	253.8	253.8	-2.2	0.4	-2.2	-13.2	FEWD
		1796.1	1795.9	1.43	250.2	250.2	-3.3	0.0	-3.3	-16.6	FEWD
		1853.4	1853.2	1.50	250.2	250.2	-3.8	0.0	-3.8	-18.0	FEWD
		1911.2	1910.9	1.48	243.7	243.7	-4.4	0.1	-4.4	-19.4	FEWD
		1998.7	1998.4	1.91	243.2	243.2	-5.5	0.1	-5.5	-21.7	FEWD
		2028.1	2027.8	2.08	243.1	243.1	-6.0	0.2	-6.0	-22.6	FEWD
		2085.4	2085.0	2.47	242.1	242.1	-7.1	0.2	-7.1	-24.6	FEWD

<b>Bulk Stocks On Rig</b>	<b>STOCK TYPE &amp; UNITS</b>		<b>START USED REC'D STOCK</b>				<b>STOCK TYPE &amp; UNITS</b>		<b>START USED REC'D STOCK</b>			
	Fuel Oil - Rig	M3	333.1	9.7		323.4	Drill Water - Rig	MT	452.0	58.0		394.0
	Pot Water - Rig	MT	98.0	24.0	24.0	98.0	Cement 'G' - Rig	sxs	1490.0	1894.0	971.0	567.0
	Cement HTB - Rig	sxs				0.0	Bentonite - Rig	sxs	869.0			869.0
	Barite - Rig	sxs	3059.0			3059.0	Brine - Rig	MT				0.0
	Helifuel - Rig	ltr	2388.0	271.0		2117.0	Fuel Oil - Conqueror	M3	334.6	4.1		330.5
	Drill Water - Conqueror	MT	600.0			600.0	Pot Water - Conqueror	MT	165.0	5.0		160.0
	Cement 'G' - Conqueror	sxs	971.0			0.0	Cement HTB - Conqueror	sxs				0.0
	Bentonite - Conqueror	sxs	1692.0			1692.0	Barite - Conqueror	sxs				0.0
	Brine - Conqueror	MT				0.0	Fuel Oil - Sentinel	M3	360.1	10.7		349.4
	Drill Water - Sentinel	MT	0.0			0.0	Pot Water - Sentinel	MT	205.0	5.0		200.0
	Cement 'G' - Sentinel	sxs	0.0			0.0	Cement HTB - Sentinel	sxs				0.0
	Bentonite - Sentinel	sxs	0.0			0.0	Barite - Sentinel	sxs	0.0			0.0
	Brine - Sentinel	MT				0.0						

<b>Pump Data</b>										
Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152		97	0	0	30	862	1784.0	1.25
		0			0	0	40	1379		
		0			0	0	50	2068		
2	Nat'l 12-P-160	152		97	0	0	30	1034	1784.0	1.25
		0			0	0	40	1551		
		0			0	0	50	1896		
3	Nat'l 12-P-160	152		97	0	0		0		

<b>Casing</b>						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	10.70	319	107.1	N-80	Buttress
Non cross joint	12.11	319	107.1	N-80	Buttress
Casing joints	540.92	319	101.2	N-80	Buttress
Float collar joint	36.78	319	107.1	N-80	Buttress
Intermediate joint	24.49	319	107.1	N-80	Buttress
Shoe joint	12.41	321	107.1	N-80	Buttress

<b>Personnel : on Site =81</b>			
2 Santos	33 DOGC	22 TMS (marine)	3 DOGC (other)
2 BHI	1 Halliburton	6 TMT (ROV)	4 Schlumberger
5 Expro	1 DrilQuip	2 Smith	

Safety, Inspections and Drills		Summary
0 days since last	Fire and Abandon Ship Drill	
1832 days since last	Lost Workday Case	
65 days since last	Medical Treatment Case	
0 days since last	First Aid Case	Roustabout bruising & swelling on 2 fingers.
4 days since last	Weekly Safety Meeting	
8 days since last	Trip/Pit Drill	
13 days since last	BOP Test	Tested BOP on stump

Anchors		Anchors				Anchors		Anchors		Anchors		RIS. TENS. (MT) :		
Anc 1 :	120	Anc 2 :	1338	Anc 3 :	118	Anc 4 :	132	Anc 5 :	109			RIS. TENS. (MT) :	105	
Anc 6 :	136	Anc 7 :	143	Anc 8 :	95	Anc 9 :	0	Anc 10 :	0			RISER ANGLE (deg):	0.0	
<b>Workboats</b>		Arrived @ Rig (Date)(Time)		Depart from Rig (Date)(Time)		EstimatedArrival (Port) (Date)(Time)		<b>Weather</b>				STACK ANGLE(deg):		0.0
Pacific Conqueror	6.10.02 12:30	6.10.02 14:42	6.10.02 19:20	VISIBILITY(nm) :		5		V.D.L. (MT) :		1,720.4		AVE HEAVE (m) :		1.2
Pacific Sentinel	29.09.02 11:46			WIND SP. (kts) :		30.0		MAX HEAVE (m) :		1.5		AVE PITCH (deg) :		0.7
COMMENTS : Pax on/off Flt #1 8/8.				WIND DIR (deg) :		350		PRES.(mbars):		1012		MAX PITCH (deg) :		0.7
				AIR TEMP (C) :		17.0		AVE ROLL (deg) :		0.5		MAX ROLL (deg) :		0.5



**DATE : Oct 07, 2002**

**FROM : R.King / S.Hodgetts**  
**TO : Ole Moller.**

**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	2,112.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	2,112.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)		SHOE TVD (m BRT)	691	DAILY COST :	\$323,726
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	13.63	FIT (sg)	0.00	CUM COST :	\$6,613,278
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0600 Cutting 762mm (30") wellhead.					
WATER DEPTH (m) LAT	67.8	PLANNED OP. Recover wellhead, PGB, TGB. Lay out remaining tubulars. Backload, pull anchors.					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**

L/O 89mm (3.5") tubing. Retrieved wearbushing. Ran & set bridge plug. Set cement plug #4. Displaced riser and pulled BOP. Commenced cutting wellhead housings.

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Oct 07, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
ABN	P		LDP	00:00	01:00	1.00	2,112	Continued laying out 89mm (3.5") tubing stinger.
ABN	P		BOP	01:00	02:00	1.00	2,112	M/U wearbushing R/T, RIH. Latched wearbushing and pulled with 27.2 tonne (60kip) overpull. POOH.
ABN	P		CMP	02:00	03:30	1.50	2,112	M/U 340mm (13.3/8") bridge plug, RIH. Set packer at 177m, pulled back above packer and rigged to set cement plug.
ABN	P		CMP	03:30	04:00	0.50	2,112	Pumped (5bbbls) water ahead. Tested packer and cement lines to 6.9 MPa (1000psi). Set 50m 1.9sg (15.8ppg) cement plug #4, 177-127m, 3.9m3 (24.7bbbl) slurry (120sx 'G' cement).
ABN	P		CIR	04:00	05:30	1.50	2,112	Pulled back to 120m and reverse circulated. Displaced hole to seawater, flushed lines.
ABN	P		LDP	05:30	06:00	0.50	2,112	POOH laying out remaining tubulars.
ABN	P		BOP	06:00	09:00	3.00	2,112	Held JSA, rigged to pull BOP and pulled diverter.
ABN	P		BOP	09:00	13:30	4.50	2,112	P/U landing joint & M/U to slip joint. Unlatched BOP, rigged down MRT's, pod line saddles, ruckers, C & K lines.
ABN	P		BOP	13:30	19:00	5.50	2,112	Pulled BOP, laid out landing joint, slip joint and riser. Landed BOP's on skid beams and secured. Split stack and stood back.
ABN	P		WH	19:00	22:30	3.50	2,112	Picked up and made up 508/762mm (20"/30") casing cutter assembly, RIH and set to cut at 95m.
ABN	P		WH	22:30	24:00	1.50	2,112	Made cut on 508/762mm (20"/30") casing at 95m with 9 tonne (20 kip) O/P. 110rpm & 6.2MPa (900psi).

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Oct 08, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
ABN	P		WH	00:00	00:30	0.50	2,112	Pulled 476mm (18.3/4") wellhead housing free separated from 762mm (30") housing. POOH.
ABN	P		WH	00:30	01:00	0.50	2,112	Laid out 476mm (18.3/4") wellhead housing.
ABN	P		WH	01:00	02:00	1.00	2,112	Changed out cutter assembly for 762mm (30") service.
ABN	P		WH	02:00	02:30	0.50	2,112	RIH with cutting assembly and positioned to complete cutting.
ABN	P		WH	02:30	06:00	3.50	2,112	Stabbed into housing, took 58.9 tonne (130kip) overpull and made cut on conductor (02:45) with 13.6 tonne (30kip) tension.

<b>Survey</b> (Method : Min Curvature)		MD	TVD	INCL	AZ	CORR.	'V'	DOGLEG	N/S	E/W	TOOL TYPE
Last Tool Type : FEWD		(mBRT)	(mBRT)	DEG	(deg)	AZ	SECT	(deg/ 30m)	(m)	(m)	
Magnetic Declination : 0.00						(deg)	(m)				
		1622.2	1622.1	1.67	268.2	268.2	-2.1	0.0	-2.1	-12.4	FEWD
		1652.1	1651.9	1.45	253.8	253.8	-2.2	0.4	-2.2	-13.2	FEWD
		1796.1	1795.9	1.43	250.2	250.2	-3.3	0.0	-3.3	-16.6	FEWD
		1853.4	1853.2	1.50	250.2	250.2	-3.8	0.0	-3.8	-18.0	FEWD
		1911.2	1910.9	1.48	243.7	243.7	-4.4	0.1	-4.4	-19.4	FEWD
		1998.7	1998.4	1.91	243.2	243.2	-5.5	0.1	-5.5	-21.7	FEWD
		2028.1	2027.8	2.08	243.1	243.1	-6.0	0.2	-6.0	-22.6	FEWD
		2085.4	2085.0	2.47	242.1	242.1	-7.1	0.2	-7.1	-24.6	FEWD

<b>Bulk Stocks On Rig</b>	<b>STOCK TYPE &amp; UNITS</b>		<b>START</b>	<b>USED</b>	<b>REC'D</b>	<b>STOCK</b>	<b>STOCK TYPE &amp; UNITS</b>		<b>START</b>	<b>USED</b>	<b>REC'D</b>	<b>STOCK</b>
	Fuel Oil - Rig	M3	323.4	7.2		316.2	Drill Water - Rig	MT	394.0	31.0		363.0
	Pot Water - Rig	MT	98.0	23.0	23.0	98.0	Cement 'G' - Rig	sxs	567.0	397.0		170.0
	Cement HTB - Rig	sxs				0.0	Bentonite - Rig	sxs	869.0			869.0
	Barite - Rig	sxs	3059.0			3059.0	Brine - Rig	MT				0.0
	Helifuel - Rig	ltr	2117.0	388.0		1729.0	Fuel Oil - Conqueror	M3	330.5	23.9		306.6
	Drill Water - Conqueror	MT	600.0			600.0	Pot Water - Conqueror	MT	160.0	5.0	30.0	185.0
	Cement 'G' - Conqueror	sxs	0.0			0.0	Cement HTB - Conqueror	sxs				0.0
	Bentonite - Conqueror	sxs	1692.0			1692.0	Barite - Conqueror	sxs				0.0
	Brine - Conqueror	MT				0.0	Fuel Oil - Sentinel	M3	349.4	5.4		344.0
	Drill Water - Sentinel	MT	0.0			0.0	Pot Water - Sentinel	MT	200.0	5.0		195.0
	Cement 'G' - Sentinel	sxs	0.0			0.0	Cement HTB - Sentinel	sxs				0.0
	Bentonite - Sentinel	sxs	0.0			0.0	Barite - Sentinel	sxs	0.0			0.0
	Brine - Sentinel	MT				0.0						

<b>Pump Data</b>										
Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152		97	0	0	30	862	1784.0	1.25
		0			0	0	40	1379		
		0			0	0	50	2068		
2	Nat'l 12-P-160	152		97	0	0	30	1034	1784.0	1.25
		0			0	0	40	1551		
		0			0	0	50	1896		
3	Nat'l 12-P-160	152		97	0	0		0		

<b>Casing</b>						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	10.70	319	107.1	N-80	Buttress
Non cross joint	12.11	319	107.1	N-80	Buttress
Casing joints	540.92	319	101.2	N-80	Buttress
Float collar joint	36.78	319	107.1	N-80	Buttress
Intermediate joint	24.49	319	107.1	N-80	Buttress
Shoe joint	12.41	321	107.1	N-80	Buttress

<b>Personnel : on Site =74</b>			
3 Santos	34 DOGC	22 TMS (marine)	2 DOGC (other)
2 BHI	1 Halliburton	6 TMT (ROV)	1 Schlumberger
1 DrilQuip	2 Smith		

Safety, Inspections and Drills		Summary
1 days since last	Fire and Abandon Ship Drill	
1833 days since last	Lost Workday Case	
66 days since last	Medical Treatment Case	
1 days since last	First Aid Case	Roustabout bruising & swelling on 2 fingers.
5 days since last	Weekly Safety Meeting	
9 days since last	Trip/Pit Drill	
14 days since last	BOP Test	Tested BOP on stump
0 days since last	Incident	Dropped Object

Anchors		Anchors						Weather			
Anc 1 :	118	Anc 2 :	129	Anc 3 :	145	Anc 4 :	138	Anc 5 :	150	RIS. TENS. (MT) :	0
Anc 6 :	150	Anc 7 :	132	Anc 8 :	91	Anc 9 :	0	Anc 10 :	0	RISER ANGLE (deg):	0.0
<b>Workboats</b>		Arrived @ Rig (Date)(Time)		Depart from Rig (Date)(Time)		EstimatedArrival (Port) (Date)(Time)					
Pacific Conqueror	7.10.02	10:30						<b>Weather</b>			
Pacific Sentinel	29.09.02	11:46	7.10.02	10:30	7.10.02	20:00					
								VISIBILITY(nm) :	5	STACK ANGLE(deg):	0.0
								WIND SP. (kts) :	45.0	V.D.L. (MT) :	1,696.5
								WIND DIR (deg) :	300	AVE HEAVE (m) :	
								PRES.(mbars):	998	MAX HEAVE (m) :	
								AIR TEMP (C) :	12.0	AVE PITCH (deg) :	1.5
COMMENTS :		Pax on/off		Flt #1 8/8,		Flt #2 1/8.					
								AVE ROLL (deg) :	1.0	MAX PITCH (deg) :	1.5
								MAX ROLL (deg) :	1.0		

**DATE : Oct 08, 2002**

**FROM : R.King / S.Hodgetts**  
**TO : Ole Moller.**

**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	2,112.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	2,112.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)		SHOE TVD (m BRT)	691	DAILY COST :	\$372,028
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	14.63	FIT (sg)	0.00	CUM COST :	\$6,985,306
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0600 Attempting to recover 762mm (30") wellhead.					
WATER DEPTH (m) LAT	67.8	PLANNED OP. Recover wellhead, PGB, TGB. Lay out remaining tubulars. Backload Santos and contractor equipment, pull anchors.					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**

Continued cutting wellhead housings. Replaced 2 sets of knives. Attempted overpull after positive indications without success. Release grapple and POOH. Continued to WOW to backload vessels.

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Oct 08, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
ABN	P		WH	00:00	00:30	0.50	2,112	Pulled 476mm (18.3/4") wellhead housing free separated from 762mm (30") housing. POOH.
ABN	P		WH	00:30	01:00	0.50	2,112	Laid out 476mm (18.3/4") wellhead housing.
ABN	P		WH	01:00	02:00	1.00	2,112	Changed out cutter assembly for 762mm (30") service.
ABN	P		WH	02:00	02:30	0.50	2,112	RIH with cutting assembly and positioned to complete cutting.
ABN	P		WH	02:30	11:00	8.50	2,112	Stabbed into housing, took 58.9 tonne (130kip) overpull and made cut on conductor (02:45) with 13.6 tonne (30kip) tension.
ABN	P		WH	11:00	12:00	1.00	2,112	Attempted to pull cut conductor with 91 tonne (200kip) overpull, without success. Released grapple and POOH.
ABN	P		WH	12:00	13:00	1.00	2,112	Relpaced cutters, removed spacer sub and RIH.
ABN	P		WH	13:00	18:00	5.00	2,112	Continued to cut casing.
ABN	P		WH	18:00	24:00	6.00	2,112	Made several attempts to pull casing, 136 tonne (300kip) overpull. Continued to cut casing between attempts.

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Oct 09, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
ABN	P		WH	00:00	06:00	6.00	2,112	Pull cutting assembly, bent cutter arms, but cut out to 1117mm (44"). Attempted to recover casing with Housing running tool, without success pulled to max 136 tonne (300kip) overpull. Continued to WOW to backload AHSV.

<b>Survey</b> (Method : Min Curvature)		MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
Last Tool Type :	FEWD										
Magnetic Declination :	0.00										
		1622.2	1622.1	1.67	268.2	268.2	-2.1	0.0	-2.1	-12.4	FEWD
		1652.1	1651.9	1.45	253.8	253.8	-2.2	0.4	-2.2	-13.2	FEWD
		1796.1	1795.9	1.43	250.2	250.2	-3.3	0.0	-3.3	-16.6	FEWD
		1853.4	1853.2	1.50	250.2	250.2	-3.8	0.0	-3.8	-18.0	FEWD
		1911.2	1910.9	1.48	243.7	243.7	-4.4	0.1	-4.4	-19.4	FEWD
		1998.7	1998.4	1.91	243.2	243.2	-5.5	0.1	-5.5	-21.7	FEWD
		2028.1	2027.8	2.08	243.1	243.1	-6.0	0.2	-6.0	-22.6	FEWD
		2085.4	2085.0	2.47	242.1	242.1	-7.1	0.2	-7.1	-24.6	FEWD

Bulk Stocks On Rig	STOCK TYPE & UNITS					STOCK TYPE & UNITS				
	START	USED	REC'D	STOCK	START	USED	REC'D	STOCK		
Fuel Oil - Rig	M3	316.2	8.3	307.9	Drill Water - Rig	MT	363.0	19.0	344.0	
Pot Water - Rig	MT	98.0	29.0	29.0	98.0	Cement 'G' - Rig	sxs	170.0	170.0	
Cement HTB - Rig	sxs			0.0	Bentonite - Rig	sxs	869.0		869.0	
Barite - Rig	sxs	3059.0		3059.0	Brine - Rig	MT			0.0	
Helifuel - Rig	ltr	1729.0	710.0	1019.0	Fuel Oil - Conqueror	M3	306.6	4.8	301.8	
Drill Water - Conqueror	MT	600.0		600.0	Pot Water - Conqueror	MT	185.0	5.0	180.0	
Cement 'G' - Conqueror	sxs	0.0		0.0	Cement HTB - Conqueror	sxs			0.0	
Bentonite - Conqueror	sxs	1692.0		1692.0	Barite - Conqueror	sxs			0.0	
Brine - Conqueror	MT			0.0	Fuel Oil - Sentinel	M3	344.0	13.4	330.6	
Drill Water - Sentinel	MT	0.0	300.0	300.0	Pot Water - Sentinel	MT	195.0	45.0	240.0	
Cement 'G' - Sentinel	sxs	0.0	1906.0	1906.0	Cement HTB - Sentinel	sxs			0.0	
Bentonite - Sentinel	sxs	0.0		0.0	Barite - Sentinel	sxs	0.0		0.0	
Brine - Sentinel	MT			0.0						

**Pump Data**

Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNRR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152		97	0	0	30	862	1784.0	1.25
		0			0	0	40	1379		
		0			0	0	50	2068		
2	Nat'l 12-P-160	152		97	0	0	30	1034	1784.0	1.25
		0			0	0	40	1551		
		0			0	0	50	1896		
3	Nat'l 12-P-160	152		97	0	0		0		

**Casing**

DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	10.70	319	107.1	N-80	Buttress
Non cross joint	12.11	319	107.1	N-80	Buttress
Casing joints	540.92	319	101.2	N-80	Buttress
Float collar joint	36.78	319	107.1	N-80	Buttress
Intermediate joint	24.49	319	107.1	N-80	Buttress
Shoe joint	12.41	321	107.1	N-80	Buttress

**Personnel : on Site =75**

3 Santos	33 DOGC	22 TMS (marine)	4 DOGC (other)
2 BHI	2 Halliburton	3 TMT (ROV)	1 Schlumberger
1 DrillQuip	2 Smith	2 Telstra	

**Safety, Inspections and Drills Summary**

2 days since last	Fire and Abandon Ship Drill
1834 days since last	Lost Workday Case
67 days since last	Medical Treatment Case
2 days since last	First Aid Case Roustabout bruising & swelling on 2 fingers.
6 days since last	Weekly Safety Meeting
10 days since last	Trip/Pit Drill
15 days since last	BOP Test Tested BOP on stump
1 days since last	Incident Dropped Object

<b>Anchors</b>	Anc 1 : 122	Anc 2 : 134	Anc 3 : 145	Anc 4 : 109	Anc 5 : 138	RIS. TENS. (MT) :	0
	Anc 6 : 141	Anc 7 : 127	Anc 8 : 82	Anc 9 : 0	Anc 10 : 0	RISER ANGLE (deg):	0.0
<b>Workboats</b>	Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)	EstimatedArrival (Port) (Date)(Time)	<b>Weather</b>		STACK ANGLE(deg):	0.0
	Pacific Conqueror	7.10.02 10:30		VISIBILITY(nm) :	8	V.D.L. (MT) :	1,694.4
Pacific Sentinel	8.10.02 6:25			WIND SP. (kts) :	35.0	AVE HEAVE (m) :	
				WIND DIR (deg) :	300	MAX HEAVE (m) :	
				PRES.(mbars):	1019	AVE PITCH (deg) :	1.0
				AIR TEMP (C) :	10.0	MAX PITCH (deg) :	2.0
COMMENTS : Pax on/off Flt #1 4/5, Flt #2 7/8, Flt #3 7/4.						AVE ROLL (deg) :	0.1
						MAX ROLL (deg) :	2.5

**DATE : Oct 09, 2002**

**FROM : Pat King  
TO : Ole Moller**

**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	2,112.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	2,112.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	0.0	SHOE TVD (m BRT)	691	DAILY COST :	\$371,457
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	15.63	FIT (sg)	0.00	CUM COST :	\$7,356,763
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0600 Attempting to retrieve casing					
WATER DEPTH (m) LAT	67.8	PLANNED OP. Continue attempts to retrieve casing					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**

Continued cutting wellhead housings. Further attempts to retrieve casing unsuccessful.

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Oct 09, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
ABN	P		WH	00:00	08:00	8.00	2,112	Pull cutting assembly, bent cutter arms, but cut out to 1117mm (44"). Attempted to recover casing with Housing running tool, without success pulled to max 136 tonne (300kip) overpull. Continued to WOW to backload AHSV.
ABN	P		WH	08:00	09:00	1.00	2,112	POH laying out 203mm (8") DC
ABN	P		WH	09:00	11:00	2.00	2,112	RIH 762mm (30") grapple. Attempt to pull 762mm (30") casing and PGB. Max O/P 300K. Unsuccessful. Circ S/W.
ABN	P		WH	11:00	12:00	1.00	2,112	M/U Mule Shoe. RIH.
ABN	P		WH	12:00	14:00	2.00	2,112	Continue to RIH mule shoe to jet PGB.
ABN	P		WH	14:00	15:00	1.00	2,112	POH mule shoe.
ABN	P		WH	15:00	17:00	2.00	2,112	B/O grapple. N/U marine swivel and cutter assembly.
ABN	P		WH	17:00	18:00	1.00	2,112	Recut 762mm (30") casing @ 93.85 m
ABN	P		WH	18:00	20:30	2.50	2,112	Pressure loss in cutting assembly (4,823 kPa / 700 psi). POH. Test cutting assembly. Reset flow tell and renew cutters. RIH.
ABN	P		WH	20:30	24:00	3.50	2,112	Continue cut @ 93.85 m.

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Oct 10, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
ABN	P		WH	00:00	06:00	6.00	2,112	Attempt to retrieve casing with spear and circulation (some movement)

<b>Survey</b> (Method : Min Curvature) Last Tool Type : FEWD Magnetic Declination : 0.00	MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
	1622.2	1622.1	1.67	268.2	268.2	-2.1	0.0	-2.1	-12.4	FEWD
	1652.1	1651.9	1.45	253.8	253.8	-2.2	0.4	-2.2	-13.2	FEWD
	1796.1	1795.9	1.43	250.2	250.2	-3.3	0.0	-3.3	-16.6	FEWD
	1853.4	1853.2	1.50	250.2	250.2	-3.8	0.0	-3.8	-18.0	FEWD
	1911.2	1910.9	1.48	243.7	243.7	-4.4	0.1	-4.4	-19.4	FEWD
	1998.7	1998.4	1.91	243.2	243.2	-5.5	0.1	-5.5	-21.7	FEWD
	2028.1	2027.8	2.08	243.1	243.1	-6.0	0.2	-6.0	-22.6	FEWD
	2085.4	2085.0	2.47	242.1	242.1	-7.1	0.2	-7.1	-24.6	FEWD

Bulk Stocks On Rig	STOCK TYPE & UNITS				STOCK TYPE & UNITS			
	START	USED	REC'D	STOCK	START	USED	REC'D	STOCK
Fuel Oil - Rig	M3	307.9		307.9	Drill Water - Rig	MT	344.0	344.0
Pot Water - Rig	MT	98.0		98.0	Cement 'G' - Rig	sxs	170.0	170.0
Cement HTB - Rig	sxs	0.0		0.0	Bentonite - Rig	sxs	869.0	869.0
Barite - Rig	sxs	3059.0		3059.0	Brine - Rig	MT	0.0	0.0
Helifuel - Rig	ltr	1019.0		1019.0	Fuel Oil - Conqueror	M3	301.8	301.8
Drill Water - Conqueror	MT	600.0		600.0	Pot Water - Conqueror	MT	180.0	180.0
Cement 'G' - Conqueror	sxs	0.0		0.0	Cement HTB - Conqueror	sxs	0.0	0.0
Bentonite - Conqueror	sxs	1692.0		1692.0	Barite - Conqueror	sxs	0.0	0.0
Brine - Conqueror	MT	0.0		0.0	Fuel Oil - Sentinel	M3	330.6	330.6
Drill Water - Sentinel	MT	300.0		300.0	Pot Water - Sentinel	MT	240.0	240.0
Cement 'G' - Sentinel	sxs	1906.0		1906.0	Cement HTB - Sentinel	sxs	0.0	0.0
Bentonite - Sentinel	sxs	0.0		0.0	Barite - Sentinel	sxs	0.0	0.0
Brine - Sentinel	MT	0.0		0.0				

**Pump Data**

Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNRR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152		97	0	0	30	862	1784.0	1.25
		0			0	0	40	1379		
		0			0	0	50	2068		
2	Nat'l 12-P-160	152		97	0	0	30	1034	1784.0	1.25
		0			0	0	40	1551		
		0			0	0	50	1896		
3	Nat'l 12-P-160	152		97	0	0		0		

**Casing**

DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	10.70	319	107.1	N-80	Buttress
Non cross joint	12.11	319	107.1	N-80	Buttress
Casing joints	540.92	319	101.2	N-80	Buttress
Float collar joint	36.78	319	107.1	N-80	Buttress
Intermediate joint	24.49	319	107.1	N-80	Buttress
Shoe joint	12.41	321	107.1	N-80	Buttress

Personnel : on Site =0

**Safety, Inspections and Drills Summary**

<b>Anchors</b>	Anc 1 : 122	Anc 2 : 134	Anc 3 : 145	Anc 4 : 109	Anc 5 : 138	RIS. TENS. (MT) :	0	
	Anc 6 : 141	Anc 7 : 127	Anc 8 : 82	Anc 9 : 0	Anc 10 : 0	RISER ANGLE (deg):	0.0	
<b>Workboats</b>	Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)	EstimatedArrival (Port) (Date)(Time)	<b>Weather</b>	VISIBILITY(nm) :	8	STACK ANGLE(deg):	0.0
Pacific Conqueror	7.10.02 10:30			VISIBILITY(nm) :	8		V.D.L. (MT) :	1,694.4
Pacific Sentinel	8.10.02 6:25			WIND SP. (kts) :	35.0		AVE HEAVE (m) :	
				WIND DIR (deg) :	300		MAX HEAVE (m) :	
				PRES.(mbars):	1019		AVE PITCH (deg) :	1.0
				AIR TEMP (C) :	10.0		MAX PITCH (deg) :	2.0
COMMENTS :							AVE ROLL (deg) :	0.1
							MAX ROLL (deg) :	2.5



**DATE : Oct 10, 2002**

**FROM : Pat King  
TO : Ole Moller**

**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	2,112.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	2,112.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	0.0	SHOE TVD (m BRT)	691	DAILY COST :	\$324,389
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	16.63	FIT (sg)	0.00	CUM COST :	\$7,681,152
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 0600 Continue to pull secondary anchors.					
WATER DEPTH (m) LAT	67.8	PLANNED OP. Offload Pacific Conqueror. With Pacific Sentinel on tow wire Pacific					
RT TO SEABED (m)	92.8	Conqueror to pull primary anchors. ETD Casino 2 1400 hrs.					

**Summary of period 00:00 to 24:00 hrs**

Retrieved 762 mm (30") casing. Commenced pulling anchors.

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Oct 10, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
ABN	P		WH	00:00	05:00	5.00	2,112	Continue to cut 762 mm (30") csg @ 94m
ABN	P		WH	05:00	05:30	0.50	2,112	POH with 762mm (30") csg cut assembly.
ABN	P		WH	05:30	06:30	1.00	2,112	M/U Stab & RIH with pull assembly.
ABN	P		WH	06:30	10:30	4.00	2,112	Attempt to pull 762mm (30") csg and PGB. Work pipe and circ with S/W. Max O/P 400k. Pipe free.
ABN	P		WH	10:30	12:00	1.50	2,112	POH 762mm (30") csg and PGB. Land on skid beams.
ABN	P		WH	12:00	14:00	2.00	2,112	M/U 762mm (30") RT. L/O csg. Remove PGB from moonpool.
ABN	P		WH	14:00	15:00	1.00	2,112	B/O & L/O casing cutting assembly.
ABN	P		WH	15:00	19:30	4.50	2,112	B/O & L/O drill collars & drill pipe.
ABN	P		ANC	19:30	22:30	3.00	2,112	Deballast rig to transit draft 9.8m (32 ft).
ABN	P		ANC	22:30	24:00	1.50	2,112	Commence pulling anchors. (22:47) #1 pennant to Sentinel; (23:17) #1 anchor off bottom.

**ACTIVITY FOR PERIOD 0000 HRS TO 06:00 HRS ON Oct 11, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
ABN	P		ANC	00:00	06:00	6.00	2,112	Continue to recover anchors. (00:30) #1 anchor bolstered; (00:40) #1 pennant to OB; (01:32) #5 pennant to PS; (03:12) #5 anchor bolstered; (03:17) #5 pennant to OB; (03:45) #4 pennant to PS; (05:40) #4 anchor bolstered; (05:45) #4 pennant to OB; (06:00) #8 pennant to PS. ETD 1400 hrs.

<b>Survey</b> (Method : Min Curvature)	MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	"V" SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
Last Tool Type : FEWD	1622.2	1622.1	1.67	268.2	268.2	-2.1	0.0	-2.1	-12.4	FEWD
Magnetic Declination : 0.00	1652.1	1651.9	1.45	253.8	253.8	-2.2	0.4	-2.2	-13.2	FEWD
	1796.1	1795.9	1.43	250.2	250.2	-3.3	0.0	-3.3	-16.6	FEWD
	1853.4	1853.2	1.50	250.2	250.2	-3.8	0.0	-3.8	-18.0	FEWD
	1911.2	1910.9	1.48	243.7	243.7	-4.4	0.1	-4.4	-19.4	FEWD
	1998.7	1998.4	1.91	243.2	243.2	-5.5	0.1	-5.5	-21.7	FEWD
	2028.1	2027.8	2.08	243.1	243.1	-6.0	0.2	-6.0	-22.6	FEWD
	2085.4	2085.0	2.47	242.1	242.1	-7.1	0.2	-7.1	-24.6	FEWD

Bulk Stocks On Rig	STOCK TYPE & UNITS				STOCK TYPE & UNITS					
	START	USED	REC'D	STOCK	START	USED	REC'D	STOCK		
	Fuel Oil - Rig	M3	307.9	15.5	292.4	Fuel Oil - Conqueror	M3	301.8	14.6	287.2
	Fuel Oil - Sentinel	M3	330.6	21.0	309.6					

Pump Data										
Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNRR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152		97	0	0	30	862	1784.0	1.25
		0			0	0	40	1379		
		0			0	0	50	2068		
2	Nat'l 12-P-160	152		97	0	0	30	1034	1784.0	1.25
		0			0	0	40	1551		
		0			0	0	50	1896		
3	Nat'l 12-P-160	152		97	0	0		0		

Casing						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	10.70	319	107.1	N-80	Buttress
Non cross joint	12.11	319	107.1	N-80	Buttress
Casing joints	540.92	319	101.2	N-80	Buttress
Float collar joint	36.78	319	107.1	N-80	Buttress
Intermediate joint	24.49	319	107.1	N-80	Buttress
Shoe joint	12.41	321	107.1	N-80	Buttress

Personnel : on Site =0

**Safety, Inspections and Drills Summary**

Anchors						Weather					
Anc 1 :	0	Anc 2 :	136	Anc 3 :	127	Anc 4 :	100	Anc 5 :	127	RIS. TENS. (MT) :	0
Anc 6 :	129	Anc 7 :	136	Anc 8 :	93	Anc 9 :	0	Anc 10 :	0	RISER ANGLE (deg):	0.0
<b>Workboats</b>						<b>Weather</b>					
Arrived @ Rig (Date)(Time)		Depart from Rig (Date)(Time)		EstimatedArrival (Port) (Date)(Time)		VISIBILITY(nm) :		STACK ANGLE(deg):			
Pacific Conqueror 7.10.02 10:30		Pacific Sentinel 8.10.02 6:25				WIND SP. (kts) :		V.D.L. (MT) :			
						WIND DIR (deg) :		AVE HEAVE (m) :			
						PRES.(mbars):		MAX HEAVE (m) :			
						AIR TEMP (C) :		AVE PITCH (deg) :			
								MAX PITCH (deg) :			
								AVE ROLL (deg) :			
								MAX ROLL (deg) :			
COMMENTS :											

**DATE : Oct 11, 2002**

**FROM : Pat King  
TO : Ole Moller**

**CASINO 2**

<b>Well Data</b>		M.DEPTH (m BRT)	2,112.0	CUR.HOLE SIZE (mm)	311	AFE COST \$	12,100,000
COUNTRY	Australia	TVD (m BRT)	2,112.0	CASING OD (mm)	340	AFE BASIS :	P&A
FIELD	Casino	PROGRESS (m)	0.0	SHOE TVD (m BRT)	691	DAILY COST :	\$295,215
DRILL CO.	Diamond Offshore	DAYS FROM SPUD	17.63	FIT (sg)	0.00	CUM COST :	\$7,976,367
RIG	Ocean Bounty	DAYS +/- CURVE		LOT (sg)	1.22		
RT ABOVE SL (m)	25.0	CURRENT OP @ 04:00					
WATER DEPTH (m) LAT	67.8	PLANNED OP. Tow to New Zealand.					
RT TO SEABED (m)	92.8						

**Summary of period 00:00 to 24:00 hrs**  
Continue pulling anchors. Rig Released 20:30 hrs 11/10/02

FORMATION	TOP(m BRT)
MASSACRE	1,132
SKULL CREEK	1,271
PAARATE	1,369
BELFAST	1,507

**ACTIVITY FOR PERIOD 00:00 HRS TO 24:00 HRS ON Oct 11, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION
ABN	P		ANC	00:00	09:00	9.00	2,112	Continue to recover anchors. (00:30) #1 anchor bolstered; (00:40) #1 pennant to OB; (01:32) #5 pennant to PS; (03:12) #5 anchor bolstered; (03:17) #5 pennant to OB; (03:45) #4 pennant to PS; (05:40) #4 anchor bolstered; (05:45) #4 pennant to OB; (06:00) #8 pennant to PS. (07:00) #8 off bottom, (08:40) #8 bolstered.
ABN	P		ANC	09:00	11:00	2.00	2,112	Offload supplies from Conqueror, heavy lift (drilling line). (10:25) Sentinel on Tow bridle.
ABN	P			11:00	20:30	9.50	2,112	Anchor handling. #3 pennant to Conqueror (11:11), #3 bolstered (13:20). #6 bolstered (15:22), #2 bolstered (18:52), Rig hauled in on #7, #7 bolstered 20:30. RIG RELEASED 20:30 hrs 11/10/02

**ACTIVITY FOR PERIOD 00:00 HRS TO 06:00 HRS ON Oct 12, 2002**

PHS	CL	RC	OP	FROM	TO	HRS	DEPTH	ACTIVITY DESCRIPTION

<b>Survey</b> (Method : Min Curvature)		MD (mBRT)	TVD (mBRT)	INCL DEG	AZ (deg)	CORR. AZ (deg)	'V' SECT (m)	DOGLEG (deg/30m)	N/S (m)	E/W (m)	TOOL TYPE
Last Tool Type :	FEWD	1622.2	1622.1	1.67	268.2	268.2	-2.1	0.0	-2.1	-12.4	FEWD
Magnetic Declination :	0.00	1652.1	1651.9	1.45	253.8	253.8	-2.2	0.4	-2.2	-13.2	FEWD
		1796.1	1795.9	1.43	250.2	250.2	-3.3	0.0	-3.3	-16.6	FEWD
		1853.4	1853.2	1.50	250.2	250.2	-3.8	0.0	-3.8	-18.0	FEWD
		1911.2	1910.9	1.48	243.7	243.7	-4.4	0.1	-4.4	-19.4	FEWD
		1998.7	1998.4	1.91	243.2	243.2	-5.5	0.1	-5.5	-21.7	FEWD
		2028.1	2027.8	2.08	243.1	243.1	-6.0	0.2	-6.0	-22.6	FEWD
		2085.4	2085.0	2.47	242.1	242.1	-7.1	0.2	-7.1	-24.6	FEWD

<b>Bulk Stocks On Rig</b>	STOCK TYPE & UNITS				STOCK TYPE & UNITS			
	START	USED	REC'D	STOCK	START	USED	REC'D	STOCK
Fuel Oil - Rig	M3	292.4	5.4	287.0	Drill Water - Rig	MT	310.0	310.0
Pot Water - Rig	MT	98.0		98.0	Cement 'G' - Rig	sxs	170.0	170.0
Bentonite - Rig	sxs	869.0		869.0	Barite - Rig	sxs	3059.0	3059.0
Helifuel - Rig	ltr	490.0		490.0	Fuel Oil - Conqueror	M3	287.2	12.1
Drill Water - Conqueror	MT	600.0		600.0	Pot Water - Conqueror	MT	170.0	170.0
Cement 'G' - Conqueror	sxs	0.0		0.0	Bentonite - Conqueror	sxs	1692.0	1692.0
Barite - Conqueror	sxs	0.0		0.0	Fuel Oil - Sentinel	M3	309.6	7.1
Drill Water - Sentinel	MT	300.0		300.0	Pot Water - Sentinel	MT	225.0	225.0
Cement 'G' - Sentinel	sxs	1906.0		1906.0	Bentonite - Sentinel	sxs	0.0	0.0
Barite - Sentinel	sxs	0.0		0.0				

Pump Data										
Pump Data - last 24 hrs							Slow Pump Data			
#	TYPE	LNR(mm)	SPM	EFF (%)	Flow (lpm)	SPP (kPa)	SPM	SPP (kPa)	DEPTH (m)	MW (sg)
1	Nat'l 12-P-160	152		97	0	0	30	862	1784.0	1.25
		0			0	0	40	1379		
		0			0	0	50	2068		
2	Nat'l 12-P-160	152		97	0	0	30	1034	1784.0	1.25
		0			0	0	40	1551		
		0			0	0	50	1896		
3	Nat'l 12-P-160	152		97	0	0		0		

Casing						
DIAM.	CSG OD (mm)	SHOE MD (plan/Actual)	SHOE TVD (plan/Actual)	LOT (pl/Act)	FIT (pl/Act)	COMMENT
13.375	340	690.6	690.6	1.22		Pumped 10 bbls sea water with dye, tested surface lines, Released bottom plug. Mixed and pumped 293bbls of Lead slurry (736sx) @ 1.5sg / Mixed & pumped 637 bbls of Tail slurry 132sx @ 1.89sg. Released top plug and displaced cement Unable to Bump plug.

TYPE	LENGTH (m)	CSG ID (mm)	WT (kg/m)	GRADE	THREAD
Well Head	10.70	319	107.1	N-80	Buttress
Non cross joint	12.11	319	107.1	N-80	Buttress
Casing joints	540.92	319	101.2	N-80	Buttress
Float collar joint	36.78	319	107.1	N-80	Buttress
Intermediate joint	24.49	319	107.1	N-80	Buttress
Shoe joint	12.41	321	107.1	N-80	Buttress

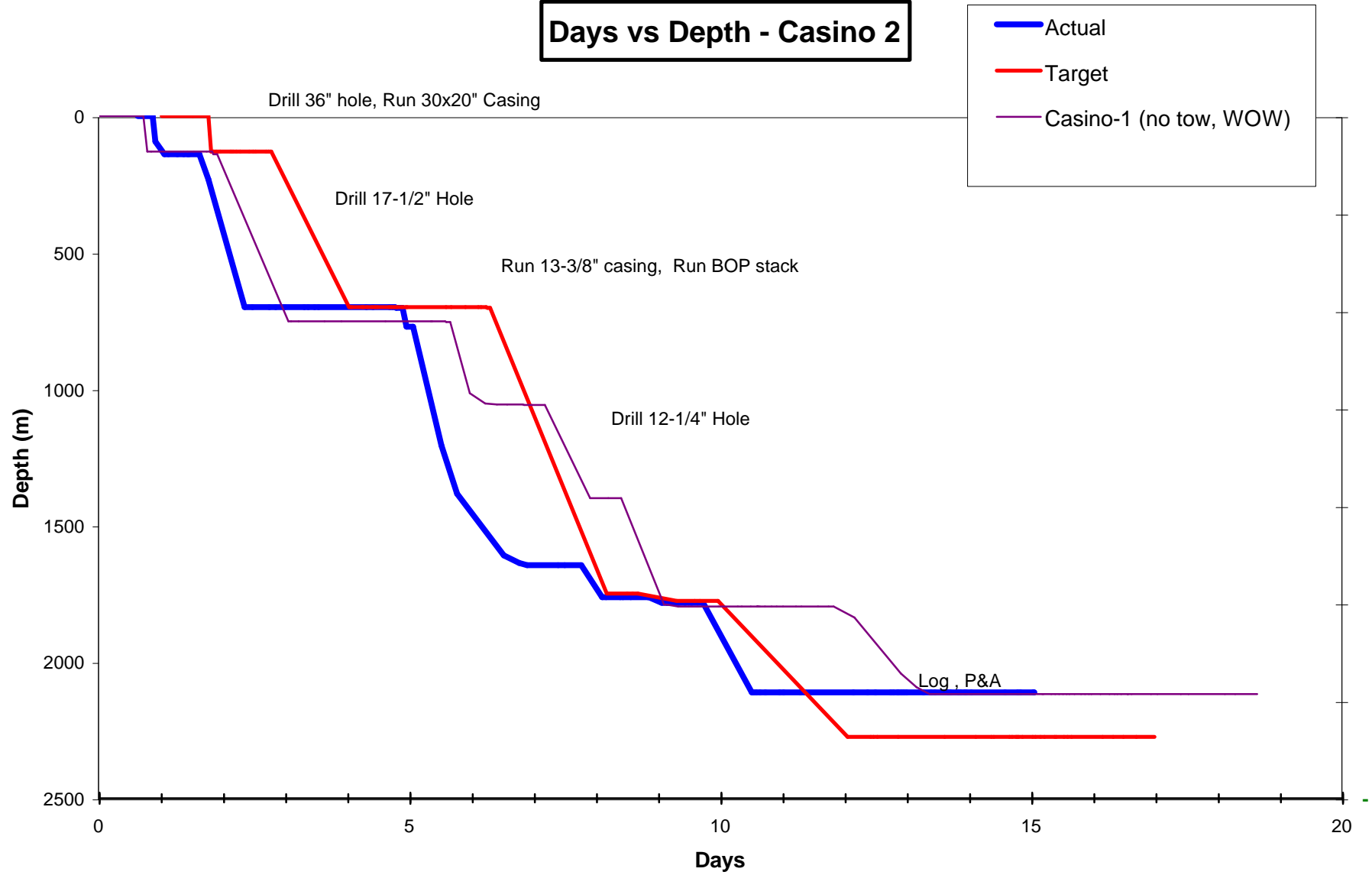
Personnel : on Site =0

**Safety, Inspections and Drills Summary**

<b>Anchors</b>				<b>Weather</b>		RIS. TENS. (MT) : RISER ANGLE (deg): STACK ANGLE(deg): V.D.L. (MT) : AVE HEAVE (m) : MAX HEAVE (m) : AVE PITCH (deg) : MAX PITCH (deg) : AVE ROLL (deg) : MAX ROLL (deg) :
Anc 1 :	Anc 2 :	Anc 3 :	Anc 4 :	Anc 5 :	Anc 6 :	
Anc 6 :	Anc 7 :	Anc 8 :	Anc 9 :	Anc 10 :		
<b>Workboats</b>	Arrived @ Rig (Date)(Time)	Depart from Rig (Date)(Time)	EstimatedArrival (Port) (Date)(Time)	VISIBILITY(nm) :	WIND SP. (kts) :	WIND DIR (deg) :
COMMENTS :				PRES.(mbars):	AIR TEMP (C) :	

**SECTION 7:- TIME / DEPTH CURVE**

# Days vs Depth - Casino 2



## **SECTION 8:- BHA SUMMARY**

#	LENGTH	BHA WT.	WT. BELOW JAR	STRNG WT.	P/UP WT.	S/OFF WT.	TRQE MAX	TRQE ON BOT	TRQE OFF BOT	HRS	BHA DESCRIPTION
1	83.58			50	50	50	2,500	1,000	1,000		26"Bit,36"Hole Opener,Bit sub,Anderdrift tool,3x9-1/2 DC,X/Over,5x8-1/4DC,X/Over,
2	261.53			103	106	100	6,000	1,500	1,000		Bit,NBStab,Anderdrift,Stab,1x9-1/2"DC,Stab,2x9-1/2"DC,X/O,6x8"DC,Jars,5x8"DC,X/O,12xHWDP,
2	261.53			103	106	100	6,000	1,500	1,000		Bit,NBStab,Anderdrift,Stab,1x9-1/2"DC,Stab,2x9-1/2"DC,X/O,6x8"DC,Jars,5x8"DC,X/O,12xHWDP,
2	261.53			103	106	100	6,000	1,500	1,000		Bit,NBStab,Anderdrift,Stab,1x9-1/2"DC,Stab,2x9-1/2"DC,X/O,6x8"DC,Jars,5x8"DC,X/O,12xHWDP,
3	311.74	90	76	140	145	135	13	5	2		12.25 Bit,12.25RR,CDR,Pulse tool,ILS,Sonic,12.25RR,1x8"DC,12.25RR,14x8"DC,Jars,2x8"DC,X/O,12Xhwdp
3	311.74	90	76	162	165	160	9	4	3		12.25 Bit,12.25RR,CDR,Pulse tool,ILS,Sonic,12.25RR,1x8"DC,12.25RR,14x8"DC,Jars,2x8"DC,X/O,12Xhwdp
3	311.74	90	76	162	165	160	9	4	3		12.25 Bit,12.25RR,CDR,Pulse tool,ILS,Sonic,12.25RR,1x8"DC,12.25RR,14x8"DC,Jars,2x8"DC,X/O,12Xhwdp
4	311.72	90	76	180	185	175	8	3	2		12.25 Bit,12.25RR,CDR,Pulse tool,ILS,Sonic,12.25RR,1x8"DC,12.25RR,14x8"DC,Jars,2x8"DC,X/O,12Xhwdp
4	234.32	56	34	145	150	140	20	10	5		12.25 Core Head,12.218Stab,CoreBarrel,12.218Stab,CoreBarrel,12.218Stab,CoreBarrel,12.218Stab,X/O,Safety
6	309.95	88	74	350	355	345	10	7	4		311mm (12.25") bit, 311mm (12.25")RR, ARC, Pulse t ool, ILS, Sonic, 311mm (12.25")RR, 1 x 203mm



## **SECTION 9:- BIT RECORD & PERFORMANCE SUMMARY**

## BIT RECAP

Well : CASINO 2

DATE	BIT#	SIZE	SER#	MF	IADC	TYPE	JETS	OUT	MTRG	HRS o/b	HRS IADC	SPP psi	FLW gpm	WOB k-lbs	RPM	VEL mps	HHP sq"	ROP m/hr	I	O1	D	L	B	G	O2	R
24/09/2002	1	26.00	KP-2374	SM	111	DSJC	3x18, 3x22	140	47	2.3	3.5	1182	1050	8.0	65	55.1	0.000	20.5	1	1	NO	A	E	I	NO	TD
25/09/2002	2	17.50	MM0005	SM	115	MGSSHC	1x18, 3x20	700	560	12.6	17.5	2417	1061	25.0	140	88.5	1.722	44.4								
26/09/2002	2	17.50	MM0005	SM	115	MGSSHC	1x18, 3x20	700	0	.0	.0	2417	1200	30.0	110	100.1	2.491		2	2	NO	A	E	I	NO	TD
27/09/2002	2	17.50	MM0005	SM	115	MGSSHC	1x18, 3x20	700	0	.0	.0	2417	1200	30.0	110	100.1	2.491		2	2	NO	A	E	I	NO	TD
28/09/2002	3	12.25	589 DC	HU	517	MX-03DX	3x16		507	8.7	13.0	2262	810	30.0	134	134.1	6.157	58.3								
29/09/2002	3	12.25	589 DC	HU	517	MX-03DX	3x16		403	19.0	20.0	3523	840	45.0	110	139.1	7.774	21.2								
30/09/2002	3	12.25	589 DC	HU	517	MX-03DX	3x16	1,646	36	8.7	9.0	3632	779	45.0	110	129.0	6.407	4.1	8	8	LT	A	E	1/8	ER	PR
1/10/2002	4	12.25	103926	HY	M423	DSX195DGUW	3x16	1,763	117	6.4	8.0	3995	786	11.0	120	130.1	6.582	18.3	1	1	CT	N	X	I	NO	CP
2/10/2002	5	12.25	7960859	SE		CD-93	3x16	1,784	21	4.6	5.0	1150	317	5.0	50	52.5	0.432	4.6	1	1	CT	N	X	I	JD	TD
3/10/2002	4RR	12.25	103926	HY		DSX195DGUW	5x15	2,112	328	16.0	18.0	3181	854	7.4	175	96.5	3.934	20.5								
4/10/2002	4RR	12.25	103926	HY		DSX195DGUW	5x15	2,112	0	.0	.0					.0	0.000		0	4	BT	A	X	1	JD	TD

## **SECTION 10:- DRILLING FLUIDS REPORT**

WELL : CASINO 2

RIG : Ocean Bounty

## MUD RECAP

R#	DATE	TYPE	DEPTH	TMP C	MW ppg	VIS cps	PV cps	YP	GEL 10s	GEL 10M	F.L. API	CAKE	SOL %	H2O %	Oil %	SND %	MBT ppb	PH	PM	PF	CI	HARD /CA	PHPA ppb	KCl%	K+	COST
224/09/2002	PHG	140		1.1	135	19	67	58	59				3.4	96.5			28.0	10.0		0	1.400	80				14.334
325/09/2002	PHG	700		1.0	100	17	128	40	45				2.5	97.4			24.0	10.5		0	2.900	80				13.346
426/09/2002	PHG	700		1.1	100	25	65	50	53				3.3	96.6			25.0	10.0		0	2.000	80				37
527/09/2002	PHG	700		1.1	78	12	23	6	6				.77	99.2				8.0		0	42.000	240	1.6	8	43.200	35.896
628/09/2002	PHG	1.207	27	1.1	60	15	29	9	10	7.8	1.2	1.6	98.4		4	3.0	9.0		0	29.000	300	1.5	6	32.400	39.837	
729/09/2002	PHG	1.210	54	1.2	60	23	29	13	15	4.4	1.3	8.9	91.1		.5	9.0	9.0		1	22.000	360	1.9	5	27.000	60.818	
830/09/2002	PHG	1.646	40	1.2	72	26	41	13	15	4.4	1.3	10.	89.6		.1	12.0	9.0		1	23.000	280	1.8	5	27.000	20.292	
91/10/2002	KCL-PHPA	1.763		1.2	57	21	33	10	18	5.4	1.3	11.	88.8		.2	12.0	9.5		0	30.960	160	1.4	7	37.800	18.272	
102/10/2002	KCL-PHPA	1.784		1.2	50	19	25	6	10	5.2	1.3	11.	88.9		.3	11.0	10.0		0	31.200	160	1.4	6	32.400	4.313	
113/10/2002	KCL-PHPA	2.070	66	1.2	57	21	23	6	11	5.2	1.3	10.	89.2		.5	12.0	9.5		0	31.500	160	1.5	6	32.400	21.313	
124/10/2002	KCL-PHPA	2.112		1.2	57	22	24	6	10	4.8	1.3	10.	89.2		.4	13.0	9.0		0	33.000	400	1.5	7	37.800	-4.846	
135/10/2002	KCL-PHPA	2.112		1.2	57	22	24	6	10	4.8	1.3	10.	89.2		.4	13.0	9.0		0	33.000	400	1.5	7	37.800	2.441	

# **DRILLING FLUID SUMMARY**

**FOR: *SANTOS Ltd***

**WELL: CASINO #2**

***Otway Basin***

***Offshore Victoria***

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**Operator** : SANTOS  
**Well** : Casino 2  
**Rig** : Ocean Bounty  
**Spud** : 24<sup>th</sup> September 2002

## 1. SUMMARY OF OPERATIONS

**Casino 2 was an Offshore Victoria exploration well in Otway Basin, drilled to evaluate the gas bearing Waarre formation as a primary target. It lies 4.2 km ESE of Casino 1, 21 km SW of the Minerva gas field and 23 km North of LaBella gas field.**

**HOLE SIZE** : 36"  
**MUD TYPE** : Seawater Guar Gum/ Fresh Water Gel Sweeps  
**INTERVAL** : 92.76 metres (Seabed) to 140 metres  
**CASING** : 20" and 30"

The Ocean Bounty was towed on to location and anchors run on 23<sup>rd</sup> September 2002. Field analysis of the initial Drill Water supply showed the following results:

pH: 8.5 Chlorides: 1,200 mg/l  
Pf: 0.05 Total Hardness: 160 mg/l  
Mf: 0.35

530 barrels of 25 ppb prehydrated bentonite, flocculated with 0.37 ppb lime and 235 barrels of 2.17 ppb Guar gum was prepared to sweep the 36" hole. 315 barrels of 32 ppb prehydrated bentonite was also prepared to displace to the hole prior to running the conductor.

The well was spudded at 0930 hours on the 24<sup>th</sup> September 2002 with a 26 inch bit & 36 inch hole opener.

The 36inch hole was drilled to 140 m, using sea water with 2.17 ppb Guar Gum and 25 ppb Gel sweeps flocculated with 0.37 ppb Lime for hole cleaning. A total of 370 bbl of Floc Gel sweeps and 130 bbl of Guar Gum were pumped using the regime of two 50 bbl Gel sweeps and one 50 bbl Guar Gum sweep every 30 meters of hole drilled.

The interval cost was proportioned according to the volumes used.

At 140 m, the hole was swept and displaced with 280 bbl of 33 ppb unflocculated Gel mud. The string was pulled out and 30/20 inch conductor casing run to 137 m. It was cemented in place as per program. No hole problems were encountered.

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**HOLE SIZE** : 17 ½”  
**MUD TYPE** : Seawater. Gel / Guar Gum Sweeps  
**INTERVAL** : 130 - 700 metres  
**CASING** : 13 3/8” @ 685 metres

While waiting on cement, 1000 bbl of 25 ppb unflocculated gel was mixed and stored in the reserve pits.

17 ½ inch hole was drilled from the casing shoe to 700 metres at an average rate of penetration of 50-70 metres an hour.

Due to limited bentonite stock available on board, two 2 ppb Guar Gum of 25 bbl and one 25 bbl floc Gel sweeps were pumped for every 30 m of hole drilled. These volumes were built up regularly in the tanks.

At interval TD of 700 metres, 800 bbl of 25 ppb Gel mud was treated with 5 ppb Quick Seal as LCM. This was used to displace the hole volume prior to pulling out to the casing shoe to wait on weather for 8.00hrs.

After running in the hole, 16 metres of fill was washed to bottom using sea water and the hole swept with 100bbl, before spotting 750bbl of gel spud mud in the hole.

The casing was run and cemented without problem with the shoe at 690.5m. The cement was displaced with sea water and the drilling fluid for the next section was prepared and allowed to shear.



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**HOLE SIZE** : 12.25"  
**MUD TYPE** : KCl Polymer Glycol  
**INTERVAL** : 700 metres to 2275 metres

The BOP and riser were run, nipped up and tested. 1400 bbl of KCl – PHPA – POLYMER mud and 170bbl of 2.26ppb Xanthan Gum high viscosity sweep mud was prepared.

The 12 ¼" bottom hole assembly was run to tag cement at 630 metres. Sea water was used to wash to the float at 663 metres and the shoe track drilled to 690 metres. Three high viscosity Xanthan Gum sweeps at 25 bbl were used to ensure clean hole to 703 metres.

The hole was then swept with 100bbl Xanthan gum high viscosity sweep and displaced to the KCl – PHPA - POLYMER mud. A L.O.T. reported 10.2 mud weight equivalent.

As drilling commenced, severe and variable down hole losses ranging from 40-600 bbl/hr occurred. These were treated with Sandseal additions to the flow line and continued through the sand intervals to 1400m. Approximately 1,700 bbl of mud was lost to the hole during this short period of time.

A wiper trip to the shoe from 772m, with 20-40K drag, was made to check hole condition and rebuild surface volume. A further 1,900 bbl was built without KCl and PHPA (JK-261), to save time and conserve costs.

Mud losses reduced to 60-80 bbl/hr from 1000 to 1200m and were controlled with Sandseal/Quickseal sweeps at 10ppb and direct additions of Sandseal to the active. 52mesh shaker screens were used to avoid screening out the LCM.

Once the clays were encountered below the Pember Formation at 1005m, losses reduced and were eliminated by 1400m. The KCl to 6% and PHPA to 1.8ppb additions, recommenced and Glycol was added to 4%.

The shaker screens were reduced gradually to 145# and the desilter and desander utilised continuously. The sand content of the circulating system dropped from 4% to 0.1% gradually with the usage of the solids control equipment and the dilution rate to maintain surface volume.

Low penetration rates induced a bit change from 1646m, with severe drag requiring pumping out and back reaming from 1543 to 800m. At this stage the viscosity was high (Funnel Viscosity 72 sec/qt and Yield Point of 45 lb/100ft<sup>2</sup>) due to a build up of LGS and PHPA (1.85 ppb) in the system.

A 250 bbl premix of PAC LV and KCl was mixed while tripping. The sandtrap and shakers were cleaned and dumped during the trip. The HTC button tricone bit was severely damaged with no buttons remaining upon returning to surface.

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A PDC bit was run with negligible drag to 1615m and washed to bottom at 1646m. Core point was selected at 1763m, with 11% gas on bottoms up. The string was circulated back through new hole to 1620m, to prevent swabbing and pulled without drag after that.

On running in with the core barrel, drag was encountered from 1120-1150m and the bottom hole assembly was washed 33m from 1730 to 1763m. Subsequent inspection showed junk damage to stabilisers and core barrel. Core #1 was cut from 1763 to 1784m with good core recovery.

Following a change in program, drilling continued to TD with 12 ¼" hole against the programmed intermediate casing run. TD was reached at 2112m on the 3<sup>rd</sup> October, 2002. A wiper trip through new hole to 1794m required back reaming from 1895 to 1794m. The return trip to bottom was clear and the string pulled for logging with Schlumberger.

The logs ran to bottom and the hole was logged without problem from 2110m as programmed.

Casino #2 was plugged with three cement plugs, a bridge plug and abandoned over three days from the 5<sup>th</sup> to the 7<sup>th</sup> of October, 2002.

Mud in the casing was treated with Cronox- 2100 corrosion inhibitor and retained adequate concentrations of Idcide-20.

IDFS was released from the rigsite on the 6<sup>th</sup> October 2002.

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 Spud : 24<sup>th</sup> September 2002

## 2. OBSERVATIONS, RECOMMENDATIONS AND WELL ANALYSIS

Casino 2 was drilled to 2112 metres for a total mud cost of \$236,668.32. A further \$1,395.00 was spent on post TD operations.

Barite cost for the well was \$42,168.35

Glycol cost for the well was \$47,200

KCl cost for the well was \$31,200

HOLE SIZE	INTERVAL	METERAGE	COST	COST / FT
36"	93 m – 140 m	47 m	\$ 14,334.00	\$ 102.39
17 ½"	140 m – 700 m	560 m	\$ 13,329.80	\$ 23.80
12 ¼"	700 m - 2112 m	1412 m	\$ 209,004.52	\$ 148.02
<b>TOTAL DRILLING COST</b>		2112 m	<b>\$ 236,668.32</b>	<b>\$ 112.06</b>
Post TD costs (logging / completion)			\$ 1,395.00	
<b>TOTAL WELL COST</b>			<b>\$ 238,063.32</b>	
<b>TOTAL WELL COST FROM SPUD TO TD: MINUS WEIGHTING MATERIALS</b>			<b>\$ 194,499.97</b>	<b>\$ 92.09</b>

### 36" Conductor Hole

No problems were encountered with this interval while drilling with sea water. The flocculated bentonite and pre-hydrated bentonite spotting fluid at +/-30ppb provided good hole cleaning and stability.

Increased Guar Gum sweeps were used to conserve rig stocks of bentonite in uncertain weather and supply conditions.

No changes are recommended for future wells for this interval.

### 17 ½" Surface Hole

As for the surface hole, Sea Water with Guar Gum and flocculated Bentonite sweeps provided a trouble free interval. No changes are recommended.

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## **12 ¼” Production Hole**

The interval was dominated by severe mud loss to the formation of 1,900bbl and tight hole due to wall cake build up across the permeable sands to 1005m.

Highly dispersive clays in the Pember (1005 to 1080m) and Belfast Formation (1507 to 1746m) also caused drag on trips as is normal on the first pass after 24hrs hydration time with water base drilling fluid.

After cementing the 13 3/8” casing, 1,400bbl of KCl-Polymer-PHPA mud was prepared to specification with 8% KCl, 1.14ppb Xanthan Gum, 1.57ppb JK-261 and 1.0ppb PAC-L. No Glycol was used until down hole losses were controlled below 1400m.

This provided strong inhibition and rheology with the Yield Point at 23lb/100sq.ft. The subsequent loss of 1,700bbl to the sands above the Pember clays rendered the inhibitive qualities of the mud an unnecessary expense.

The low solids mud was treated with Sandseal and Quickseal sweeps at 10ppb while losses continued.

Once the clays were encountered below 1200m and down hole losses were contained, micro-fine, low gravity solids, content built quickly from 3 to 12%. The mud originally formulated for <1% solids quickly developed excessive viscosity with Funnel Viscosity rising to 80 seconds /quart and Yield Point to 40lbs/100sq.ft. This was controlled with dilution and by allowing both Xanthan Gum and JK-261 concentrations to deplete.

PHPA (JK-261) at 1.8ppb excess was not possible to maintain within the range of viscosities required. With the higher concentrations of PHPA, high Plastic Viscosities result and ranged up to 26cps. This impairs drilling performance and unnecessarily increases in ECD. Aeration and solids removal become difficult to manage.

KCl and Glycol concentrations were maintained to specification once losses were controlled below 1400m

### **Solids Control and mixing equipment:**

The Thule shakers were initially fitted with 10mesh scalpers and 4 x 52# screens. The coarse screens allowed newly mixed polymer and LCM material to re-circulate. As the losses were controlled below 1400m the screens were changed progressively to 115mesh and 145mesh by 1500m.

A three cone Desander and 20 cone desilter were utilised as surface volumes allowed. As a consequence of the coarse screens and down hole losses, the sand content built to 5% by 900m but was reduced to 0.1% by 1500m.

Intermittent use of the desilter provided adequate sand and weight control there after.

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No centrifuge was available so that inhibition and dilution were the only options available for micro-fine solids control.

### **Mud Weight**

The 8% KCl-PHPA-Polymer mud was prepared to 8.8ppg mud weight. This depleted marginally to 8.7ppg with severe losses to 1000m.

By 1450m, the losses had been controlled and the mud weight was increased to 10.0ppg to aid wellbore stability as per the drilling fluid program, with negligible down hole losses, prior to entering the Belfast Formation at 1505m.

At 1635m the mud was weighted to 10.3ppg prior to entering the target sands.

The weight regime developed from Casino #1 experience proved correct with no influx or hole stability problems being observed on this well.

Bottoms up gas was 5% after coring to 1784m and cuttings gas reached 4.3% at 1867m.

### **Mud Losses:**

Mud loss to the formation totalled 1,900bbl for the interval. Of this 1,700bbl were lost to the sands above 1200m with variable and intermittent losses above 1000m at up to 600bbl/hr.

From 1000 to 1400m mud losses were variable at 30-60bbl/hr as new sands were drilled. Below 1400m (Top of the Paarate Formation at 1369m) down hole losses were negligible and largely the result of trips where the wall cake was reamed.

Mud losses to 1400m, were increased by fast drilling in sand, and combined with an inability to mix LCM fast enough. Sand Seal was applied through a 10mesh screen directly to the flowline at rates up to 500kg/hr. Quickseal fine was mixed as 10ppb pills and circulated as 25bbl sweeps.

After circulating down hole a negligible proportion of the LCM was screened out at the 52mesh shakers. A total of 2.05t of Sandseal and 0.625t of Quickseal were applied to 3,300bbl for 1.78ppb LCM average. Given initial losses the effective final concentration was in the range of 3 to 4ppb LCM which is well below the 10ppb written on the product data sheets for both of these products.

The use of Bentonite or the pre-treatment of low solids polymer mud with 5ppb LCM can be expected to greatly reduce whole mud losses and mud costs for this interval.

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## **Mud Properties**

After the losses were controlled below 1400m, mud properties were maintained as follows:

**MW** = 8.8 –10.4ppg:

**API Filtrate Loss** = <6cc specified, ranged from 4.4 –5.4cc/30min

**HT-HP Filtrate Loss** = 20-24cc/30min.

**KCl%** = 6-8% specified, ranged from 5 to 7%. Supply delays due to weather and mud loss resulted in the lower figure.

**Glycol** = 4-6% specified, range as tested at 3.5 to 4%.

**PHPA** = > 1.8ppb. Calculated concentrations ranged from 1.85 to 1.35. However with solids increasing from <1% to 12% after weighting up and drilling with LGS% at up to 4% high viscosities demanded reduced PHPA concentrations as stated earlier.

**Yield Point** ranged from 23 to 45lbs/100sqft to provide good hole cleaning.

**Plastic Viscosity** was too high for good hydraulics at 15 to 26cps.

**Total Hardness** was negligible in the Fresh Water system used at less than 400mg/lt.

**Alkalinity** was maintained at pH = 9.0 to 10.0 with Caustic Soda.

**Sulphites** for de-oxygenation were maintained in excess at 40 to 180ppm.

As previously discussed higher solids content is required, on future wells, to reduce mud loss to the formation particularly above 1400m in the 12 ¼" interval. The solids content ranged from 8.8 to 11.2% depending on mud density. Drill solids % was maintained below 4%.

After wiping each section of the hole once, the hole remained stable and drag free for subsequent trips and logging. The initial drag is possibly due to both wall cake build up above 1400m and clay hydration and washout in the lower hole sections.

## **Program Analysis**

Several alternatives are available to reduce the mud cost on future wells and these include:

- Pre-treatment of the initial mud with 10pppb Quickseal. With fast drilling and mud loss at 300bbl/hr, pit room capacity is unable to cope with the mixing demands of new mud and LCM. Inhibition with KCl, JK-261, and Glycol should not commence until down hole losses have been controlled below 1000m.
- Mixing an inhibitive mud with 3-5ppb Pre-hydrated Bentonite. This will provide wall cake and may be enough to control down hole losses while inhibiting clays. Losses will subsequently be considerably cheaper if they do occur.
- The preferred and cheapest option is to drill to the top of the Pember clays at +/- 1000m with freshwater bentonite at 25-30ppb and 5-10ppb Sandseal. Then displace in open hole to the fully inhibitive system at the top of the Pember clays. The displacement should include a 10bbl sea water spacer to provide turbulence for wall cake removal. Any remaining bentonite will enhance API fluid loss. There is a strong possibility of further losses to the top of the Paarate at 1369m however pre-treatment of the inhibitive fluid with 5ppb Sandseal would control the final mud cost.

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## Safety & Environment

A thorough and serious approach to safety exists on the Ocean Bounty. This is strongly backed up with the proactive “Stop Card” regime. IDFS mud engineers actively participated in improving safety on the rig through the Stop Card system.

As the rig crew was new to IDFS products, they were told about the safe handling of various products at every stage. Material safety data sheets were made available and safe handling of chemical reference charts were displayed in prominent places.

A recommendation was made to fabricate a Bulk Bag, four point, and lifting star for use in transferring the bags from the pallets to the hopper with a chain block. This device reduces load on the webbing straps and will reduce the hazard of breaking or tearing of the bag straps. The wire strop in use was time consuming and unsafe.

All toxic laboratory reagents were collected in a separate container after each testing and transported to shore to dispose in an appropriate manner as per company’s corporate environment policy.

There was one First Aid Treatment incidents that occurred while IDFS was on board with no LTI’s. Due to large mixing volumes in 12 hours of major downhole losses, the sack room was quite slippery due to polymer coating. This made the boot soles slippery, as PHPA is sticky. As a result the derrick man fell over in the pump room and got one finger dislocated. It is strongly recommended that the floor must be cleaned frequently while mixing polymers.

Features of the IDFS chemical packaging were highlighted in so much that there was no metal strapping; witch is a regular cause of hand injuries. The cardboard and shrink-wrap packaging enabled the sack room to stay clean and tidy, and minimise damaged stock, and chemical spills.

CASINO 2	CONDUCTOR	SURFACE HOLE	MAIN PRODUCTION HOLE	CEMENT CHEMICALS & POST TD	TOTAL WELL
PROGRAMMED	\$ 7,955.00	\$ 20,226.00	\$ 189,738.64	\$ -	\$ 217,919.64
ACTUAL	\$ 14,334.00	\$ 13,329.80	\$ 209,004.52	\$ 1,395.00	\$ 238,063.32
%VARIANCE	80.2 %	- 34.1 %	10.1 %		9.2 %

## 5. Fluid Properties Summary

Date	Day	Mud Type	Temp.	Depth	Weight	Rheology					Fluid Loss Data				Solids					Water Phase Chemistry																				
						Vis	PV	YP	10 sec	10 min	API	Cake	HPHT	@Temp	Solids	Water	Oil	Sand	MBT	pH	Pm	Pf	Mf	Cl-	Ca++	SO <sub>3</sub> <sup>=</sup>	K <sup>+</sup>	KCl	PHPA											
24-Sep-02	1	Floc Gel		100	8.7	>100	19	118	38	50	NC				2.6	97.4			25	11	1.5	0.42	0.72	1660	40															
		Guar Gum		130	8.55	100	11	30	6	6	NC				0.2	99.8				7.5		0	0.25	21800	2400															
		UnFloc Gel		140	8.8	135	19	67	58	60	NC				3.4	96.6			28	10		0.3	0.5	1400	80															
25-Sep-02	2	Floc Gel		177	8.7	>100	19	108	40	48	NC				2.7	97.3			28	10	1.4	0.5	0.6	1500	40															
		Guar Gum		525	8.55	103	12	30	7	7	NC				0.3	99.7				7.5		0	0.25	21000	2400															
		Floc Gel		700	8.7	>100	17	128	40	48	24				2.6	97.4			24	10.5	1.6	0.3	0.6	2900	80															
26-Sep-02	3	UnFloc Gel		700	8.8	>100	25	60	47	55	NC				3.4	96.6			25	10.5		0.3	0.6	2000	80															
		UnFloc Gel		700	8.8	>100	26	56	45	52	NC				3.4	96.6			24	10		0.27	0.55	2000	80															
		UnFloc Gel		700	8.8	>100	25	65	50	58	NC				3.4	96.6			25	10		0.25	0.55	2000	80															
27-Sep-02	4	KCl/PHPA/Polymer/Glycol		700	8.8	72	10	19	4	5	NC				0.8	99.2				8		0	0.8	42000	240									43200	8	1.5				
		KCl/PHPA/Polymer/Glycol		700	8.8	74	11	23	6	6	NC				0.8	99.2				8		0	0.9	42000	240										8	1.55				
		KCl/PHPA/Polymer/Glycol		700	8.8	78	12	23	6	6	NC				0.8	99.2				8		0	0.9	42000	240									43200	8	1.57				
28-Sep-02	5	KCl/PHPA/Polymer/Glycol		700	8.8	78	12	23	6	6	NC				0.8	99.2				9.5	0.3	0.2	0.9	42000	240									43200	8	1.57				
		KCl/PHPA/Polymer/Glycol		900	8.5	67	17	27	9	10	8				-0.4	100.4		5	2	9.5		0.13	0.7	25000	320									27000	5	0.9				
		KCl/PHPA/Polymer/Glycol	80	1115	8.8	60	15	29	9	12	7.8	1:2	35	250	1.6	98.4		4	3	9		0.1	0.75	29000	300									32400	6	1.5				
29-Sep-02	6	KCl/PHPA/Polymer/Glycol		110	1323	8.9	58	15	28	8	12	7	2	32	250	2.6	97.4		2	3	9.5	0.1	0.1	0.7	26000	400	180							29700	5.5	1.8				
		KCl/PHPA/Polymer/Glycol		130	1506	10	55	18	27	9	12	4.8	1:3	24	250	8.8	91.2		1	6	9		0.05	0.75	22000	340	120							27000	5	1.7				
		KCl/PHPA/Polymer/Glycol		130	1595	10	60	23	29	11	15	4.4	1:3	22	250	8.9	91.1		0.5	9	9		0.05	0.75	22000	360	100							27000	5	1.85				
30-Sep-02	7	KCl/PHPA/Polymer/Glycol		141	1635	10.1	57	20	38	10	18	4.1	1	28	250	10.0	90.0		0.1	9	9.5	0.1	0.05	0.6	25000	480	100							28100	5.2	1.8				
		KCl/PHPA/Polymer/Glycol		130	1635	10.2	80	23	45	14	20	4.6	1:3	24	250	10.0	90.0		0.1	10	9		0.05	0.75	23000	240	80							27000	5	1.78				
		KCl/PHPA/Polymer/Glycol		1635	10.3	72	26	41	13	22	4.4	1:3	22	250	10.4	89.6		0.1	12	9		0.05	0.7	23000	280	40							27000	5	1.75					
1-Oct-02	8	KCl/PHPA/Polymer/Glycol	ns	1635	10.3	68	24	40	12	21	4.4	1	24	250	10.4	89.6		0.1	12	9		0.05	0.7	24000	320	40								27000	5	1.75				
		KCl/PHPA/Polymer/Glycol		140	1735	10.3	57	21	34	12	20	5	1:3	22	250	11.0	89.0		0.2	12	9.5		0.12	0.85	31000	160	100							37800	7	1.5				
		KCl/PHPA/Polymer/Glycol		1763	10.3	57	21	33	10	20	5.4	1:3	22	250	11.2	88.8		0.2	12	9.5		0.13	1	30960	160	120							37800	7	1.38					
2-Oct-02	9	KCl/PHPA/Polymer/Glycol	ns	1680	10.4	57	21	33	10	20	5.4	1:3	22	250	11.2	88.8		0.2	12	9.5	0.1	0.13	1	31000	160	120							35100	6.5	1.38					
		KCl/PHPA/Polymer/Glycol		140	1778	10.3	50	19	26	7	18	5.2	1:2	23	250	11.1	88.9		0.25	11	10		0.15	1.1	31400	140	140							32400	6	1.38				
		KCl/PHPA/Polymer/Glycol		1784	10.3	50	19	25	6	13	5.2	1:2	23	250	11.1	88.9		0.25	11	10		0.15	1.1	31200	160	120							32400	6	1.37					
3-Oct-02	10	KCl/PHPA/Polymer/Glycol	ns	1771	10.3	51	19	23	6	14	5	1:2	24	250	11.0	89.0		0.2	11	9.5	0.1	0.1	1	32000	180	100							32400	6	1.35					
		KCl/PHPA/Polymer/Glycol		150	1910	10.4	51	17	23	6	14	5.4	1:2	20	250	11.0	89.0		0.5	12	9.5		0.1	1	33000	140	100							37800	7	1.35				
		KCl/PHPA/Polymer/Glycol		150	2070	10.3	57	21	23	6	15	5.2	1:2	20	250	10.8	89.2		0.5	12	9.5		0.12	1	31500	160	120							32400	6	1.5				
4-Oct-02	11	KCl/PHPA/Polymer/Glycol		150	2112	10.3	58	22	25	7	14	5	1:2	22	250	10.6	89.4		0.5	12	9		0.05	0.85	33000	280	120							37800	7	1.5				
		KCl/PHPA/Polymer/Glycol		2112	10.35	57	21	25	6	13	4.8	1:2	21	250	10.8	89.2		0.4	13	9		0.05	0.75	33000	360	80							37800	7	1.5					
		KCl/PHPA/Polymer/Glycol		2112	10.35	57	22	24	6	13	4.8	1:2	22	250	10.8	89.2		0.4	13	9		0.04	0.74	33000	400	60							37800	7	1.5					



## 6.2 Mud Volume Analysis

### 17 1/2" Surface Hole

Date	Hole Size	Interval		Mud Type	Fluid Built & Received					Fluid Disposed					Summary			
		From	To		Fresh Premix	Sump Premix	Direct Recirc	Water	Other	De-sander	De-silter	Centrifuge	Down-hole	Dumped	Other	Initial	Received	Disposed
25-Sep-02	17.50	140	700	Floc Gel Guar Gum Floc Gel	1300							2356			2475	1300	2356	1419
26-Sep-02	17.50	700	700	UnFloc Gel UnFloc Gel UnFloc Gel	310							923	30		1419	310	953	776
<b>Sub Total</b>				<b>Gel Sweeps</b>	<b>1610</b>							<b>3279</b>	<b>30</b>			<b>1610</b>	<b>3309</b>	

Dilution Factors			
	Interval Length	Dilution Vol	Dilution Factor
17 1/2" Surface Hole	560 metres	310 bbls	0.55 bbls/metre

## 6.3 Mud Volume Analysis

### 12 1/4" Main Production Hole

Date	Hole Size	Interval From	Mtrs To	Mud Type	Fluid Built & Received					Fluid Disposed					Summary					
					Fresh Premix	Sump Premix	Direct Recirc	Water	Other	De-sander	De-silter	Centrifuge	Down-hole	Dumped	Other	Initial	Received	Disposed	Final	
27-Sep-02	12.25	700	700	KCl/PHPA/Polymer/Glycol	1400												1400			1400
28-Sep-02	12.25	700	1210	KCl/PHPA/Polymer/Glycol	1900					86			1583	50	60	1400	1900	1779	1521	
29-Sep-02	12.25	1210	1612	KCl/PHPA/Polymer/Glycol	750					21	321		73		100	1521	750	516	1755	
30-Sep-02	12.25	1612	1646	KCl/PHPA/Polymer/Glycol	400								34	140	30	1755	400	204	1950	
1-Oct-02	12.25	1646	1763	KCl/PHPA/Polymer/Glycol	280								139			1950	280	182	2049	
2-Oct-02	12.25	1763	1784	KCl/PHPA/Polymer/Glycol											10	2049		102	1946	
3-Oct-02	12.25	1784	2112	KCl/PHPA/Polymer/Glycol	440								34		40	1946	440	383	2003	
4-Oct-02	12.25	2112	2112	KCl/PHPA/Polymer/Glycol									8		10	2003		18	1986	
<b>Sub Total</b>					<b>5170</b>					<b>107</b>	<b>736</b>		<b>1901</b>	<b>190</b>	<b>250</b>	<b>12624</b>	<b>5170</b>	<b>3184</b>	<b>14610</b>	

Dilution Factors			
	Interval Length	Dilution Vol	Dilution Factor
12 1/4" Main Production Hole	1412 m	3658 bbls	2.59 bbls/metre

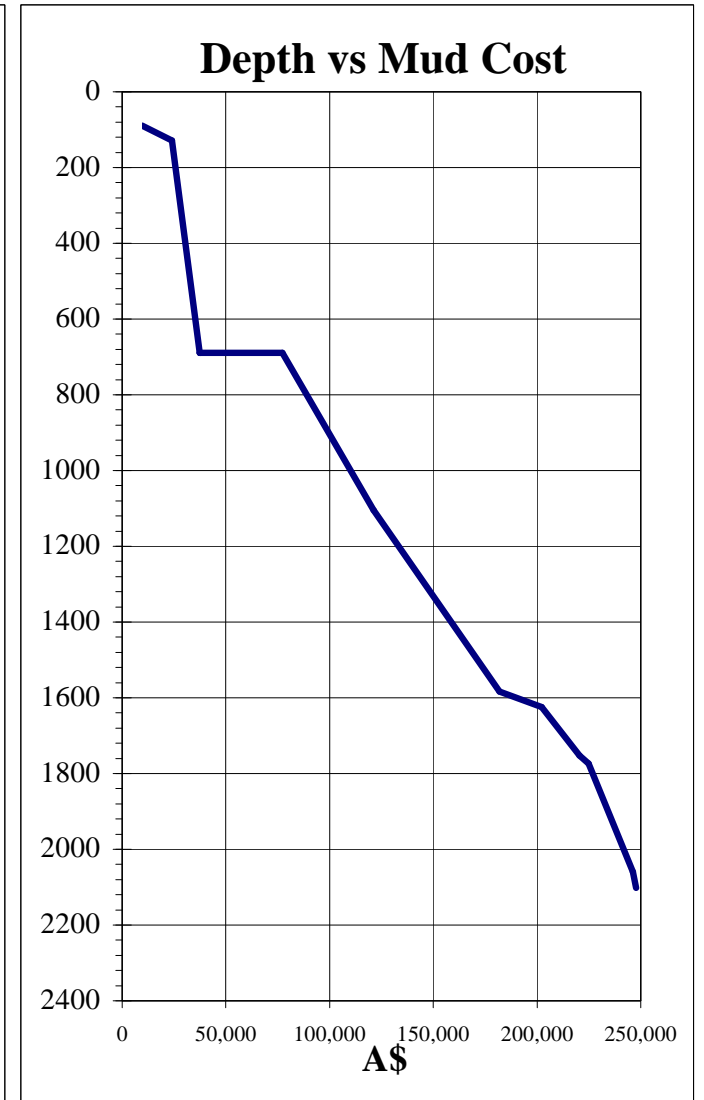
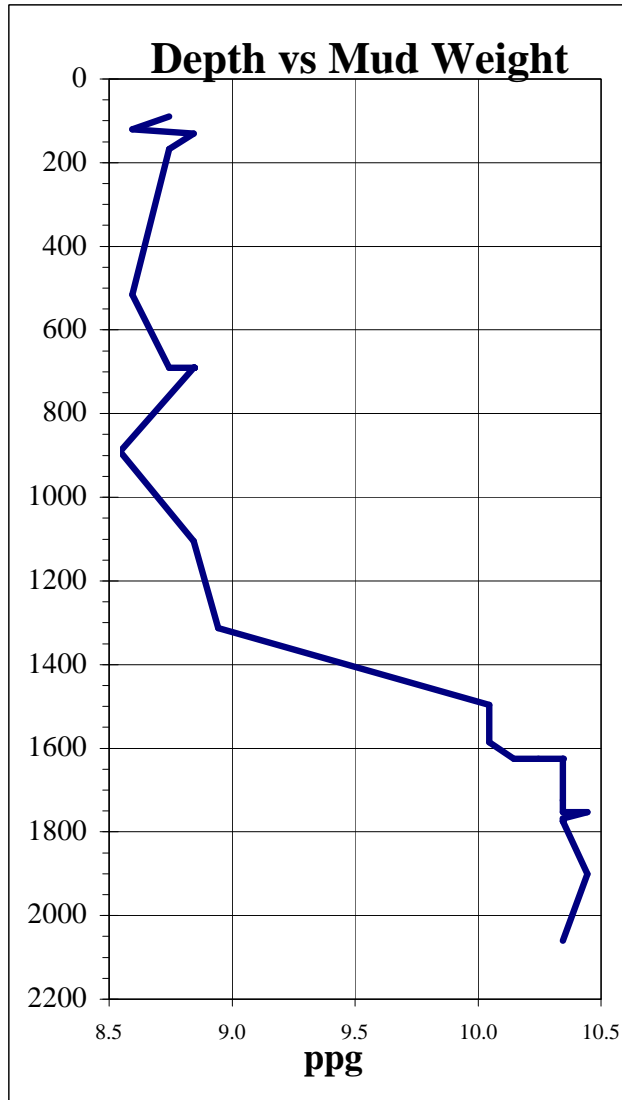
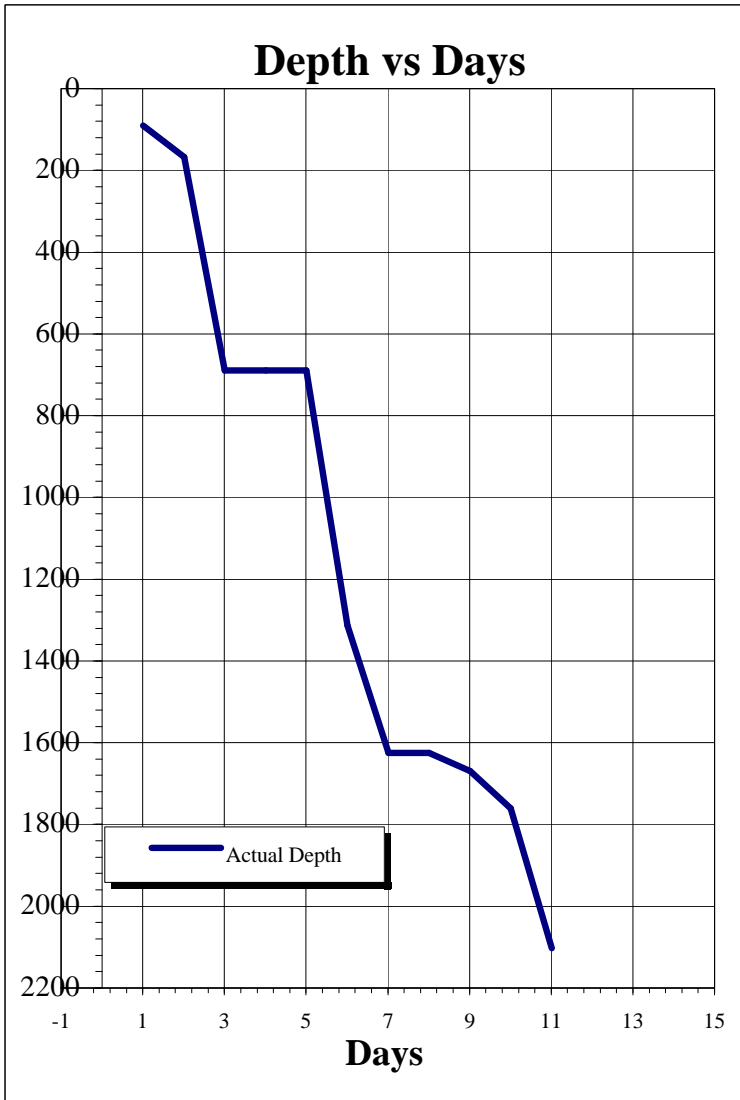
# 6.1 Mud Volume Analysis

## 36" Conductor Hole

Date	Hole Size	Interval	Mtrs	Mud Type	Fluid Built & Received					Fluid Disposed					Summary			
		From	To		Fresh Premix	Sump Premix	Direct Recirc	Water	Other	De-sander	De-silter	Centrifuge	Down-hole	Dumped	Other	Initial	Received	Disposed
24-Sep-02	36.00	Seabed	140	Floc Gel Guar Gum UnFloc Gel	3200							725				3200	725	2475
<b>Sub Total</b>				<b>Gel Sweeps</b>	<b>3200</b>							<b>725</b>				<b>3200</b>	<b>725</b>	

Dilution Factors			
	Interval Length	Dilution Vol	Dilution Factor
<b>36" Conductor Hole</b>	140 metres		

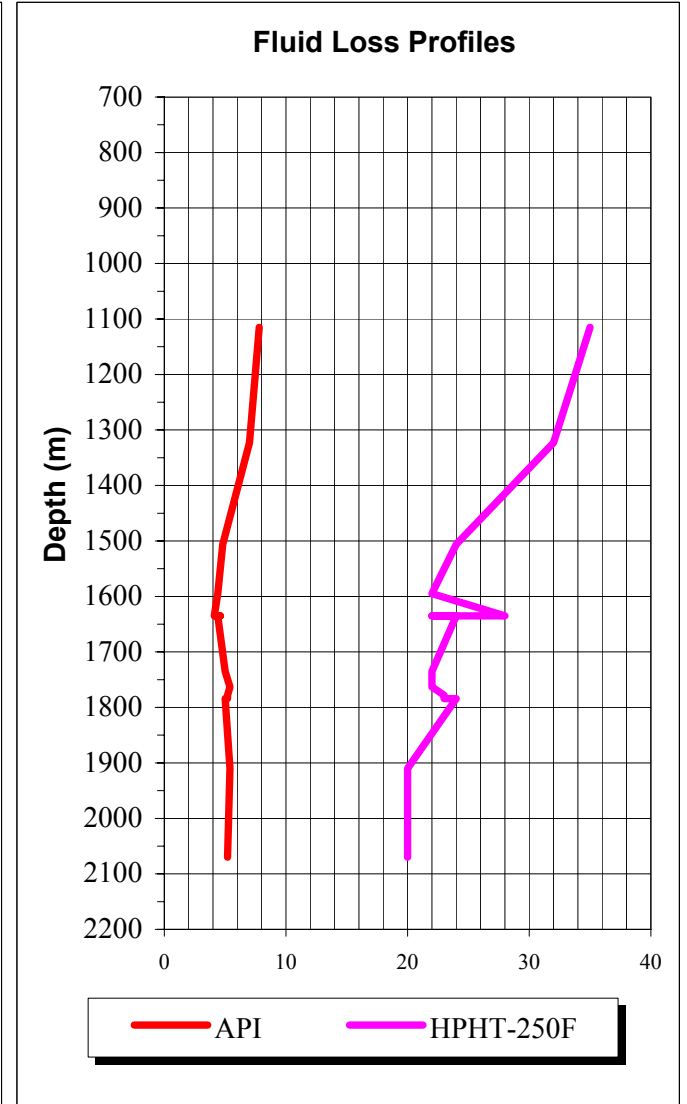
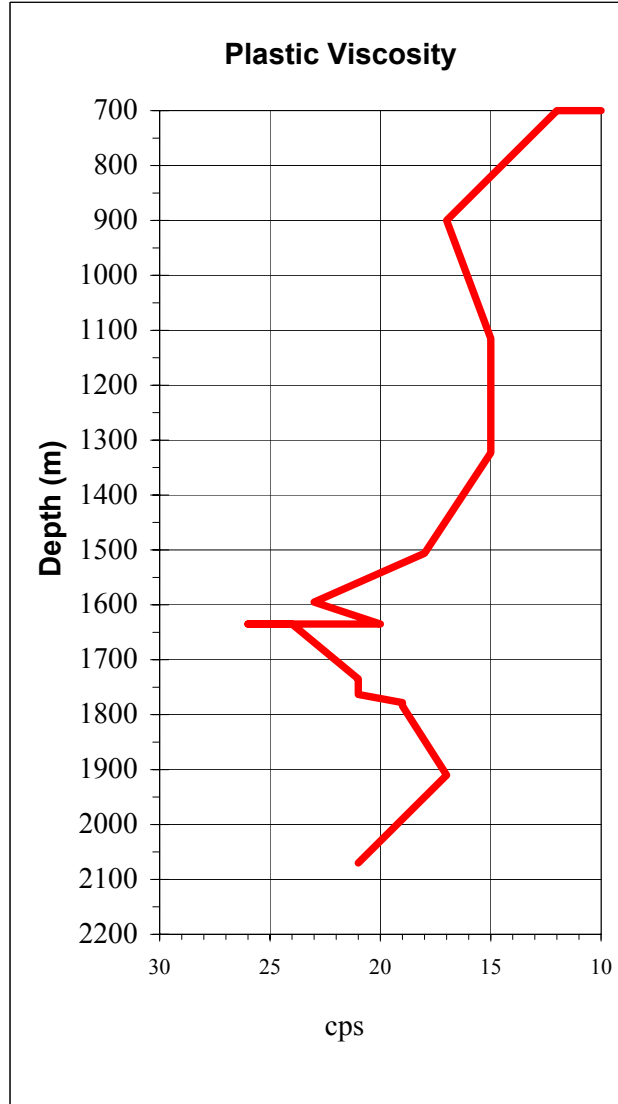
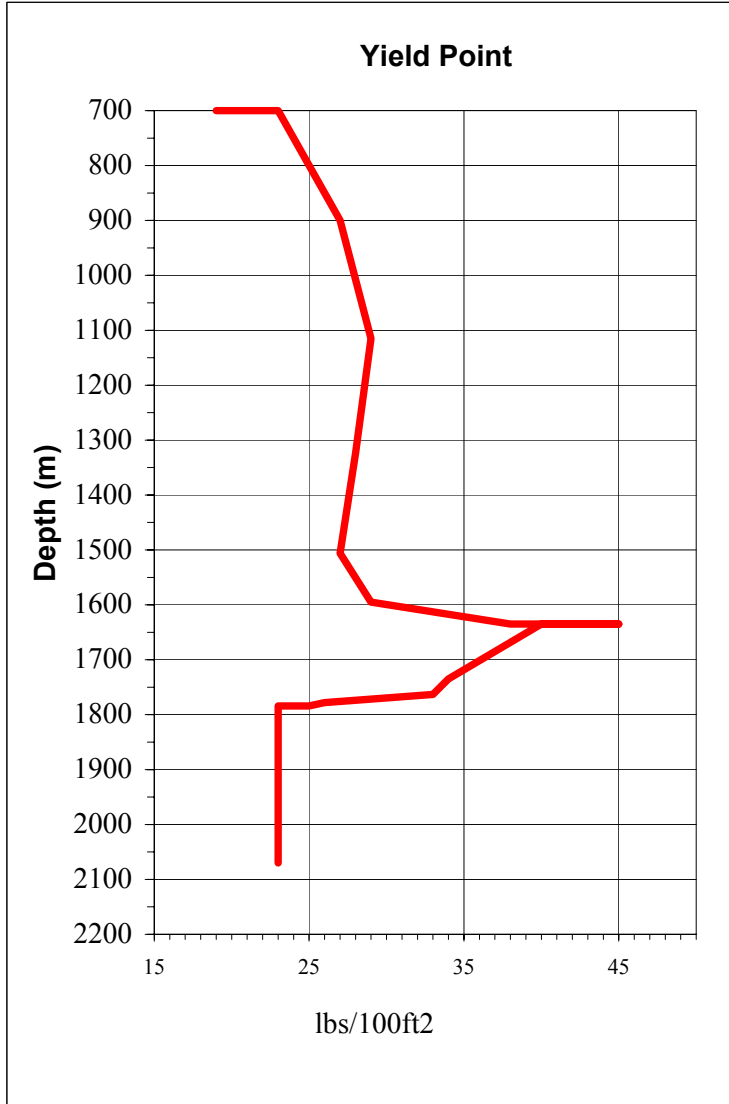
# 7.1 Graphs



# 7.2 Graphs

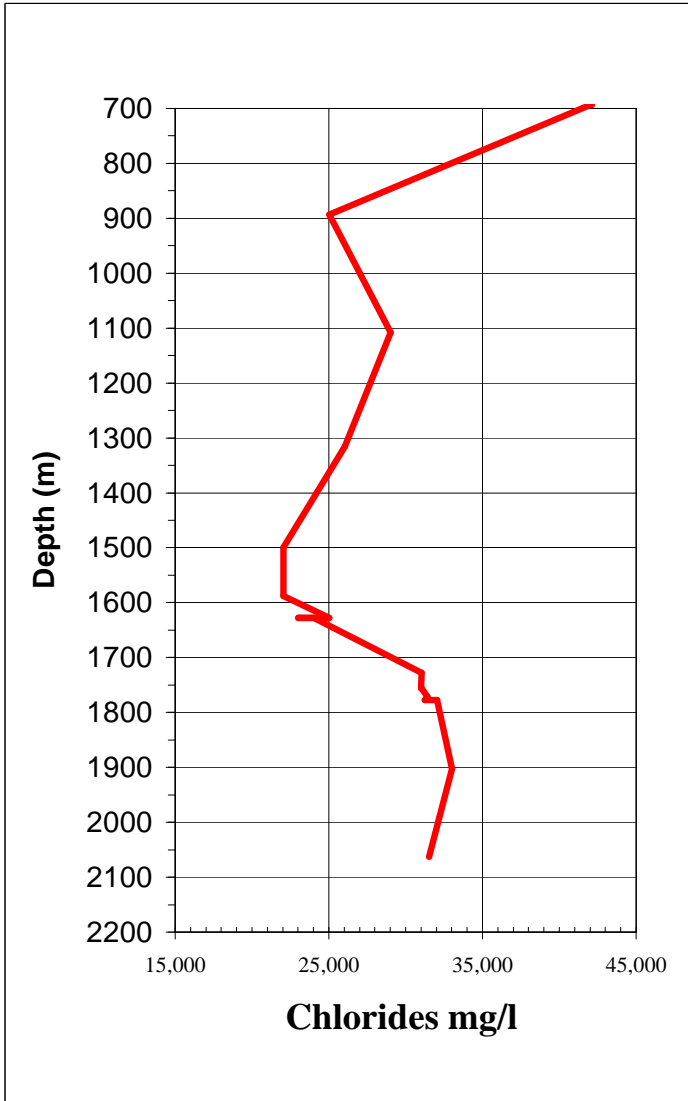
Santos Ltd.

Casino 2

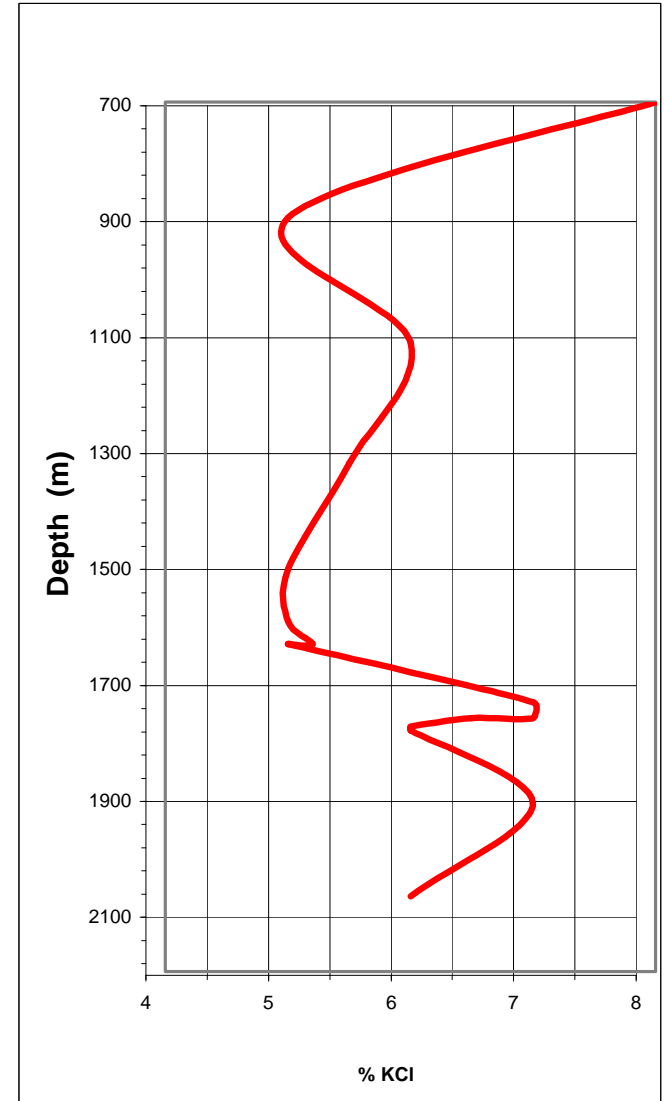
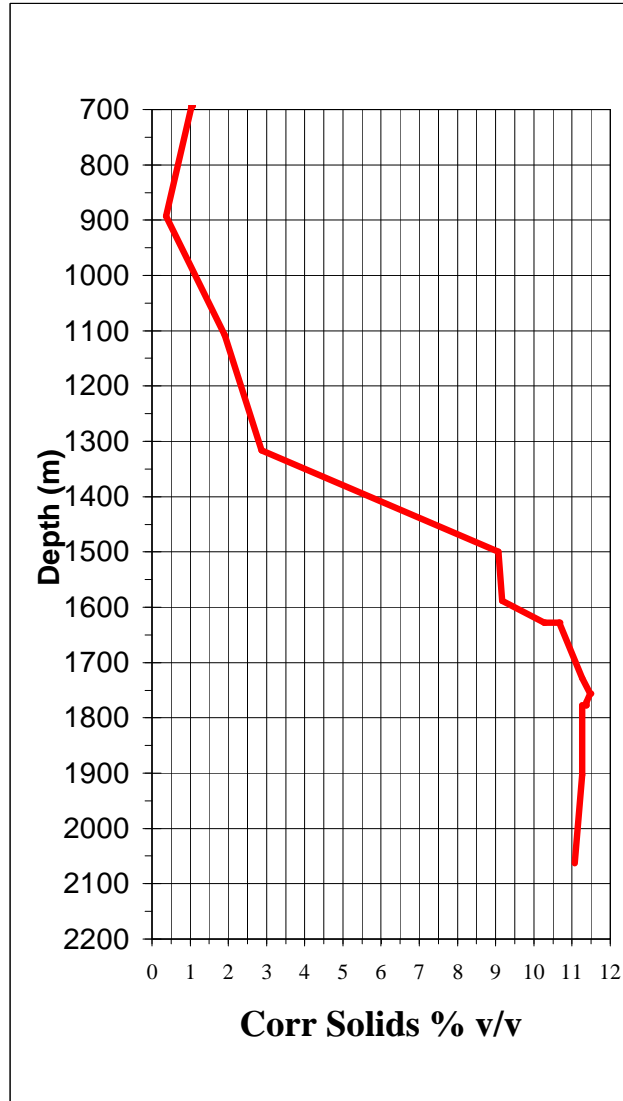


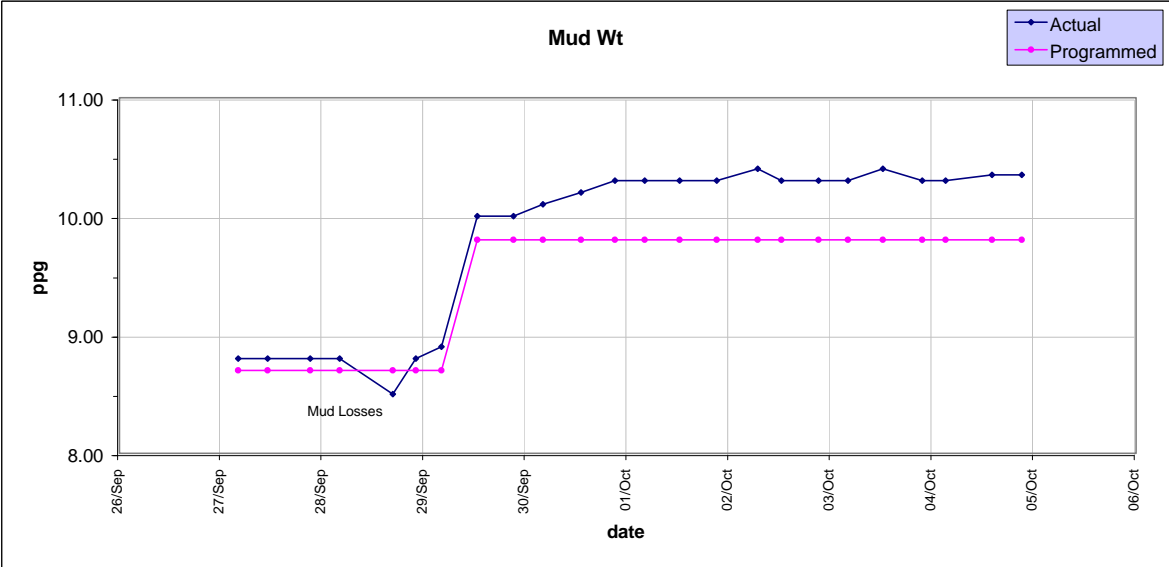
# 7.3 Graphs

Santos Ltd.



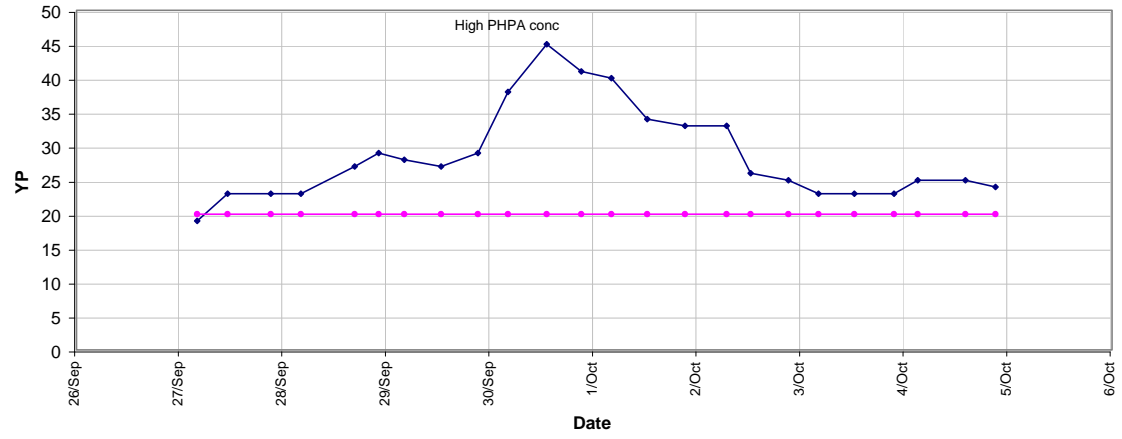
Casino 2





### Yield Point

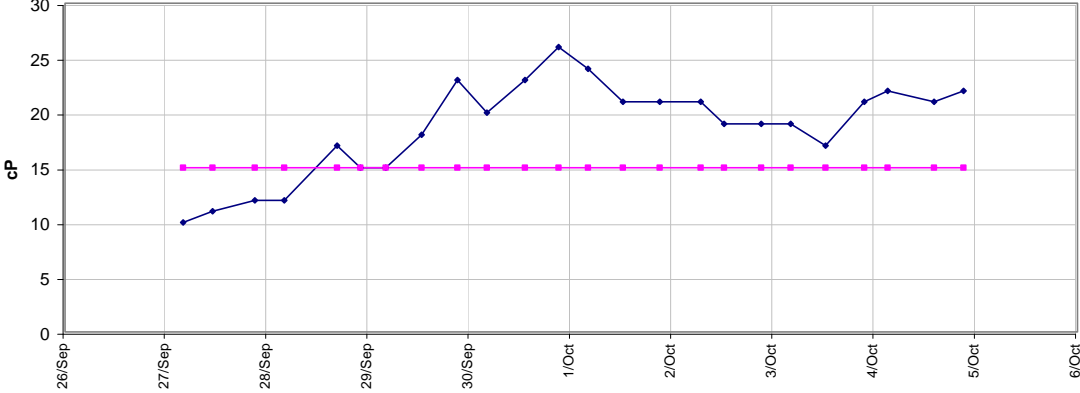
Actual  
Programmed





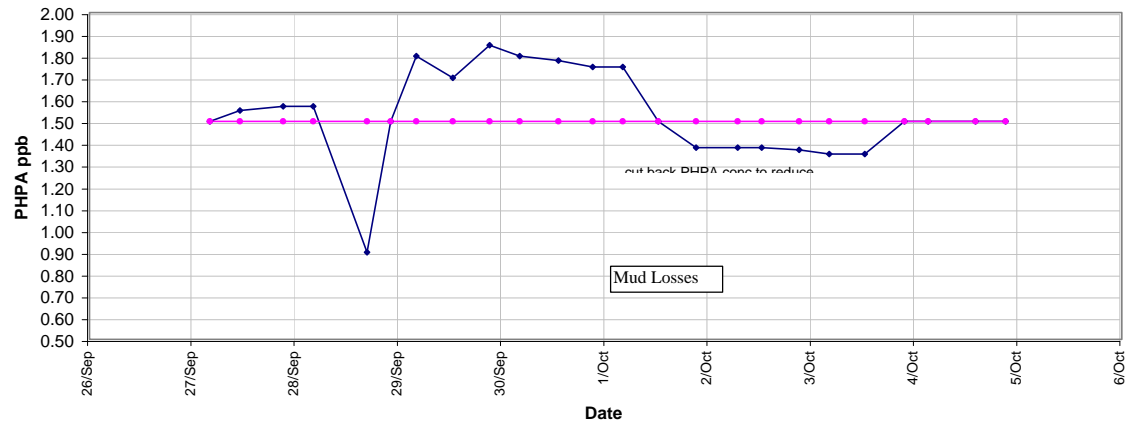
Plastic Viscosity

Actual  
Programmed



# PHPA

Actual  
Programmed

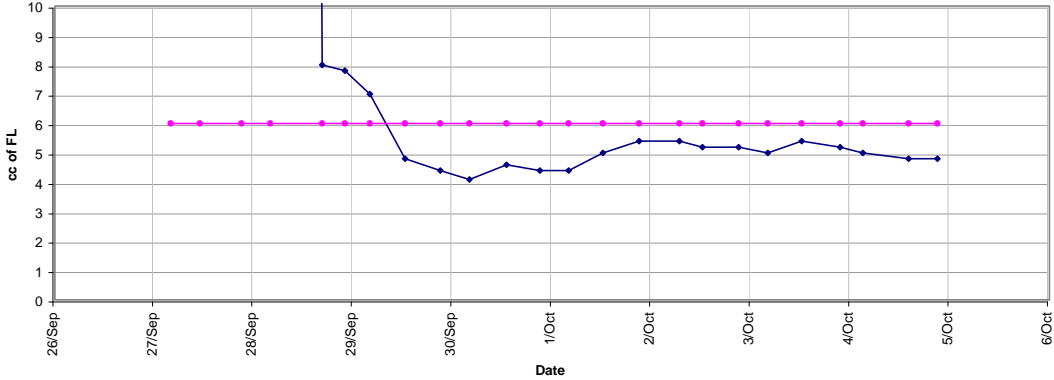


Mud Losses

cut back PHPA conc to reduce

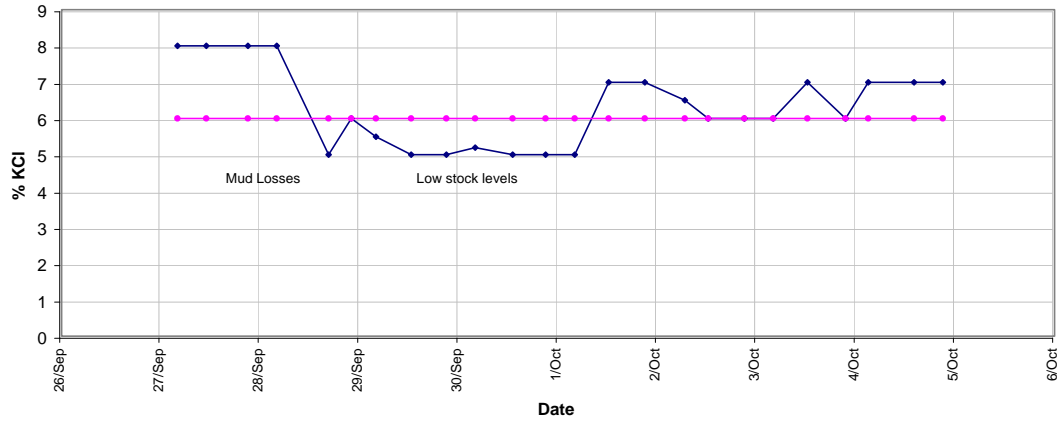
API Fluid Loss

Actual  
Programmed



# KCI

Actual  
Programmed



### 8. Bit Record

Operator : <b>Santos Ltd.</b>				Well : <b>Casino 2</b>				Contractor : <b>DOGC</b>				Supervisors : <b>Ron King &amp; Gavin Othen</b>																	
Spud Date : <b>24-Sep-02</b>				TD Date :				Surface Csg : <b>30" &amp; 20" @137m</b>				Intermediate Csg : <b>13 3/8" @743m</b>				Production Csg :													
Bit #	Size (in)	Make	Type	Jets (1/32)					Reason Pulled	Depth Out	Depth Drilled	Hours	Cumm Hours	Gauge	GPM	Mud Wt	n	θ <sub>300</sub>	Annular Flow Properties						Jet Vel	HHP	HHP/ in <sup>2</sup>	Impact Force	
																			Drill Pipe	Q CRIT <sub>dp</sub>	Flow	Drill Collars	Q CRIT <sub>dc</sub>	Flow					
1	26.00	Varel	DSJC	18	18	18				CP	140	70	2.3	2.3	I	1111	8.43	0.29	86	5	9804	Laminar	9.5	9189	Laminar	477	1117	2.1	2314
2	17.50	SMITH	MGSSHC	20	20	20	18			CP	700	560	12.6	14.9		1129	8.43	0.16	145	5	7020	Laminar	9.5	5605	Laminar	309	477	2.0	1524
3	12.25	HUGHES	MX03DX	16	16	16				PR	1646	946	36.4	51.3		855	10	0.53	50	5	1132	Laminar	8	945	Laminar	464	968	8.2	2058
4	12.25	Hycalog	DSX195	12	12	12	12	12		Core Point	1763	117	6.4	57.7		795	10.3	0.47	55	5	1281	Laminar	8	1037	Laminar	461	912	7.7	1954
5	12.25	Security	Core Bit	22	22	22					1784	21	6	63.7		325	10.3	0.51	45	5	1064	Laminar	8	878	Laminar	93	15	0.1	162

## 8a ECD HYDRAULICS

CASINO #2

Drilling Parameters													Fluid Properties					Annular Pressure Loss (If Laminar)				Annular Pressure Loss (If Turbulent)				Ann. Pressure losses	
																		psi				psi				psi	ppg
Date	Bbl/Stk @ 100%	%Eff	Total Stks	GPM	Hole Size	Casing ID	D/C size	D/P size	Depth m	TVD m	Casing Depth m	Length D/C m	Mw ppg	rpm 600	rpm 300	n	k (dynes...)	LPr. Loss (dh-dc)	LPr loss (dcas-dc)	LPr loss (dh-dp)	LPr loss (dcas-dp)	Tu Pr loss (dh-dc)	Tu Pr loss (dcas-dc)	Tu pr loss (dh-dp)	Tu pr loss (dcas-dp)	Total Pressure loss	ECD
24-Sep-02	0.1049	97	260	1111	36.00		9	5	140	140		120	8.7	156	137	0.187	217.75	2.97		0.42						3.39	<b>8.84</b>
25-Sep-02	0.1049	97	264	1128	17.50	25	9	5	700	700	137.0	38	8.7	162	145	0.160	273.43	5.78		49.31	6.61					61.71	<b>9.22</b>
26-Sep-02	0.1049	97	260	1111	17.50	25	9	5	700	700	137.0	38	8.7	115	90	0.353	50.75	2.14		16.18	1.71					20.03	<b>8.87</b>
28-Sep-02	0.1049	97	200	855	12.25	12.347	8.5	5	1100	1100	690.0	200	8.8	61	44	0.471	11.92	19.06		6.07	19.38					44.51	<b>9.04</b>
29-Sep-02	0.1049	97	200	855	12.25	12.347	8.5	5	1612	1612	690.0	200	10.0	75	52	0.528	9.87	20.92		21.47	19.90					62.29	<b>10.23</b>
30-Sep-02	0.1049	97	200	855	12.25	12.347	8.5	5	1646	1646	690.0	200	10.3	93	67	0.473	17.95	28.96		33.13	29.39					91.48	<b>10.63</b>
1-Oct-02	0.1049	97	186	795	12.25	12.347	8.5	5	1763	1763	690.0	200	10.3	76	55	0.466	15.34	23.18		30.84	23.69					77.71	<b>10.56</b>
2-Oct-02	0.1049	97	76	325	12.25	12.347	8.5	5	1784	1784	690.0	123	10.3	64	45	0.508	9.69	6.99		16.06	11.08					34.13	<b>10.41</b>
3-Oct-02	0.1049	97	200	855	12.25	12.347	8.5	5	2112	2112	690.0	200	10.3	65	44	0.563	6.73	16.91		28.24	15.45					60.61	<b>10.47</b>



## 10. KEY POLYMER CONCENTRATIONS

Santos Ltd.

Casino 2

Date	Depth metres	Initial Vol bbls	Vol Addition bbls	Usage							Concentration ppb						
				PHPA (55 lb Sx)	PAC R (55 lb Sx)	PAC L (55 lb Sx)	Glychem (200 Lit Drums)	KCl (BB) 1 Tons	Xanthan Gum (55 lb Sx)	Idcide (55 lbs Drums)	PHPA ppb	PAC R ppb	PAC L ppb	Glychem %	KCl %	Xanthan Gum ppb	Idcide ppb
27-Sep-02	700	0	1400	40		23		18	46	11	1.57	0.00	0.90	0.00%	8.08%	1.81	0.43
28-Sep-02	1100	1400	1900	34	9	18		8	49	17	1.50	0.15	0.68	0.00%	4.95%	1.58	0.47
29-Sep-02	1612	1521	750	34		18	49	4			1.83	0.10	0.89	2.71%	4.42%	1.06	0.31
30-Sep-02	1646	1755	400	2		6	11	7		2	1.54	0.08	0.88	2.85%	5.64%	0.86	0.31
1-Oct-02	1763	1950	280			6	8	5		2	1.35	0.07	0.92	2.95%	6.35%	0.76	0.32
2-Oct-02	1784	2049				6	4				1.35	0.07	1.08	3.19%	6.35%	0.76	0.32
3-Oct-02	2112	1946	440	21	1	14	8	6		9	1.58	0.08	1.20	3.02%	6.76%	0.62	0.47
4-Oct-02	2112	2003									1.58	0.08	1.20	3.02%	6.76%	0.62	0.47

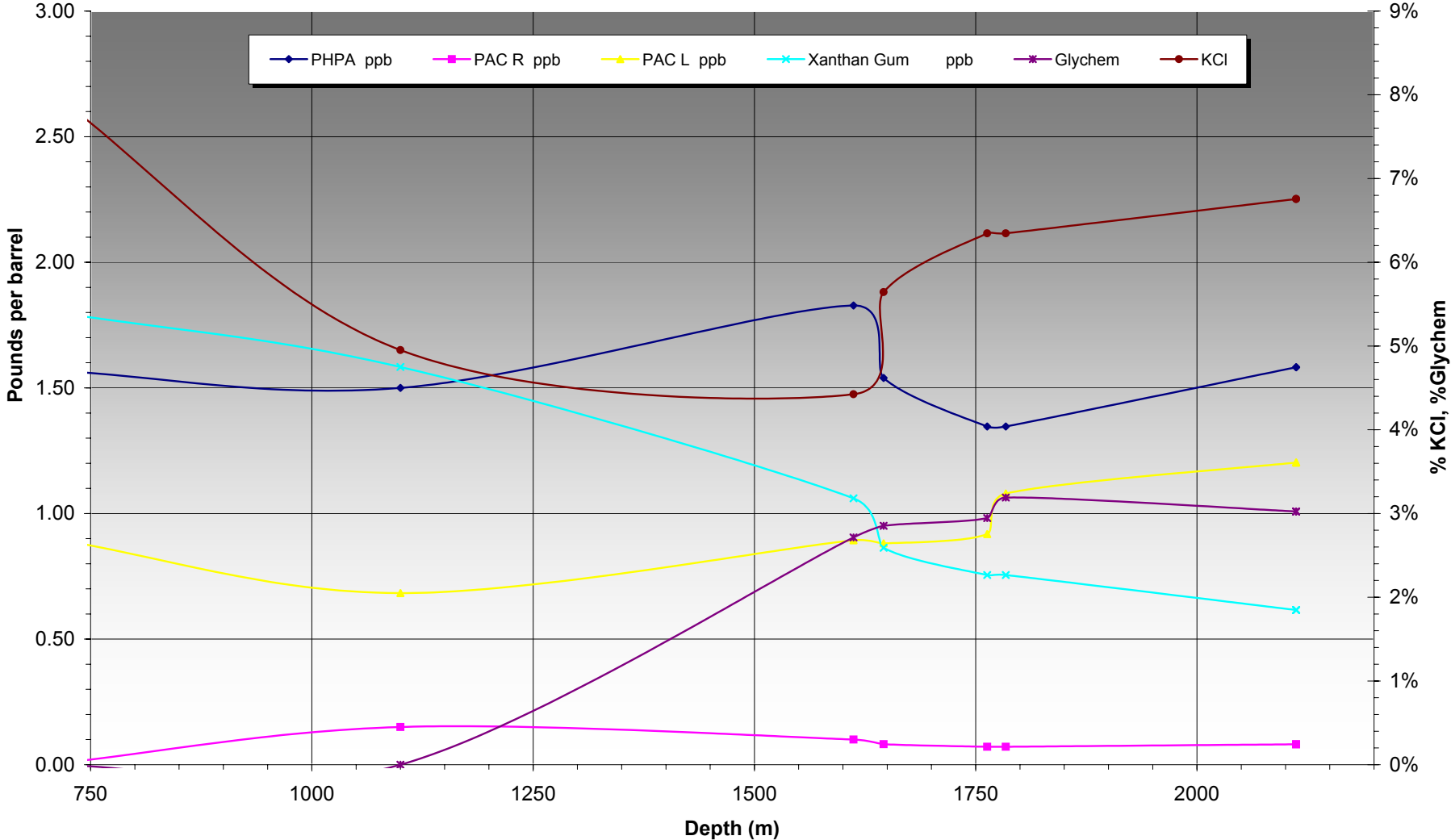
\* No depletion (loss to formation, cuttings, degradation, temperature etc) of Polymers has been taken into account.



**Key Polymer Concentrations in the Main Production Hole.**

Santos Ltd.

Casino 2



# 11.0 FIELD ENGINEERING LOG

## CASINO #2

Previous Well: Rig Release date of: Mud Engineer(s) on Rig Move: Dates of Rig Move: Engineering Days on Rig Move:	Casino 1  1st Engineer: Carl Jensen 2nd Engineer: Jasdeep Singh
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Day #	Date	Engineer(s) Name
Day 1	24-Sep-02	Carl Jensen / Jasdeep Singh
Day 2	25-Sep-02	Carl Jensen / Jasdeep Singh
Day 3	26-Sep-02	Carl Jensen / Jasdeep Singh
Day 4	27-Sep-02	Carl Jensen / Jasdeep Singh
Day 5	28-Sep-02	Carl Jensen / Jasdeep Singh
Day 6	29-Sep-02	Carl Jensen / Jasdeep Singh
Day 7	30-Sep-02	Carl Jensen / Jasdeep Singh
Day 8	1-Oct-02	Carl Jensen / Jasdeep Singh
Day 9	2-Oct-02	Carl Jensen / Jasdeep Singh
Day 10	3-Oct-02	Carl Jensen / Jasdeep Singh
Day 11	4-Oct-02	Carl Jensen / Jasdeep Singh
Day 12	5-Oct-02	Carl Jensen / Jasdeep Singh
Day 13	Rig Release - 6/10/2002	Carl Jensen
<b>TOTAL Engineering days:</b>		Carl Jensen; 13 days, Jasdeep Singh; 12 days



# INDEPENDENT DRILLING FLUID SERVICES

A Division of Rheochem Pty Ltd ACN 070 415 593

## Drilling Fluid Report

Report #	1	Date	24-Sep-02
Rig #	Ocean Bounty	Spud Date	24-Sep-02
Total MD	0	to	140
Total VD		to	140

OPERATOR	Santos Ltd.	CONTRACTOR	DOGC
REPORT FOR	Ron King & Gavin Othen	REPORT FOR	Ricky Graham & Ricky Sepelvado
WELL NAME AND No	Casino 2	FIELD	VIC - P - 44
		LOCATION	STATE Otway Basin Victoria

BHA	BIT TYPE	JET SIZE			CASING		MUD VOLUME (BBL)		CIRCULATION DATA			
BIT SIZE 36	Varel DSJC	18	18	18	30 & 20	CONDUCTOR SET @	137 42	ft m	HOLE 275	PITS 2200	PUMP SIZE 6 x 12 Inches	CIRCULATION PRESS 1200 psi
DRILL PIPE SIZE 5	S	Length Mtrs			SURFACE SET @	ft m	TOTAL CIRCULATING VOL. 2475		PUMP MODEL National 12-P-160	% EFFICIENCY 97	BOTTOMS UP 10 min	
DRILL PIPE SIZE 5	TYPE HW	Length 56 Mtrs			PROD. or LNR Set @	ft m	IN STORAGE		BBL/STK 0.1018	STK / MIN 260	SURFACE TO BIT 0.1 min	
DRILL COLLAR SIZE ("") 8 1/4	9 1/2	47	36	Mtrs	MUD TYPES Floc Gel				BBL/MIN 26.46	GAL / MIN 1111	TOTAL CIRC. TIME 94 min	

MUD PROPERTIES						MUD PROPERTY SPECIFICATIONS					
SAMPLE FROM						Mud Wt	1.03-1.0	Glycol		API	
TIME SAMPLE TAKEN						Vis	> 100	Yield Point		pH	8-10
FLOWLINE TEMPERATURE						KCl		PHPA excess		Sulphites	
TOTAL MEASURED DEPTH (TMD)						<b>OBSERVATIONS</b>					

WEIGHT	ppg / SG	8.70	1.04	8.55	1.03	8.80	1.06	Pumped a total of 370 bbl of 25 ppb + 0.37 ppb Lime			
FUNNEL VISCOSITY(sec/qt) API @	16 °C 60 °F	> 100		100		135		Floculated Gel and 130 bbl of 2.1 ppb Guar Gum sweeps during drilling for hole cleaning.			
RHEOLOGY 600 : 300 RPM	49 °C 120 °F	156	137	52	41	105	86	Displaced Hole with 280 bbl of 28 ppb Unfloculated Gel before running casing.			
RHEOLOGY 200 : 100 RPM	49 °C 120 °F	126	114	35	27	81	71	Drill Water: Ca 160 mg/l; Pf/Mf 0.05/0.35; Cl 1200 mg/l			
RHEOLOGY 6 : 3 RPM	49 °C 120 °F	62	42	8	5	57	55	pH 8.5			
PLASTIC VISCOSITY cP @	49 °C 120 °F	19		11		19		Volume in Storage for next section: 250 bbl Guar Gum (2.17 ppb); 450 bbl Floc Gel + 1500 bbl Un Floc Gel (25.27 ppb)			
YIELD POINT (lb/100FT <sup>2</sup> )	49 °C 120 °F	118		30		67					
GEL STRENGTH (lb/100ft <sup>2</sup> ) 10 sec/10 min/30 min.		38/45/50		6/6/6		58/59/60					
API FILTRATE (cm <sup>3</sup> /30 min.)		NC		NC		NC					
HPHT FILTRATE (cm <sup>3</sup> /30 min.)	°C °F										
API : HPHT (Cake/32nd in.)											

OPERATIONS SUMMARY											
PH		11.0		7.5		10.0		Spudded well at 09:30.			
ALKALINITY MUD (Pm)		1.5						Drilled with sea water monitoring & dumping returns at sea bed using sea water coupled with Gel & Guar Gum sweeps to clean hole. Section TD at 140 m.			
ALKALINITY FILTRATE (Pf / Mf)		0.42	0.72	0	0.25	0.30	0.50	POOH.			
CHLORIDE (mg/L)		1660		21800		1400		Run 30 & 20 inch casing with PGB and cemented in place.			
TOTAL HARDNESS (mg/L)		40		2400		80		WOC.			
SULPHITE (mg/L)											
PHPA (Calc ppb)											
GLYCOL CONTENT (% V/V)											
K+ (mg/L)											
KCL (% by Wt.)											
BARYTES (Calc ppb)											

MUD ACCOUNTING (BBLs)											
METHYLENE BLUE CAPACITY (ppb equivalent)		25.0				28.0		FLUID BUILT	FLUID DISPOSED	SUMMARY	
SOLIDS CONTENT (% by volume) Retort		2.64		0.20		3.41		Premix - Water	###	S.C.E	INITIAL
LIQUID CONTENT (% by volume) Calc		97.36		99.80		96.59		Premix - Recyc		Dumped	+ Rcd
CUTTINGS OIL RATIO (% oil)								Drill Water		Downhole	725 - Lost
SAND CONTENT (% by volume)								Other		Other	Surface
								RECEIVED	###	LOST	725 FINAL
											2,475

PRODUCT USAGE								SOLIDS CONTROL EQUIPMENT							
Product	Price	Start	Received	Damage	Used	Close	Cost	SHALES SHAKERS	Hrs	#	Size	Hrs		Hrs	
Caustic Soda	\$ 36.60	24			9	15	\$ 329.40	# 1	4 x s84	Desander	3	6	Centrifuge		
Guar Gum	\$ 125.00	80			15	65	\$ 1,875.00	# 2	4 x s84	Desilter	20	2	Centrifuge		
Lime	\$ 7.80	80			7	73	\$ 54.60	# 3	4 x s84	Mud Cleaner 1			Degasser		
Trugel-13A Bulk	\$ 17.50	670	873		690	853	\$ 12,075.00	# 4	4 x s84	Mud Cleaner 2			Poorboy		
										Overflow (ppg)	Underflow (ppg)		Output (Gal/Min.)		
										Desander		0			
										Desilter		0			
										Cleaner 1		0			
										Cleaner 2		0			
										Centrifuge1					
										Centrifuge2					
										CURRENCY		DAILY COST	CUMULATIVE COST		
										AUD		\$14,334.00	\$14,334.00		

I.D.F.S. Engineer: Carl Jensen & Jasdeep Singh Office: BRISBANE Telephone: 07 3806-0160 Fax: 07 3806-0165

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# INDEPENDENT DRILLING FLUID SERVICES

A Division of Rheochem Ltd

ACN 070 415 593

## Drilling Fluid Report

Report #	2	Date	25-Sep-02
Rig #	Ocean Bounty	Spud Date	24-Sep-02
Total MD	140	to	700
Total VD	140	to	700

### HYDRAULICS

HOLE SECTION	Annular Velocity		Shear Rates at Wall	Shear Stress at Wall	Velocity at Wall	REYNOLD NUMBERS	Friction Factors	CRITICAL VELOCITIES	IF FLOW LAMINAR	IF FLOW TURBULENT
	Metres/min	Feet/min	Sec <sup>-1</sup>	lb/100 ft <sup>2</sup>	ft/min			feet/min	psi	psi
OPEN HOLE - DRILL COLLARS	37.43	123	95.41	566.61	593.89	86	0.05	679.29	5.78	
CASING - DRILL COLLARS	15.50	51	20.99	444.80	2119.42	19	0.09	642.97		
OPEN HOLE - DRILL PIPE	29.98	98	51.96	514.16	989.55	61	0.06	656.91	49.31	
CASING - DRILL PIPE	14.05	46	15.22	422.54	2775.80	16	0.09	630.63	6.61	

### FLUID PROPERTIES AND CONSTANTS

n	0.16	F	2.75	ANNULAR PRESSURE DROP	62	psi
K	53.51	Z1	0.26	ECD	9.22	ppg
K	53.51	Z2	0.37	CASING SEAT FRACTURE PRESSURE		psi
				EQUIVALENT MUD WEIGHT		ppg

### AT THE BIT

TFA	1.17	inch <sup>2</sup>	GAS KICK TOLERANCE		bbls
JET VELOCITY	309	feet/sec	SLIP VELOCITY		Feet/min
IMPACT FORCE	1572	lbf	% HOLE CLEANING		%
HHP at bit	492	Lbs	PRESSURE LOSS BEFORE BIT		psi
HHP/ inch <sup>2</sup>	2.04	hp/inch <sup>2</sup>	PRESSURE LOSS FROM MUD PUMP TO BIT		psi
BIT PRESSURE LOSS	747	psi	TOTAL THEORETICAL PRESSURE LOSS		psi
			% of PRESSURE DROP AT BIT	28.7%	

### SOLIDS ANALYSIS

### WEIGHTING UP SCENARIOS for in gauge hole

	PPB	%	25 kg Sacks Required	TO RAISE MW 0.1 ppg per 100bbls	TO RAISE MW 1 ppg per 100bbls	TO RAISE MW 0.1 ppg TO CIRCULATING VOLUME	TO RAISE MW 1 ppg TO CIRCULATING VOLUME	MW POTENTIAL WITH CURRENT STOCKS
High Gravity Solids								
Total LGS	23.34	2.56	Salt	13	134	178	1905	
Bentonite	24	2.64	KCl	13	134	178	1905	8.92
Drilled Solids	-0.66	-0.07	CaCO <sub>3</sub>	14	154	200	2186	
Salt	1.63	0.14	BARITE	10	106	145	1500	11.45

### PRODUCT CONCENTRATIONS

### DILUTION FACTORS

PRODUCT	PPB IN ACTIVE MUD (Theoretical)	COST \$/BARREL	Dilution Factor including Sump Water for this section	bbls/foot
PHPA			Dilution Factor excluding Sump Water for this Section	bbls/foot
PAC R				
PAC L				

### TIME ANALYSIS

Glychem			DRILLING	17 1/2 hours
KCl			TRIPPING	4 hours
Xanthan Gum			REAMING AND WASHING	hours
			TESTING AND NIPPLING UP BOPs	hours
			MAKE UP BHA	hours
	36" HOLE	14.33	CASING, CEMENT, WOC	1/2 hours
	17.5" HOLE	2.13	CIRCULATE	1 hours
	12.25" HOLE	40.43	LOGGING	hours
	POST TD		NON PRODUCTIVE TIME (eg: Work tight hole)	hours
	TOTAL WELL		OTHER	1 hours

I.D.F.S. Engineer: Carl Jensen & Jasdeep Singh Office: Brisbane Telephone: 07 3806-0160

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# INDEPENDENT DRILLING FLUID SERVICES

A Division of Rheochem Pty Ltd      ACN 070 415 593

## Drilling Fluid Report

Report #	3	Date	26-Sep-02
Rig #	Ocean Bounty	Spud Date	24-Sep-02
Total MD	700	to	700
Total VD	700	to	700

OPERATOR	Santos Ltd.	CONTRACTOR	DOGC
REPORT FOR	Ron King & Gavin Othen	REPORT FOR	Ricky Graham & Ricky Sepelvado
WELL NAME AND No	Casino 2	FIELD	VIC - P - 44
		LOCATION	STATE Otway Basin      Victoria

BHA	BIT TYPE	JET SIZE			CASING		MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 17 1/2	SMITH MGSSHC	20	20	20	30 & 20	CONDUCTOR SET @ 137 ft 42 m	HOLE 776	PITS	PUMP SIZE 6 x 12 Inches		CIRCULATION PRESS psi
DRILL PIPE SIZE 5	S	Length 438 Mtrs			SURFACE SET @ ft m	TOTAL CIRCULATING VOL. 776		PUMP MODEL National 12-P-160	% EFFICIENCY 97	BOTTOMS UP min	
DRILL PIPE SIZE 5	TYPE HW	Length 111 Mtrs			PROD. or LNR Set @ ft m	IN STORAGE		BBL/STK 0.1018	STK / MIN	SURFACE TO BIT min	
DRILL COLLAR SIZE (") 8 1/4	9 1/2	112	38	Mtrs	MUD TYPES UnFloc Gel		BBL/MIN	GAL / MIN	TOTAL CIRC. TIME min		

MUD PROPERTIES						MUD PROPERTY SPECIFICATIONS					
SAMPLE FROM						Mud Wt	1.03-1.0	Glycol		API	
TIME SAMPLE TAKEN						Vis	> 100	Yield Point		pH	8-10
FLOWLINE TEMPERATURE						KCl		PHPA excess		Sulphites	
TOTAL MEASURED DEPTH (TMD)						<b>OBSERVATIONS</b>					

WEIGHT	ppg / SG	8.80	1.06	8.80	1.06	8.80	1.06	Mixed an additional 310bbl Gel for displacement.			
FUNNEL VISCOSITY(sec/qt) API @	16 °C    60 °F	>100	>100	>100	>100	>100	>100	Filled casing string with left over 170 bbl PHGel and remaining with Sea water.			
RHEOLOGY 600 : 300 RPM	49 °C    120 °F	110	85	108	82	115	90	Dump and clean surface pits.			
RHEOLOGY 200 : 100 RPM	49 °C    120 °F	80	70	78	68	82	75	Drill Water: Ca 240 mg/l; Pf/Mf 0.03/0.27; Cl 1360 mg/l; pH 8.3			
RHEOLOGY 6 : 3 RPM	49 °C    120 °F	55	45	51	44	60	50	Gel figures adjusted as per Ballast Control as dips couldn't be taken yesterday due to rough seas.			
PLASTIC VISCOSITY cP @	49 °C    120 °F	25	26	25	25	25	25	<b>OPERATIONS SUMMARY</b> WOW. RIH 07:00hrs. 16m fill. Wash to TD. Circ Sea Water. Sweep with 100bbl PHG. Displace hole with 750bbl PHGel. POOH. Pick up and run 13 3/8" csg. Cement casing as per program with shoe at 690.5m. Displace cmt with sw.			
YIELD POINT (lb/100FT <sup>2</sup> )	49 °C    120 °F	60	56	65	65	65	65				
GEL STRENGTH (lb/100ft <sup>2</sup> ) 10 sec/10 min/30 min.		47/50/55	45/50/52	50/53/58	50/53/58	50/53/58	50/53/58				
API FILTRATE (cm <sup>3</sup> /30 min.)		NC	NC	NC	NC	NC	NC				
HPHT FILTRATE (cm <sup>3</sup> /30 min.)	°C    °F										
API : HPHT (Cake/32nd in.)											
PH		10.5	10.0	10.0	10.0	10.0	10.0				
ALKALINITY MUD (Pm)											
ALKALINITY FILTRATE (Pf / Mf)		0.30	0.60	0.27	0.55	0.25	0.55				
CHLORIDE (mg/L)		2000	2000	2000	2000	2000	2000				
TOTAL HARDNESS (mg/L)		80	80	80	80	80	80				
SULPHITE (mg/L)											
PHPA (Calc ppb)											
GLYCOL CONTENT (% V/V)											
K+ (mg/L)											
KCL (% by Wt.)											
BARYTES (Calc ppb)											

MUD ACCOUNTING (BBLs)														
METHYLENE BLUE CAPACITY (ppb equivalent)		25.0	24.0	25.0	25.0									
SOLIDS CONTENT (% by volume) Retort		3.37	3.37	3.37	3.37									
LIQUID CONTENT (% by volume) Calc		96.63	96.63	96.63	96.63									
CUTTINGS OIL RATIO (% oil)														
SAND CONTENT (% by volume)														
<b>PRODUCT USAGE</b>														
Product	Price	Start	Received	Damage	Used	Close	Cost	<b>SOLIDS CONTROL EQUIPMENT</b>						
Caustic Soda	\$ 36.60	14	32		1	45	\$ 36.60	SHALE SHAKERS	Hrs	#	Size	Hrs		Hrs
								# 1	4 x s84	Desander	3	6		Centrifuge
								# 2	4 x s84	Desilter	20	2		Centrifuge
								# 3	4 x s84	Mud Cleaner 1			Degasser	
								# 4	4 x s84	Mud Cleaner 2			Poorboy	
									Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)			
								Desander	0					
								Desilter	0					
								Cleaner 1	0					
								Cleaner 2	0					
								Centrifuge1						
								Centrifuge2						
								CURRENCY	DAILY COST		CUMULATIVE COST			
								AUD	\$36.60		\$27,757.80			

I.D.F.S. Engineer: Carl Jensen & Jasdeep Singh								Office: BRISBANE		Telephone: 07 3806-0160		Fax: 07 3806-0165	
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# INDEPENDENT DRILLING FLUID SERVICES

A Division of Rheochem Pty Ltd ACN 070 415 593

## Drilling Fluid Report

Report #	4	Date	27-Sep-02
Rig #	Coast Bounty	Spud Date	24-Sep-02
Total MD	700	to	700
Total VD	700	to	700

OPERATOR	Santos Ltd.	CONTRACTOR	DOGC
REPORT FOR	Ron King & Gavin Othen	REPORT FOR	Ricky Graham & Ricky Sepelvado
WELL NAME AND No	Casino 2	FIELD	VIC - P - 44
		LOCATION	STATE Otway Basin Victoria

BHA	BIT TYPE	JET SIZE	CASING	MUD VOLUME (BBL)	CIRCULATION DATA
BIT SIZE 12 1/4			30 & 20 CONDUCTOR SET @ 137 ft 42 m	HOLE PITS 1400	PUMP SIZE 6 x 12 Inches
DRILL PIPE SIZE 5	S	Length 700 Mtrs	13 3/8 SURFACE SET @ 690 ft 210 m	TOTAL CIRCULATING VOL. 1400	PUMP MODEL National 12-P-160
DRILL PIPE SIZE 5	TYPE HW	Length Mtrs	PROD. or LNR Set @	IN STORAGE	% EFFICIENCY 97
DRILL COLLAR SIZE ("") 8 1/4	9 1/2	Length Mtrs	MUD TYPES KCl/PHPA/Polymer/Glycol		BBL/STK 0.1018
					STK / MIN GAL / MIN
					BOTTOMS UP
					SURFACE TO BIT
					TOTAL CIRC. TIME

MUD PROPERTIES				MUD PROPERTY SPECIFICATIONS						
SAMPLE FROM		PITS	PITS	PITS	Mud Wt	9.1-10.8	Glycol	4%-6%	API	< 6
TIME SAMPLE TAKEN		04:00	11:00	21:00	Vis	45-55	Yield Point	>20	pH	8-10
FLOWLINE TEMPERATURE	°F/°C				KCl	6%-8%	PHPA excess	>1.8	Sulphites	100
TOTAL MEASURED DEPTH (TMD)	Feet	700	700	700	OBSERVATIONS					

WEIGHT	ppg / SG	8.80	1.06	8.80	1.06	8.80	1.06	Mixed 1400 bbl of new mud with 1.57 ppb PHPA, 0.9 ppb PAC L 1.14 ppb Xanthan Gum, 8% KCl treated with 0.43 ppb Idcide.		
FUNNEL VISCOSITY(sec/qt) API @	16 °C 60 °F	72	74	78	Also prepared 170 bbl of 2.26 ppb Xanthan Gum to be used for sweeps while drilling cement & before displacement.					
RHEOLOGY 600 : 300 RPM	49 °C 120 °F	39	29	45	34	47	35	Funnel Vis 45 & YP 26.		
RHEOLOGY 200 : 100 RPM	49 °C 120 °F	24	19	29	22	30	23	Drill water received tested as: Ca 160 mg/L; Pf/Mf 0.02/0.3		
RHEOLOGY 6 : 3 RPM	49 °C 120 °F	7	5	8	6	8	6	Cl 640 mg/L; pH 8.5		
PLASTIC VISCOSITY cP @	49 °C 120 °F	10	11	12	OPERATIONS SUMMARY					
YIELD POINT (lb/100FT <sup>2</sup> )	49 °C 120 °F	19	23	23	Lay out cmt assembly. Rig up and run BOP and riser.					
GEL STRENGTH (lb/100ft <sup>2</sup> ) 10 sec/10 min/30 min.		4/5/5	6/6/6	6/6/6	Test BOP. Make up 12 1/4" BHA. RIH.					
API FILTRATE (cm <sup>3</sup> /30 min.)		NC	NC	NC						
HPHT FILTRATE (cm <sup>3</sup> /30 min.)	°C °F									
API : HPHT (Cake/32nd in.)										
PH		8.0	8.0	8.0						
ALKALINITY MUD (Pm)										
ALKALINITY FILTRATE (Pf / Mf)		0	0.80	0	0.90	0	0.90			
CHLORIDE (mg/L)		42000	42000	42000						
TOTAL HARDNESS (mg/L)		240	240	240						
SULPHITE (mg/L)										
PHPA (Calc ppb)		1.5	1.6	1.6						
GLYCOL CONTENT (% V/V)										
K+ (mg/L)		43200		43200						
KCL (% by Wt.)		8.0	8.0	8.0						

MUD ACCOUNTING (BBLs)								
FLUID BUILT		FLUID DISPOSED		SUMMARY				
SOLIDS CONTENT (% by volume) Retort	0.77	0.77	0.77	Premix - Water	###	S.C.E	INITIAL	
LIQUID CONTENT (% by volume) Calc	99.23	99.23	99.23	Premix - Recyc		Dumped	+ Rcd	1,400
CUTTINGS OIL RATIO (% oil)				Drill Water		Downhole	- Lost	
SAND CONTENT (% by volume)				Other		Other	Surface	1,400
				RECEIVED	###	LOST	FINAL	1,400

PRODUCT USAGE								SOLIDS CONTROL EQUIPMENT							
Product	Price	Start	Received	Damage	Used	Close	Cost	SHALES SHAKERS	Hrs	#	Size	Hrs		Hrs	
Idcide-20	\$ 103.00	73			11	62	\$ 1,133.00	# 1	4 x s84	Desander	3	6	Centrifuge		
JK-261	\$ 109.70	151			40	111	\$ 4,388.00	# 2	4 x s84	Desilter	20	2	Centrifuge		
KCl BB Fine	\$ 650.00	30			18	12	\$ 11,700.00	# 3	4 x s84	Mud Cleaner 1			Degasser		
PAC-L	\$ 168.00	129			23	106	\$ 3,864.00	# 4	4 x s84	Mud Cleaner 2			Poorboy		
Xanthan Gum P	\$ 411.42	155			46	109	\$ 18,925.32			Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)			
										Desander	0				
										Desilter	0				
										Cleaner 1	0				
										Cleaner 2	0				
										Centrifuge1					
										Centrifuge2					

CURRENCY			DAILY COST			CUMULATIVE COST		
AUD			\$40,010.32			\$67,768.12		

I.D.F.S. Engineer: Carl Jensen & Jasdeep Singh Office: BRISBANE Telephone: 07 3806-0160 Fax: 07 3806-0165

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# INDEPENDENT DRILLING FLUID SERVICES

A Division of Rheochem Pty Ltd ACN 070 415 593

## Drilling Fluid Report

Report #	5	Date	28-Sep-02
Rig #	Ocean Bounty	Spud Date	24-Sep-02
Total MD	700	to	1210
Total VD	700	to	1210

OPERATOR	Santos Ltd.	CONTRACTOR	DOGC
REPORT FOR	Ron King & Gavin Othen	REPORT FOR	Ricky Graham & Ricky Sepelvado
WELL NAME AND No	Casino 2	FIELD	VIC - P - 44
		LOCATION	STATE Otway Basin Victoria

BHA		JET SIZE			CASING			MUD VOLUME (BBL)			CIRCULATION DATA						
BIT SIZE	HTC	16	16	16	30 & 20	CONDUCTOR SET @	137	ft	HOLE	PITS	PUMP SIZE		CIRCULATION				
12 1/4	MX03DX						42	m	591	530	6	x	12	Inches	PRESS	2900	psi
DRILL PIPE		Length			13 3/8	SURFACE SET @	690	ft	TOTAL CIRCULATING VOL.		PUMP MODEL	% EFFICIENCY		BOTTOMS			
SIZE 5	S	899			Mtrs		210	m	1121		National 12-P-160	97		UP	26	min	
DRILL PIPE	TYPE	Length				PROD. or LNR Set @		ft	IN STORAGE		BBL/STK	STK / MIN		SURFACE			
SIZE 5	HW	111			Mtrs			m	400		0.1018	200		3.0		min	
DRILL COLLAR SIZE (")		Length				MUD TYPES					BBL/MIN	GAL / MIN		TOTAL CIRC. TIME			
8 1/4		200			Mtrs	KCl/PHPA/Polymer/Glycol				20.36	855		75		min		

MUD PROPERTIES						MUD PROPERTY SPECIFICATIONS									
SAMPLE FROM			PITS		PITS		PITS		Mud Wt	9.1-10.8	Glycol	4%-6%	API	< 6	
TIME SAMPLE TAKEN			04:00		16:30		22:00		Vis	45-55	Yield Point	>20	pH	8-10	
FLOWLINE TEMPERATURE			°F/°C				80		27	KCl	6%-8%	PHPA excess	>1.8	Sulphites	100
TOTAL MEASURED DEPTH (TMD)			Feet		700		900		1115		OBSERVATIONS				

WEIGHT	ppg / SG	8.80	1.06	8.50	1.02	8.80	1.06	<p>Observed losses of upto 600 bbl/hr below shoe. Easing to 20-30 bbl/hr at 1030 m. Again lost 60-80 bbl/hr on shakers &amp; downhole between 1070m to 1110 m. Treated with 10 ppb Sandseal &amp; Quickseal.</p> <p>Intend to add Glychem once downhole losses stabilised as per DSV. Meanwhile building PHPA &amp; KCl concentration back up. Limitation of handling flow at shakers. Running Desander to control sand.</p> <p>Stopped adding Sandseal into active at 1030 m. Losses down to 20 bbl/hr.</p>						
FUNNEL VISCOSITY(sec/qt) API @	21 °C 70 °F	78		67		60								
RHEOLOGY 600 : 300 RPM	49 °C 120 °F	47	35	61	44	59	44							
RHEOLOGY 200 : 100 RPM	49 °C 120 °F	30	23	36	28	37	29							
RHEOLOGY 6 : 3 RPM	49 °C 120 °F	8	6	11	8	11	8							
PLASTIC VISCOSITY cP @	49 °C 120 °F	12		17		15								
YIELD POINT (lb/100FT <sup>2</sup> )	49 °C 120 °F	23		27		29								
GEL STRENGTH (lb/100ft <sup>2</sup> ) 10 sec/10 min/30 min.		6/6/6		9/10/10		9/10/12								
API FILTRATE (cm <sup>3</sup> /30 min.)		NC		8.0		7.8								
HPHT FILTRATE (cm <sup>3</sup> /30 min.)	121 °C 250 °F					35.0								

API : HPHT (Cake/32nd in.)						1:2		OPERATIONS SUMMARY						
PH		9.5		9.5		9.0		<p>RIH. Tag cement at 630m. Wash and ream to 663m. Drill cement and float to 666m. Drl to shoe at 690m with SW, and HiVis sweeps. Displace to mud with 100bbl HiVis spacer. LOT at 703m, 10.2EMW.</p> <p>Drl to 772m with losses up to 600bbl/hr. 220-40k connection drag. POOH to shoe. Build new mud. RIH. Drill to 1207m with losses at 30-40bbl/hr.</p> <p>Changed screens to 52 mesh to handel LCM and new Polymer. Changed two shakers back to 84 mesh at 900 m for sand %.</p> <p>Shakers handling flow just on edge.</p>						
ALKALINITY MUD (Pm)		0.3												
ALKALINITY FILTRATE (Pf / Mf)		0.20	0.90	0.13	0.70	0.10	0.75							
CHLORIDE (mg/L)		42000		25000		29000								
TOTAL HARDNESS (mg/L)		240		320		300								
SULPHITE (mg/L)														
PHPA (Calc ppb)		1.6		0.9		1.5								
GLYCOL CONTENT (% V/V)														
K+ (mg/L)		43200		27000		32400								
KCL (% by Wt.)		8.0		5.0		6.0								

MUD ACCOUNTING (BBLs)						FLUID BUILT				FLUID DISPOSED				SUMMARY	
METHYLENE BLUE CAPACITY (ppb equivalent)				2.0		3.0									
SOLIDS CONTENT (% by volume) Retort		0.77		-0.39		1.63		Premix - Water	###	S.C.E	86	INITIAL	1400		
LIQUID CONTENT (% by volume) Calc		99.23		100.39		98.37		Premix - Recyc		Dumped	50	+ Rcd	1,900		
CUTTINGS OIL RATIO (% oil)								Drill Water		Downhole	1583	- Lost	1,779		
SAND CONTENT (% by volume)				5.0		4.0		Other		Other	60	Surface	930		
								RECEIVED	###	LOST	1779	FINAL	1,521		

PRODUCT USAGE								SOLIDS CONTROL EQUIPMENT									
Product	Price	Start	Received	Damage	Used	Close	Cost	SHALES SHAKERS	Hrs	#	Size	Hrs			Hrs		
Caustic Soda	\$ 36.60	45			6	39	\$ 219.60	# 1	4 x 84	20	Desander	3	6	12	Centrifuge		
Defoamer-A	\$ 245.33	28			1	27	\$ 245.33	# 2	4 x 84	20	Desilter	20	2		Centrifuge		
Idcide-20	\$ 103.00	62			17	45	\$ 1,751.00	# 3	4 x 52	20	Mud Cleaner 1				Degasser		
JK-261	\$ 109.70	111			34	77	\$ 3,729.80	# 4	4 x 52	20	Mud Cleaner 2				Poorboy		
KCl BB Fine	\$ 650.00	12			8	4	\$ 5,200.00			Overflow (ppg)		Underflow (ppg)		Output (Gal/Min.)			
PAC-L	\$ 168.00	106			18	88	\$ 3,024.00			Desander		8.8		11.0		5.00	
PAC-R	\$ 168.00	40			9	31	\$ 1,512.00			Desilter		0					
Quik Seal	\$ 47.00	125			25	100	\$ 1,175.00			Cleaner 1		0					
Sandseal Fine	\$ 98.00	102			70	32	\$ 6,860.00			Cleaner 2		0					
Sodium Sulphite	\$ 25.02	43			3	40	\$ 75.06			Centrifuge1							
Xanthan Gum P	\$ 411.42	109			49	60	\$ 20,159.58			Centrifuge2							
								CURRENCY		DAILY COST				CUMULATIVE COST			
								AUD		\$43,951.37				\$111,719.49			

I.D.F.S. Engineer: Carl Jensen & Jasdeep Singh Office: BRISBANE Telephone: 07 3806-0160 Fax: 07 3806-0165

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# INDEPENDENT DRILLING FLUID SERVICES

A Division of Rheochem Pty Ltd      ACN 070 415 593

## Drilling Fluid Report

Report #	6	Date	29-Sep-02
Rig #	Ocean Bounty	Spud Date	24-Sep-02
Total MD	1210	to	1612
Total VD	1210	to	1612

OPERATOR <b>Santos Ltd.</b>	CONTRACTOR <b>DOGC</b>
REPORT FOR <b>Ron King &amp; Gavin Othen</b>	REPORT FOR <b>Ricky Graham &amp; Ricky Sepelvado</b>
WELL NAME AND No <b>Casino 2</b>	FIELD <b>VIC - P - 44</b>
	LOCATION <b>Otway Basin</b>
	STATE <b>Victoria</b>

BHA	BIT TYPE	JET SIZE			CASING			MUD VOLUME (BBL)			CIRCULATION DATA			
BIT SIZE 12 1/4	HTC MX03DX	16	16	16	30 & 20 CONDUCTOR SET @	137 42	ft m	HOLE 775	PITS 500	PUMP SIZE 6 x 12 Inches		CIRCULATION PRESS 4000 psi		
DRILL PIPE SIZE 5	S	Length 1301 Mtrs			13 3/8 SURFACE SET @	690 210	ft m	TOTAL CIRCULATING VOL. 1275		National 12-P-160	% EFFICIENCY 97	BOTTOMS UP 34 min		
DRILL PIPE SIZE 5	TYPE HW	Length 111 Mtrs			PROD. or LNR Set @		ft m	IN STORAGE 480		BBL/STK 0.1018	STK / MIN 200	SURFACE TO BIT 4.1 min		
DRILL COLLAR SIZE (") 8 1/4		Length 200 Mtrs			MUD TYPES KCl/PHPA/Polymer/Glycol					BBL/MIN 20.36	GAL / MIN 855	TOTAL CIRC. TIME 86 min		

MUD PROPERTIES						MUD PROPERTY SPECIFICATIONS							
SAMPLE FROM			PITS		PITS	FL		Mud Wt	9.1-10.8	Glycol	4%-6%	API	< 6
TIME SAMPLE TAKEN			04:00		12:30	21:00		Vis	45-55	Yield Point	>20	pH	8-10
FLOWLINE TEMPERATURE			°F/°C		110   43	130   54		130   54		KCl	6%-8%	PHPA excess	>1.8 Sulphites 100
TOTAL MEASURED DEPTH (TMD)			Feet		1323	1506		1595		OBSERVATIONS			

WEIGHT	ppg / SG	8.90	1.07	10.00	1.20	10.00	1.20	Commenced Glycol additions and weight up from 1400 to 1545m					
FUNNEL VISCOSITY(sec/qt) API @	49 °C 120 °F	58		55		60		Weight up from 8.9 to 10.0ppg with no significant down hole loss.					
RHEOLOGY 600 : 300 RPM	49 °C 120 °F	58	43	63	45	75	52	Adding PHPA as drilling progressed.					
RHEOLOGY 200 : 100 RPM	49 °C 120 °F	36	28	38	28	43	31	Changing shaker screens to 145# as conditions allow.					
RHEOLOGY 6 : 3 RPM	49 °C 120 °F	11	8	10	8	11	8	Running Desander/Desilter selectively.					
PLASTIC VISCOSITY cP @	49 °C 120 °F	15		18		23		KCl level down due to non-availability of stock.					
YIELD POINT (lb/100FT <sup>2</sup> )	49 °C 120 °F	28		27		29							
GEL STRENGTH (lb/100ft <sup>2</sup> ) 10 sec/10 min/30 min.		8/10/12		9/11/12		11/13/15							
API FILTRATE (cm <sup>3</sup> /30 min.)		7.0		4.8		4.4							
HPHT FILTRATE (cm <sup>3</sup> /30 min.)	121 °C 250 °F	32.0		24.0		22.0		Barite Figures adjusted as per Ballast Control.					

OPERATIONS SUMMARY													
PH			9.5		9.0	9.0		Drill sands to 1300m with intermittent losses.					
ALKALINITY MUD (Pm)			0.1					Drill clays to 1500m with no significant losses.					
ALKALINITY FILTRATE (Pf / Mf)			0.10		0.70	0.05		0.75	0.05		0.75		Drill to 1610m.
CHLORIDE (mg/L)			26000		22000	22000							
TOTAL HARDNESS (mg/L)			400		340	360							
SULPHITE (mg/L)			180		120	100							
PHPA (Calc ppb)			1.8		1.7	1.9		Upgraded screens to 145/115					
GLYCOL CONTENT (% V/V)					3.5	4.0							
K+ (mg/L)			29700		27000	27000							
KCL (% by Wt.)			5.5		5.0	5.0							
BARYTES (Calc ppb)					54.6	53.1							

MUD ACCOUNTING (BBLs)													
METHYLENE BLUE CAPACITY (ppb equivalent)			3.0		6.0	9.0		FLUID BUILT		FLUID DISPOSED		SUMMARY	
SOLIDS CONTENT (% by volume) Retort			2.59		8.80	8.90		Premix - Water	750	S.C.E	343	INITIAL	1521
LIQUID CONTENT (% by volume) Calc			97.41		91.20	91.10		Premix - Recyc		Dumped		+ Rcd	750
CUTTINGS OIL RATIO (% oil)								Drill Water		Downhole	73	- Lost	516
SAND CONTENT (% by volume)			2.0		1.0	0.5		Other		Other	100	Surface	980
								RECEIVED	750	LOST	516	FINAL	1,755

PRODUCT USAGE								SOLIDS CONTROL EQUIPMENT									
Product	Price	Start	Received	Damage	Used	Close	Cost	SHALES SHAKERS	Hrs	#	Size	Hrs		Hrs			
Barite Bulk	\$ 14.77	###	###		1374	4574	\$ 20,293.98	# 1	4 x 145	24	Desander	3	6	3	Centrifuge		
Caustic Soda	\$ 36.60	39			2	37	\$ 73.20	# 2	4 x 145	24	Desilter	20	2	15	Centrifuge		
Defoamer-A	\$ 245.33	27			2	25	\$ 490.66	# 3	4 x 145	24	Mud Cleaner 1				Degasser		
Glychem MC	\$ 590.00	80			49	31	\$ 28,910.00	# 4	4 x 115	24	Mud Cleaner 2				Poorboy		
JK-261	\$ 109.70	77			34	43	\$ 3,729.80			Overflow (ppg)		Underflow (ppg)		Output (Gal/Min.)			
KCl BB Fine	\$ 650.00	4			4		\$ 2,600.00			Desander		8.8		10.3		5.00	
PAC-L	\$ 168.00	88			18	70	\$ 3,024.00			Desilter		9.8		14.0		15.00	
Sandseal Fine	\$ 98.00	32	20		12	40	\$ 1,176.00			Cleaner 1		0					
Soda Ash	\$ 13.56	46			7	39	\$ 94.92			Cleaner 2		0					
Sodium Sulphite	\$ 25.02	40	40		11	69	\$ 275.22			Centrifuge1							
										Centrifuge2							
								CURRENCY		DAILY COST		CUMULATIVE COST					
								AUD		\$60,667.78		\$172,387.27					

I.D.F.S. Engineer: Carl Jensen & Jasdeep Singh      Office: BRISBANE      Telephone: 07 3806-0160      Fax: 07 3806-0165

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# INDEPENDENT DRILLING FLUID SERVICES

A Division of Rheochem Pty Ltd

ACN 070 415 593

## Drilling Fluid Report

Report #	7	Date	30-Sep-02
Rig #	Ocean Bounty	Spud Date	24-Sep-02
Total MD	1612	to	1646
Total VD	1612	to	1646

OPERATOR	Santos Ltd.	CONTRACTOR	DOGC
REPORT FOR	Ron King & Gavin Othen	REPORT FOR	Ricky Graham & Ricky Sepelvado
WELL NAME AND No	Casino 2	FIELD	VIC - P - 44
		LOCATION	STATE
		Otway Basin	VICTORIA

BHA	BIT TYPE	JET SIZE			CASING			MUD VOLUME (BBL)			CIRCULATION DATA			
BIT SIZE 12 1/4	HTC MX03DX	16	16	16	30 & 20 CONDUCTOR SET @	137 42	ft m	HOLE 790	PITS 500	PUMP SIZE 6 x 12 Inches		CIRCULATION PRESS 4000 psi		
DRILL PIPE SIZE 5	S	Length 1335 Mtrs			13 3/8 SURFACE SET @	690 210	ft m	TOTAL CIRCULATING VOL. 1290		PUMP MODEL National 12-P-160	% EFFICIENCY 97	BOTTOMS UP 35 min		
DRILL PIPE SIZE 5	TYPE HW	Length 111 Mtrs			PROD. or LNR Set @		ft m	IN STORAGE 660		BBL/STK 0.1018	STK / MIN 200	SURFACE TO BIT 4.2 min		
DRILL COLLAR SIZE (") 8 1/4		Length 200 Mtrs			MUD TYPES KCl/PHPA/Polymer/Glycol					BBL/MIN 20.36	GAL / MIN 855	TOTAL CIRC. TIME 96 min		

MUD PROPERTIES						MUD PROPERTY SPECIFICATIONS					
SAMPLE FROM						Mud Wt	9.1-10.8	Glycol	4%-6%	API	< 6
TIME SAMPLE TAKEN						Vis	45-55	Yield Point	>20	pH	8-10
FLOWLINE TEMPERATURE						KCl	6%-8%	PHPA excess	>1.8	Sulphites	100
TOTAL MEASURED DEPTH (TMD)						OBSERVATIONS					

WEIGHT	ppg / SG	10.10	1.21	10.20	1.22	10.30	1.24	Prepared 250 bbl 1.3 ppb PAC L 17.5% KCl to raise system KCl content and reduce viscosity.			
FUNNEL VISCOSITY(sec/qt) API @	38 °C 100 °F	57		80		72		Mud weight increase from 10.1 to 10.3 while reaming out.			
RHEOLOGY 600 : 300 RPM	49 °C 120 °F	78	58	91	68	93	67	Increasing solids reporting high vis at 1.8ppb PHPA.			
RHEOLOGY 200 : 100 RPM	49 °C 120 °F	48	35	57	42	56	41	Reduce PHPA content to control viscosity.			
RHEOLOGY 6 : 3 RPM	49 °C 120 °F	12	10	15	12	14	12	Depletion rate of KCl low. New stock received.			
PLASTIC VISCOSITY cP @	49 °C 120 °F	20		23		26		Dumped Sandtrap/Header Box.			
YIELD POINT (lb/100FT <sup>2</sup> )	49 °C 120 °F	38		45		41					
GEL STRENGTH (lb/100ft <sup>2</sup> ) 10 sec/10 min/30 min.		10/16/18		14/18/20		13/15/22					
API FILTRATE (cm <sup>3</sup> /30 min.)		4.1		4.6		4.4					
HPHT FILTRATE (cm <sup>3</sup> /30 min.)	121 °C 250 °F	28.0		24.0		22.0					
API : HPHT (Cake/32nd in.)		1		1:3		1:3					

OPERATIONS SUMMARY											
PH		9.5		9.0		9.0		Drill to 1646m. POOH due to low ROP.			
ALKALINITY MUD (Pm)		0.1						Tight hole from 1646 - 1543m, 50k o/p.			
ALKALINITY FILTRATE (Pf / Mf)		0.05	0.60	0.05	0.75	0.05	0.70	Back ream 1543- 800m, 50k o/p. Hole OK 800m to shoe.			
CHLORIDE (mg/L)		25000		23000		23000		Flow check at shoe OK. Slug, POOH.			
TOTAL HARDNESS (mg/L)		480		240		280		Downloaded MWD data.			
SULPHITE (mg/L)		100		80		40		R/I with PDC Bit is in progress.			
PHPA (Calc ppb)		1.8		1.8		1.8		Used 5 x 145 mesh new screens.			
GLYCOL CONTENT (% V/V)		4.0		4.0		4.0					
K+ (mg/L)		28100		27000		27000					
KCL (% by Wt.)		5.2		5.0		5.0					

MUD ACCOUNTING (BBLs)													
METHYLENE BLUE CAPACITY (ppb equivalent)		9.0		10.0		12.0		FLUID BUILT		FLUID DISPOSED		SUMMARY	
SOLIDS CONTENT (% by volume) Retort		10.00		10.00		10.40		Premix - Water	400	S.C.E		INITIAL	1755
LIQUID CONTENT (% by volume) Calc		90.00		90.00		89.60		Premix - Recyc		Dumped	140	+ Rcd	400
CUTTINGS OIL RATIO (% oil)								Drill Water		Downhole	34	- Lost	204
SAND CONTENT (% by volume)		0.1		0.1		0.1		Other		Other	30	Surface	1,160
								RECEIVED	400	LOST	204	FINAL	1,950

PRODUCT USAGE								SOLIDS CONTROL EQUIPMENT							
Product	Price	Start	Received	Damage	Used	Close	Cost	SHALES SHAKERS	Hrs	#	Size	Hrs		Hrs	
Barite Bulk	\$ 14.77	###			470	4104	\$ 6,941.90	# 1	4 x 145	18	Desander	3	6	Centrifuge	
Caustic Soda	\$ 36.60	37			6	31	\$ 219.60	# 2	4 x 145	18	Desilter	20	2	Centrifuge	
Defoamer-A	\$ 245.33	25			1	24	\$ 245.33	# 3	4 x 145	18	Mud Cleaner 1		Degasser		
Glychem MC	\$ 590.00	31			11	20	\$ 6,490.00	# 4	4 x 115	18	Mud Cleaner 2		Poorboy		
Idcide-20	\$ 103.00	45			6	39	\$ 618.00				Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)		
JK-261	\$ 109.70	43	36		2	77	\$ 219.40	Desander			0				
KCl BB Fine	\$ 650.00		20		7	13	\$ 4,550.00	Desilter			0				
PAC-L	\$ 168.00	70	80		6	144	\$ 1,008.00	Cleaner 1			0				
								Cleaner 2			0				
								Centrifuge1							
								Centrifuge2							
								CURRENCY		DAILY COST		CUMULATIVE COST			
								AUD		\$20,292.23		\$192,679.50			

I.D.F.S. Engineer: Carl Jensen & Jasdeep Singh Office: BRISBANE Telephone: 07 3806-0160 Fax: 07 3806-0165

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# INDEPENDENT DRILLING FLUID SERVICES

A Division of Rheochem Pty Ltd      ACN 070 415 593

## Drilling Fluid Report

Report #	8	Date	1-Oct-02
Rig #	Ocean Bounty	Spud Date	24-Sep-02
Total MD	1646	to	1763
Total VD	1646	to	1763

OPERATOR <b>Santos Ltd.</b>	CONTRACTOR <b>DOGC</b>
REPORT FOR <b>Ron King &amp; Gavin Othen</b>	REPORT FOR <b>Ricky Graham &amp; Ricky Sepelvado</b>
WELL NAME AND No <b>Casino 2</b>	FIELD <b>VIC - P - 44</b>
	LOCATION <b>Otway Basin</b>
	STATE <b>Victoria</b>

BHA	BIT TYPE	JET SIZE				CASING				MUD VOLUME (BBL)				CIRCULATION DATA				
BIT SIZE 12 1/4	HYPALOG DSX195	12	12	12		30 & 20 CONDUCTOR SET @	137	42	ft	m	HOLE 844	PITS 575			PUMP SIZE 6 x 12 Inches		CIRCULATION PRESS 4100 psi	
DRILL PIPE SIZE 5	S	Length 1452 Mtrs				13 3/8 SURFACE SET @	690	210	ft	m	TOTAL CIRCULATING VOL. 1419			PUMP MODEL National 12-P-160		% EFFICIENCY 97		BOTTOMS UP 40 min
DRILL PIPE SIZE 5	HW	Length 111 Mtrs				PROD. or LNR Set @			ft	m	IN STORAGE 630			BBL/STK 0.1018		STK / MIN 186		SURFACE TO BIT 4.9 min
DRILL COLLAR SIZE (") 8 1/4		Length 200 Mtrs				MUD TYPES KCl/PHPA/Polymer/Glycol				BBL/MIN 18.94		GAL / MIN 795		TOTAL CIRC. TIME 108 min				

MUD PROPERTIES						MUD PROPERTY SPECIFICATIONS								
SAMPLE FROM			PITS		PITS		PITS		Mud Wt	9.1-10.8	Glycol	4%-6%	API	< 6
TIME SAMPLE TAKEN			04:00		12:15		21:00		Vis	45-55	Yield Point	>20	pH	8-10
FLOWLINE TEMPERATURE			°F/°C		ns	####	140	60	KCl	6%-8%	PHPA excess	>1.8	Sulphites	100
TOTAL MEASURED DEPTH (TMD)			Feet		1635		1735		1763		OBSERVATIONS			

WEIGHT	ppg / SG	10.30	1.24	10.30	1.24	10.30	1.24	Diluting system with 6% KCl/1.4 ppb PAC L premixes to control viscosity. Allowing PHPA to reduce to control YP and viscosity with Increasing MBT. Surveys, 0.8@1217m. 0.9@1277m. 1.55@1450m. 1.5@1509m. 1.67@1622m. Cuttings falling back underneath shakers. Average Hole Dia (carbide Run @ 1639 m) is 12.8 inches. and 14" at 1350m.
FUNNEL VISCOSITY(sec/qt) API @	43 °C 110 °F	68		57		57		
RHEOLOGY 600 : 300 RPM	49 °C 120 °F	88	64	76	55	75	54	
RHEOLOGY 200 : 100 RPM	49 °C 120 °F	53	39	46	33	45	33	
RHEOLOGY 6 : 3 RPM	49 °C 120 °F	14	12	10	8	10	8	
PLASTIC VISCOSITY cP @	49 °C 120 °F	24		21		21		
YIELD POINT (lb/100FT <sup>2</sup> )	49 °C 120 °F	40		34		33		
GEL STRENGTH (lb/100ft <sup>2</sup> ) 10 sec/10 min/30 min.		12/15/21		12/17/20		10/18/20		
API FILTRATE (cm <sup>3</sup> /30 min.)		4.4		5.0		5.4		
HPHT FILTRATE (cm <sup>3</sup> /30 min.)	121 °C 250 °F	24.0		22.0		22.0		

OPERATIONS SUMMARY												
PH						9.0	9.5	9.5	RIH to 1615m wash to 1646m. Drill to 1763 m.			
ALKALINITY MUD (Pm)						0.1			Circulated Btms up 11% gas.			
ALKALINITY FILTRATE (Pf / Mf)						0.05	0.70	0.12	0.85	0.13	1.00	POOH for core. Tight from 1763-1620m, 30-40 klbs overpull.
CHLORIDE (mg/L)						24000			31000	30960	Pump out to 1620m. Slug pipe POOH. Hole OK.	
TOTAL HARDNESS (mg/L)						320			160	160	Pick up core assembly. RIH.	
SULPHITE (mg/L)						40			100	120		
PHPA (Calc ppb)						1.8			1.5	1.4		
GLYCOL CONTENT (% V/V)						4.0			4.0	3.5		
K+ (mg/L)						27000			37800	37800		
KCL (% by Wt.)						5.0			7.0	7.0		
BARYTES (Calc ppb)						64.5			56.0	53.1		

MUD ACCOUNTING (BBLs)														
METHYLENE BLUE CAPACITY (ppb equivalent)						12.0	12.0	12.0	FLUID BUILT	FLUID DISPOSED	SUMMARY			
SOLIDS CONTENT (% by volume) Retort						10.40	11.00	11.20	Premix - Water	280	S.C.E	43	INITIAL	1950
LIQUID CONTENT (% by volume) Calc						89.60	89.00	88.80	Premix - Recyc		Dumped		+ Rcd	280
CUTTINGS OIL RATIO (% oil)									Drill Water		Downhole	139	- Lost	182
SAND CONTENT (% by volume)						0.1	0.2	0.2	Other		Other		Surface	1,205
RECEIVED						280	LOST	182	FINAL	2,049				

PRODUCT USAGE								SOLIDS CONTROL EQUIPMENT							
Product	Price	Start	Received	Damage	Used	Close	Cost	SHALES SHAKERS	Hrs	#	Size	Hrs		Hrs	
Barite Bulk	\$ 14.77	###			561	3543	\$ 8,285.97	# 1	4 x 145	10	Desander	3	6	Centrifuge	
Caustic Soda	\$ 36.60	31			6	25	\$ 219.60	# 2	4 x 145	10	Desilter	20	2	2	Centrifuge
Defoamer-A	\$ 245.33	24			1	23	\$ 245.33	# 3	4 x 145	10	Mud Cleaner 1			Degasser	2
Glychem MC	\$ 590.00	20			8	12	\$ 4,720.00	# 4	4 x 115	10	Mud Cleaner 2			Poorboy	
Idcide-20	\$ 103.00	39			2	37	\$ 206.00	Overflow (ppg)		Underflow (ppg)		Output (Gal/Min.)			
KCl BB Fine	\$ 650.00	13			5	8	\$ 3,250.00	Desander		0					
PAC-L	\$ 168.00	144			6	138	\$ 1,008.00	Desilter	10.2	11.5		15.00			
Sodium Sulphite	\$ 25.02	69			13	56	\$ 325.26	Cleaner 1		0					
								Cleaner 2		0					
								Centrifuge1							
								Centrifuge2							
				CURRENCY				DAILY COST				CUMULATIVE COST			
				AUD				\$18,260.16				\$210,939.66			

I.D.F.S. Engineer: Carl Jensen & Jasdeep Singh      Office: BRISBANE      Telephone: 07 3806-0160      Fax: 07 3806-0165

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# INDEPENDENT DRILLING FLUID SERVICES

A Division of Rheochem Pty Ltd ACN 070 415 593

## Drilling Fluid Report

Report #	9	Date	2-Oct-02
Rig #	Ocean Bounty	Spud Date	24-Sep-02
Total MD	1763	to	1784
Total VD	1763	to	1784

OPERATOR	Santos Ltd.	CONTRACTOR	DOGC
REPORT FOR	Ron King & Gavin Othen	REPORT FOR	Ricky Graham & Ricky Sepelvado
WELL NAME AND No	Casino 2	FIELD	VIC - P - 44
		LOCATION	STATE Otway Basin Victoria

BHA	BIT TYPE	JET SIZE			CASING			MUD VOLUME (BBL)			CIRCULATION DATA		
BIT SIZE 12 1/4	DBS CD93	22	22	22	30 & 20	CONDUCTOR SET @	137 42	ft m	HOLE 866	PITS 600	PUMP SIZE 6 x 12 Inches		CIRCULATION PRESS 1100 psi
DRILL PIPE SIZE 5	S	Length 1550 Mtrs			13 3/8	SURFACE SET @	690 210	ft m	TOTAL CIRCULATING VOL. 1466		National 12-P-160	% EFFICIENCY 97	BOTTOMS UP 96 min
DRILL PIPE SIZE 5	HW	Length 111 Mtrs				PROD. or LNR Set @		ft m	IN STORAGE 480		BBL/STK 0.1018	STK / MIN 79	SURFACE TO BIT 12.0 min
DRILL COLLAR SIZE (") 8 1/4		Length 123 Mtrs			MUD TYPES KCl/PHPA/Polymer/Glycol						BBL/MIN 8.04	GAL / MIN 338	TOTAL CIRC. TIME 242 min

MUD PROPERTIES						MUD PROPERTY SPECIFICATIONS					
SAMPLE FROM						Mud Wt	9.1-10.8	Glycol	4%-6%	API	< 6
TIME SAMPLE TAKEN						Vis	45-55	Yield Point	>20	pH	8-10
FLOWLINE TEMPERATURE						KCl	6%-8%	PHPA excess	>1.8	Sulphites	100
TOTAL MEASURED DEPTH (TMD)						OBSERVATIONS					

WEIGHT	ppg / SG	10.40	1.25	10.30	1.24	10.30	1.24	Treated system with 0.22 ppb PAC LV.			
FUNNEL VISCOSITY(sec/qt) API @	38 °C 100 °F	57		50		50		1 x 145 mesh screen used.			
RHEOLOGY 600 : 300 RPM	49 °C 120 °F	75	54	64	45	63	44				
RHEOLOGY 200 : 100 RPM	49 °C 120 °F	45	33	36	25	35	24				
RHEOLOGY 6 : 3 RPM	49 °C 120 °F	10	8	8	6	7	5				
PLASTIC VISCOSITY cP @	49 °C 120 °F	21		19		19					
YIELD POINT (lb/100FT <sup>2</sup> )	49 °C 120 °F	33		26		25					
GEL STRENGTH (lb/100ft <sup>2</sup> ) 10 sec/10 min/30 min.		10/18/20		7/14/18		6/10/13					
API FILTRATE (cm <sup>3</sup> /30 min.)		5.4		5.2		5.2					
HPHT FILTRATE (cm <sup>3</sup> /30 min.)	121 °C 250 °F	22.0		23.0		23.0					
API : HPHT (Cake/32nd in.)		1:3		1:2		1:2					

OPERATIONS SUMMARY												
PH		9.5		10.0		10.0	RIH with core barrel. 5k drag at 1120-1150m W/ream.					
ALKALINITY MUD (Pm)		0.1					RIH to 1730m. 5k drag, W/ream to 1763m TD.					
ALKALINITY FILTRATE (Pf / Mf)		0.13	1.00	0.15	1.10	0.15	1.10	Cut core #1 to 1763 to 1784 m. Circ POOH gas 5%				
CHLORIDE (mg/L)		31000		31400		31200		POOH. Lay out core. RIH with 12 1/4" BHA.				
TOTAL HARDNESS (mg/L)		160		140		160						
SULPHITE (mg/L)		120		140		120						
PHPA (Calc ppb)		1.4		1.4		1.4						
GLYCOL CONTENT (% V/V)		3.5		4.0		4.0						
K+ (mg/L)		35100		32400		32400						
KCL (% by Wt.)		6.5		6.0		6.0						

MUD ACCOUNTING (BBLs)												
METHYLENE BLUE CAPACITY (ppb equivalent)		12.0		11.0		11.0	FLUID BUILT		FLUID DISPOSED		SUMMARY	
SOLIDS CONTENT (% by volume) Retort		11.20		11.10		11.10	Premix - Water	S.C.E	63	INITIAL	2049	
LIQUID CONTENT (% by volume) Calc		88.80		88.90		88.90	Premix - Recyc	Dumped		+ Rcd		
CUTTINGS OIL RATIO (% oil)							Drill Water	Downhole	29	- Lost	102	
SAND CONTENT (% by volume)		0.2		0.3		0.3	Other	Other	10	Surface	1,080	
							RECEIVED	LOST	102	FINAL	1,946	

PRODUCT USAGE								SOLIDS CONTROL EQUIPMENT							
Product	Price	Start	Received	Damage	Used	Close	Cost	SHALE SHAKERS	Hrs	#	Size	Hrs		Hrs	
Caustic Soda	\$ 36.60	25			2	23	\$ 73.20	# 1	4 x 145	9	Desander	3	6	Centrifuge	
Defoamer-A	\$ 245.33	23			2	21	\$ 490.66	# 2	4 x 145	9	Desilter	20	2	4	Centrifuge
Glychem MC	\$ 590.00	12			4	8	\$ 2,360.00	# 3	4 x 145		Mud Cleaner 1			Degasser	2
Idcide-20	\$ 103.00	37			2	35	\$ 206.00	# 4	4 x 115		Mud Cleaner 2			Poorboy	
PAC-L	\$ 168.00	138			6	132	\$ 1,008.00				Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)		
Sodium Sulphite	\$ 25.02	56			9	47	\$ 225.18								
								Desander				0			
								Desilter	10.3			11.6	11.00		
								Cleaner 1				0			
								Cleaner 2				0			
								Centrifuge1							
								Centrifuge2							
								CURRENCY		DAILY COST		CUMULATIVE COST			
								AUD		\$4,363.04		\$215,302.70			

I.D.F.S. Engineer: Carl Jensen & Jasdeep Singh Office: BRISBANE Telephone: 07 3806-0160 Fax: 07 3806-0165

Any opinion and/or recommendation, expressed orally or written herein, has been prepared carefully and may be used if the user so elects, however, no representation or warranty is made by ourselves or our agents as to its correctness or completeness, and no liability is assumed for any damages resulting from the use of same.



# INDEPENDENT DRILLING FLUID SERVICES

A Division of Rheochem Pty Ltd ACN 070 415 593

## Drilling Fluid Report

Report #	10	Date	3-Oct-02
Rig #	Ocean Bounty	Spud Date	24-Sep-02
Total MD	1784	to	2112
Total VD	1784	to	2112

OPERATOR	Santos Ltd.	CONTRACTOR	DOGC
REPORT FOR	Ron King & Steve Hodgetts	REPORT FOR	Ricky Graham & Ricky Sepelvado
WELL NAME AND No	Casino 2	FIELD	VIC - P - 44
		LOCATION	STATE Otway Basin Victoria

BHA	BIT TYPE	JET SIZE	CASING	MUD VOLUME (BBL)	CIRCULATION DATA
BIT SIZE 12 1/4	HYCALOG DSX195	15 15 15	30 & CONDUCTOR 20 SET @ 137 ft 42 m	HOLE 1003	PITS 550
DRILL PIPE SIZE 5	S	Length 1802 Mtrs	13 3/8 SURFACE SET @ 690 ft 210 m	TOTAL CIRCULATING VOL. 1553	PUMP SIZE 6 x 12 Inches
DRILL PIPE SIZE 5	TYPE HW	Length 111 Mtrs	PROD. or LNR Set @ ft m	IN STORAGE 450	PUMP MODEL National 12-P-160
DRILL COLLAR SIZE ("") 8 1/4		Length 199 Mtrs	MUD TYPES KCI/PHPA/Polymer/Glycol		% EFFICIENCY 97
					BOTTOMS UP 44 min
					STK / MIN 200
					GAL / MIN 855
					TOTAL CIRC. TIME 98 min

MUD PROPERTIES				MUD PROPERTY SPECIFICATIONS							
SAMPLE FROM		PITS	PITS	PITS	Mud Wt	9.1-10.8	Glycol	4%-6%	API	< 6	
TIME SAMPLE TAKEN		04:00	12:15	21:30	Vis	45-55	Yield Point	>20	pH	8-10	
FLOWLINE TEMPERATURE	°F/°C	ns	####	150	66	150	66	KCl	6%-8%	PHPA excess	>1.8
TOTAL MEASURED DEPTH (TMD)	Feet	1771	1910	2070	Sulphites	100					

OBSERVATIONS											
WEIGHT	ppg / SG	10.30	1.24	10.40	1.25	10.30	1.24				
FUNNEL VISCOSITY(sec/qt) API @	60 °C 140 °F	51	51	57	44	Controlled mud weight by adding unweighted premixes of 1.5 ppb PAC L & 1.25 ppb PHPA.					
RHEOLOGY 600 : 300 RPM	49 °C 120 °F	61	42	57	40	65	44	Also added dry PHPA into active.			
RHEOLOGY 200 : 100 RPM	49 °C 120 °F	35	24	33	23	36	25	Added Glycol direct to system.			
RHEOLOGY 6 : 3 RPM	49 °C 120 °F	7	5	7	5	7	5	Added Idcide (100 kg) into system at TD while circulating.			
PLASTIC VISCOSITY cP @	49 °C 120 °F	19	17	21							
YIELD POINT (lb/100FT <sup>2</sup> )	49 °C 120 °F	23	23	23							
GEL STRENGTH (lb/100ft <sup>2</sup> ) 10 sec/10 min/30 min.		6/10/14	6/10/14	6/11/15							
API FILTRATE (cm <sup>3</sup> /30 min.)		5.0	5.4	5.2							
HPHT FILTRATE (cm <sup>3</sup> /30 min.)	121 °C 250 °F	24.0	20.0	20.0							
API : HPHT (Cake/32nd in.)		1:2	1:2	1:2							

OPERATIONS SUMMARY											
PH		9.5	9.5	9.5	R/I with bit to bottom.						
ALKALINITY MUD (Pm)		0.1			Drilled from 1784 m to 2112 m. TD.						
ALKALINITY FILTRATE (Pf / Mf)		0.10	1.00	0.10	1.00	0.12	1.00	Circ. bottoms up.			
CHLORIDE (mg/L)		32000	33000	31500							
TOTAL HARDNESS (mg/L)		180	140	160							
SULPHITE (mg/L)		100	100	120							
PHPA (Calc ppb)		1.4	1.4	1.5							
GLYCOL CONTENT (% V/V)		4.0	4.0	4.0							
K+ (mg/L)		32400	37800	32400							
KCL (% by Wt.)		6.0	7.0	6.0							

MUD ACCOUNTING (BBLs)											
METHYLENE BLUE CAPACITY (ppb equivalent)		11.0	12.0	12.0							
SOLIDS CONTENT (% by volume) Retort		11.00	11.00	10.80	FLUID BUILT	FLUID DISPOSED	SUMMARY				
LIQUID CONTENT (% by volume) Calc		89.00	89.00	89.20	Premix - Water	440	S.C.E	309	INITIAL	1946	
CUTTINGS OIL RATIO (% oil)					Premix - Recyc		Dumped		+ Rcd	440	
SAND CONTENT (% by volume)		0.2	0.5	0.5	Drill Water		Downhole	34	- Lost	383	
					Other		Other	40	Surface	1,000	
					RECEIVED	440	LOST	383	FINAL	2,003	

PRODUCT USAGE								SOLIDS CONTROL EQUIPMENT											
Product	Price	Start	Received	Damage	Used	Close	Cost	SHALES SHAKERS	Hrs	#	Size	Hrs							
Barite Bulk	\$ 14.77	###			450	3093	\$ 6,646.50	# 1	4 x 145	20	Desander	3	6	Centrifuge					
Caustic Soda	\$ 36.60	23			8	21	\$ 73.20	# 2	4 x 145	20	Desilter	20	2	18	Centrifuge				
Glychem MC	\$ 590.00	8			9	26	\$ 927.00	# 3	4 x 145	20	Mud Cleaner 1				Degasser				
Icdide-20	\$ 103.00	35			21	56	\$ 2,303.70	# 4	4 x 115		Mud Cleaner 2				Poorboy				
JK-261	\$ 109.70	77			6	2	\$ 3,900.00			Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)							
KCI BB Fine	\$ 650.00	8			14	118	\$ 2,352.00			Desander			0						
PAC-L	\$ 168.00	132			1	30	\$ 168.00			Desilter	10.2	11.5	12.00						
PAC-R	\$ 168.00	31			11	36	\$ 275.22			Cleaner 1			0						
Sodium Sulphite	\$ 25.02	47								Cleaner 2			0						
										Centrifuge1									
										Centrifuge2									
								CURRENCY		DAILY COST		CUMULATIVE COST							
								AUD		\$21,365.62		\$236,668.32							

I.D.F.S. Engineer: Carl Jensen & Jasdeep Singh Office: BRISBANE Telephone: 07 3806-0160 Fax: 07 3806-0165

Any opinion and/or recommendation, expressed orally or written herein, has been prepared carefully and may be used if the user so elects, however, no representation or warranty is made by ourselves or our agents as to its correctness or completeness, and no liability is assumed for any damages resulting from the use of same.



**SECTION 11:- CASING & CEMENTING SUMMARY**







**SECTION 12:- MUDLOGGING WELL REPORT**  
**(Including Mudlog 1:500 & D-Exponent Log)**



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**INTEQ**

**Santos**

**END OF WELL REPORT**

**SANTOS**

**Casino-2**

**24 September - 03 October 2002**

**by**

**BAKER HUGHES INTEQ**

The information, interpretations, recommendations, or opinions contained herein are advisory only and may be rejected. Consultant does not warrant their accuracy or correctness. Nothing contained herein shall be deemed to be inconsistent with, nor expand, modify or alter consultant's obligation of performance as provided for in a written agreement between the parties, or, if none, in consultant's most recent price list.

# Casino-2

## Final Well Report

Section 1	Well Summary	
Section 2	Drilling and Engineering	
	2.1	Bit Run Summaries
	2.2	Casing and Cementing Summaries
Section 3	Survey	
Section 4	Geology and Shows	
	4.1	Geology Summary and Shows
	4.2	Sampling Summary and Record of Distribution
Section 5	Pressure Evaluation	
	5.1	Pore Pressure Evaluation
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	Bit Hydraulics Table	
	Time Depth Curve	
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	Pressure Summary Plot	
	Gas Ratio Plot	1 : 500

## **SECTION 1**

### **WELL SUMMARY**

## 1 Well Data Summary

Well Name	Casino-2
Rig Name:	MODU Ocean Bounty
Rig Type:	Semi-submersible
Drilling Contractor:	Diamond Offshore General Company
Drilling Datum:	Rotary Table
Drill Floor Elevation:	25.0m
Water Depth:	68.0m
Surface Coordinates:	038° 47' 43.887" S Lat 142° 44' 50.746" E Long
Block:	VIC/P44
Well Type:	Exploration/Appraisal
Spud Date:	24 September 2002
Total Depth:	2112m
TD Date:	03 October 2002
Well Status:	Plugged & Abandoned
Baker Hughes INTEQ Crew:	
Data Engineers:	Jamie McLeod Jeff Wilson Scott Curran
Logging Geologists:	Elaine Spence Tomasz Zelski Michael Gartrell Peter Morris

## 1.1 Well Summary

The well Casino-2 was located in VIC/P44, approximately 29km southwest of Port Campbell, 4.2km east southeast of Casino-1, 21km southwest of the Minerva gas field, 23km north of the LaBella gas field. The main objective of the well was to evaluate the hydrocarbon potential of the Waare Formation in a tilted fault block closure within the Casino Prospect Area.

1. Intersect the younger Waarre sand at its highest location on the structure and confirm the presence of hydrocarbons.
2. To obtain pressure data to confirm column height and gas samples to determine composition.
3. To confirm the GWC in the older sand indicated by pressure measurements in Casino-1.
4. Provide a production point for any gas accumulation in the younger Waarre Sand

All depths in this report unless otherwise stated refer to depths in metres below the rotary table – RT.

Casino-2 was spudded at 0930hrs on 24 September 2002, using a 26" bit with a 36" hole opening assembly. The 36" hole was drilled from the seabed at 93m to 140.0m using seawater and pre-hydrated gel mud. A 30" x 20" casing was run and set at 137.1mRT.

The 17.5" section was drilled using a Smith MGSSHC type bit. The cement tagged at 134m was drilled and the shoe track was cleaned out. New hole was drilled averaging 44m/hr during 17.5 hours of drilling time, reaching the casing point at 700m without problems. At section TD, the hole was circulated clean and displaced to 700bbls of gel mud. During the trip out, tight intervals were recorded from 628m to 425m. Operations were suspended once the bit was inside the 30" shoe due to inclement weather conditions. After waiting on weather for 8 hrs the bit was tripped back to bottom before pulling all the way out of the hole to run casing. The subsequent 13.375" casing run was conducted smoothly and the BOPs were run, landed and pressure-tested successfully.

Drilling of the 12.25" hole section commenced from 700m using a Hughes insert bit. The cement tagged at 663 m and the shoe track was drilled and cleaned out. The hole was then displaced to a KCI/PHPA/Glycol mud system initially weighted to 8.8ppg and three metres of new formation was drilled to 703m. A Leak Off Test (LOT) was attempted but no leak off could be recorded, due to the loose sands at TD. Drilling resumed with massive losses to the formation averaging 200-300 barrels per hour down to 772m. A short trip to shoe was made after excess drag at a connection, and the pump strainers were cleared of LCM. Drilling resumed from 772m with the losses reduced to 30-40 barrels per hour. The losses gradually reduced to zero as drilling continued. Penetration rates dropped under 10 metres per hour below 1550m and 1646m had dropped to 4 metres per hour and the mud weighted to 10.1ppg. At this point a bit trip was made, the hole was tight nearly all the way out with the bit having to be backreamed out from 1646m to 800m, with up to 50klbs of overpull recorded. NB#4, a PDC bit, was made up on the same BHA and run in to 1615m and reamed to bottom at 1646m. New 12.25" hole was drilled to 1763m where core point was confirmed. NB#4 was pulled out of hole to pick up the core barrel, the hole being tight up to 1620m on the trip out. CB#1 was made up along with a 27m core barrel and RIH. Core#1 was cut from 1763m to 1784m. The core was pulled out of hole and 19.3m (92%) of a 21m core was recovered. The MWD/LWD tools were picked up along with the previous PDC bit used prior to coring and run in hole to 1745m. The cored section was reamed at 30 m/hr to allow MWD data collection. New 12.25" hole was drilled from 1784m, a total depth of 2112m was reached at 23:15hrs on the 03 October 2002. The hole was circulated clean and a wiper trip made to 1755m. Once back on bottom the hole was circulated clean and the bit pulled out of the hole. A suite of wireline logs was then run.

After the wireline logging was complete the decision was made to plug and abandon Casino-2. The MODU Ocean Bounty was towed off location on 9 October 2002.

## **SECTION 2**

### **DRILLING & ENGINEERING**

**2.1 Bit Run Summaries**

**Casino-2**

**36" 914mm Hole Section  
24 September 2002**

**Bit Run No. 1 Summary**

Bit Number	NB 1
Bit Size	26" 660mm w/ Hole Opener
Bit Type	36" 914mm, 4 x 22 jets
S/N	Smith DSJC
Jets	KP2374
Depth In (m)	3 x 18
Depth Out (m)	93
Metres Drilled	140
Drilling Hours	47
TBR (krevs)	2.3
Circulating Hours	10.1
Average ROP (m/hr)	3.5
API Condition	20.4
	Not Graded

**Drilling Parameters**

WOB (klbs)	1.9	-	8.6
RPM	65	-	84
Torque (kft-lbs)	1.0	-	2.3
Pump Pressure (psi)	444	-	1474
Flow In (gpm)	300	-	1197

**Mud System**

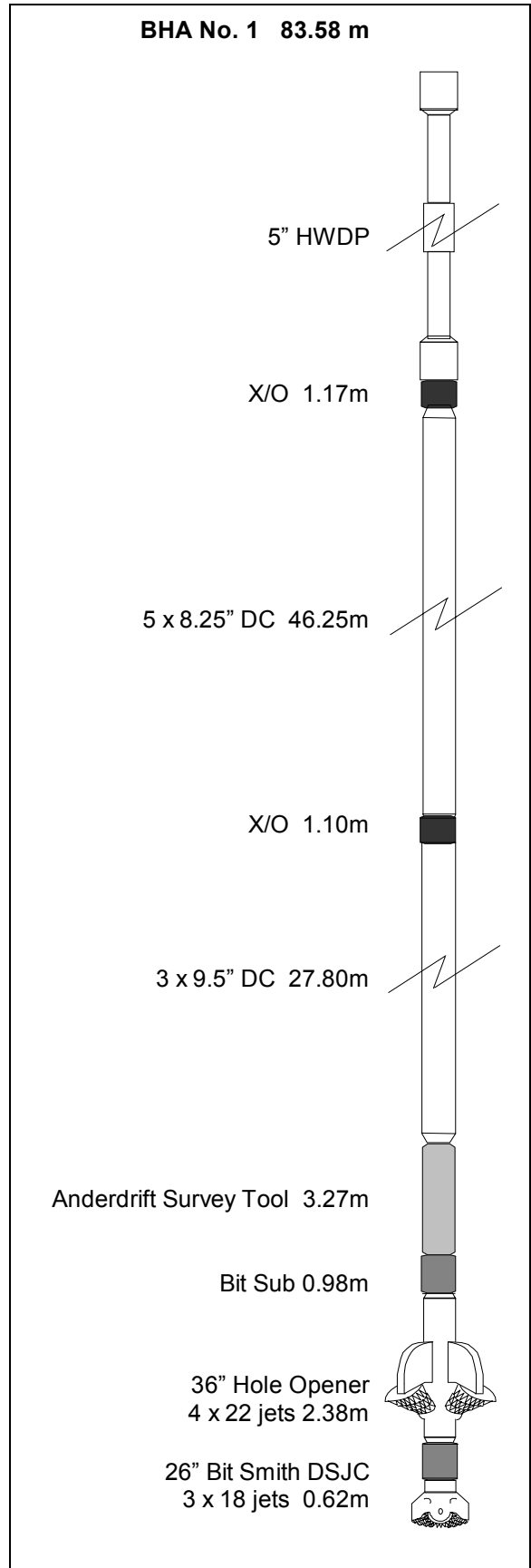
Seawater & hi-viscosity Gel	8.60ppg
Sweeps	

**Lithology**

Returns to seabed

**Drilling Summary**

A 26" bit with a 36" hole opener was made up on a rotary BHA. The bit tagged seabed at 93mRT. Casino-2 was spudded at 0930hrs on 24th September 2002. The 36" hole was drilled to 140.0mRT with seawater and PHG sweeps pumped every 15 metres. The hole was displaced with 280bbls of gel mud before pulling the bit to surface. The hole was found to be in good condition. The BHA was racked in the derrick before running the 30"/20" 762mm /508mm conductor casing.





**17.5" Hole Section  
25 - 26 August 2002**

**Bit Run No. 2 Summary**

Bit Number	NB 2	
Bit Size	17.5	
Bit Type	Smith MGSSHC	
S/N	MM0005	
Jets	3 x 20, 1 x 18	
Depth In (m)	140	
Depth Out (m)	700	
Metres Drilled	560	
Drilling Hours	12.6	
TBR (krevs)	94.0	
Circulating Hours	19.0	
Average ROP (m/hr)	44.4	
API Condition	2-2-NO-A-E-I-NO-TD	

**Drilling Parameters**

WOB (klbs)	0.3	-	38.5
RPM	66	-	172
Torque (kft-lbs)	0.8	-	4.3
Pump Pressure (psi)	887	-	2800
Flow In (gpm)	779	-	1216

**Mud System**

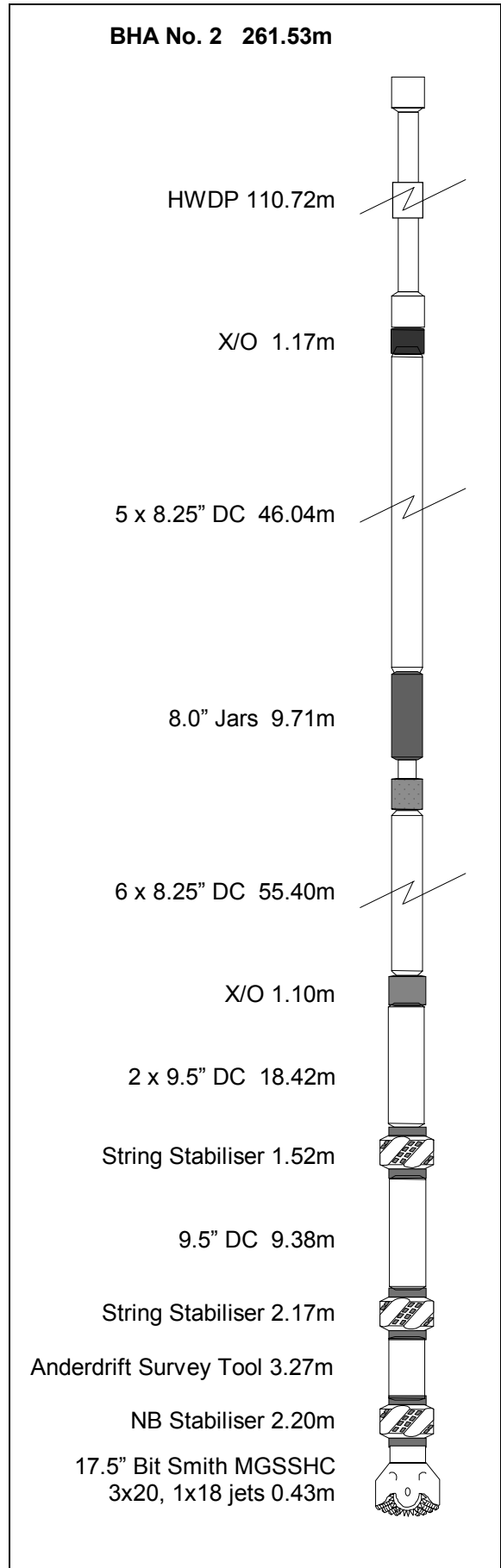
Seawater & hi-viscosity Gel	8.60ppg
Sweeps	

**Lithology**

Returns to seabed

**Drilling Summary**

NB2, a 17.5" milled tooth tricone bit was made up on a rotary BHA and run in hole. Hard cement was tagged at 134m. The shoe track was cleaned out and the 20" casing shoe was drilled out at 137m. New formation was drilled from 140m using seawater. High-viscosity guar gum sweeps of 50bbbls volume were pumped every 9 metres drilled, with 50bbbls pre-hydrated gel (PHG) sweeps pumped prior to every connection. Returns at seabed were monitored by the ROV. Inclination surveys were taken with the in-string Anderdrift tool at each connection. At section TD of 700m, the hole was circulated clean and displaced with 750bbbls PHG mud before pulling out of hole. The bit was tripped out with tight intervals encountered from 600 to 260m all causing about 40klbs of overpull. The Trip was suspended once the bit was inside the 30" casing shoe due to inclement weather conditions. After waiting on weather for 8 hours the bit was run back to bottom. The hole was displaced with 750bbbls PHG mud before pulling out of hole and preparations were made to run the 13.375" casing.



**12.25" Hole Section  
28 - 30 September 2002**

**Bit Run No. 3 Summary**

Bit Number	NB 3
Bit Size	12.25
Bit Type	Hughes MX 03DX
S/N	S89DC
Jets	3 x 16
Depth In (m)	700
Depth Out (m)	1646
Metres Drilled	946
Drilling Hours	26
TBR (krevs)	285.7
Circulating Hours	49.6
Average ROP (m/hr)	26.0
API Condition	8-8-LT-A-X-2-ER-PR

**Drilling Parameters**

WOB (klbs)	2.6	-	61.2
RPM	20	-	164
Torque (kft-lbs)	0.4	-	12.5
Pump Pressure (psi)	1465	-	4246
Flow In (gpm)	670	-	887

**Mud System**

KCI / PHPA / Glycol 8.8-10.1 ppg

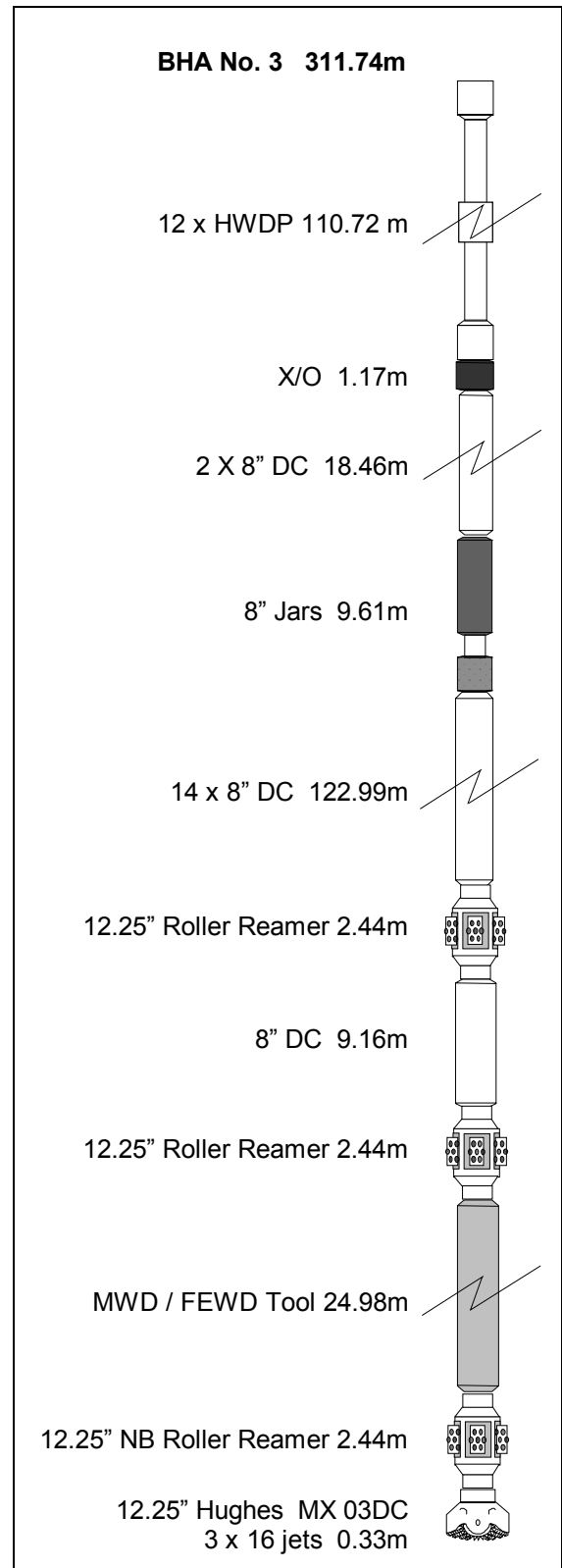
**Lithology**

Claystone, Siltstone & Sandstone

**Drilling Summary**

A 12.25" insert bit was made up to a packed drilling assembly with FEWD/MWD tools and run in hole, tagging cement at 663m. The float plugs, cement, shoe track and three metres of new formation were drilled out before the hole was displaced to a KCI/PHPA/ Glycol mud system, initially weighted at 8.8ppg. The bit was pulled back into the shoe at 690.55m and a Leak-Off Test (LOT) was subsequently conducted. The LOT was a failure with no test achieved. Drilling resumed at a fast penetration rate of about 100m/hr, down to 772m. Severe losses were taken drilling to 772m averaging 200-300 bbls/hr. LCM and quick seal was pumped to try and cure the losses. At 772m high drag (40klbs) was recorded whilst trying to make a connection, the pipe was worked and the hole circulated for 1.5 hours. The bit was then pulled back into the shoe to allow the pump suction strainers to be cleared of LCM and enable more mud to be mixed. Once this was complete the bit was run back to bottom and drilling ahead continued from 772m to 1207m with losses averaging 30-40 bbls/hr. As drilling continued from 1207m the losses healed up completely and drilling continued down to 1646m. The rate of penetration dropped below 10m/hr from 1555m and down to 4m/hr at 1646m where the decision was made to pull out of the hole for a bit change. The hole was

tight on the trip out with up to 50klbs overpull recorded. The bit was backreamed out from 1646m to 800m and pulled out of hole to surface from 800m.



**01 October 2002**

**Bit Run No. 4 Summary**

Bit Number	NB 4	
Bit Size	12.25	
Bit Type	Hycalog	
	DSX195DGUW	
S/N	103926	
Jets	5 x 12	
Depth In (m)	1646	
Depth Out (m)	1763	
Metres Drilled	117	
Drilling Hours	6.4	
TBR (krevs)	58.7	
Circulating Hours	9.1	
Average ROP (m/hr)	18.3	
API Condition	1-1-CT-N-X-I-NO-TD	

**Drilling Parameters**

WOB (klbs)	11.6	31.7
RPM	55	- 190
Torque (kft-lbs)	1.5	- 8.2
Pump Pressure (psi)	3845	- 4147
Flow In (gpm)	745	- 806

**Mud System**

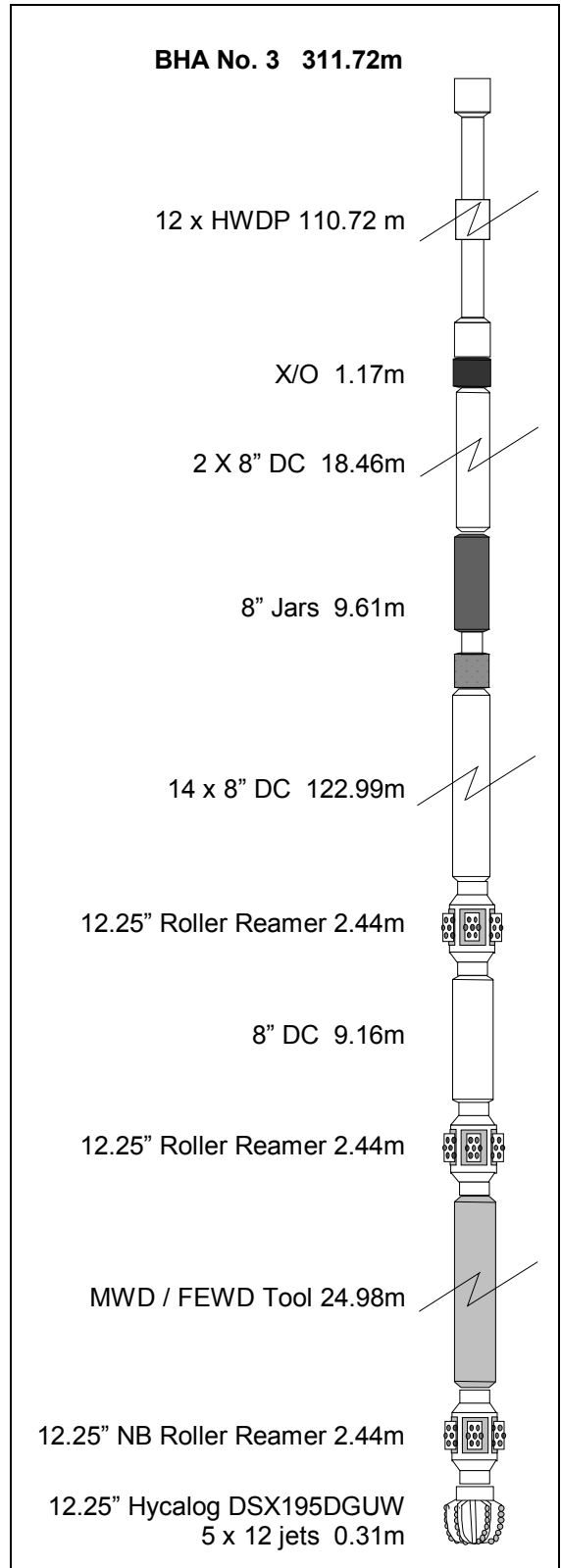
KCI / PHPA / Glycol 10.3 ppg

**Lithology**

Siltstone & Sandstone

**Drilling Summary**

A 12.25" PDC bit was made up and run in hole on the same BHA. The bit was run in to 1615m where 5-10 klbs of weight was taken. Reaming commenced from this depth to bottom at 1646m, a trip gas of 32 units was recorded. Drilling continued from 1646m to 1763m where bottoms up was circulated from samples and gas. A gas peak of 562 units was recorded from 1759.6m. Core point was confirmed and after a flow check and the bit was pulled out of hole to pick up the core barrel. The hole was tight initially from 1763m to 1620m taking 30-40 klbs of overpull. No further tight spots were seen on the rest of the trip out.



**02 October 2002**

**Bit Run No. 5 Summary**

Bit Number	CB 1
Bit Size	12.25
Bit Type	DBS CD 93
S/N	7960859
Jets	TFA = 1.2"
Depth In (m)	1763
Depth Out (m)	1784
Metres Drilled	21
Drilling Hours	4.6
TBR (krevs)	30.03
Circulating Hours	6.7
Average ROP (m/hr)	4.6
API Condition	1-1-CT-N-X-I-JD-TD

**Drilling Parameters**

WOB (klbs)	3.2	-	19.4
RPM	40	-	101
Torque (kft-lbs)	0.74	-	6.81
Pump Pressure (psi)	1069	-	1218
Flow In (gpm)	303	-	330

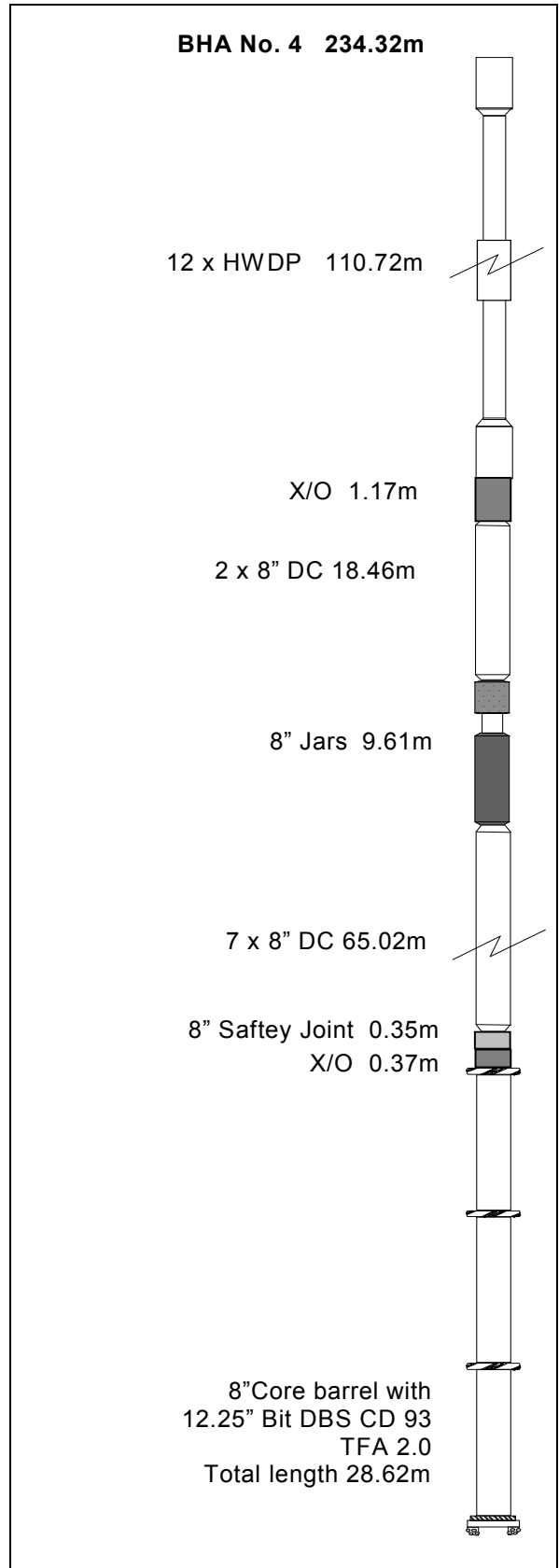
**Mud System**

KCI / PHPA / Glycol 10.3ppg

Siltstone & Sandstone

**Drilling Summary**

The core bit and core barrels were picked up and run in to 1730m. The bit was washed and reamed down from 1730m to bottom at 1763m. A trip gas of 936 units (18.72%) was recorded whilst reaming to bottom. The ball was dropped and pumped down to the core catcher. Core #1 was cut from 1763m to 1784m, bottoms up was circulated and the core pulled out of the hole. The core barrels were laid out and 19.3m (92%) of core was recovered.



**03 October 2002**

**Bit Run No. 6 Summary**

Bit Number	RR 4.1
Bit Size	12.25
Bit Type	Hycalog
	DSX195DGUW
S/N	103926
Jets	5 x 15
Depth In (m)	1784
Depth Out (m)	2112
Metres Drilled	328
Drilling Hours	16.0
TBR (krevs)	166.2
Circulating Hours	21.7
Average ROP (m/hr)	20.5
API Condition	0-4-BT-A-X-I-JD-TD

**Drilling Parameters**

WOB (klbs)	10.6	-	29.2
RPM	90	-	206
Torque (kft-lbs)	3.7	-	10.0
Pump Pressure (psi)	2900	-	3316
Flow In (gpm)	841	-	876

**Mud System**

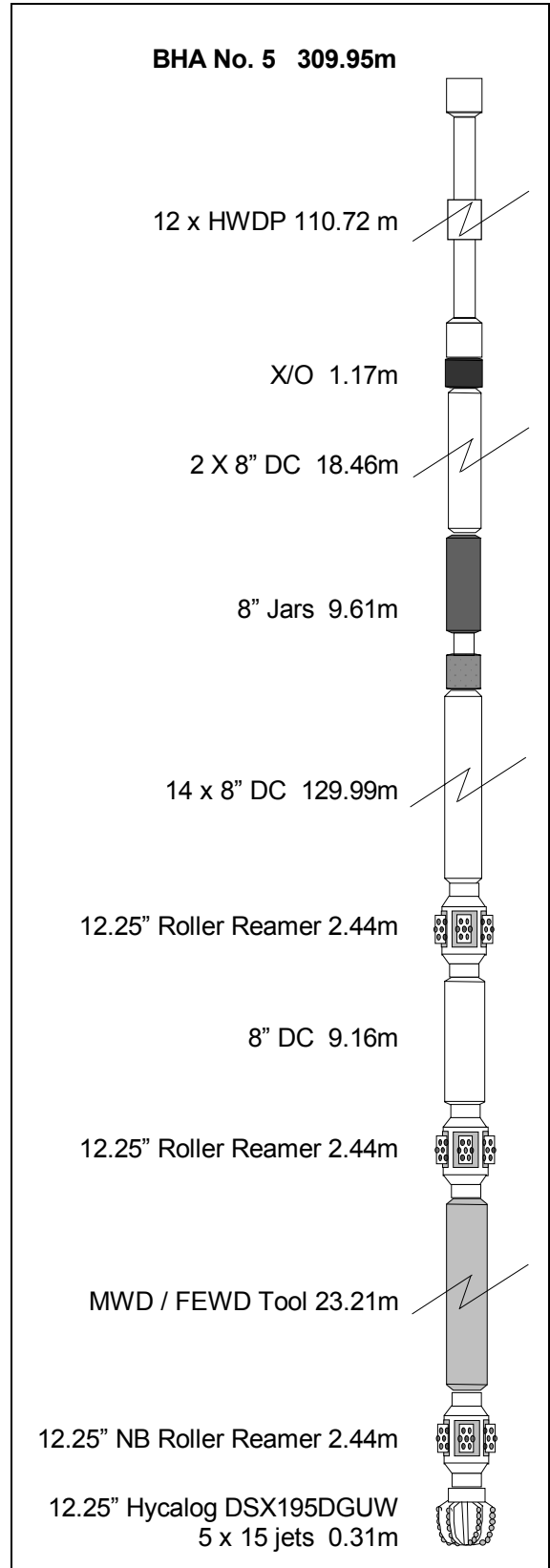
KCI / PHPA / Glycol	10.3	-	10.3 ppg
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**Lithology**

Siltstone & Sandstone

**Drilling Summary**

The previous PDC bit used prior to coring was made up with MWD/LWD tools and the previous drilling assembly and run in hole. The bit was run in to 1745m were reaming commenced at 30 m/hr to allow the MWD tools to log the cored section. A trip gas of 75 units was recorded whilst reaming. New 12.25" hole was drilled from 1784m to a total depth of 2112m. Penetration rates averaged 20 m/hr over the bit run. A maximum gas peak of 536 units was recorded from a sand at 1835m. The hole was circulated clean at prior to a wiper trip to 1755m. The hole was tight and the bit backreamed out from 1895m to 1794m. The bit was run back to bottom and the hole circulated clean. After a flow check the bit was pulled out of the hole and preparations made for wireline logging.



## 2.2 Casing / Cementing Summaries

### 30" Conductor

**24 September 2002**

Hole Size 36"  
Depth 140.0mRT

**Casing** 1 30" x 20" Shoe joint  
1 30" Intermediate Joint  
1 x 30" Well Head

ID 28" (18.75" on 20" casing)  
Weight 310 lb/ft  
Grade X-52 x 30", K55 x 20"  
Shoe Depth 137.1mRT

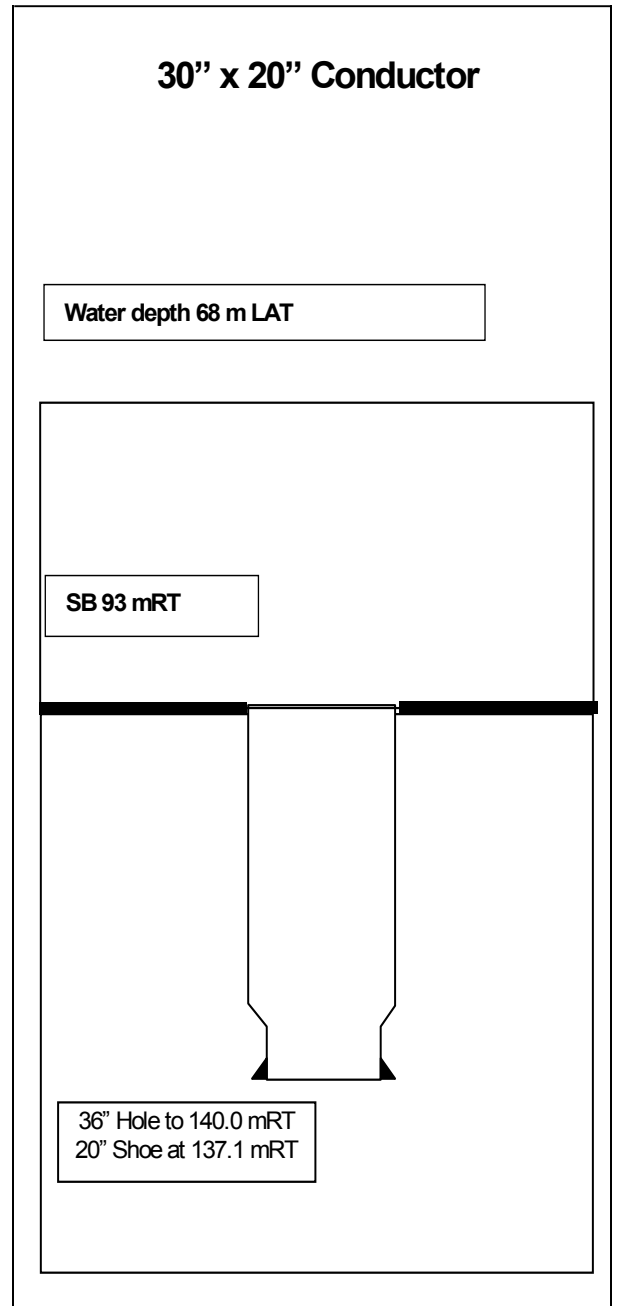
#### Cement Details:

Sacks 1051  
Type Class "G"  
Mix water 132 bbls  
Additives CaCl<sub>2</sub>

Weight 15.8 ppg  
Volume 219 bbls

#### Summary

Two joints of conductor casing, the swedged 30"/20" shoe joint and PGB were made up and landed on the seabed. The hole was circulated using 10bbls of seawater with good returns observed. Cement operation was then conducted as per Santos program. Good cement returns were noted throughout the procedure. After pressure was bled off, it was found that the float had held and the running tool was disengaged and pulled to surface.



**13.375" Casing****26 September 2002**

Hole Size 17.5"  
Depth 700mRT

**Casing** 1 x Shoe Joint  
1 x Intermediate Joint  
1 x Float collar joint  
47 x 13.375" Casing  
1 x 18.75" WH"

ID 12.415 / 12.347"  
Weight 68 / 72 lb/ft, BTC  
Grade N81  
Shoe Depth 690.55mRT

**Cement Details:****Lead Slurry**

Sacks 736  
Type Class "G"  
Mix water seawater  
Additives 2.3 ltr/sx Econolite

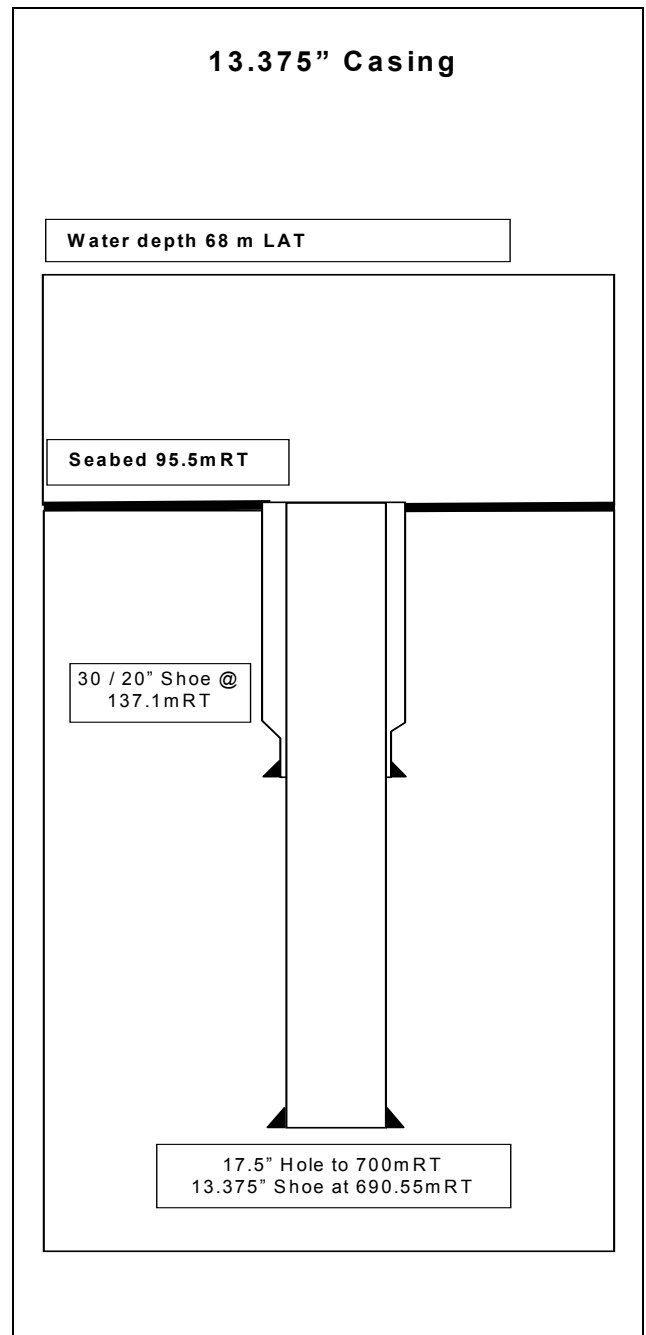
Weight 12.5 ppg (1.5 sg)  
Yield 2.23 ltr/sx  
Volume 293 bbls

**Tail Slurry**

Sacks 637  
Type Class "G"  
Mix water seawater  
Additives Neat  
Weight 15.8 ppg (1.89 sg)  
Yield 1.17 ltr/sx  
Volume 123 bbls

**Summary**

The 13.375" casing string was made up, landed and latched onto the wellhead in the 30" housing, and tested with 45klbs overpull. The casing was circulated clean and displaced with 450bbls of gel mud. The surface lines were tested ok to 3500psi. Cement operation was then performed, the plug was not bumped. The casing was pressure tested to 3000psi for 10 minutes and was bled out with the float held in place. The running tool was then released and pulled to surface.



## **SECTION 3**

### **SURVEY**



## SANTOS

## SURVEY DATA

## Casino-2

Seq No.	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/10m)	Survey Tool type	Tool Quality type
1	0	0	0	0	0	0	0	0	0	0	0	TIP	-
2	729.86	0.57	116.39	729.86	729.85	-1.61	-1.61	3.25	3.63	116.39	0.01	MWD	6-axis
3	842.72	0.61	203.59	112.86	842.7	-2.41	-2.41	3.51	4.26	124.48	0.07	MWD	6-axis
4	958.13	0.69	268.77	115.41	958.11	-2.99	-2.99	2.57	3.95	139.29	0.06	MWD	6-axis
5	1074.07	0.52	252.87	115.94	1074.04	-3.16	-3.16	1.37	3.45	156.52	0.02	MWD	6-axis
6	1130.64	0.79	283.25	56.57	1130.61	-3.15	-3.15	0.75	3.24	166.63	0.08	MWD	6-axis
7	1161.14	0.82	278.2	30.5	1161.1	-3.07	-3.07	0.33	3.09	173.91	0.03	MWD	6-axis
8	1188.85	0.76	272.62	27.71	1188.81	-3.03	-3.03	-0.05	3.03	180.99	0.04	MWD	6-axis
9	1217.68	0.78	286.97	28.83	1217.64	-2.97	-2.97	-0.43	3	188.27	0.07	MWD	6-axis
10	1247.53	0.88	282.51	29.85	1247.49	-2.86	-2.86	-0.85	2.98	196.55	0.04	MWD	6-axis
11	1277.8	0.94	274.8	30.27	1277.75	-2.79	-2.79	-1.32	3.08	205.41	0.05	MWD	6-axis
12	1364.44	1.05	276.88	86.64	1364.38	-2.63	-2.63	-2.82	3.86	226.98	0.01	MWD	6-axis
13	1421.1	1.45	272.46	56.66	1421.03	-2.54	-2.54	-4.05	4.78	237.93	0.07	MWD	6-axis
14	1450.24	1.55	270.01	29.14	1450.16	-2.52	-2.52	-4.81	5.43	242.35	0.04	MWD	6-axis
15	1508.96	1.49	255.36	58.72	1508.86	-2.72	-2.72	-6.35	6.9	246.84	0.07	MWD	6-axis
16	1565.71	1.58	268.16	56.75	1565.59	-2.93	-2.93	-7.84	8.37	249.53	0.06	MWD	6-axis
17	1622.24	1.67	265.96	56.53	1622.09	-3.01	-3.01	-9.44	9.91	252.32	0.02	MWD	6-axis
18	1652.08	1.45	267.41	29.84	1651.92	-3.06	-3.06	-10.25	10.7	253.4	0.07	MWD	6-axis
19	1796.08	1.43	253.78	144	1795.88	-3.64	-3.64	-13.8	14.27	255.22	0.02	MWD	6-axis
20	1853.43	1.5	250.23	57.35	1853.21	-4.1	-4.1	-15.19	15.74	254.91	0.02	MWD	6-axis
21	1911.17	1.48	243.72	57.74	1910.93	-4.68	-4.68	-16.57	17.22	254.23	0.03	MWD	6-axis
22	1998.68	1.91	243.21	87.51	1998.4	-5.84	-5.84	-18.89	19.77	252.82	0.05	MWD	6-axis
23	2028.08	2.08	243.11	29.4	2027.78	-6.3	-6.3	-19.8	20.78	252.35	0.06	MWD	6-axis
24	2085.35	2.47	242.08	57.27	2085.01	-7.35	-7.35	-21.82	23.02	251.39	0.07	MWD	6-axis

## **SECTION 4**

### **GEOLOGY & SHOWS**

## 4.1 GEOLOGY AND SHOWS

Formation Evaluation for Casino-2 commenced from below the 339.72mm (13.375") casing shoe at 690.55mRT to the well's Total Depth of 2112mRT.

During the course of the well, all gas equipment was checked and calibrated before drilling. Carbide was run at 1350mRT to ensure lag times were correct.

The lithological units observed during the drilling of Casino-2 are described below. For more detailed descriptions, see Appendix-1, Formation Evaluation Log.

### SAMPLING INTERVALS

Depth	Sampling Interval
700-1700	5m
1700-2108m	3m
2108-2112	4m

#### 914mm (36") HOLE SECTION

**Seabed to 140m: Returns to Seabed**

#### 445mm (17.5") HOLE SECTION

**140m to 700m: Returns to Seabed**

#### 311mm (12.25") HOLE SECTION

##### 700m to 790m: SANDSTONE

**SANDSTONE:** Predominantly pale yellowish, orange to moderately yellowish brown quartz grains, occasionally white to very light grey, clear to opaque, predominantly translucent to opaque, common iron staining. Medium to coarse grained, moderately well sorted, subrounded to occasionally subangular, weak siliceous cement, weak siderite cement, trace disseminated pyrite, trace lithic fragments, unconsolidated to trace consolidated. Fair to good inferred porosity, poor visual porosity.

There were no oil shows in this interval.

##### 790m to 1000: SANDSTONE with minor interbedded CLAYSTONE

**SANDSTONE:** Predominantly pale yellowish, orange to dark yellowish brown quartz grains, common iron staining, translucent to opaque, rarely clear, frosted and occasionally milky. Medium to very coarse grained, predominantly coarse grained, well to very well sorted, predominantly subrounded to rounded, occasionally subangular, unconsolidated, rare moderately hard aggregates, weak siderite cement, trace silty matrix, trace pyrite nodules, trace to common lithic fragments, trace glauconite. Poor to good inferred porosity, poor to good visual porosity.

**CLAYSTONE:** Brownish black to dusky brown, medium dark grey. Soft, sticky to plastic, amorphous, dispersive in parts with trace disseminated pyrite, trace carbonaceous specks and trace glauconite,.

There were no oil shows in this interval.

**1000m to 1090m: CLAYSTONE**

**CLAYSTONE:** Brownish black, dusky brown to dusky yellowish brown, medium dark grey. Soft, sticky to plastic, amorphous, dispersive in parts with trace disseminated pyrite, trace carbonaceous specks and trace glauconite.

There were no oil shows in this interval.

**1090m to 1140m: SANDSTONE**

**SANDSTONE:** Clear to translucent quartz grains, occasionally milky, trace iron stained, trace pink. Fine to very coarse grained, predominantly coarse grained, rare granules, poorly sorted, predominantly subrounded to rounded, occasionally subangular, trace fractured grains, unconsolidated to trace consolidated, common argillaceous matrix, trace pyrite cement, trace weak siliceous cement, trace glauconite, trace disseminated and nodular pyrite, trace coal and trace black lithic fragments. Poor inferred porosity, poor visual porosity.

There were no oil shows in this interval.

**1140m to 1305: SANDSTONE with interbedded SILTSTONE**

**SANDSTONE:** White to very light grey, dark greenish grey, light greenish grey, clear to translucent quartz grains, occasionally milky, trace iron stained. Fine to very coarse grained, predominantly coarse grained, rare granules, poorly sorted, predominantly subrounded to rounded, occasionally subangular, trace fractured grains, unconsolidated to trace consolidated, common argillaceous matrix, trace pyrite cement, trace weak siliceous cement, trace glauconite, trace disseminated and nodular pyrite, trace coal and trace black lithic fragments. Poor inferred porosity, poor visual porosity.

**SILTSTONE:** Greyish black to dark grey, brownish black to brownish grey, olive black to olive grey. Soft, dispersive, sticky to plastic, amorphous, subblocky in parts, mottled texture in parts, trace nodular and disseminated pyrite, trace glauconite and trace black lithic fragments.

There were no oil shows in this interval.

**1305m to 1748m SILTSTONE with minor SANDSTONE**

**SILTSTONE:** Greyish black to dark grey, brownish black to brownish grey, olive black to olive grey, moderately yellowish brown. Soft to firm, occasionally moderately hard, subblocky, dispersive, sticky to plastic, mottled texture in parts, slightly calcareous at the base, rare to trace glauconite pellets, trace nodular and disseminated pyrite, trace very fine quartz grains, trace coal, trace black lithic fragments and trace dolomite.

**SANDSTONE:** White to very light grey, clear to translucent quartz grains, occasionally opaque, trace iron stained. Very fine to coarse grained, predominantly medium grained, poorly sorted, rounded to subangular, rarely angular, unconsolidated to trace consolidated, weak to moderately strong siliceous cement, argillaceous matrix with trace glauconite, trace disseminated and nodular pyrite and trace black lithic fragments. Poor inferred porosity, poor visual porosity.

There were no oil shows in this interval.

**1748m to 1961m: SANDSTONE and with Interbedded SILTSTONE**

**SANDSTONE:** Very light grey with pale grey, pale brown, opaque to translucent quartz grains, trace milky, trace iron staining. Very fine to very coarse grained, predominantly fine to medium grained, poorly sorted, subrounded to subangular, occasionally rounded. Friable to moderately hard aggregates, commonly loose with common to abundant white argillaceous and calcareous matrix, common calcareous cement, weak to moderately strong siliceous cement, trace hard dolomite cement, trace pyrite cement, trace pyrite nodules, trace lithic fragments, trace siderite, and trace glauconite. Fair to poor visual porosity and fair to poor inferred porosity.

**SILTSTONE:** Light grey to medium grey, light brownish grey to brownish grey, white to very light grey, olive grey. Soft to firm, occasionally moderately hard, subblocky to blocky, amorphous, dispersive in parts, slight to moderately calcareous, trace nodular and disseminated pyrite, trace carbonaceous material, trace very fine quartz grains and trace mica. Grading to a CALCAREOUS SILTSTONE in parts and grading to CLAYSTONE in parts.

There were no oil shows in this interval.

**1961m to 2112m: SILTSTONE with interbedded SANDSTONE**

**SILTSTONE:** Medium grey to olive grey, greenish grey. Very soft to soft, occasionally moderately hard, subblocky to blocky with rare to trace glauconite, trace carbonaceous specks, trace coal, trace pyrite and trace very fine quartz grains.

**SANDSTONE:** White to very light grey, with clear to pale grey quartz grains, trace pink, trace reddish brown, trace orange, trace iron staining and trace milky. Very fine to coarse grained, predominantly fine to medium, moderately well sorted, subangular to subrounded. Friable to hard aggregates, commonly unconsolidated, common calcareous matrix, trace white argillaceous matrix, common hard calcareous cement, common to rare weak silica cement, trace pyrite cement. Contains trace to common glauconite, rare lithic fragments trace mica flakes, trace dolomite, trace chert, trace pyrite nodules, and trace carbonaceous specks. Poor visual porosity, poor inferred porosity.

There were no oil shows in this interval.

<b>Drilling Rate Summary for All Lithology Intervals on Casino-1</b>			
<b>Depth Interval (m)</b>	<b>RATE OF PENETRATION (m/hr)</b>		
	<b>Minimum</b>	<b>Maximum</b>	<b>Average</b>
700 - 790	9.0	401.5	116.9
790 – 1000	7.5	328.5	113.0
1000 – 1090	12.1	154.6	44.7
1090 – 1140	15.2	245.1	126.0
1140 - 1305	15.6	278.0	90.7
1305 – 1748	1.8	110.0	24.9
1748 – 1961	2.9	46.8	21.5
1961 - 2112	13.4	46.4	23.4

<b>Summary of Gas Readings Recorded for All Lithology Intervals on Casino–1</b>													
<b>Interval (m)</b>		<b>Total Gas (units)</b>				<b>Chromatograph Analysis (ppm)</b>							
<b>From</b>	<b>To</b>	<b>Range</b>		<b>Max Gas at (m)</b>	<b>Av. Total Gas</b>		<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>iC4</b>	<b>NC4</b>	<b>IC5</b>	<b>nC5</b>
		<b>From</b>	<b>To</b>										
0	700	Returns to Seabed				Min	-	-	-	-	-	-	-
					Max								
700	790	0.0	0.2	700-790	0.2	Min	0	-	-	-	-	-	-
						Max	123	-	-	-	-	-	-
790	1000	0.1	2.5	899-917	1.5	Min	49	-	-	-	-	-	-
						Max	143	-	-	-	-	-	-
1000	1090	1.2	2.2	1001	1.8	Min	74	-	-	-	-	-	-
						Max	205	-	-	-	-	-	-
1090	1140	1.7	7.0	1123	3.2	Min	179	-	-	-	-	-	-
						Max	374	-	-	-	-	-	-
1140	1305	0.7	3.6	1175	2.2	Min	59	-	-	-	-	-	-
						Max	424	-	-	-	-	-	-
1305	1748	1.3	47.5	1747	11.9	Min	149	0.0	0.0	0.0	0.0	0.0	0.0
						Max	11832	426	102	55	47	23	68
1748	1961	9.8	548.8	1762	132.5	Min	747	1	0.0	0.0	0.0	0.0	3
						Max	99408	558	498	70	516	74	515
1961	2112	5.2	19.8	2012	12.1	Min	568	0	0	-	-	-	0
						Max	3225	0	33	-	-	-	0



## 4.2 Sampling Summary

INTEQ

Santos: Casino-2

From:

BHI Unit 503

Location: **Ocean Bounty**

Telephone: 08 8218 5740

Shipped in Container No: 26690

SAMPLE TYPE	No. Of Sets	COMPOSITION			PACKING DETAILS	
		Sample Box No.	Depth Interval (m)			
			From	To		
Sets A,B,C: Washed & Air Dried Samples (100 g)	3	1	705	835	Small boxes 1 – 8 packed in large box 1 of 2	
		2	835	965		
		3	965	1100		
		4	1100	1230		
		5	1230	1320		
		6	1320	1460		
		7	1460	1590		
		8	1590	1718		
	Sets D,E: Washed & Air Dried Samples (200 g)	2	9	1718	1802	Small boxes 9 – 13 packed in large box 2 of 2
			10	1802	1871	
			11	1871	1949	
			12	1949	2030	
			13	2030	2112	
Sets D,E: Washed & Air Dried Samples (200 g)	2	1	705	800	Small boxes 1 – 8 packed in large box 1 of 2	
		2	800	930		
		3	930	1030		
		4	1030	1115		
		5	1115	1210		
		6	1210	1300		
		7	1300	1420		
		8	1420	1535		
	Set F: Samplex Trays	1	9	1535	1670	Small boxes 9 – 16 packed in large box 2 of 2
			10	1670	1754	
			11	1754	1823	
			12	1823	1886	
			13	1886	1946	
			14	1946	2009	
			15	2009	2075	
			16	2075	2112	
Set F: Samplex Trays	1	1	700	2112	1 wooden box.	
Set G: Samplex Trays	1	1	700	1205	4 small boxes in 1 large box.	
		2	1205	1700		
		3	1700			
		4		2112		
Set H: Mud Samples	1	1	700	2112	1 box.	
Set I: Misc paper work, logs and charts (Casion1 and Casino 2)	1	1	-	-	2 Large boxes	

Note: Mud samples taken at 760, 1703, 1752, 1763, 1771, 1825, 1834, 2112. Schlumberger MDT Sample from 1764m also packed in same container.

<b>DISTRIBUTION</b>	<b>Destination &amp; Address</b>	<b>Attention of:</b>
<b>Set A and B: Santos Washed &amp; Dried (100g)</b>	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013	<b>Attn: Troy Prosser (Santos Core Librarian)</b>
<b>Set C: Strike Oil Washed &amp; Dried (100g)</b>	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013	<b>Attn: Troy Prosser (Santos Core Librarian)</b>
<b>Set D: Vic DRNE Washed &amp; Dried (200g)</b>	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013 Fwd to Vic DNRE	<b>Attn: Troy Prosser (Santos Core Librarian)</b>
<b>Set E: Geoscience Australia Washed &amp; Dried (200g)</b>	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013 Fwd to AGSO	<b>Attn: Troy Prosser (Santos Core Librarian)</b>
<b>Set F, G: Santos and Strike Samplex Trays</b>	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013 Fwd to AGSO	<b>Attn: Troy Prosser (Santos Core Librarian)</b>
<b>Set H: Mud Samples</b>	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013 Fwd to AGSO	<b>Attn: Troy Prosser (Santos Core Librarian)</b>
<b>Set I: Misc paper work, logs and charts</b>	C/- Santos Core Library Ascot Transport Francis Street Gillman SA 5013 Fwd to AGSO	<b>Attn: Attn: Troy Prosser (Santos Core Librarian)</b>



## **SECTION 5**

### **PRESSURE EVALUATION**

## 5.1 Pore Pressure Evaluation

An average sea water density of 8.6 ppg was assumed as the normal saline pressure gradient for all calculations for Casino-2. Using real time data, such as the hydrocarbon gas trend, lithology, flowline temperature, corrected Drilling Exponent (Dxc) data for conventional roller bits, constant drilling fluid parameters, pore pressure estimates were made during the drilling of Casino-2. For more details, please refer to Appendix 3, "Pressure Summary Plot".

### 36" Hole Section

The 36" hole was drilled from 93mRT to 140.0mRT. The section was short, characterised largely by unconsolidated sediments with returns dumped at the seabed. With an average penetration rate of about 20m/hr and low weight-on-bit, the plotted Dxc data curve projected a leftward general trend consistent with bit jet washing action on soft, unconsolidated sediments. However, it is unlikely that pore pressure would have increased over this shallow interval. The pore pressure was estimated to have remained normal at 8.6 ppg EMW down to 140.0mRT.

### 17.5" Hole Section

The 17.5" hole was drilled riserless from 140.0mRT to 700.0mRT with returns dumped at the seabed. As in the 36" section, pore pressure estimates were based on the Dxc curve, penetration rate and the behaviour of available drilling parameters. The Dxc scatter from below the casing shoe to 400m was indicative of a probably more than gradual sediment consolidation. Below 400m to the section total depth of 685m, the trend was closer to vertical inferring a more consistent sediment consolidation with depth. The last 15m of the section saw a sharp leftward shift and larger scatter of the Dxc points. The large positive drill break that occurred at this point would suggest that this change is one of formation rather than pore pressure, with the bit having penetrated the Mepunga Sands slightly earlier than expected. The whole section however was estimated to have remained at normal 8.6ppg EMD down to 700mRT.

### 12.25" Hole Section

The 12.25" hole section was drilled using a KCl/PHPA/Glycol mud system initially weighted at 8.8ppg. After a unsuccessful leak off test (10.2ppg EMW) drilling progressed smoothly after initial mud loss problems averaging 26m per hour from 700m to 1664m and 20m per hour from 1797m to 2112m TD, excluding the slower cored interval. In anticipation of higher than normal formation pressure, the mud weight was incremented to 10.0ppg at about 1450m and then up to 10.3ppg at 1646m. An Insert bit used from the start of this section and drilled to 1646m. A "normal" Dxc trend could be seen in the Belfast Siltstone. No variation off this trend was seen down to 1646m where the bit was pulled. The hole was tight from bottom up to 800m with the bit backreamed out to that point. No evidence of overpressure in the temperature gradient was seen or any pressure cavings or connection gases. So it can be assumed that the formation pressure remained "normal" at around 8.6 ppg EMW down to 1646m. Drilling resumed with a PDC making so the Dxc data took on a new trend with this type of bit. No connection gases were seen or abundant pressure cavings observed whilst drilling to core point at 1763m. A maximum formation gas of 562 units was recorded from 1760m. Whilst PDC bit's are not ideal for Dxc trend analysis a normal trend can be interpreted from 1700m and leftward shift in this trend occurred at about 1730m. A pore pressure of 9.4ppg EMW can be obtained from this trend shift. MDT pressure data points from Casino-1 showed a pore pressure of 9.5 - 9.6 ppg EMW in the lower Belfast Siltstone and reservoir section. So it is probable that the formation pressure on Casino-2 for these formations is similar. No other increased pressure indicators were seen whilst drilling to 1763m but the mud weight was raised much earlier and higher on Casino-2 than on Casino-1. It is interpreted that an increase in formation pressure occurred at about 1730m to around 9.4-9.5 ppg EMW. A trip gas of 936 units was recorded prior to coring from 1763m – 1784m. The same PDC bit used before coring was re-used to drill the rest of the well from 1784m to 2112mTD. No further indications of overpressure were seen whilst drilling to TD and the formation pressure is believed to have remained at around 9.5ppg EMW.

## 5.2 Fracture Pressure Evaluation

### 12.25" hole section

After drilling out the 13.375" casing shoe at 690.55m, rathole to 700m and three metres of 12.25" hole to 703mRT, a Leak Off Test (LOT) was performed. A good test was not obtained and the only result was an applied force of 190psi at the surface using mud weighted at 8.8ppg recorded an equivalent mud weight (EMW) of 10.2ppg formation strength at the casing shoe. Severe downhole mud losses were taken once drilling commenced, up to 600 bbls/hr. The bit was pulled back into the shoe after drilling to 772m. Once drilling resumed the losses reduced to around 30-40 bbls/hr and slowly reduced to zero losses. No further downhole losses were taken in this section even when the mud weight was raised to 10.3ppg. This section was drilled with a KCl/PHPA/Glycol mud system weighted from 8.8 to 10.3ppg. While drilling, an ECD range of 8.9 to 10.6ppg was recorded. The initial losses whilst drilling out the shoe were as a result of the casing being set in the weak Mepunga Sandstone. This suggests that the fracture pressure of 10.2 ppg EMW from the attempted leak off test is too low. Whilst heavy losses were initially taken initially the losses healed up relatively quickly. Also the fact that no losses occurred when the mud weight was raised to 10.3ppg and ECD'S as high as 10.6 resulted. This tells us that the actual fracture gradient of the Mepunga Sandstone is greater than 10.6ppg EMW. All other formations drilled in 12.25" section had fracture gradients much higher than ECD's reached whilst drilling.

The following is a summary of the Leak Off Test conducted in this well:

Hole Section	Hole MD	Casing	Shoe MD	Pressure	Mud Weight	EMW
12.25"	703 m	13.375"	690.55m	190 psi	8.8 sg	10.2ppg

## TABLES

Table 1: Bit Run Summary

Tables





		<h1 style="text-align: center;">Bit Run Summary</h1>																										
INTEQ Operator		Well Name <b>SANTOS</b>						Location <b>Casino-2</b>				Drilling Contractor <b>VIC/P44</b>				Rig <b>Diamond Offshore</b>				<b>Ocean Bounty</b>								
Bit No.	Bit Make, Type Serial No. / IADC Code	Bit Size in	Jets x 1/32"	TFA in <sup>2</sup>	Depth In m	Depth Out m	Metres Drilled Metres	On Btm Hours Drilled Hours	ROP Avg m/hr	TBR x1000	Drilling parameter range								Grading								Remarks	
											WOB klbs	SPP psi	RPM	Flow gpm	Jet Vel m/sec	DC/OH Vel m/min	MD ppg	Hyd Power hhp	Bit Loss %	I	O	D	L	B	G	O		R
<b>36" Hole Section</b>																												
NB1	Smith DSJC	26	3 x 18	2.2304	93.0	140	47.0	2.3	20.4	10.1	1.9-8.6	1182	70	1050	52.5	7.4	8.6	159.0	39.2	Not Graded								36" Hole Section T.D.
	w/ 36" Hole Opener	36" HO, 4 x 22 jets																										
<b>17.5" Hole Section</b>																												
NB2	Smith MGSSHC	17.5	3 x 20, 1 x 18	1.1689	140	700	560	12.6	44.4	94.0	0.3-38.5	2417	66-172	1106	101.7	42.1	8.6	607.4	46.2	2	2	NO	A	E	I	NO	TD	17.5" Hole Section TD
<b>12.25" Hole Section</b>																												
NB3	Hughes MX 03DX	12.25	3 x 16	0.5890	700	1646	946	36.4	26.0	285.7	2.6-61.2	2852	20-164	670-887	141.8	74.8	8.8 - 10.1	963.6	47.0	8	8	LT	A	X	2	ER	PR	MWD,FEWD
NB4	Hycalog DSX195DGUW	12.25	5 x 12	0.5522	1646	1763	117	6.4	18.3	58.7	11.6-31.7	3995	35 - 190	786	142.7	70.6	10.3	949.3	50.5	1	1	CT	N	X	I	NO	TD	MWD,FEWD
CB1	DBS CD 93	12.25	TFA	1.2000	1763	1784	21	4.6	4.6	30.0	3.2-19.4	1150	40-101	317	26.9	28.7	10.3	13.8	9.2	1	1	CT	N	X	I	JD	TD	CORE#1
RR4.1	Hycalog DSX195DGUW	12.25	5 x 15	0.8629	1784	2112	328	16.0	20.5	166.2	10.6-29.2	3181	90-206	854	99.3	76.7	10.3	499.1	27.3	0	4	BT	A	X	I	JD	TD	MWD,FEWD

Table 2: Bit Hydraulics Summary

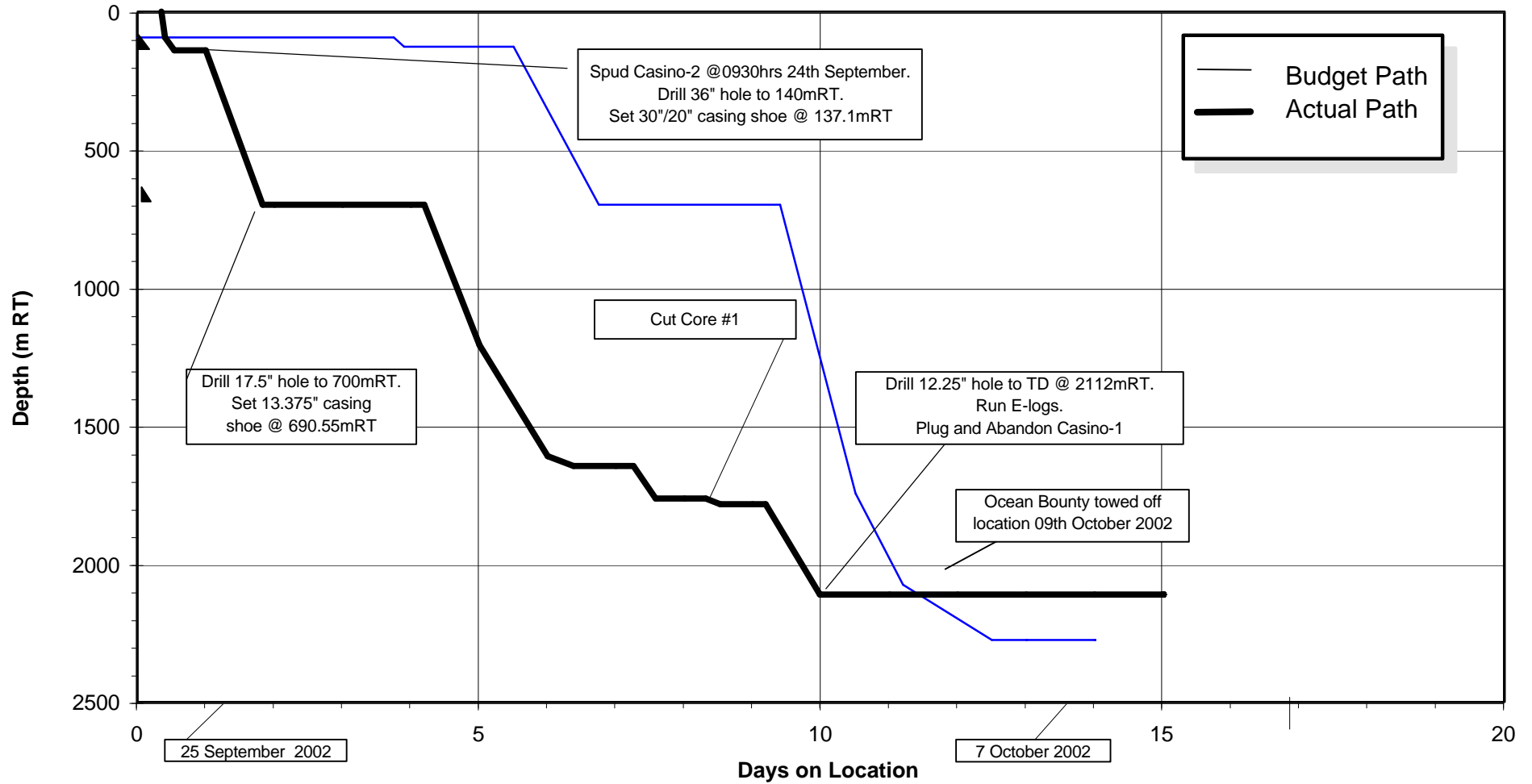
Tables

 <h1 style="text-align: center;">Bit Hydraulics Summary</h1> 																					
Operator <b>SANTOS</b>					Well Name <b>Casino-2</b>					Location <b>VIC/P44</b>		Drilling Contractor <b>Diamond Offshore</b>					Rig <b>Ocean Bounty</b>				
<b>Drillstring Abbreviations</b> N Normal    P Positive Displacement Motor    T Halliburton TRACS Tool M MWD        A Adjustable Gauge Stabilizer                    C Core										<b>Hydraulics Models</b> Power Law Model used for drilling with Mud Bingham Model used for coring and drilling with sea water											
Bit No.	Depth <i>(m)</i>	Hole Size <i>in</i>	Jets <i>x 1/32"</i>	Drill String Type	Mud Type	Mud Density <i>ppg</i>	PV <i>cP</i>	YP <i>lbs/100 ft sq</i>	Flow Rate <i>gpm</i>	Jet Vel <i>m/sec</i>	Impact Force <i>lbf</i>	Hydraulic Power <i>hhp</i>	Power/Area <i>hp/sq in</i>	Bit Loss <i>Psi</i>	Bit Loss <i>%</i>	Pipe Loss <i>Psi</i>	ECD <i>ppg</i>	Annular Velocities			
																		DP <i>m/min</i>	DC <i>m/min</i>	DC <i>m/min</i>	
<b>36" Hole Section</b>																					
NB1	140	36"	3 x 18, 4 x 22	N	SW/hi-vis sweeps	8.60	1	1	1197	52.5	918.2	159.1	0.3	228	39.2	296	8.60	-	7.4	25.2	
<b>17.5" Hole Section</b>																					
NB2	700	17.50	3 x 20, 1 x 18	N	SW/hi-vis sweeps	8.60	1	1	1216	101.7	1808.1	607.4	2.6	857	46.2	979	8.60	32.4	42.1	25.5	
<b>12.25" Hole Section</b>																					
NB3	1646	12.25"	3 x 16	M	KCL/PHPA/Glycol	8.8 - 10.1	23	29	854	141.8	2057.9	963.6	8.3	1936	47.0	2109	10.20	51.2	74.8	148.7	
NB4	1763	12.25"	5 x 12	M	KCL/PHPA/Glycol	10.30	21	33	806	142.7	2013.9	949.3	8.2	2021	50.5	1858	10.50	48.3	70.6	156.3	
CB1	1784	12.25"	TFA = 1.2"	M	KCL/PHPA/Glycol	10.30	19	25	330	26.9	155.3	13.8	0.1	72	9.2	515	10.60	19.8	28.7	128.0	
RR4.1	2112	12.25"	5 x 15	M	KCL/PHPA/Glycol	10.30	21	23	876	99.3	1522.3	499.1	4.3	977	27.3	2476	10.50	52.5	76.7	125.7	



INTEQ

# SANTOS Casino-2 Time vs. Depth Curve



## **APPENDICES**



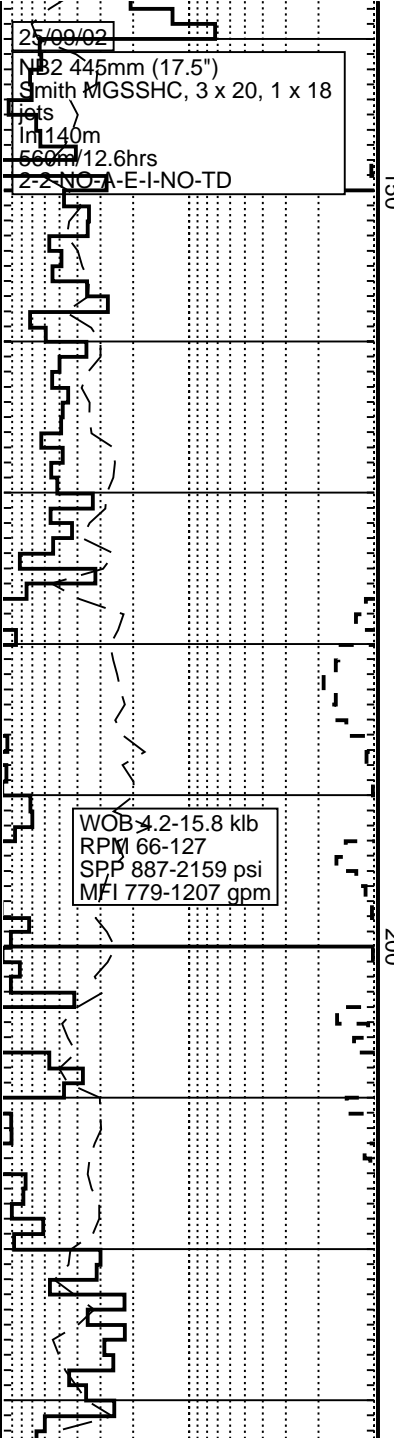
**FORMATION EVALUATION LOG**  
1:500

# FORMATION EVALUATION LOG

## Casino-2

SCALE: 1:500

RATE OF PENETRATION GAMMA (API) WOB (MT) WOB (klb) ROP (m/hr)	DEPTH (m)	CUTTINGS LITHOLOGY	INTERPRETED LITHOLOGY	RESISTIVITY SHALLOW (Ohm-m) MEDIUM (Ohm-m) DEEP (Ohm-m)	TOTAL GAS IN UNITS Methane (ppm) Ethane (ppm) Propane (ppm) Iso Butane (ppm) Normal Butane (ppm) Pentane (ppm)	CALCIMETRY Calcite Dolomite	REMARKS
<p>All depths refer to metres below the rotary table (RT) unless otherwise stated</p>							
<p>RT - Sealevel(LAT) = 25m Water Depth = 68m RT - Seabed = 93m</p>							
<p>NB1 660mm (26") Smith DSJC, 3 x 18 jets 914mm (36") H-O, 4 x 22 jets In 93m 47m/2.3hrs</p>							
<p>Spud Casino-2 @ 09:30hrs on 24/09/02</p>							
<p>Drill with seawater &amp; Hi-vis Sweeps Returns to seabed</p>							
<p>WOB 19.8.6 klb RPM 65.84 SPP 444.474 psi MFI 300-1197 gpm</p>							
<p>Drill 914mm/660mm (36"/26") hole to</p>							



150

200

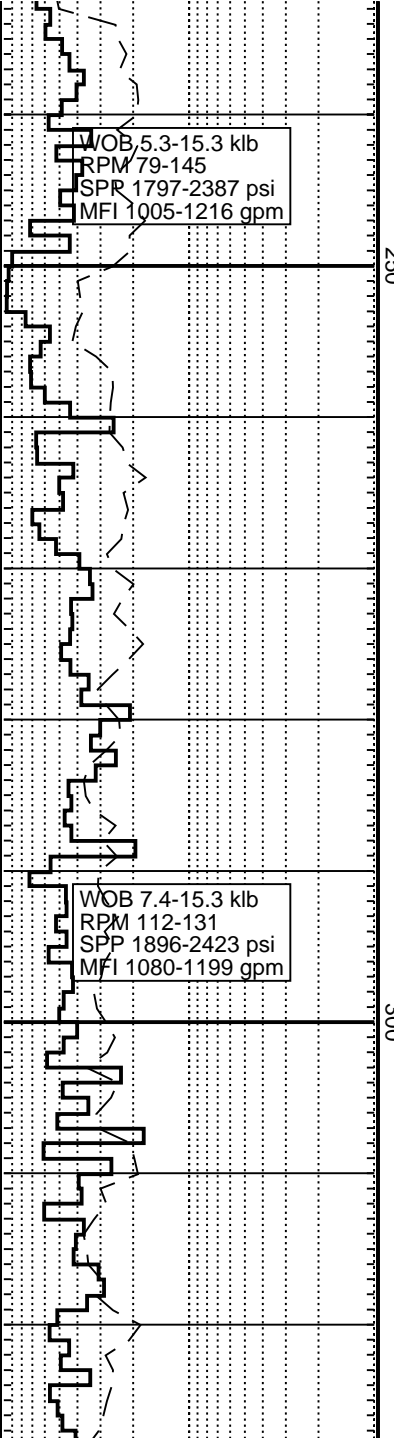
25/09/02  
NB2 445mm (17.5")  
Smith MGSSHC, 3 x 20, 1 x 18  
Jets  
In 140m  
560m / 12.6hrs  
Z-Z-NO-A-E-I-NO-TD

WOB 4.2-15.8 klb  
RPM 66-127  
SPP 887-2159 psi  
MFI 779-1207 gpm

140m  
Set 762mm (30") csg @ 137.1m  
Drill ahead 445mm (17.5") hole

Drill with seawater & Hi-vis Sweeps  
Returns to seabed

Drill with seawater & Hi-vis Sweeps  
Returns to seabed



WOB 5.3-15.3 klb  
RPM 79-145  
SPR 1797-2387 psi  
MFI 1005-1216 gpm

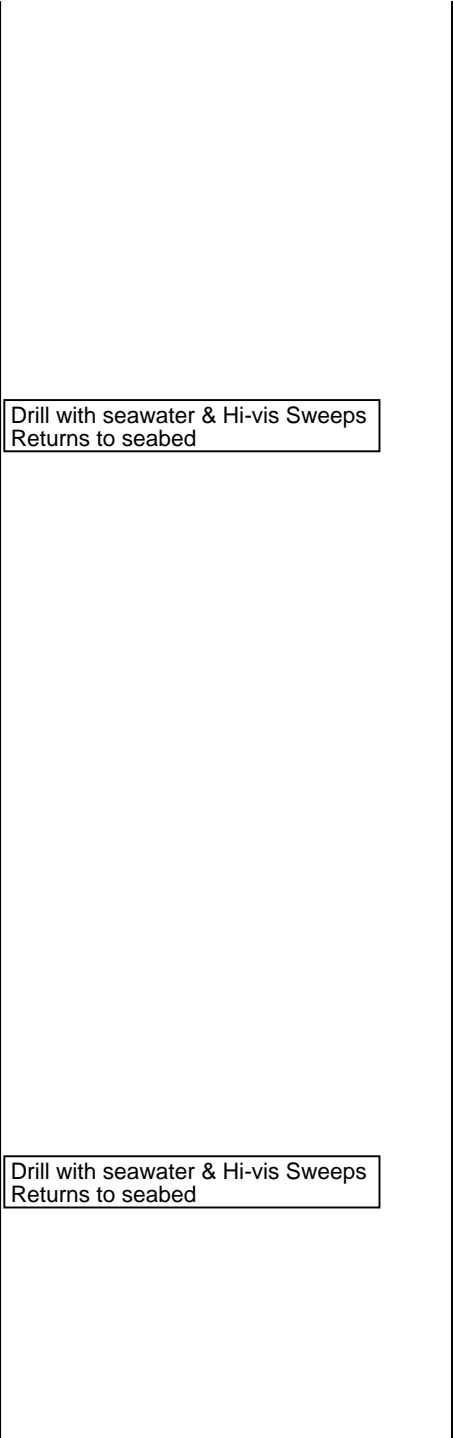
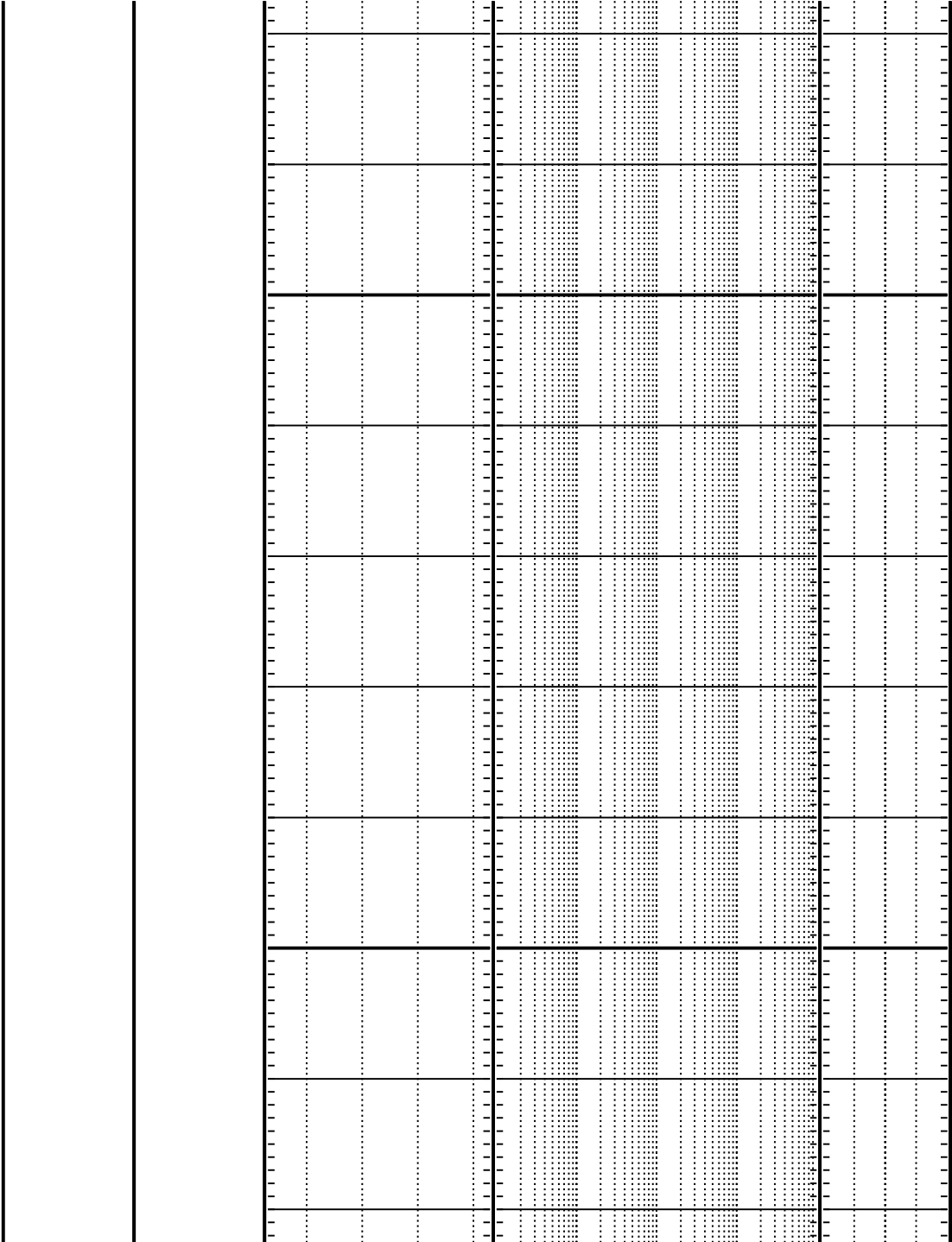
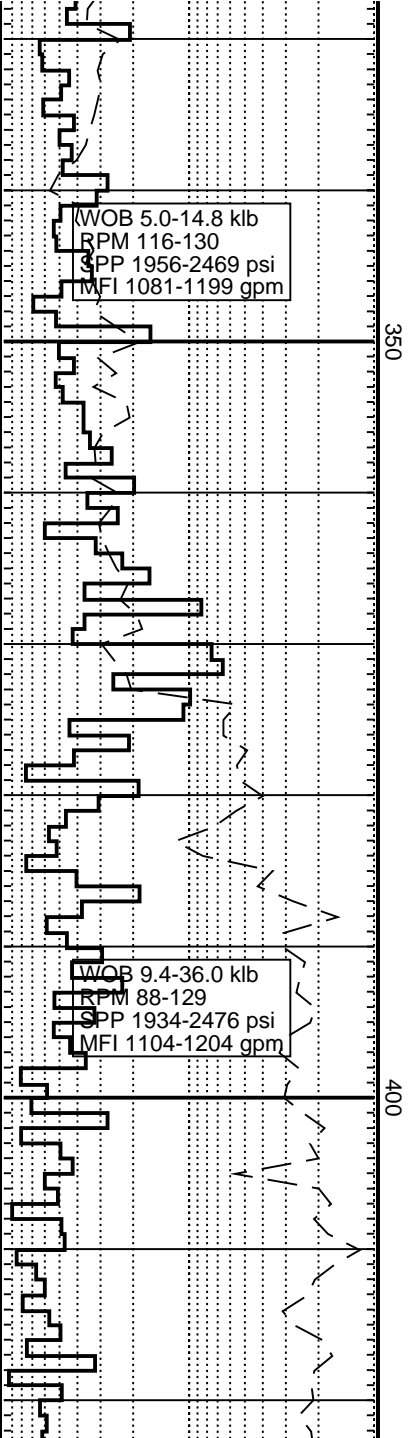
WOB 7.4-15.3 klb  
RPM 112-131  
SPP 1896-2423 psi  
MFI 1080-1199 gpm

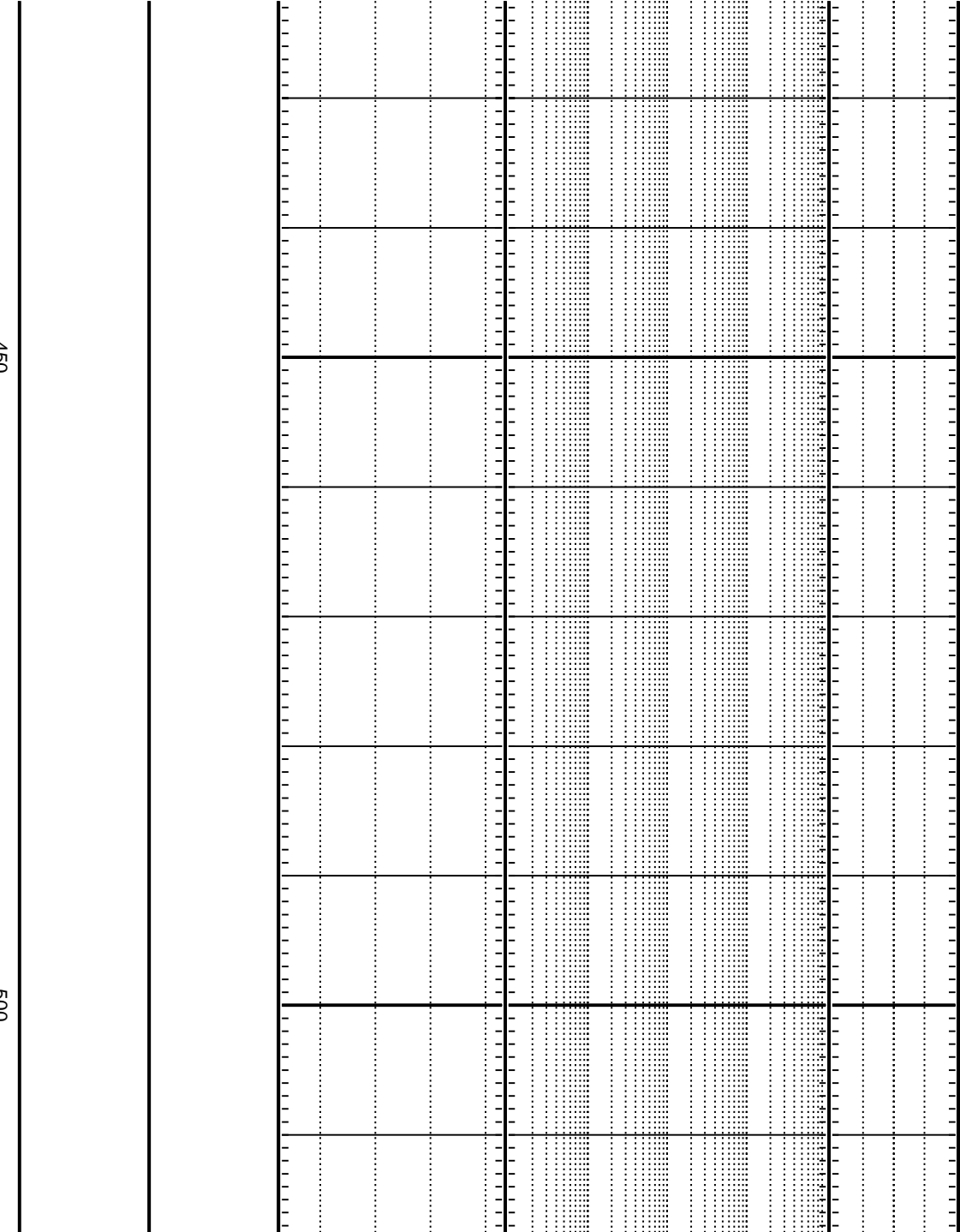
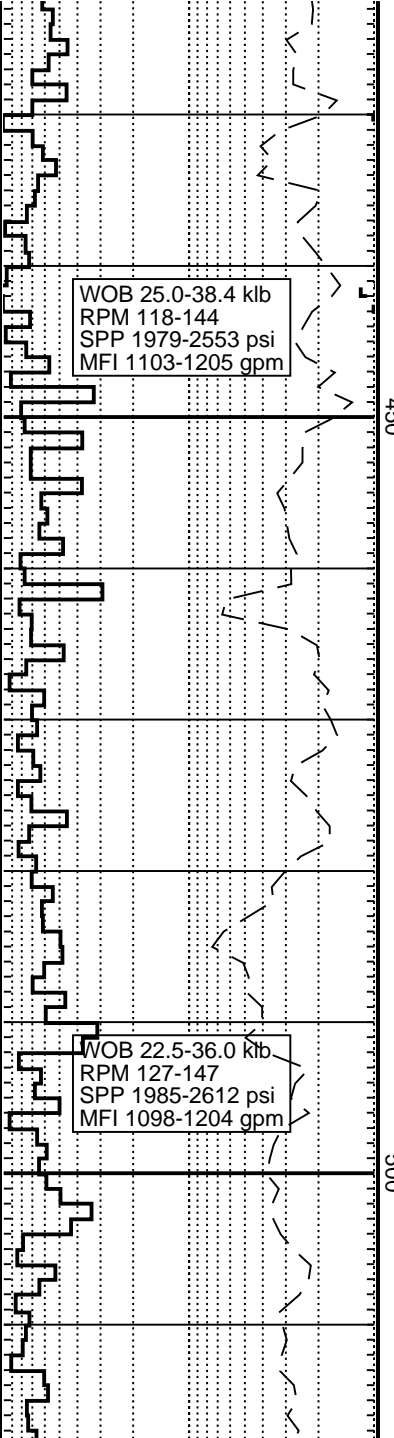
250

300

Drill with seawater & Hi-vis Sweeps  
Returns to seabed

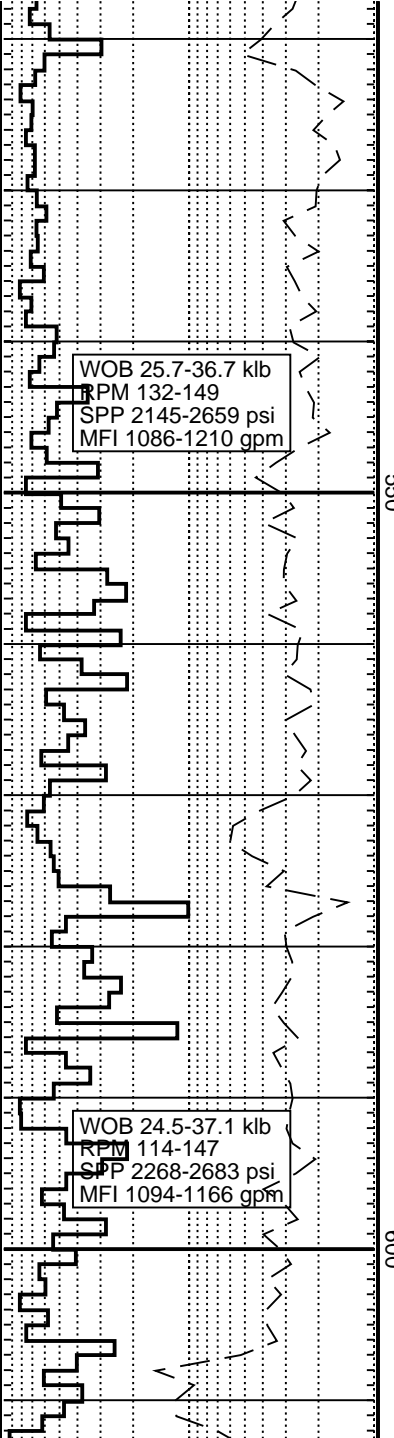
Drill with seawater & Hi-vis Sweeps  
Returns to seabed





Drill with seawater & Hi-vis Sweeps  
Returns to seabed

Drill with seawater & Hi-vis Sweeps  
Returns to seabed



550

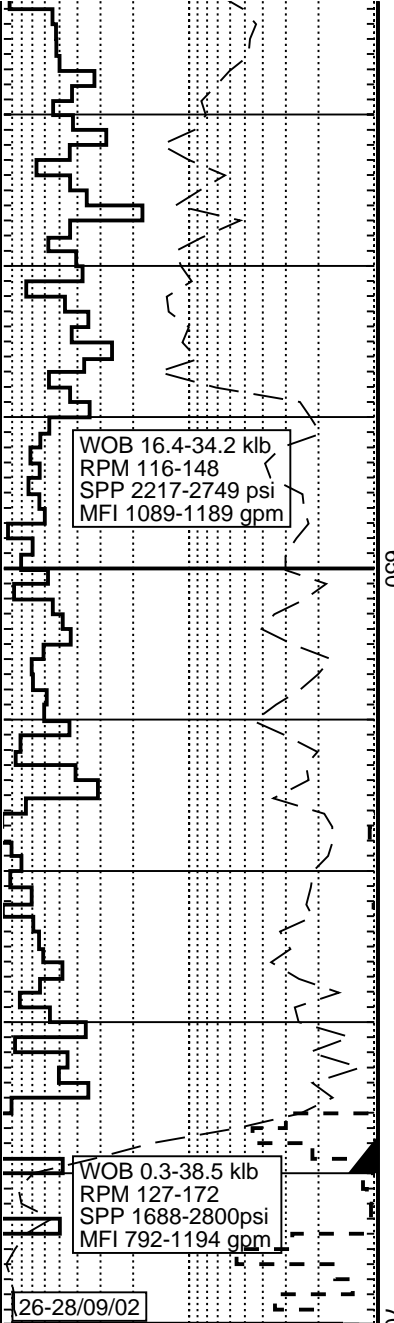
600

WOB 25.7-36.7 klb  
RPM 132-149  
SPP 2145-2659 psi  
MFI 1086-1210 gpm

WOB 24.5-37.1 klb  
RPM 114-147  
SPP 2268-2683 psi  
MFI 1094-1166 gpm

Drill with seawater & Hi-vis Sweeps  
Returns to seabed

Drill with seawater & Hi-vis Sweeps  
Returns to seabed



WOB 16.4-34.2 klb  
 RPM 116-148  
 SPP 2217-2749 psi  
 MFI 1089-1189 gpm

WOB 0.3-38.5 klb  
 RPM 127-172  
 SPP 1688-2800psi  
 MFI 792-1194 gpm

26-28/09/02  
 NB3 311mm (12.25")  
 HUGHES MX03DX, 3 x 16 jets  
 In 700m, 946m/36.4hrs  
 8-84LT-A-E-1/16-ER-PR

650

700

Drill with seawater & Hi-vis Sweeps  
 Returns to seabed

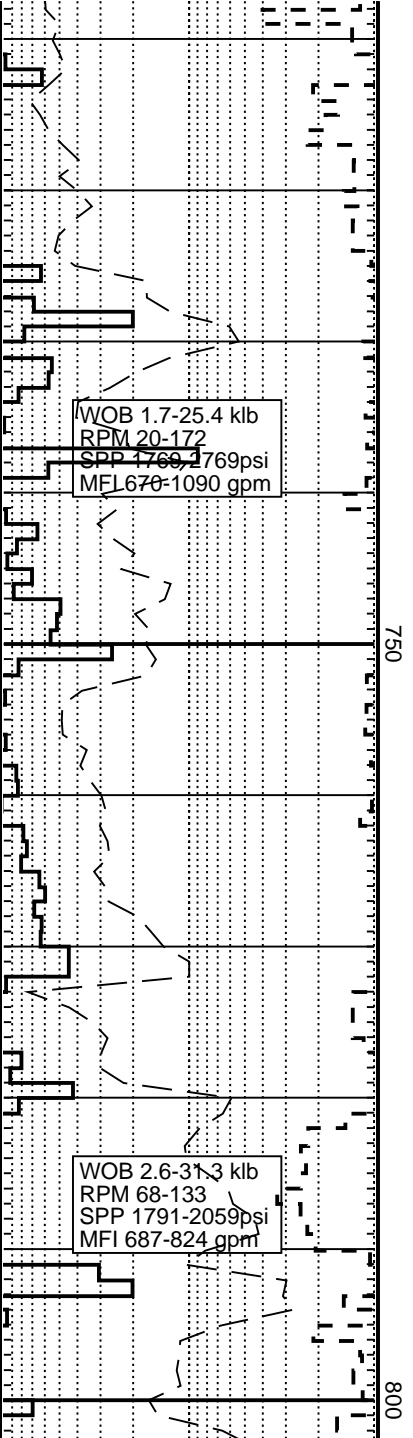
MEPUNGA FORMATION  
 687m (-662mSS)

Drill 445mm (17.5") hole to 700m  
 Set 340mm (13.375") csg @ 690.55m  
 Drill ahead 311mm (12.25") hole

Dynamic losses @ 100-200bbls/hr

Adding LCM



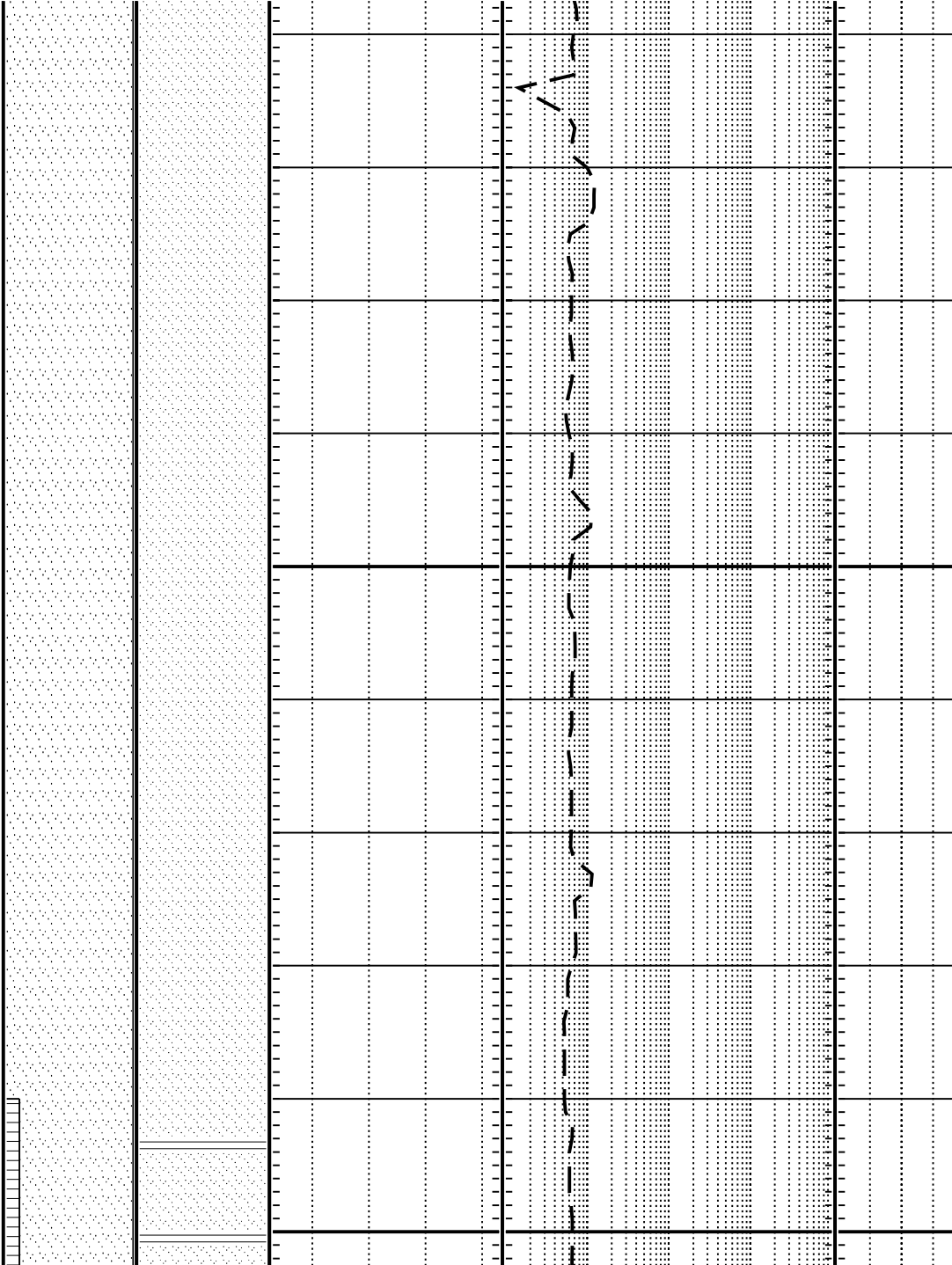


WOB 1.7-25.4 klb  
 RPM 20-172  
 SPP 1769-1769psi  
 MFI 670-1090 gpm

WOB 2.6-31.3 klb  
 RPM 68-133  
 SPP 1791-2059psi  
 MFI 687-824 gpm

750

800



SANDSTONE:pred pl yelsh orng-mod yelsh brn qtz grs,occ wh-v lt gry,clr-opq, pred trnsl-opq,med-crs,mod wl srt,sbrnd, occ sbang,wk sil cmt,wk sid cmt,com Fe stn,tr dissem pyr,tr liths,uncons,tr pr cons, fr-gd inf por,pr vis por,no show

Survey @ 729.86m  
 Dev: 0.57deg  
 Azi: 116.39deg  
 TVD: 729.8m

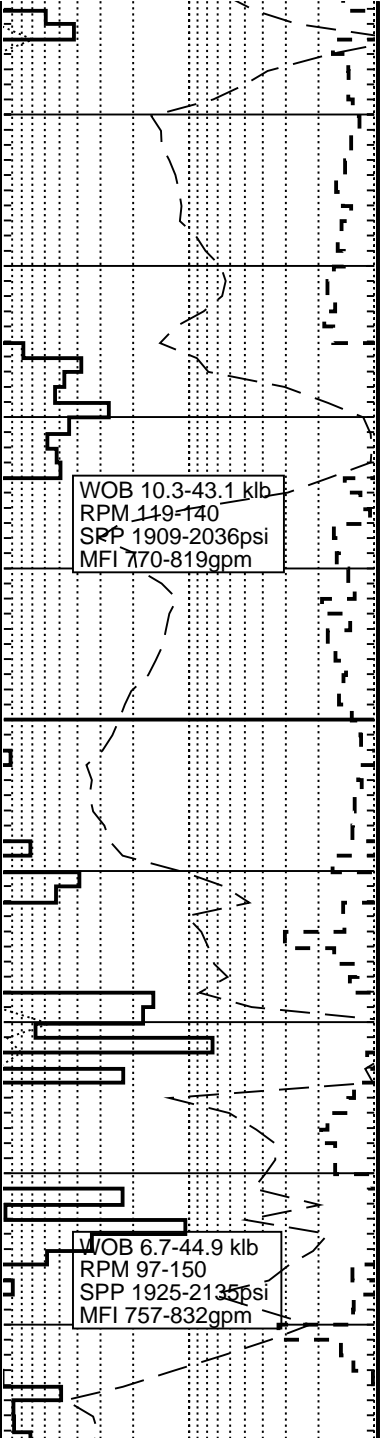
MW 8.8ppg V 78 PV/YP 12/23  
 Gels 6/6/6 F NC FC -  
 Sol 0.77 Sd -% pH 9.5  
 CI 42.0K KCL 8.0%

SANDSTONE:pred pl yelsh orng-dk yelsh brn,occ wh-v lt gry,clr-opq,pred trnsl-opq qtz grs,med-crs,mnr v crs,mod wl srt,sbrnd-sbang,wk sil cmt,wk sid cmt,com Fe stn,tr dissem pyr,rr liths,uncons,tr pr cons,gd inf por,pr vis por,no show

DILWYN FORMATION  
 764m (-739mSS)

CLAYSTONE:brnsh blk-dsky brn,med dk gry,tr dissem pyr,sft-amor,disp i/p

SANDSTONE:pred pl yelsh orng-dk yelsh brn Fe stn qtz grs,trnsl-opq,rr clr,med-crs



WOB 10.3-43.1 klb  
 RPM 119-140  
 SPP 1909-2036psi  
 MFI 770-819gpm

WOB 6.7-44.9 klb  
 RPM 97-150  
 SPP 1925-2135psi  
 MFI 757-832gpm

850

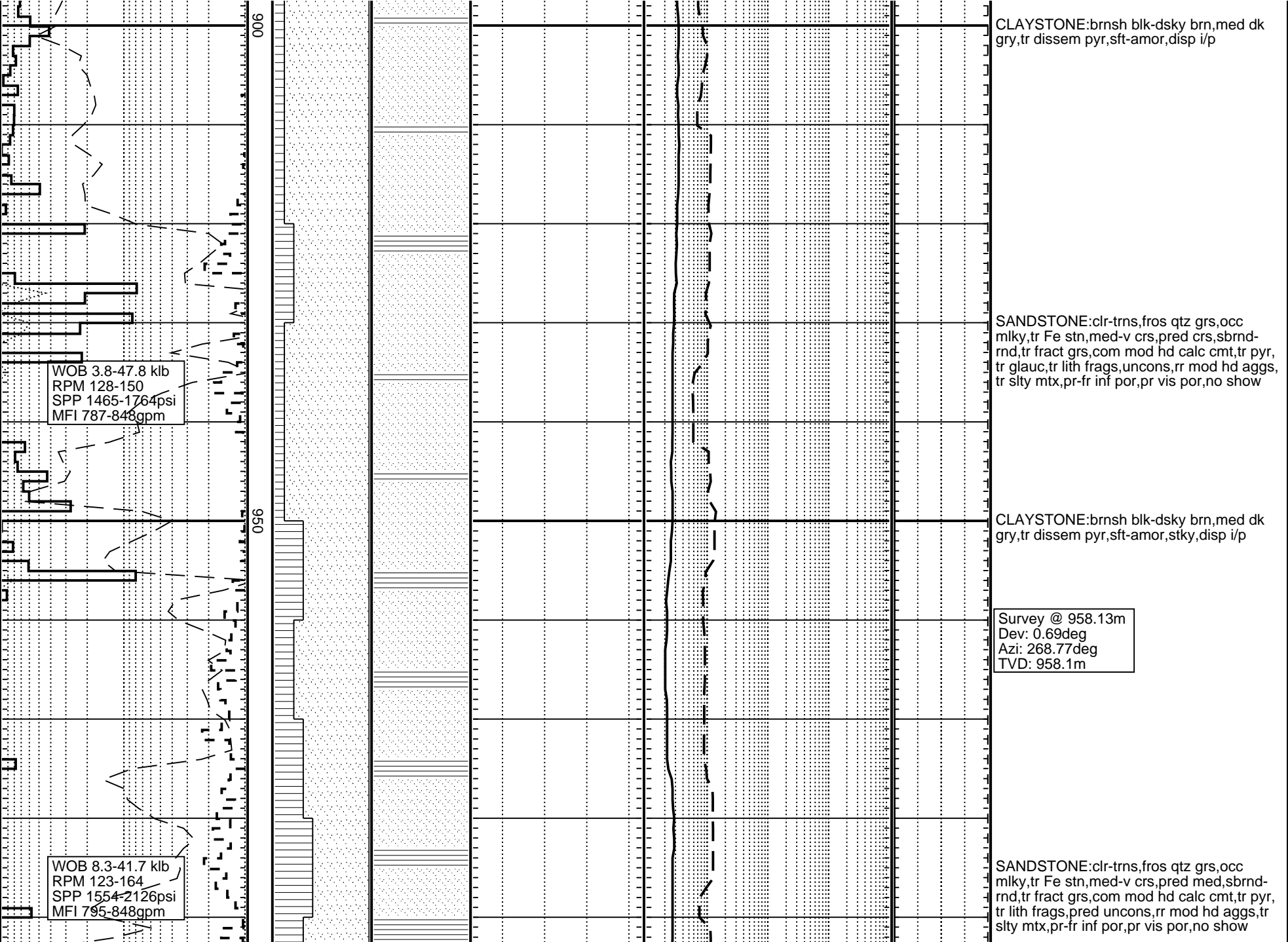
grs,v wl srt,rnd-sbrnd,wk sid cmt,com liths frags,tr pyr nod,uncons,gd inf por,gd vis por,no show

SANDSTONE:clr-trns qtz grs,tr Fe stn, med-crs, tr v crs,wl srt,sbrnd-sbang,wk sil cmt,tr lith frags,tr pyr nod,tr glauc,uncons, gd inf por,fr vis por,no show

Survey @ 842.72m  
 Dev: 0.61deg  
 Azi: 203.59deg  
 TVD: 842.7m

CLAYSTONE:brnsh blk-dsky brn,med dk gry,tr dissem pyr,sft-amor,disp i/p

SANDSTONE:clr-trns,fros qtz grs,occ mlky,tr Fe stn,med-v crs,pred crs,sbrnd-rnd,tr fract grs,tr pyr,tr glauc,tr lith frags, uncons,tr slty mtx,pr-fr inf por,no show



CLAYSTONE:brnsh blk-dsky brn,med dk gry,tr dissemin pyr,sft-amor,disp i/p

SANDSTONE:clr-trns,fros qtz grs,occ mlky,tr Fe stn,med-v crs,pred crs,sbrnd-rnd,tr fract grs,com mod hd calc cmt,tr pyr, tr glauc,tr lith frags,uncons,rr mod hd aggs, tr slty mtx,pr-fr inf por,pr vis por,no show

CLAYSTONE:brnsh blk-dsky brn,med dk gry,tr dissemin pyr,sft-amor,stky,disp i/p

Survey @ 958.13m  
Dev: 0.69deg  
Azi: 268.77deg  
TVD: 958.1m

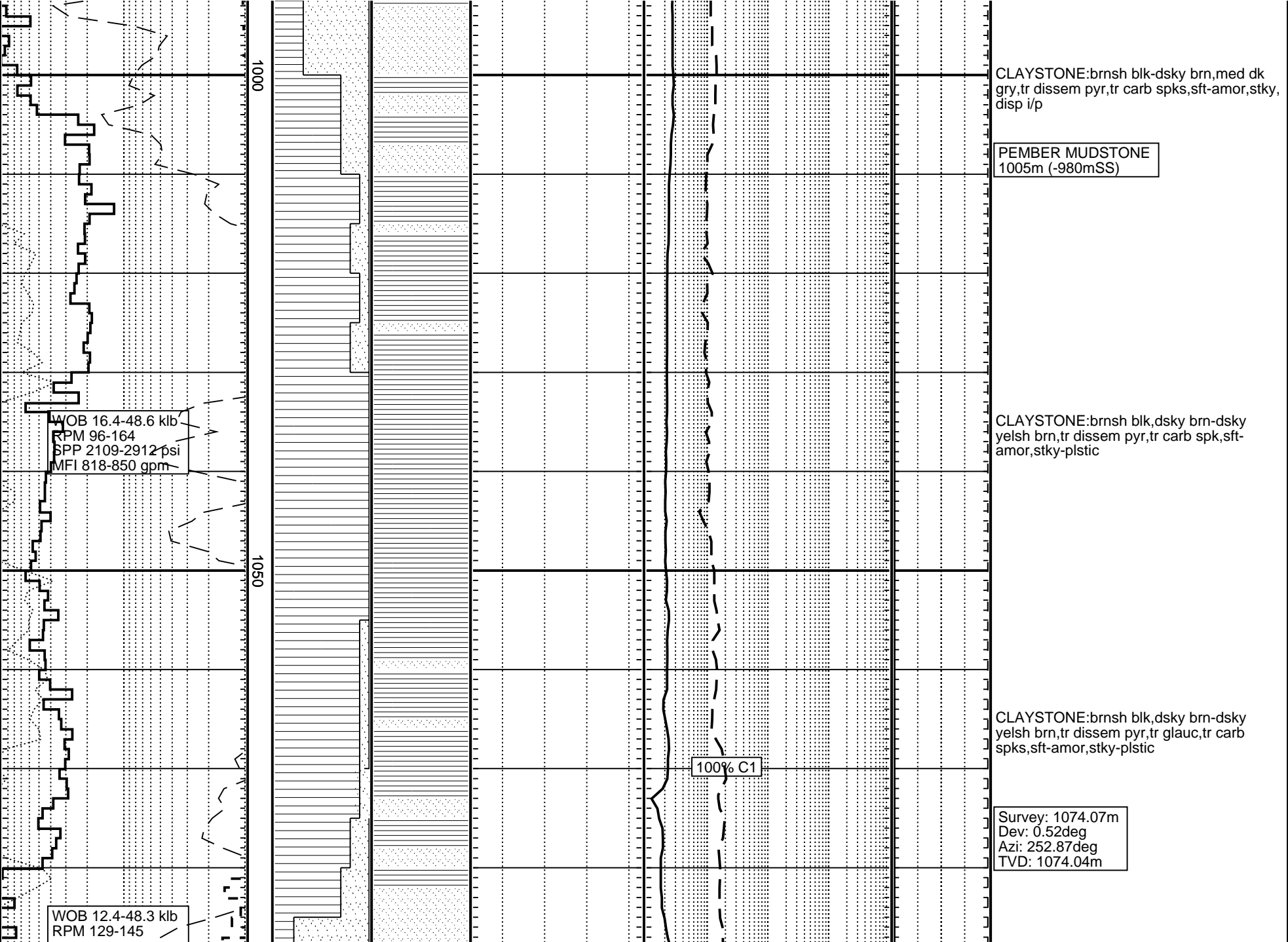
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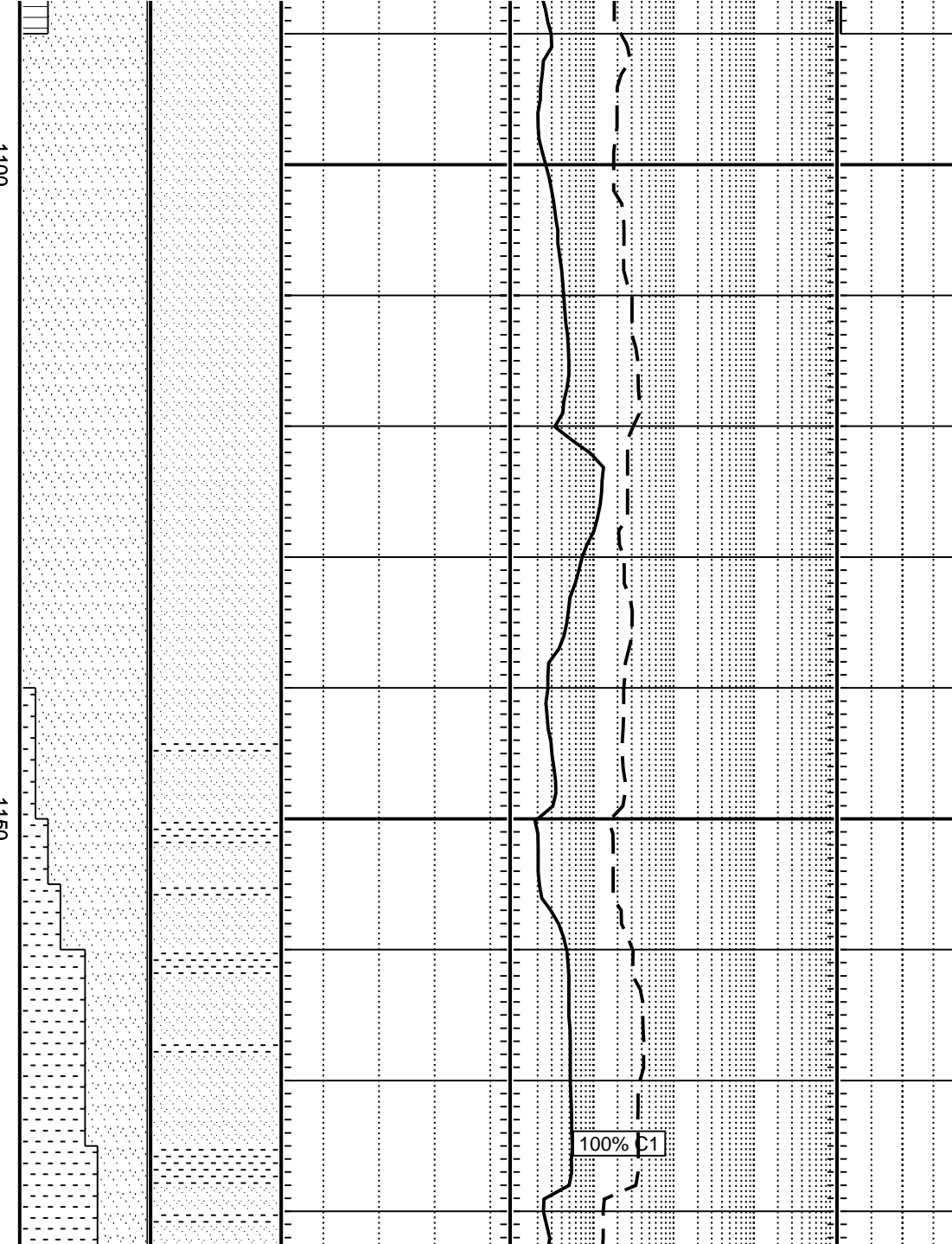
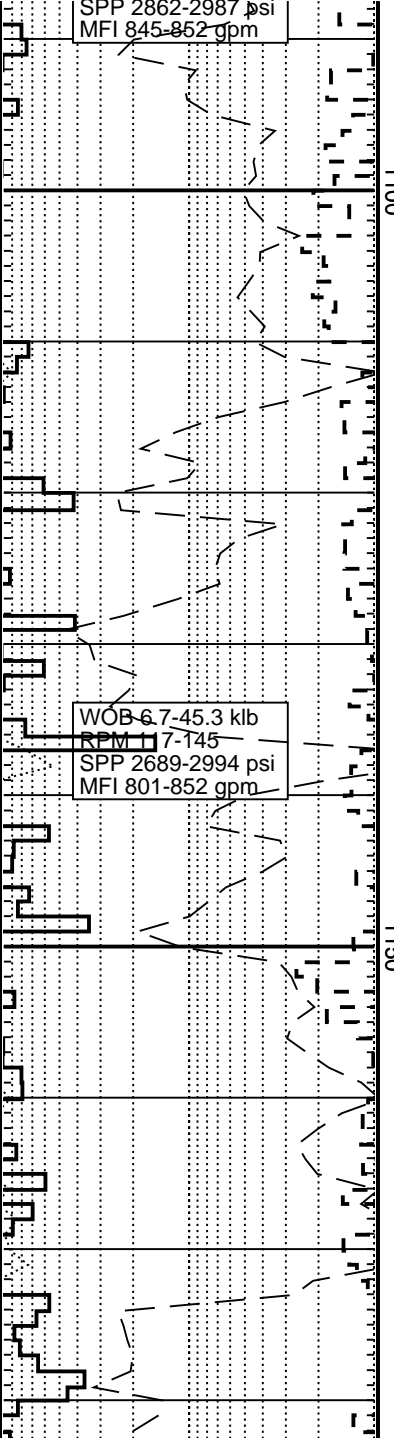
WOB 3.8-47.8 klb  
RPM 128-150  
SPP 1465-1764psi  
MFI 787-848gpm

WOB 8.3-41.7 klb  
RPM 123-164  
SPP 1554-2126psi  
MFI 795-848gpm

006

056





SANDSTONE:clr-trns qtz grs,tr Fe stn,tr mlky,tr pnk,f-v crs,pred crs,rr gran,pr srt, sbrnd-rnd,rr sbang,tr fract grs,tr pyr cmt,tr wk sil cmt,com arg mtx,tr glauc,tr coal, uncons,pr inf por,pr vis por,no show

MW 8.8ppg V 60 PV/YP 15/29  
 Gels 9/10/12 F 35.0 FC 7.8  
 Sol 1.63 Sd 4.0% pH 9.0  
 CI 29K KCL 6.0%

Survey: 1130.64m  
 Dev: 0.79deg  
 Azi: 283.25deg  
 TVD: 1130.61m

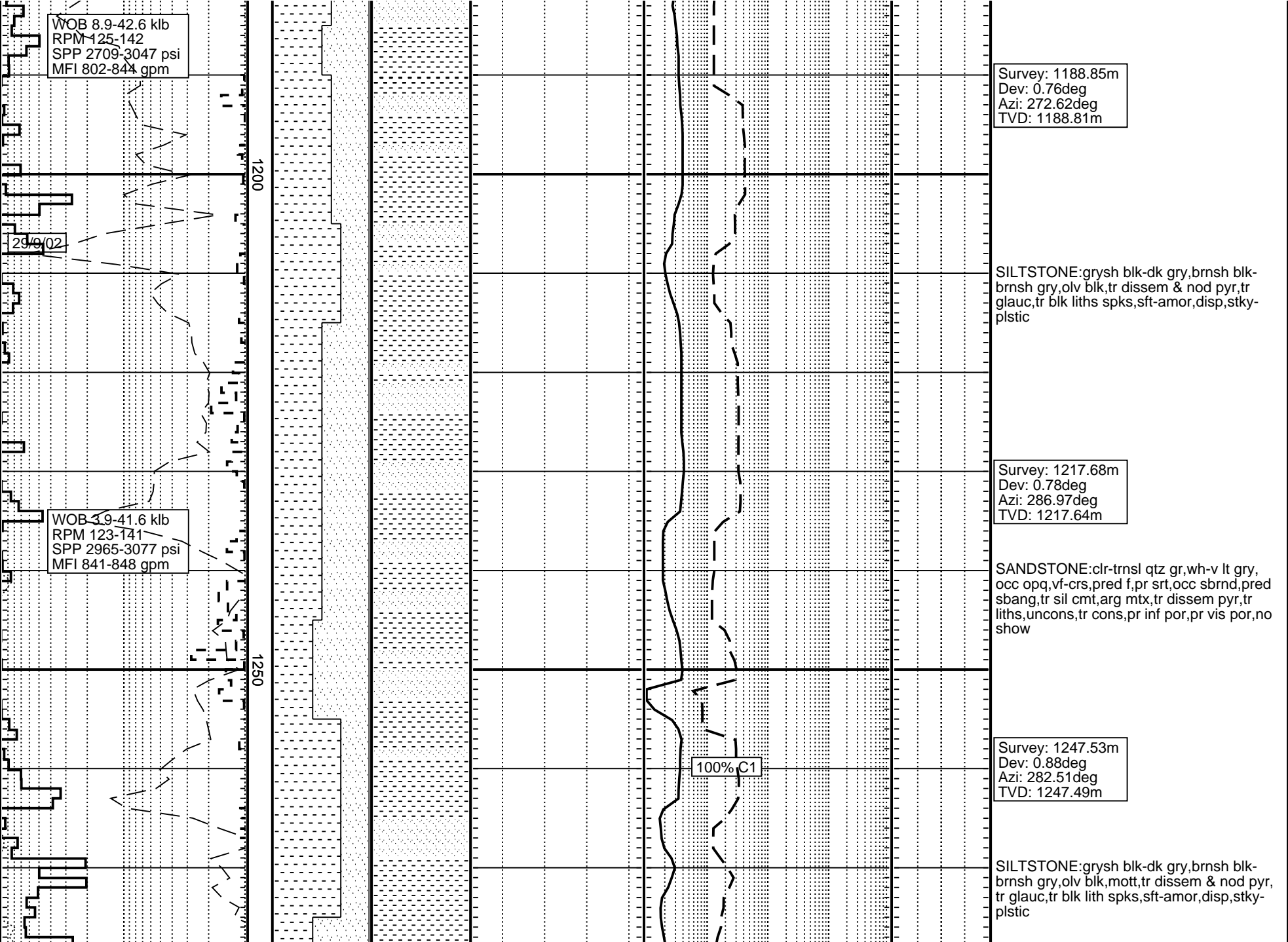
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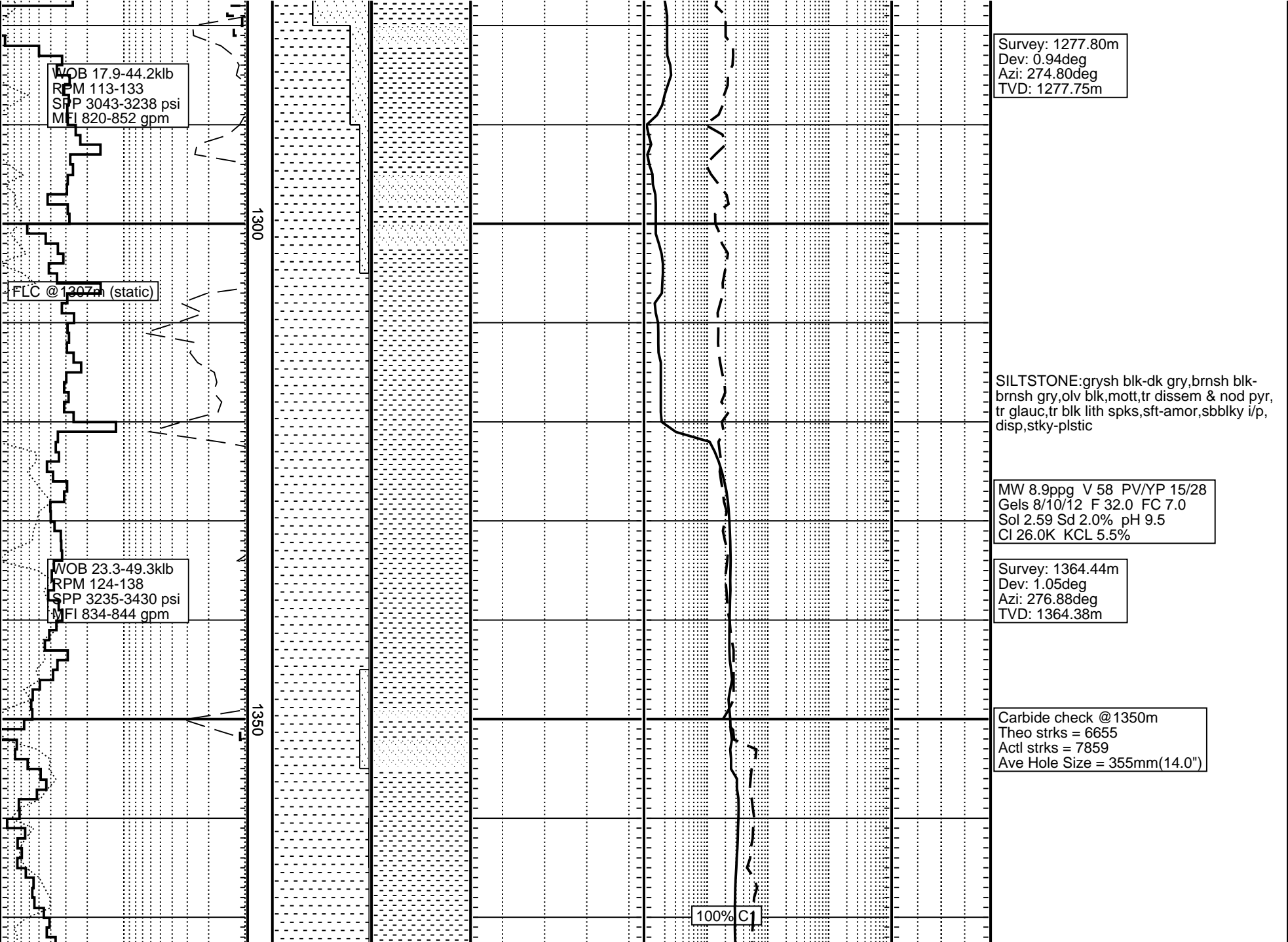
SILTSTONE:grysh blk-dk gry,brnsh blk-brnsh gry,olv blk-olv gry,tr disse & nod pyr,tr glauc,tr blk liths spks,sft-amor,disp, stky-plstic

Survey: 1161.14m  
 Dev: 0.82deg  
 Azi: 278.20deg  
 TVD: 1161.10m

SANDSTONE:dk gnsh gry,lt gnsh gry,trnsl-opq qtz grs,vf-crs,pred f,pr srt,sbrnd,occ sbang,sil cmt,arg mtx,tr disse pyr, uncons,tr cons,pr inf por,pr vis por,no show

100% C1





WOB 17.9-44.2klb  
RPM 113-133  
SPP 3043-3238 psi  
MFI 820-852 gpm

Survey: 1277.80m  
Dev: 0.94deg  
Azi: 274.80deg  
TVD: 1277.75m

1300

FLC @ 1307m (static)

SILTSTONE: grysh blk-dk gry, brnsh blk-brnsh gry, olv blk, mott, tr disse & nod pyr, tr glauc, tr blk lith spks, sft-amor, sbbly i/p, disp, stky-plstic

MW 8.9ppg V 58 PV/YP 15/28  
Gels 8/10/12 F 32.0 FC 7.0  
Sol 2.59 Sd 2.0% pH 9.5  
CI 26.0K KCL 5.5%

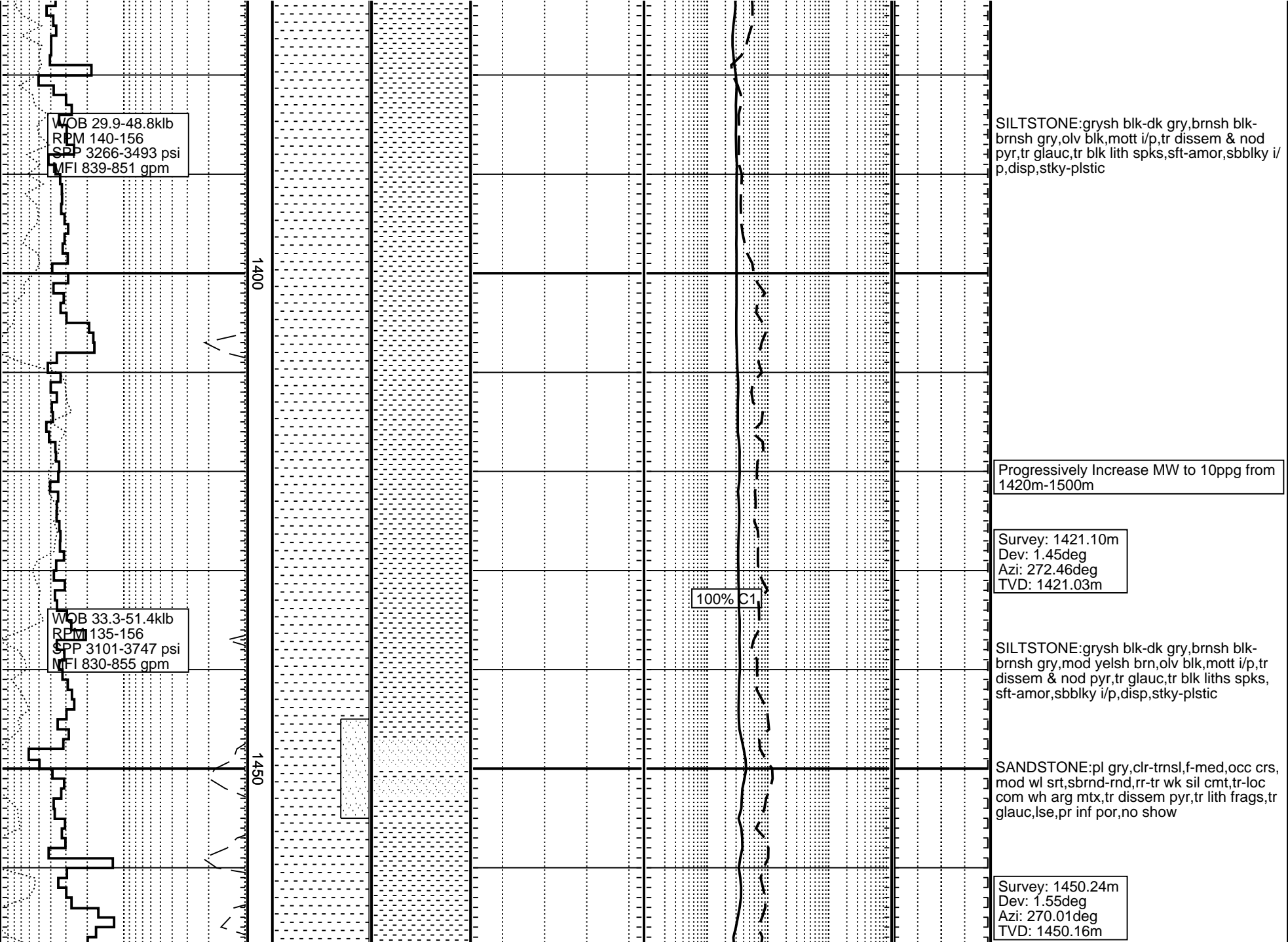
WOB 23.3-49.3klb  
RPM 124-138  
SPP 3235-3430 psi  
MFI 834-844 gpm

Survey: 1364.44m  
Dev: 1.05deg  
Azi: 276.88deg  
TVD: 1364.38m

1350

Carbide check @ 1350m  
Theo strks = 6655  
Actl strks = 7859  
Ave Hole Size = 355mm(14.0")

100% C1



WOB 29.9-48.8klb  
RPM 140-156  
SPP 3266-3493 psi  
MFI 839-851 gpm

SILTSTONE: grysh blk-dk gry, brnsh blk-brnsh gry, olv blk, mott i/p, tr dissem & nod pyr, tr glauc, tr blk lith spks, sft-amor, sbbly i/p, disp, stky-plstic

Progressively Increase MW to 10ppg from 1420m-1500m

Survey: 1421.10m  
Dev: 1.45deg  
Azi: 272.46deg  
TVD: 1421.03m

WOB 33.3-51.4klb  
RPM 135-156  
SPP 3101-3747 psi  
MFI 830-855 gpm

SILTSTONE: grysh blk-dk gry, brnsh blk-brnsh gry, mod yelsh brn, olv blk, mott i/p, tr dissem & nod pyr, tr glauc, tr blk liths spks, sft-amor, sbbly i/p, disp, stky-plstic

SANDSTONE: pl gry, clr-trnsl, f-med, occ crs, mod wl srt, sbrnd-rnd, rr-tr wk sil cmt, tr-loc com wh arg mtx, tr dissem pyr, tr lith frags, tr glauc, lse, pr inf por, no show

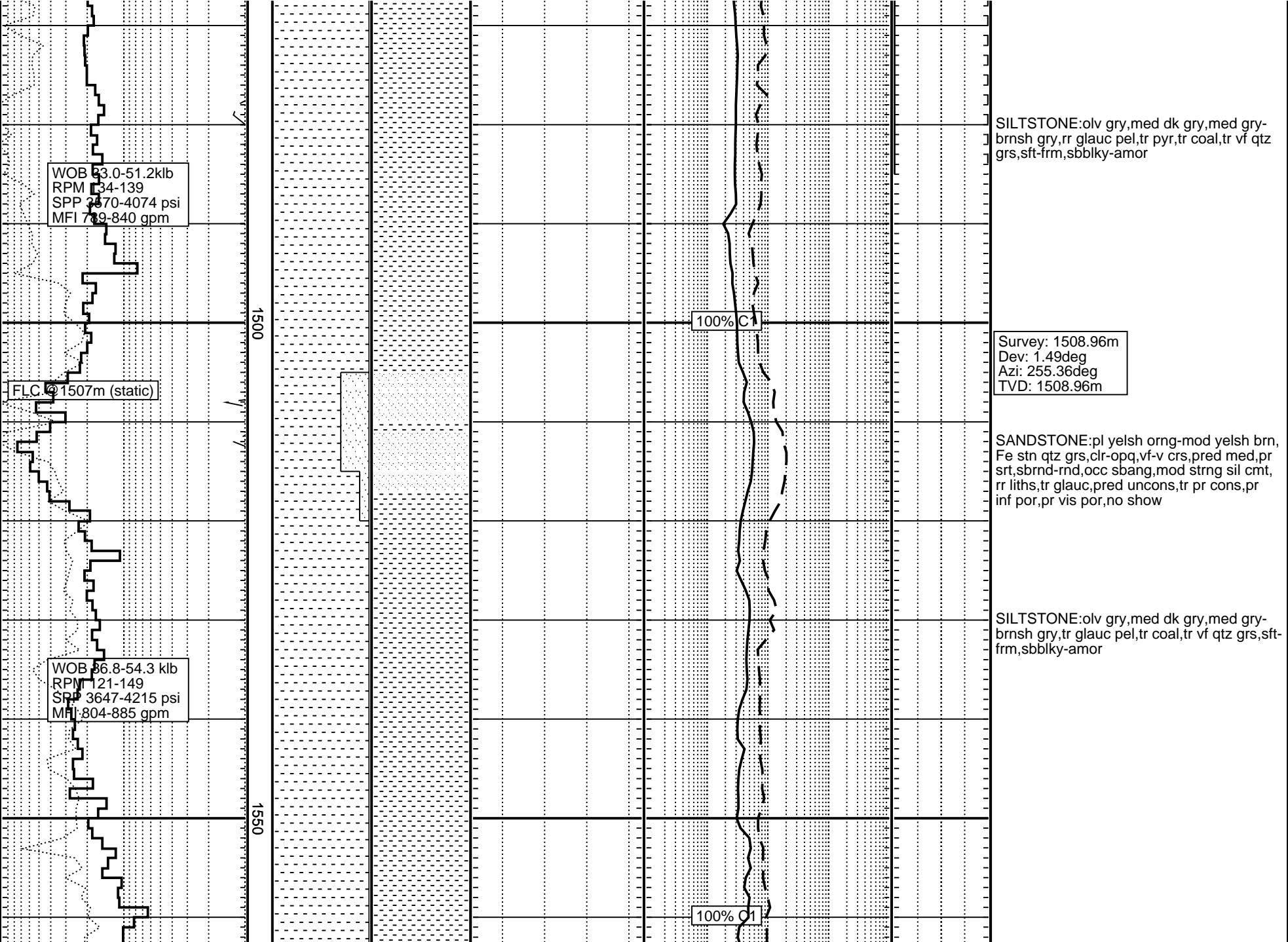
Survey: 1450.24m  
Dev: 1.55deg  
Azi: 270.01deg  
TVD: 1450.16m

100% C1

1400

1450





WOB 33.0-51.2klb  
RPM 134-139  
SPP 3870-4074 psi  
MFI 789-840 gpm

FLC @ 1507m (static)

WOB 36.8-54.3 klb  
RPM 121-149  
SPP 3647-4215 psi  
MFI 804-885 gpm

SILTSTONE: olv gry, med dk gry, med gry-brnsh gry, rr glauc pel, tr pyr, tr coal, tr vf qtz grs, sft frm, sbblky-amor

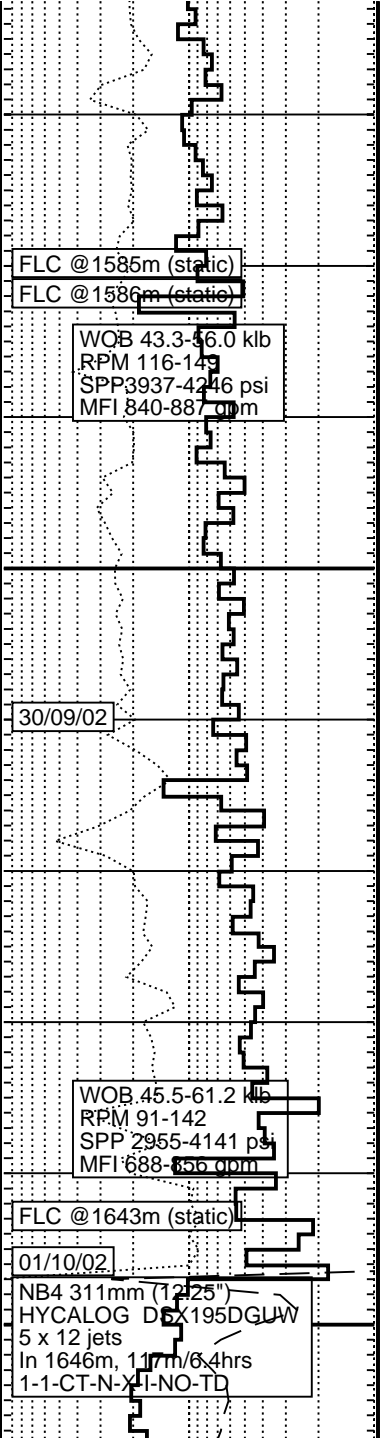
Survey: 1508.96m  
Dev: 1.49deg  
Azi: 255.36deg  
TVD: 1508.96m

SANDSTONE: pl yelsh orng-mod yelsh brn, Fe stn qtz grs, clr-opq, vf-v crs, pred med, pr srt, sbrnd-rnd, occ sbang, mod strng sil cmt, rr liths, tr glauc, pred uncons, tr pr cons, pr inf por, pr vis por, no show

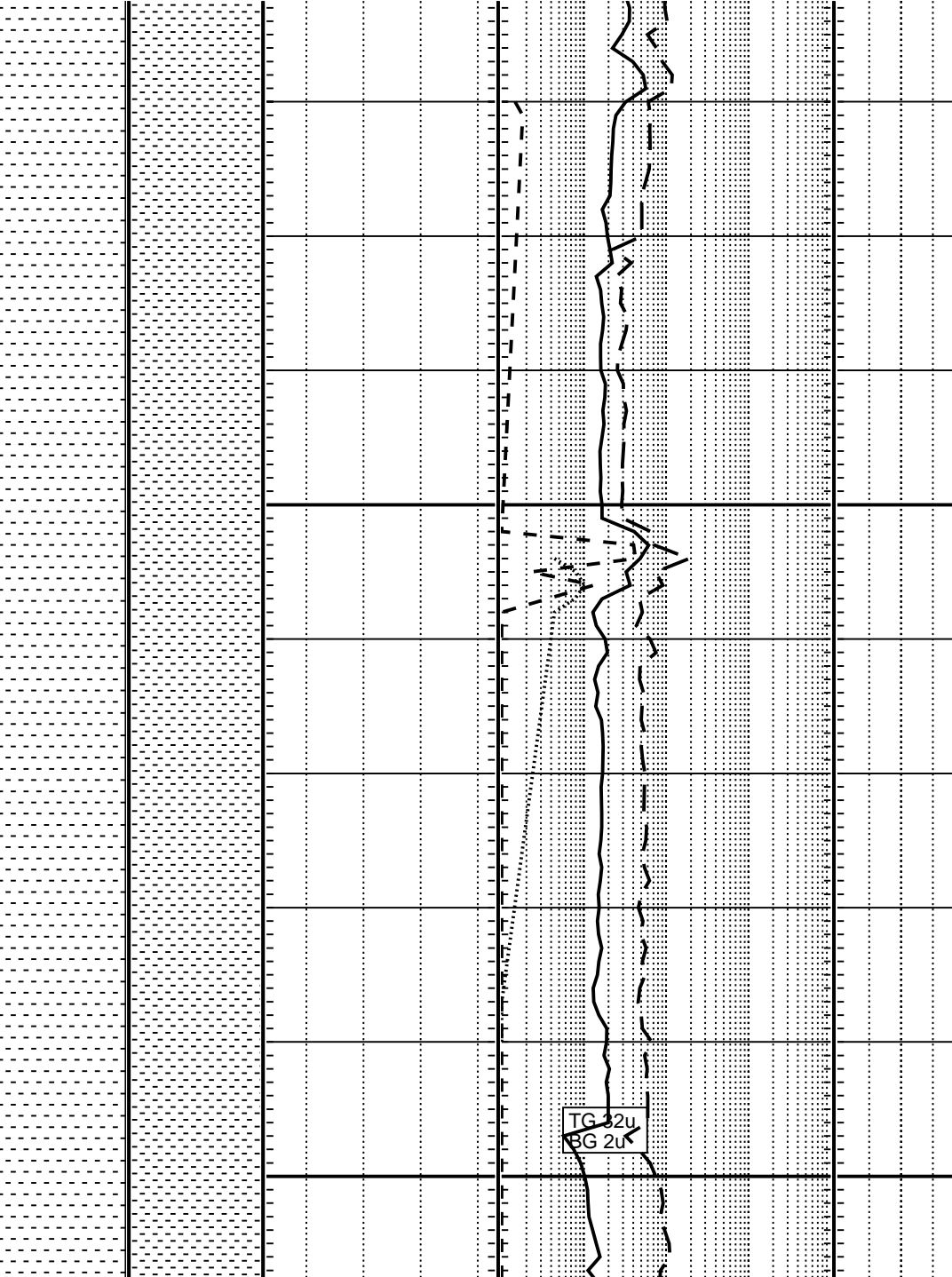
SILTSTONE: olv gry, med dk gry, med gry-brnsh gry, tr glauc pel, tr coal, tr vf qtz grs, sft frm, sbblky-amor

100% C1

100% C1



1600  
1650



SILTSTONE:olv gry,med gry,med gry-brnsh gry,tr glauc pel,tr coal,tr vf qtz grs,sft-frn,sbbkly-amor

Survey: 1565.71m  
Dev: 1.58deg  
Azi: 268.16deg  
TVD: 1565.59m

SILTSTONE:olv gry,med dk gry,med gry-brnsh gry,tr glauc pel,tr coal,tr vf qtz grs,tr lith frags,sli calc,tr pyr,tr dol,sft-frm,occ mod hd,sbbkly-amor,disp i/p

Survey: 1622.24m  
Dev: 1.67deg  
Azi: 265.96deg  
TVD: 1622.09m

SILTSTONE:olv gry,med dk gry,med gry-brnsh gry,tr glauc pel,tr coal,tr vf qtz grs,tr lith frags,sli calc,tr pyr,tr dol,sft-frm,occ mod hd,sbbkly-amor,disp i/p

Carbide check @1639m  
Theo strks = 7949  
Actl strks = 8357  
Ave Hole Size = 325mm(12.8")

MW 10.1ppg V 57 PV/YP 20/38  
Gels 10/16/18 F 28.0 FC 4.1  
Sol 10.00 Sd 0.1% pH 9.5  
Cl 25.0K KCL 5.2%

Survey: 1652.08m

FLC @1585m (static)

FLC @1586m (static)

WOB 43.3-56.0 klb  
RPM 116-142  
SPP 3937-4246 psi  
MFI 840-887 ppm

30/09/02

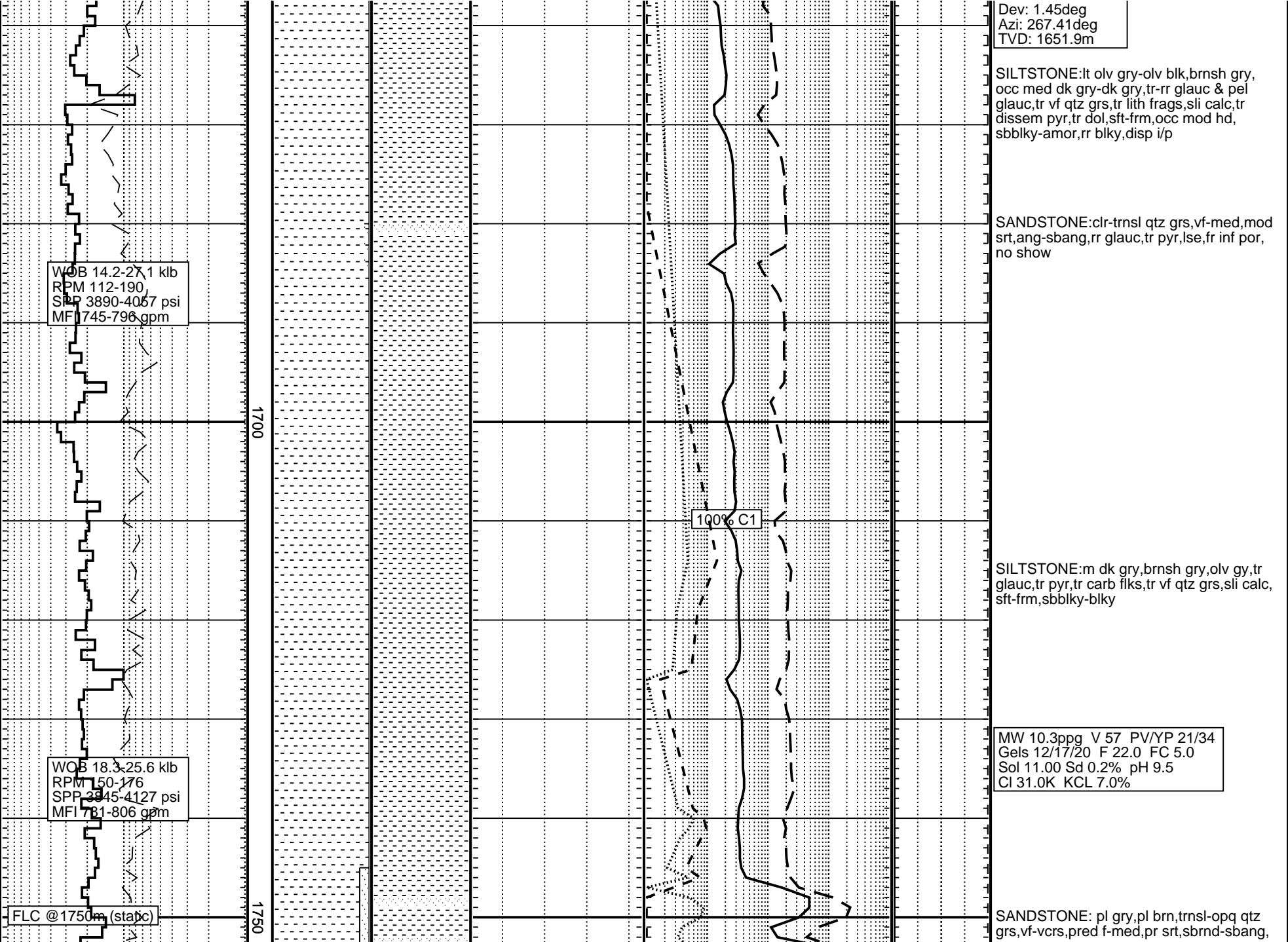
WOB 45.5-61.2 klb  
RPM 91-142  
SPP 2955-4141 psi  
MFI 688-856 ppm

FLC @1643m (static)

01/10/02

NB4 311mm (12.25")  
HYCALOG D6X195DGLJW  
5 x 12 jets  
In 1646m, 117m/6.4hrs  
1-1-CT-N-X-1-NO-TD

TG 32u  
BG 2u



Dev: 1.45deg  
 Azi: 267.41deg  
 TVD: 1651.9m

SILTSTONE: it olv gry-olv blk, brnsh gry, occ med dk gry-dk gry, tr-rr glauc & pel glauc, tr vf qtz grs, tr lith frags, sli calc, tr dissem pyr, tr dol, sft frm, occ mod hd, sbbkly-amor, rr blkly, disp i/p

SANDSTONE: clr-trnsl qtz grs, vf-med, mod srt, ang-sbang, rr glauc, tr pyr, lse, fr inf por, no show

WOB 14.2-27.1 klb  
 RPM 112-190  
 SPP 3890-4067 psi  
 MF 745-796 gpm

1700

100% C1

SILTSTONE: m dk gry, brnsh gry, olv gy, tr glauc, tr pyr, tr carb flks, tr vf qtz grs, sli calc, sft frm, sbbkly-blky

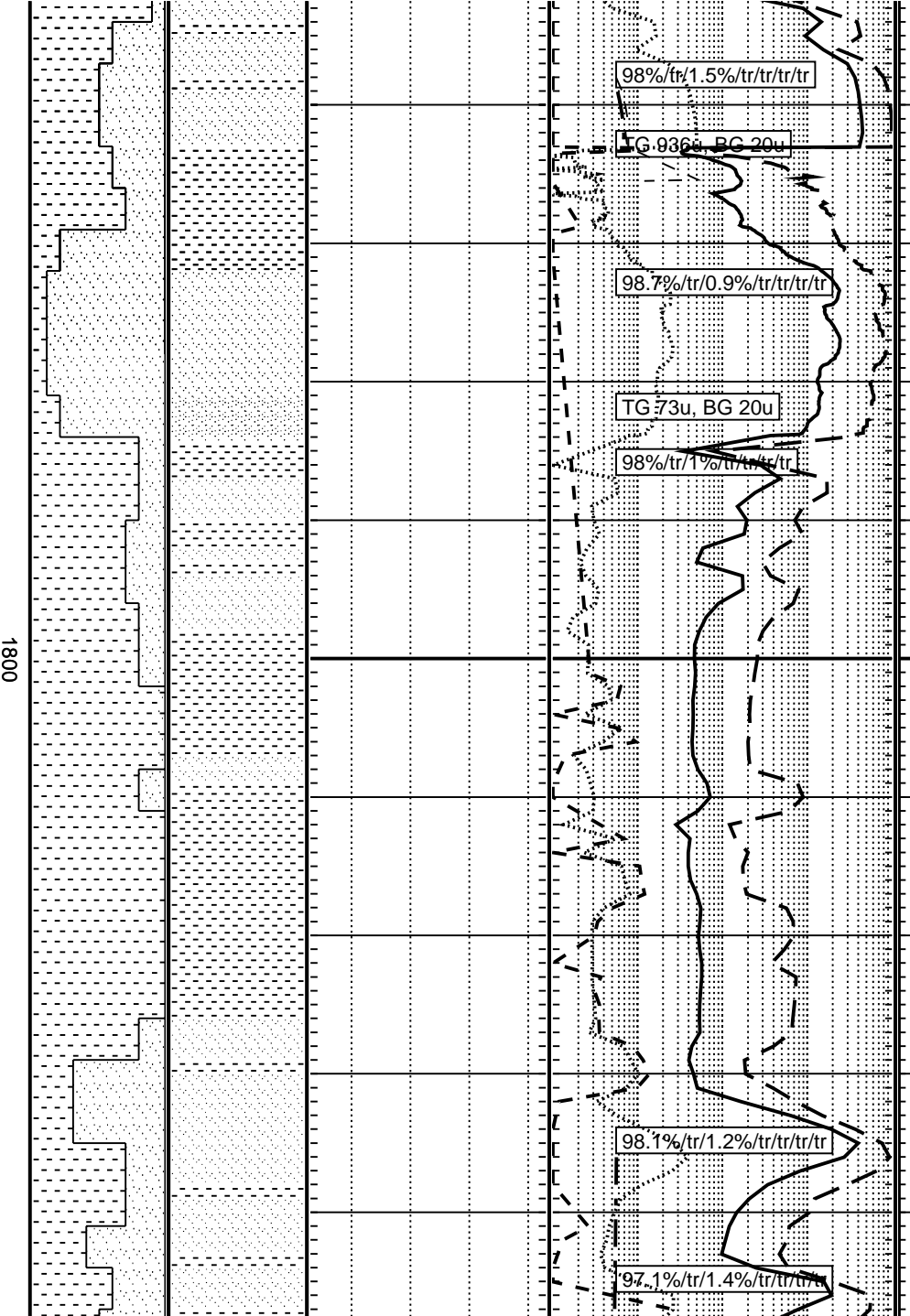
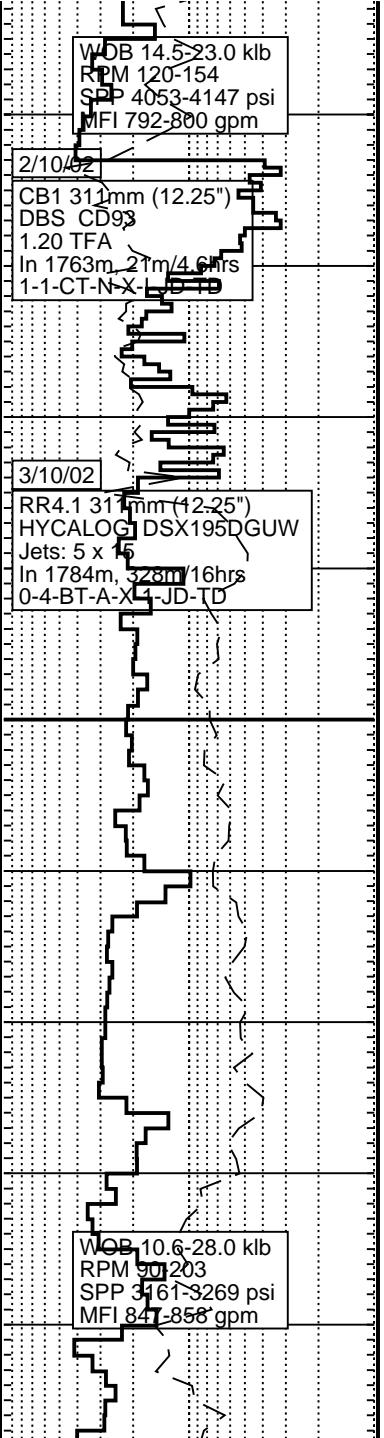
WOB 18.3-25.6 klb  
 RPM 150-176  
 SPP 3945-4127 psi  
 MF 781-806 gpm

MW 10.3ppg V 57 PV/YP 21/34  
 Gels 12/17/20 F 22.0 FC 5.0  
 Sol 11.00 Sd 0.2% pH 9.5  
 CI 31.0K KCL 7.0%

FLC @ 1750m (static)

1750

SANDSTONE: pl gry, pl brn, trnsl-opq qtz grs, vf-vcrs, pred f-med, pr srt, sbrnd-sbang,



wk-mod strg calc cmt, wk sil cmt, tr-loc com wh arg mtx, tr pyr, tr glauc, fri-mod hd, occ hd, pr inf por, pr vis por, no fluor

Cut Core #1: 1763m-1784m  
Recovered 19.3m (92%)

SANDSTONE: trnsl-opq qtz grs, rr Fe stn, tr mlky, vf-crs, pred f-med, pr srt, sbrnd-sbang, occ rnd, wk-mod strg sil cmt, com-abdt wh arg mtx, tr pyr cmt, tr pyr nod, tr glauc pel, tr dol, tr liths, tr sid, fri-mod hd, fr inf por, fr vis por, no fluor

MW 10.3ppg V 50 PV/YP 19/25  
Gels 6/10/13 F 23.0 FC 5.2  
Sol 11.10 Sd 0.3% pH 10.0  
CI 31.2K KCL 6.0%

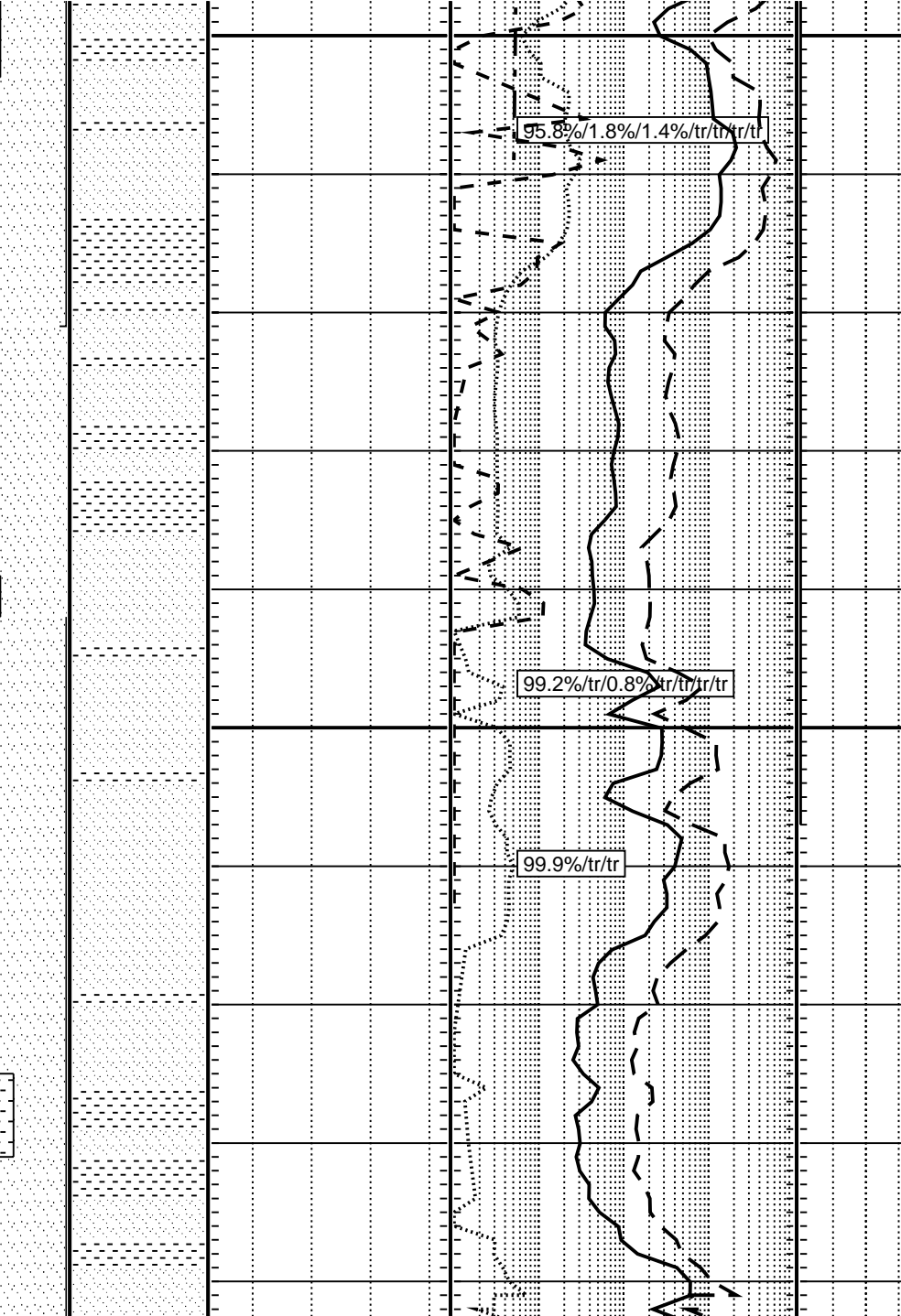
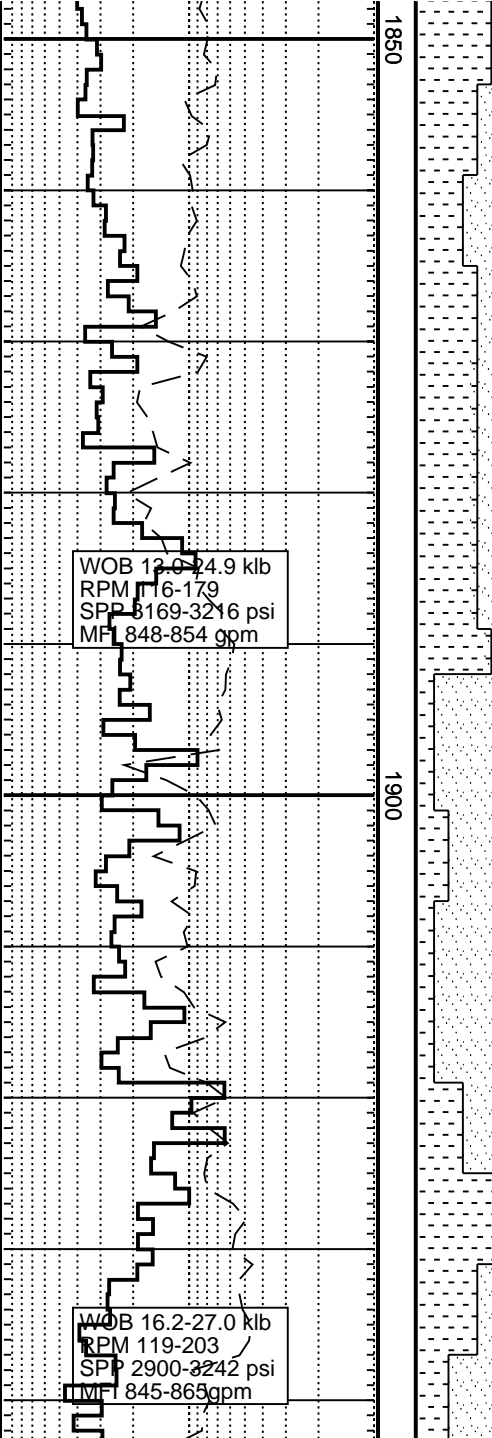
SANDSTONE: pl gry-wh, v lt gry, clr-trnsl qtz grs, f-med, occ crs grs, pr srt, sbang, tr wk sil cmt, com calc cmt, com arg off wh mtx, tr pyr, tr lith frags, fri-mod hd, pr vis por, no fluor

SILTSTONE: lt gry-med gry, brnsh gry, wh-v lt gry, tr glauc, tr pyr, tr carb flks, tr vf qtz grs, sli calc, sft-frm, sbbly-blky, amor i/p

SILTSTONE: lt gry-med gry, brnsh gry, wh-v lt gry, tr-rr glauc, tr pyr, tr carb flks, tr vf qtz grs, sli-mod calc i/p, pred sft-occ frm, sbbly, amor, disp i/p

SANDSTONE: pl gry-pl brn, wh-v lt gry, clr-trnsl qtz grs, f-med, occ crs grs, mod wl srt, sbang, com calc cmt, com-loc abdt arg mtx, tr pyr, tr glauc, tr liths frag, fri-mod hd, occ hd, pr vis por, no fluor

SILTSTONE: lt gry-med dk gry, wh-v lt gry, lt brnsh gry-brnsh gry, tr glauc, tr pyr, tr carb flks, tr liths frag, tr vf qtz grs, sli-mod calc i/p, pred sft-occ frm, sbbly, amor i/p, disp i/p



Survey: 1853.43m  
Dev: 1.50deg  
Azi: 250.23deg  
TVD: 1853.21m

95.8%/1.8%/1.4%/tr/tr/tr/tr

SANDSTONE:wh-v lt gry,rr pl brn,clr-trnsl  
qtz grs,occ opq,pred f-med,occ crs grs,  
mod wl srt,pred sbang-occ ang,com wk-  
mod calc cmt,com wh-lt gry arg mtx,tr pyr,  
tr glauc,tr liths frag,pred lse,occ fri-mod hd  
aggs,occ hd,pr vis por,fr inf por,no fluor

SILTSTONE:lt gry-med gry,wh-v lt gry,lt  
brnsh gry-brnsh gry,olv gry,tr pyr,tr glauc,tr  
carb flks,tr liths frag,tr vf qtz grs,sli-mod  
calc i/p,pred sft-occ frm,sbblky,amor i/p,  
disp i/p,grd to CALCAREOUS  
SILTSTONE i/p

99.2%/tr/0.8%/tr/tr/tr/tr

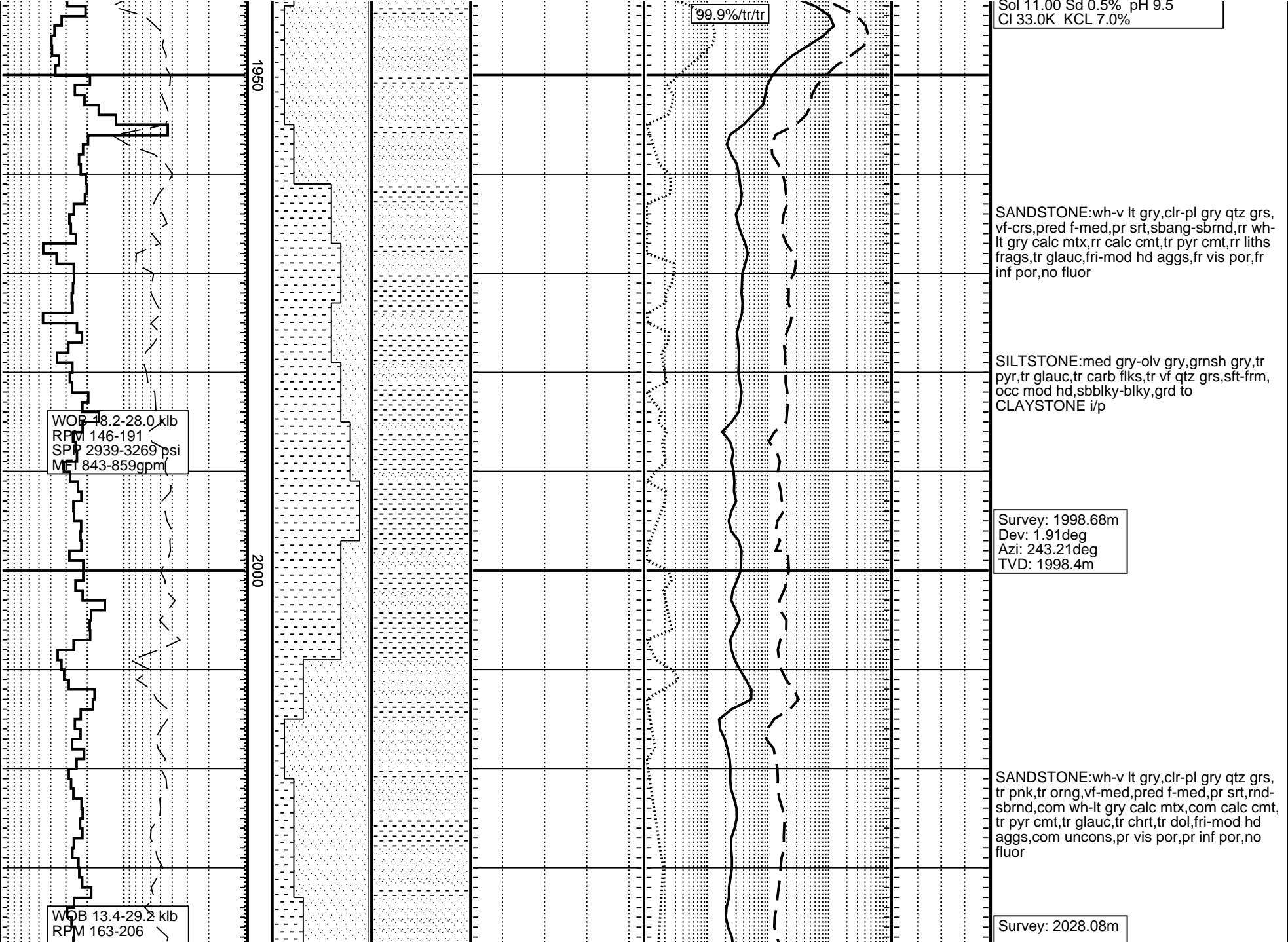
Survey: 1911.17m  
Dev: 1.48deg  
Azi: 243.72deg  
TVD: 1910.9m

99.9%/tr/tr

SANDSTONE:wh-v lt gry,clr-pl gry qtz grs,  
f-med,mod wl srt,sbang-ang,abdt calc cmt,  
abdt wh-lt gry calc mtx,tr pyr,tr glauc,rr  
liths frags,fri aggs,fr vis por,fr inf por,no  
fluor

SILTSTONE:lt gry-med gry,lt brnsh gry,olv  
gry,tr pyr,tr glauc,tr carb flks,tr vf qtz grs,  
calc,frm-mod hd,sbblky-blky,grd to  
CALCAREOUS SILTSTONE i/p,grd to  
CLAYSTONE i/p

MW 10.4ppg V 51 PV/YP 17/23  
Gels 6/10/14 F 20.0 FC 5.4



Sol 11.00 Sd 0.5% pH 9.5  
 CI 33.0K KCL 7.0%

99.9%/tr/tr

SANDSTONE:wh-v lt gry,clr-pl gry qtz grs,  
 vf-crs,pred f-med,pr srt,sbang-sbrnd,rr wh-  
 lt gry calc mtx,rr calc cmt,tr pyr cmt,rr liths  
 frags,tr glauc,fri-mod hd aggs,fr vis por,fr  
 inf por,no fluor

SILTSTONE:med gry-olv gry,grnsh gry,tr  
 pyr,tr glauc,tr carb flks,tr vf qtz grs,sft frm,  
 occ mod hd,sbbiky-blky,grd to  
 CLAYSTONE i/p

Survey: 1998.68m  
 Dev: 1.91deg  
 Azi: 243.21deg  
 TVD: 1998.4m

SANDSTONE:wh-v lt gry,clr-pl gry qtz grs,  
 tr pnk,tr orng,vf-med,pred f-med,pr srt,rnd-  
 sbrnd,com wh-lt gry calc mtx,com calc cmt,  
 tr pyr cmt,tr glauc,tr chrt,tr dol,fri-mod hd  
 aggs,com uncons,pr vis por,pr inf por,no  
 fluor

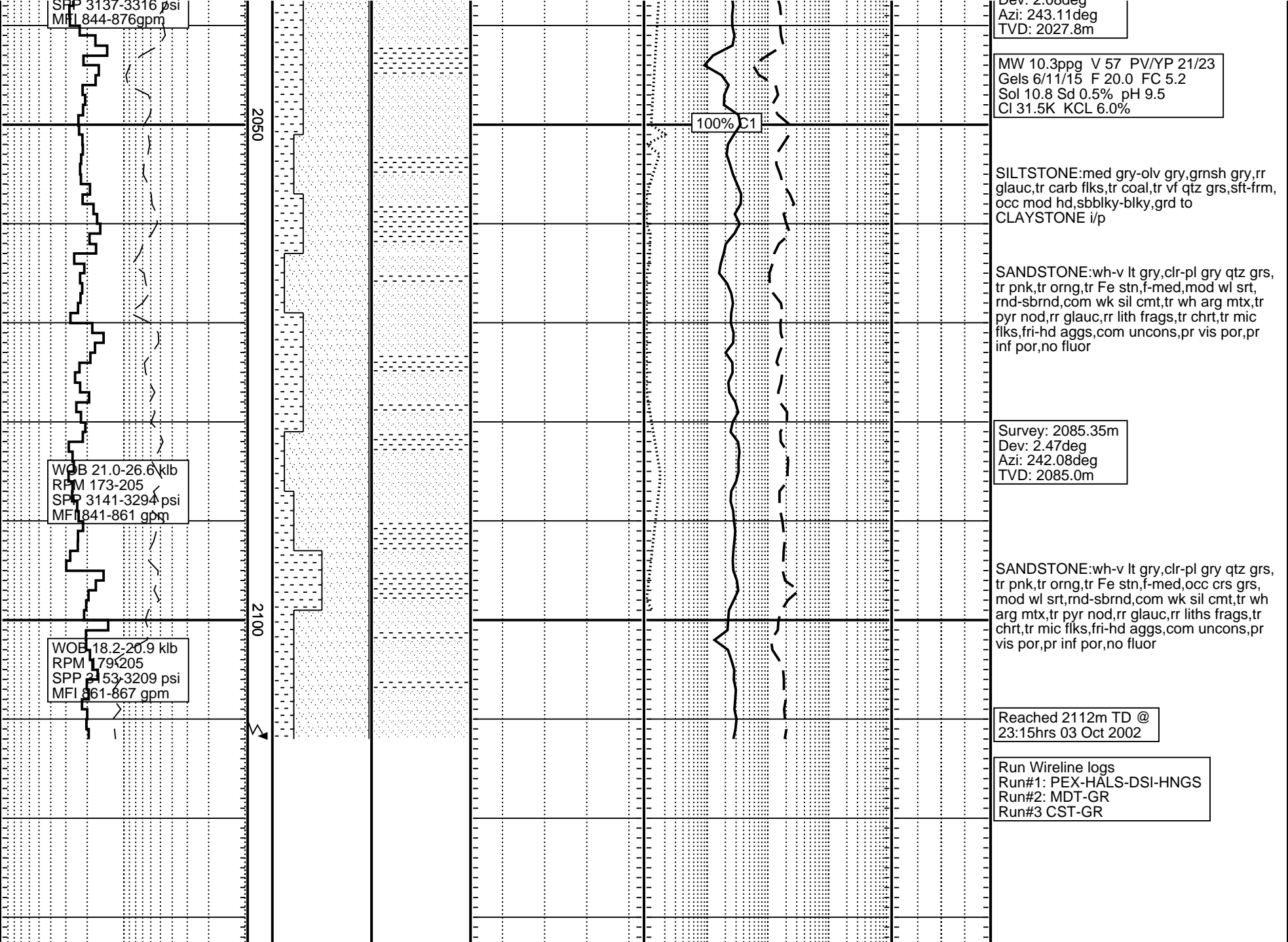
Survey: 2028.08m

WOB 48.2-28.0 klb  
 RPM 146-191  
 SPP 2939-3269 psi  
 MEI 843-859gpm

WOB 13.4-29.2 klb  
 RPM 163-206

1950

2000



SPP 3137-3316 psi  
MFI 844-876 gpm

Dev: 2.00deg  
Azi: 243.11deg  
TVD: 2027.8m

MW 10.3ppg V 57 PV/YP 21/23  
Gels 6/11/15 F 20.0 FC 5.2  
Sol 10.8 Sd 0.5% pH 9.5  
Cl 31.5K KCL 6.0%

100% C1

SILTSTONE: med gry-olv gry, grnsh gry, rr glauc, tr carb flks, tr coal, tr vf qtz grs, sft frm, occ mod hd, sbbilky-bilky, grd to CLAYSTONE i/p

SANDSTONE: wh-v lt gry, clr-pl gry qtz grs, tr pnk, tr org, tr Fe stn, f-med, mod wl srt, rnd-sbrnd, com wk sil cmt, tr wh arg mtx, tr pyr nod, rr glauc, rr lith frags, tr chrt, tr mic flks, fri-hd aggs, com unconcs, pr vis por, pr inf por, no fluor

Survey: 2085.35m  
Dev: 2.47deg  
Azi: 242.08deg  
TVD: 2085.0m

WOB 21.0-26.6 klb  
RPM 173-205  
SPP 3141-3294 psi  
MFI 841-861 gpm

SANDSTONE: wh-v lt gry, clr-pl gry qtz grs, tr pnk, tr org, tr Fe stn, f-med, occ crs grs, mod wl srt, md-sbrnd, com wk sil cmt, tr wh arg mtx, tr pyr nod, rr glauc, rr liths frags, tr chrt, tr mic flks, fri-hd aggs, com unconcs, pr vis por, pr inf por, no fluor

WOB 18.2-20.9 klb  
RPM 179-205  
SPP 3153-3209 psi  
MFI 861-867 gpm

Reached 2112m TD @  
23:15hrs 03 Oct 2002

Run Wireline logs  
Run#1: PEX-HALS-DSI-HNGS  
Run#2: MDT-GR  
Run#3: CST-GR

RATE OF PENETRATION				DEPTH (m)	CUTTINGS LITHOLOGY	INTERPRETED LITHOLOGY	TOTAL GAS IN UNITS				CALCIMETRY		REMARKS						
GAMMA (API)							WOB (MT)				WOB (klb)				ROP (m/hr)		1 10 100 1k		
0 4.5 9 13.5 18				1			Methane (ppm)				Calcite								
0 10 20 30 40				100			Ethane (ppm)				Dolomite								
0 10 100 200				200			Propane (ppm)				0 50 100								
100 10 1				1			Iso Butane (ppm)				1 50 0								
							Normal Butane (ppm)												
							Pentane (ppm)												
							10 100 1k 10k 100k												



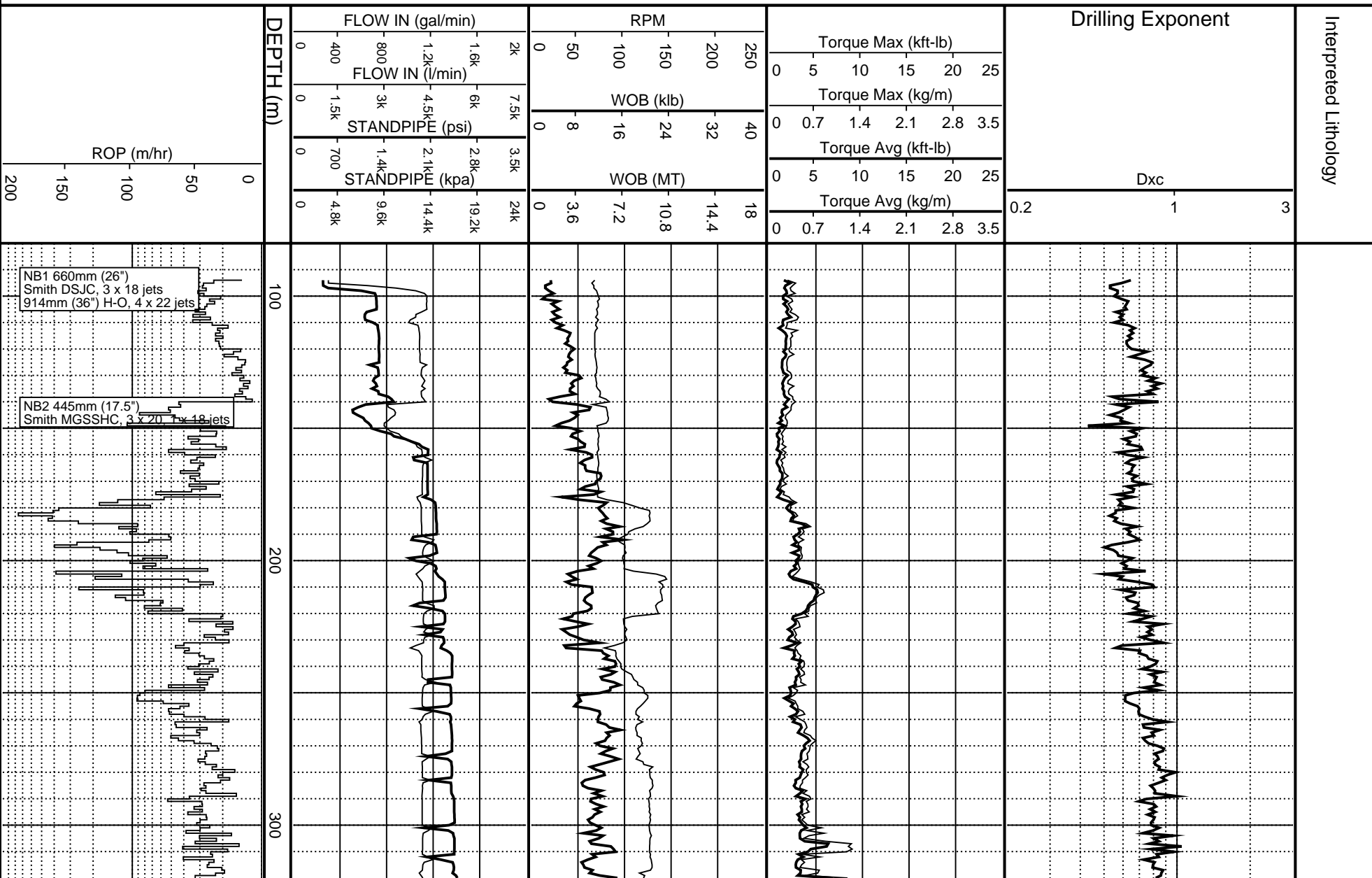
**DRILLING DATA PLOT**  
1:2000

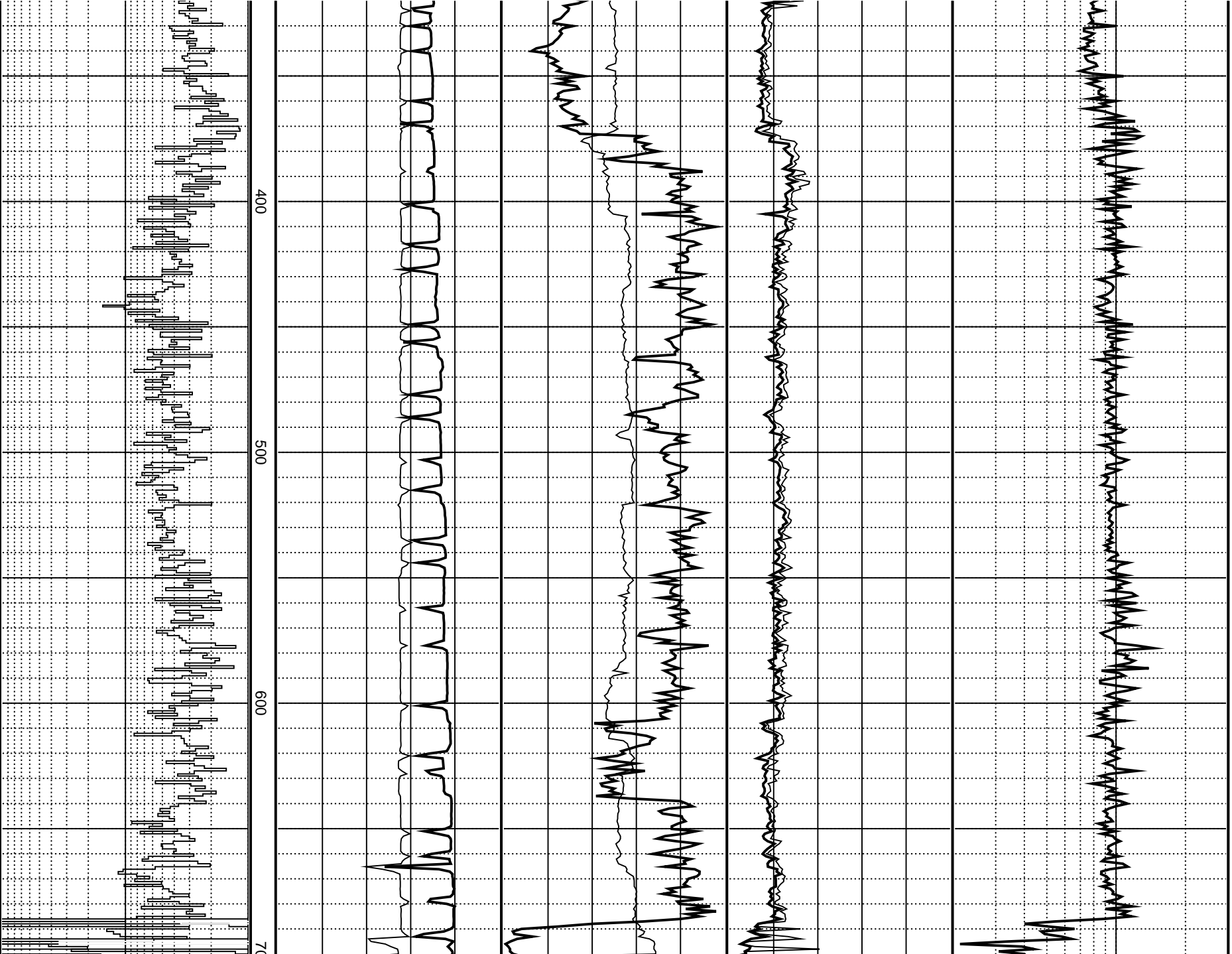
# Drilling Data Plot

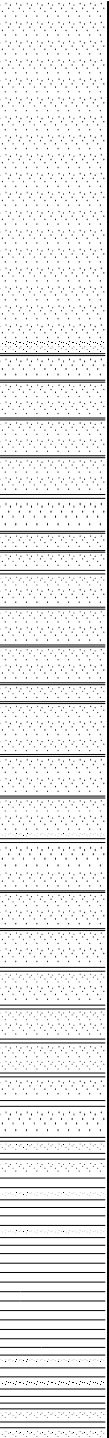
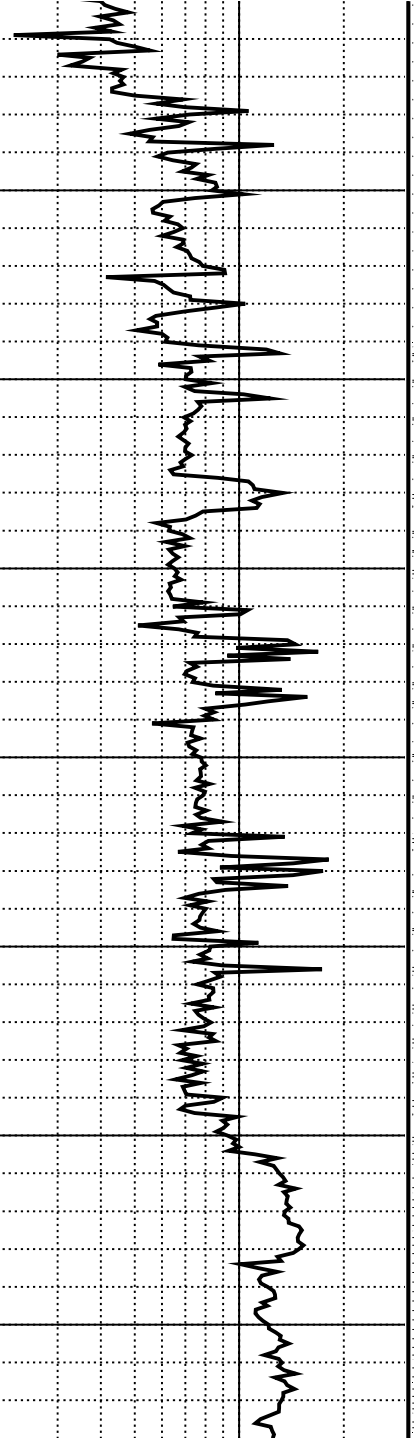
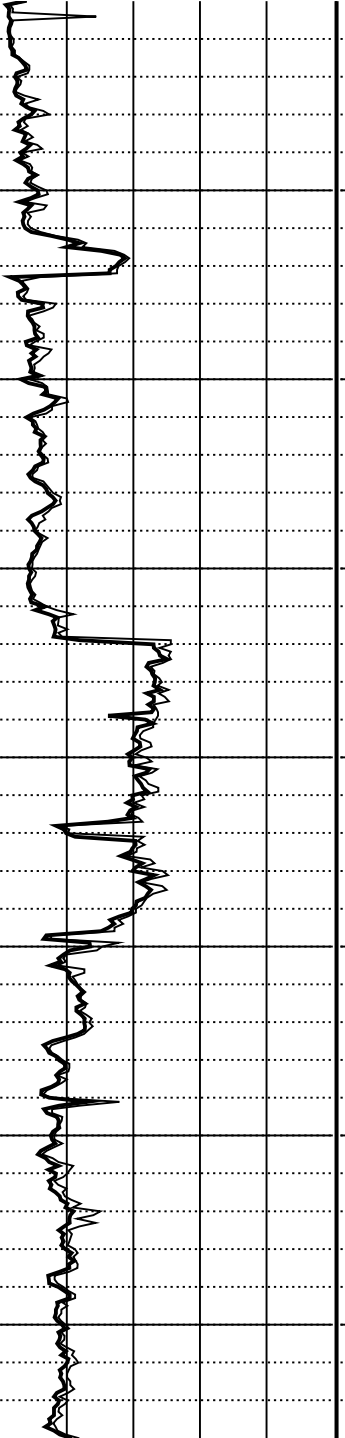
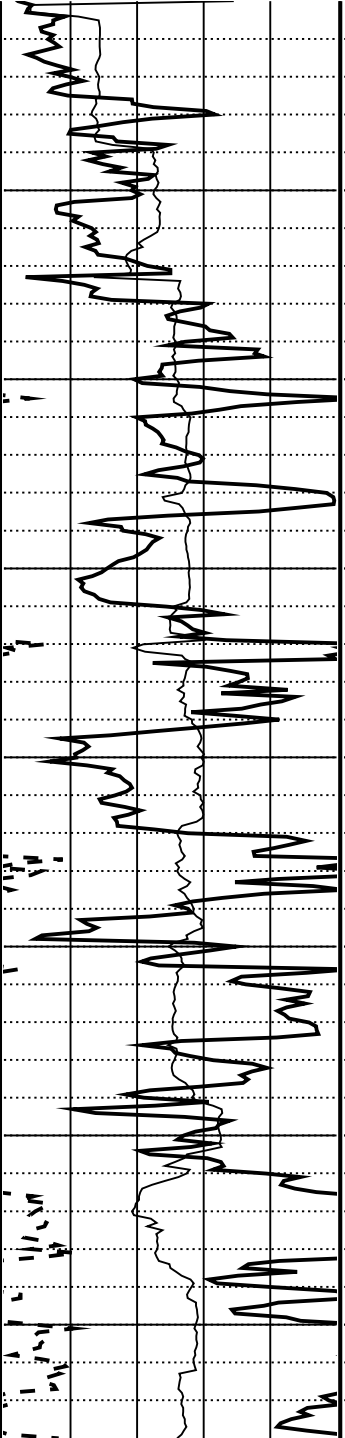
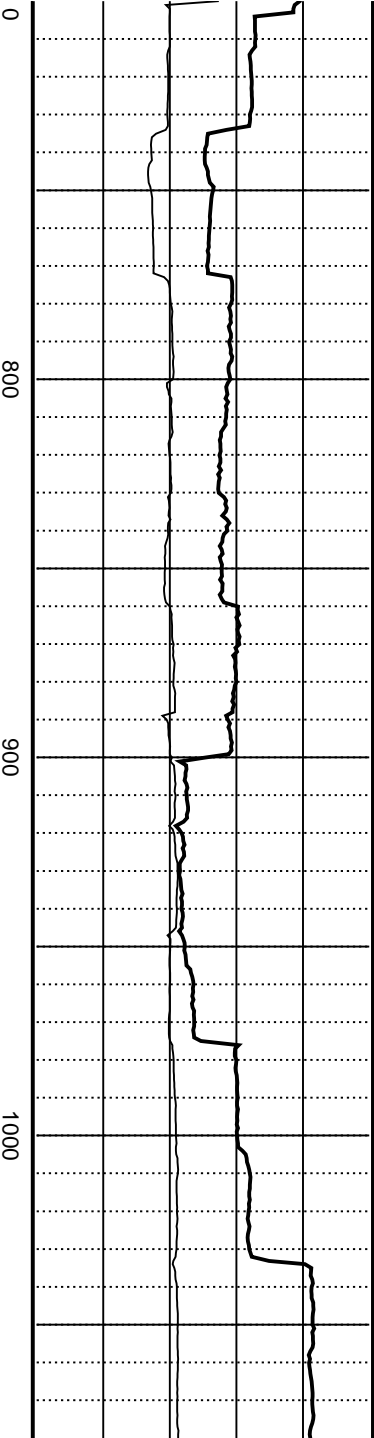
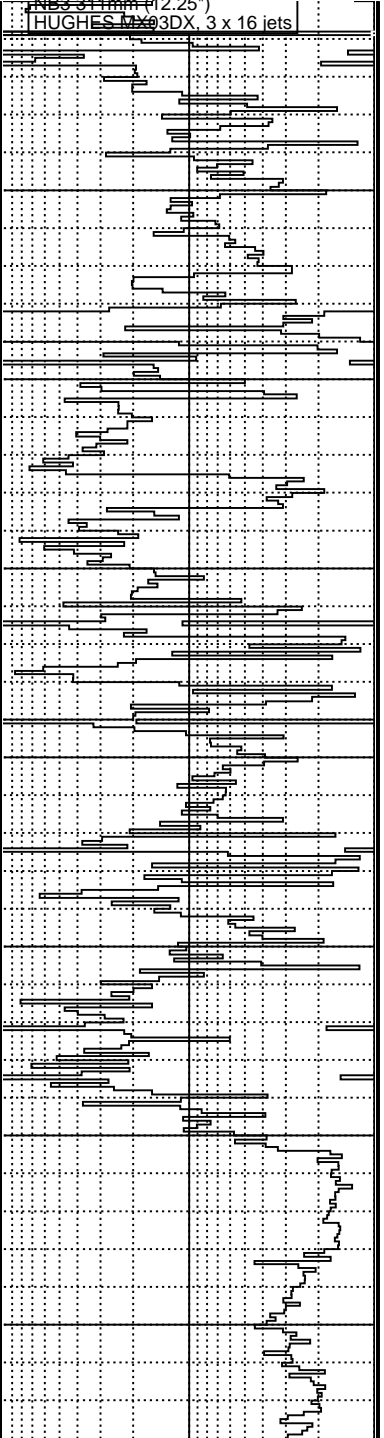
## Casino-2

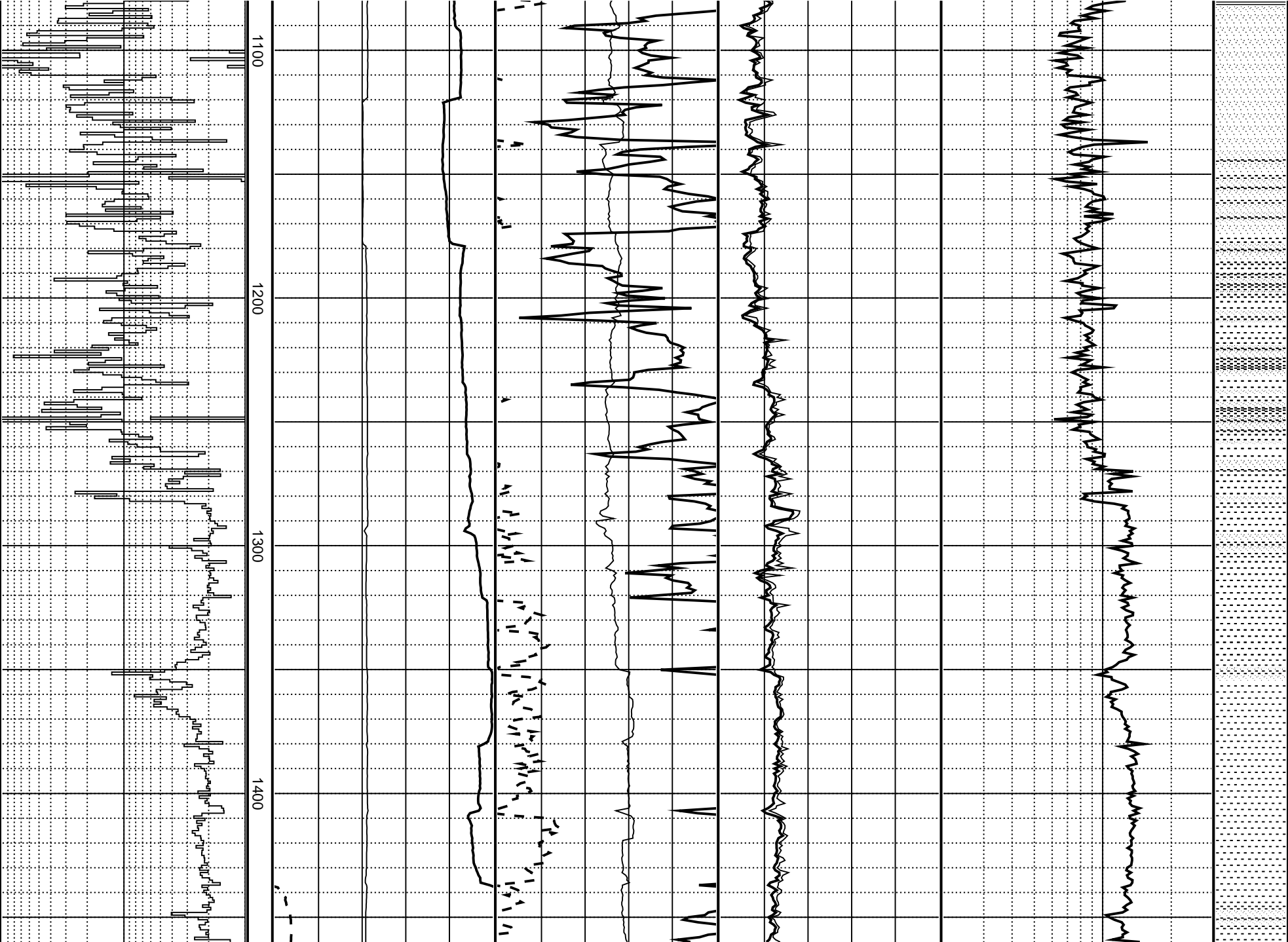
# Santos

SCALE 1 : 2000.0





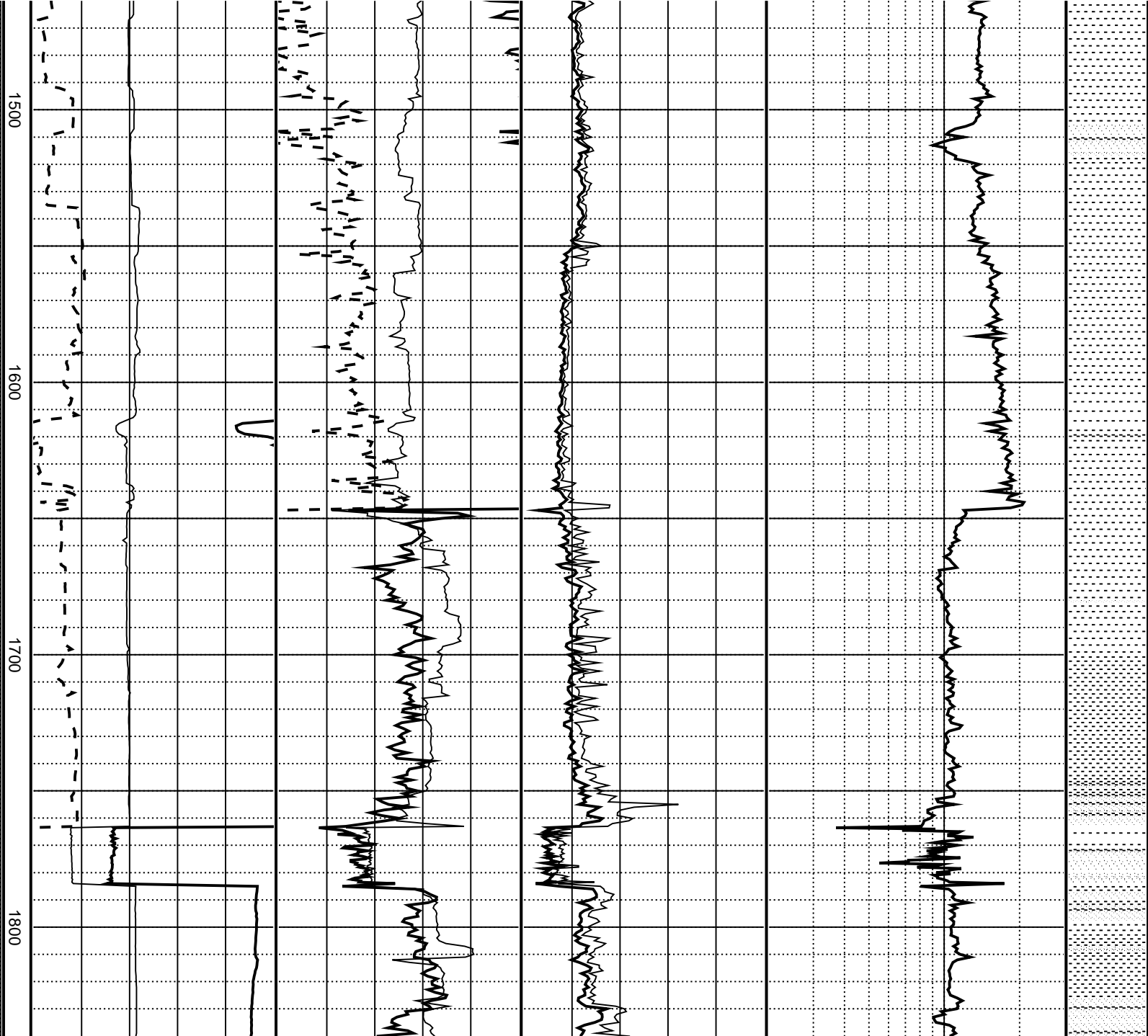


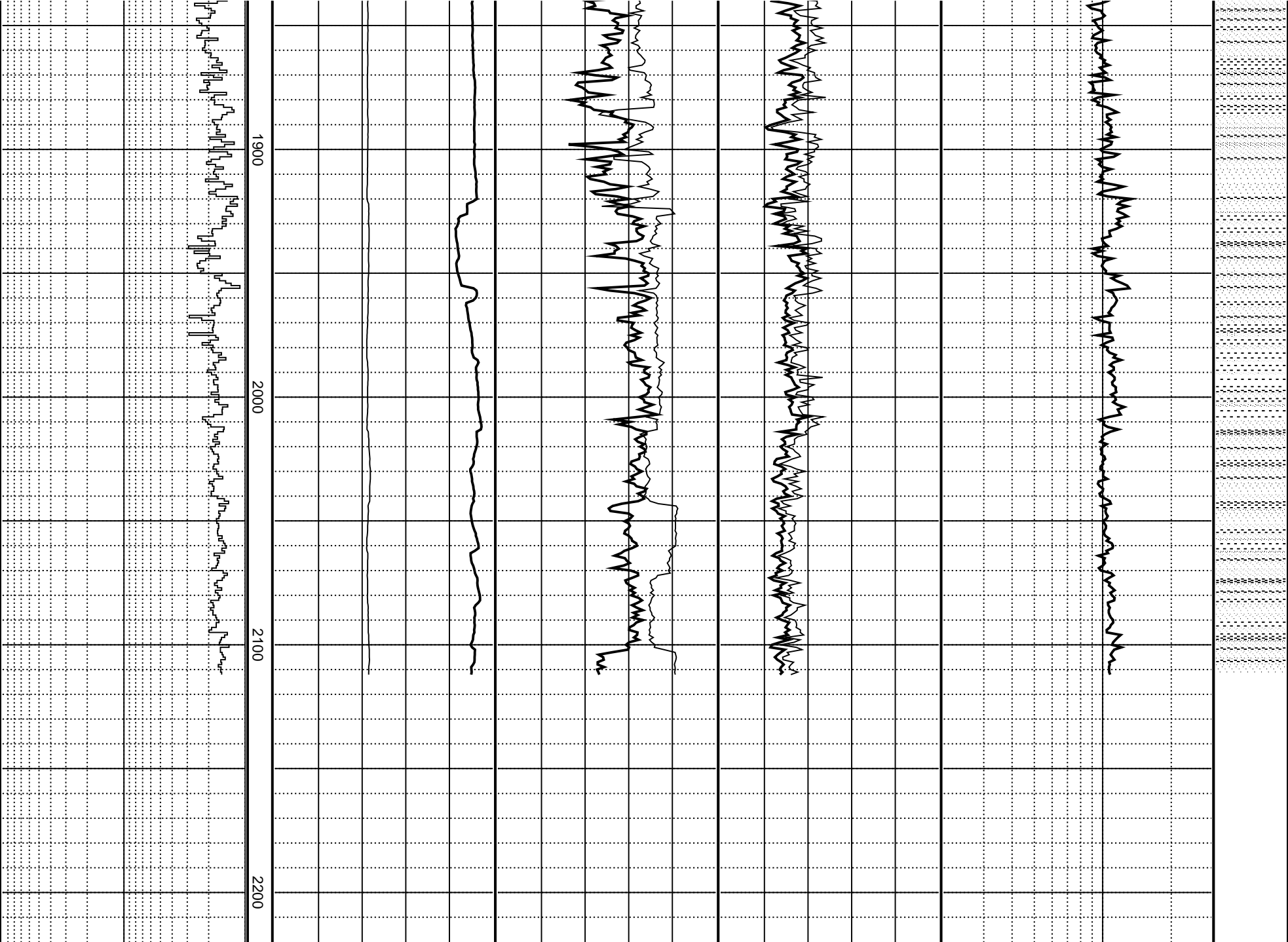


NB4 311mm (12.25")  
HYCALOG DSX195DGYW, 5 x 12 jets

CB1 311mm (12.25")  
DBS CD93  
1.20 TFA

RR4.1 311mm (12.25")  
HYCALOG DSX195DGUW  
Jets: 5 x 15









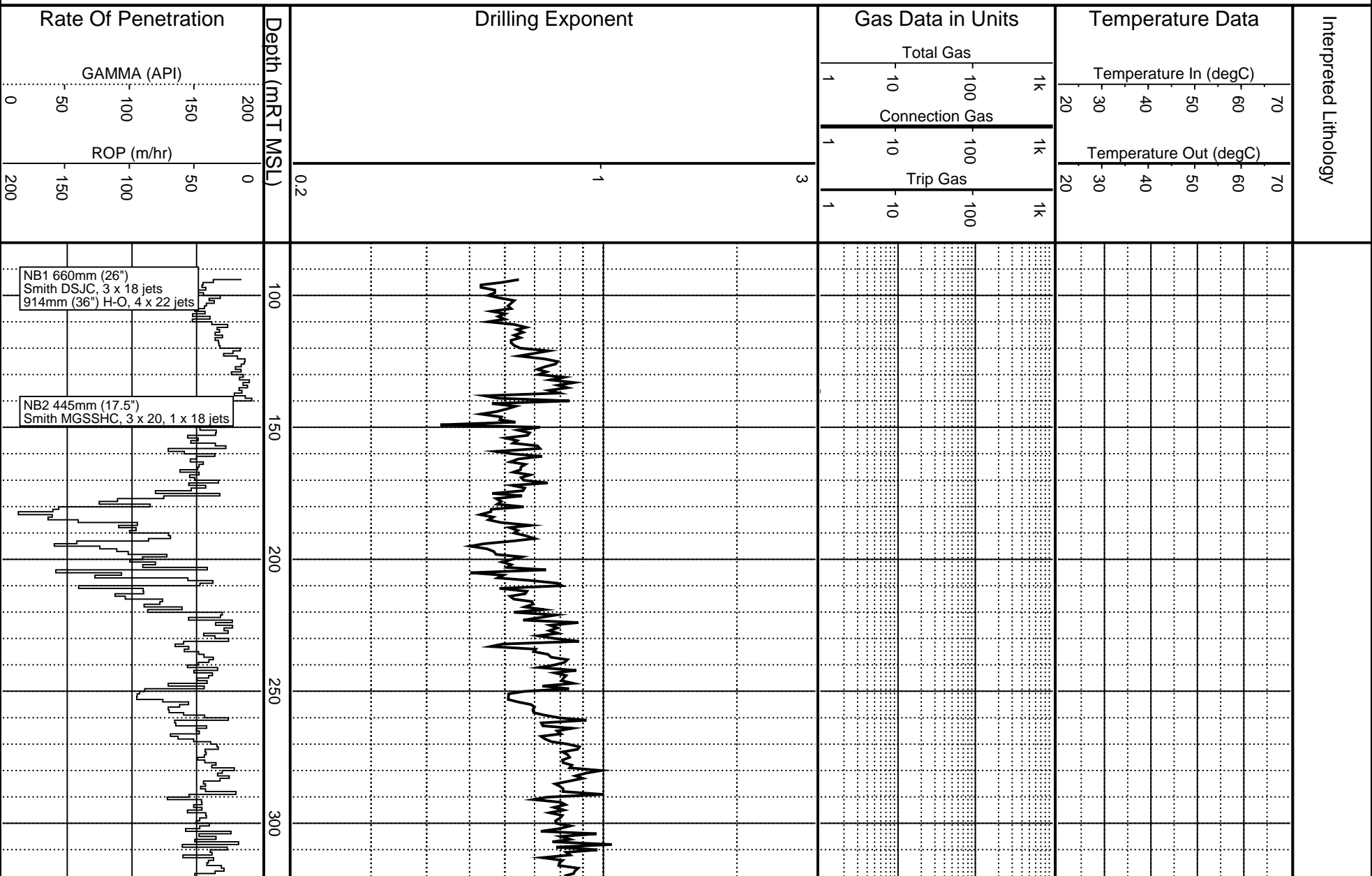
# **PRESSURE EVALUATION PLOT**

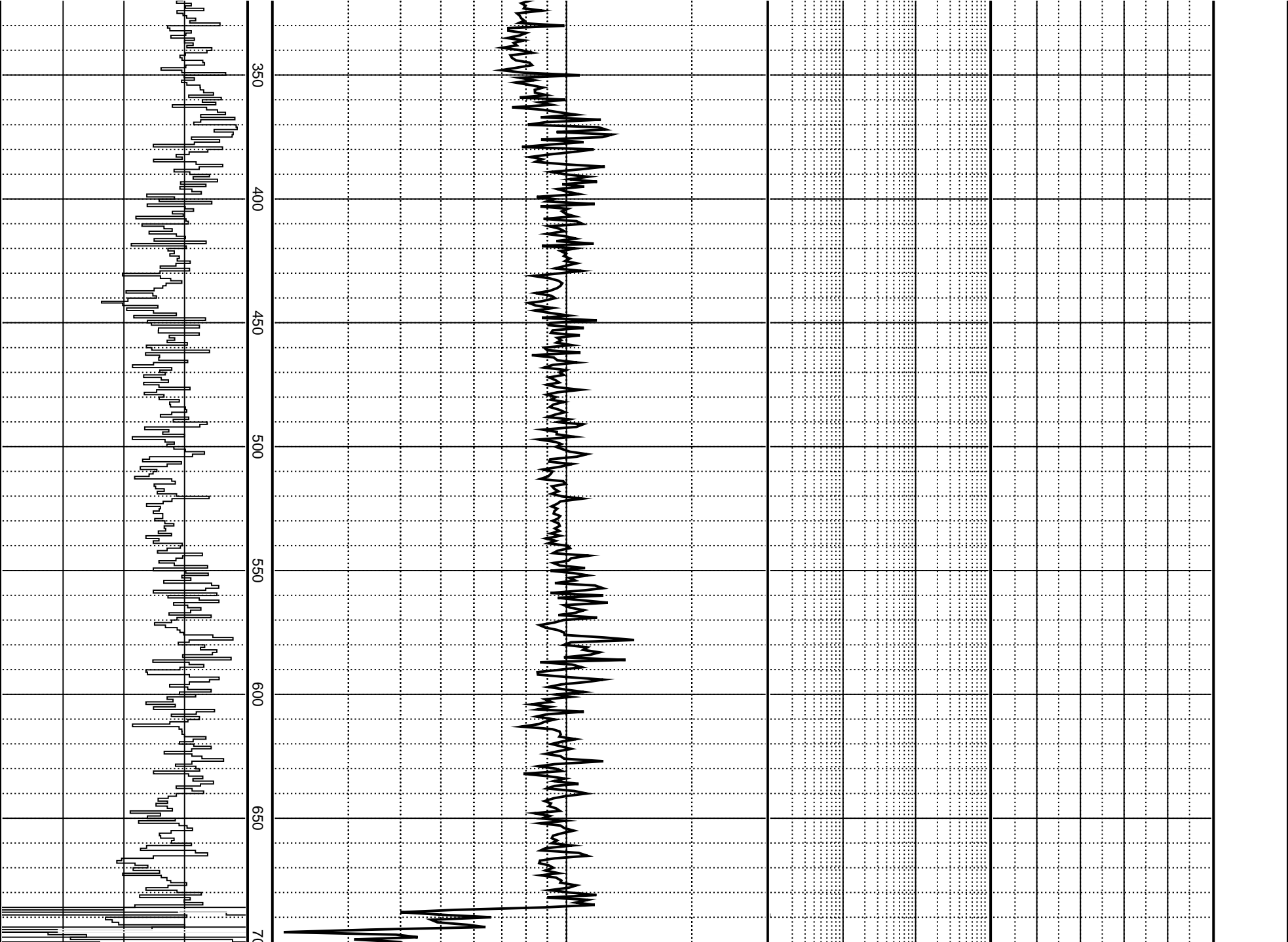
1:2000

# Pressure Data Plot

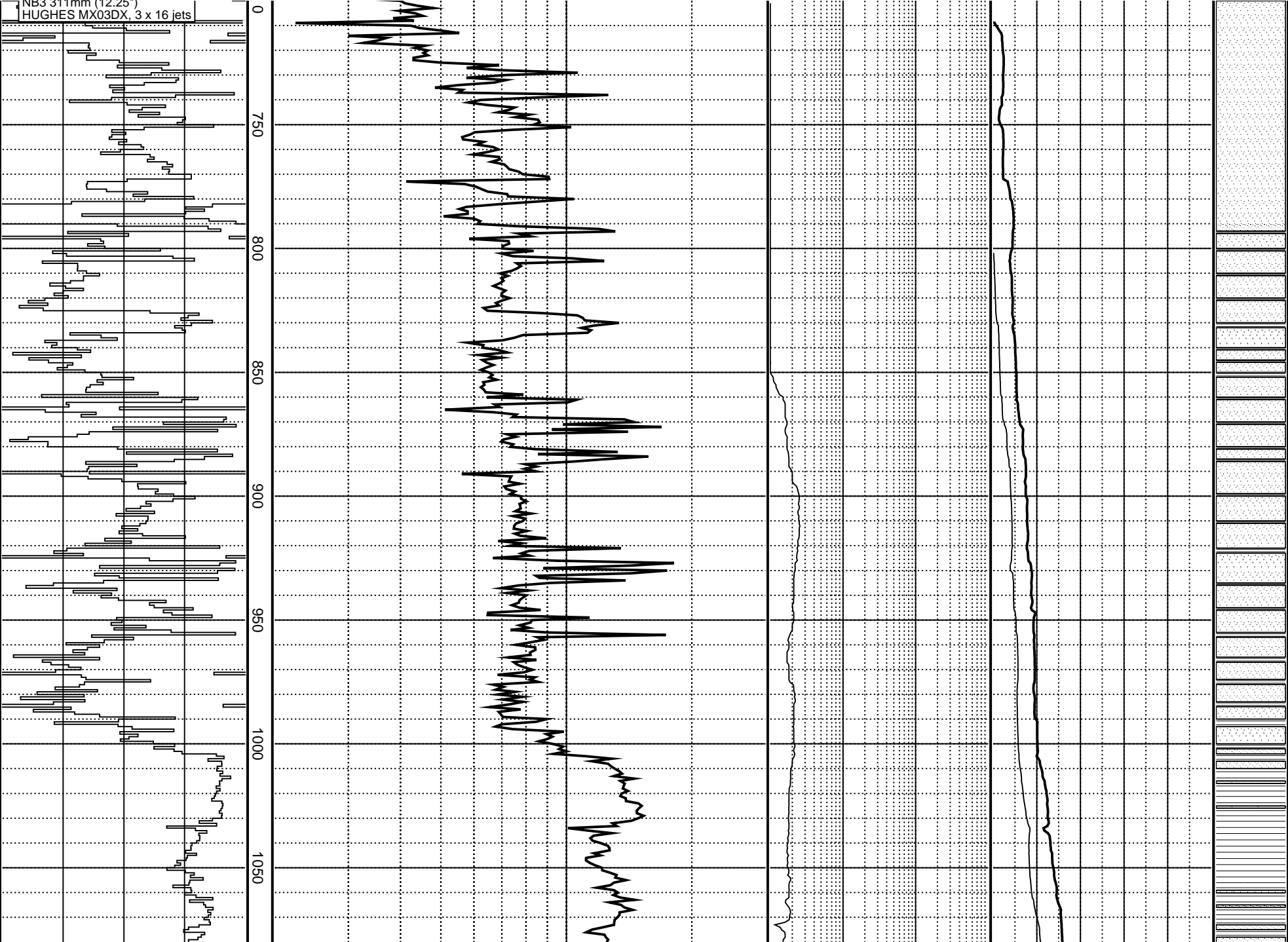
## Casino-2

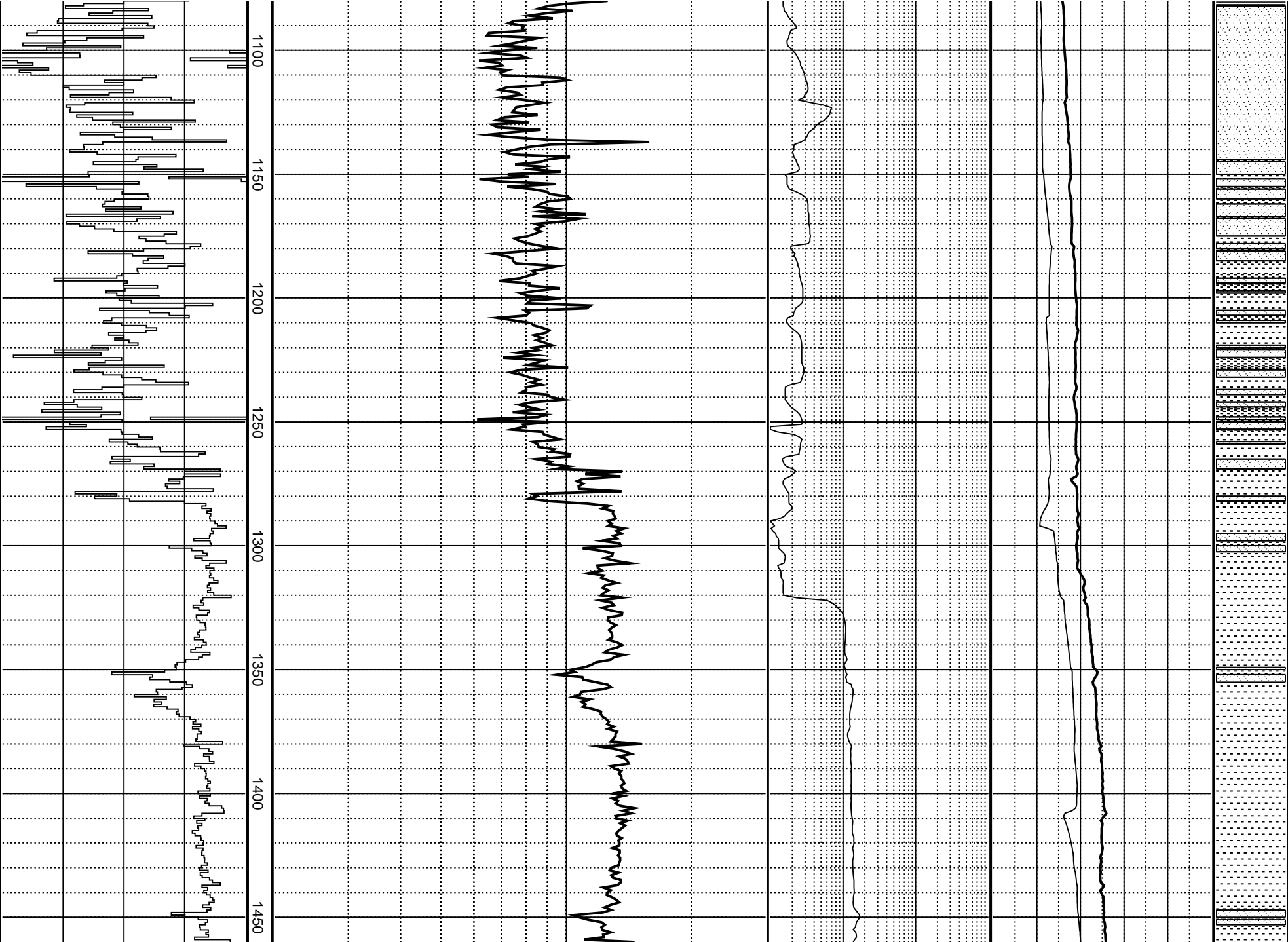
Scale 1 : 2500



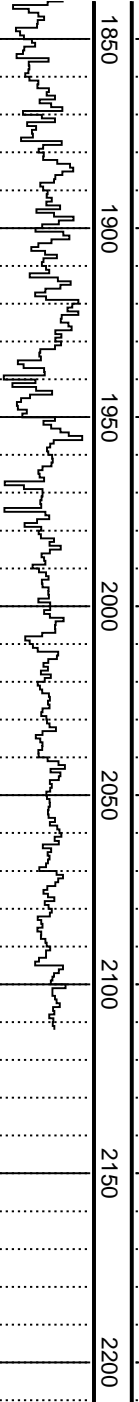
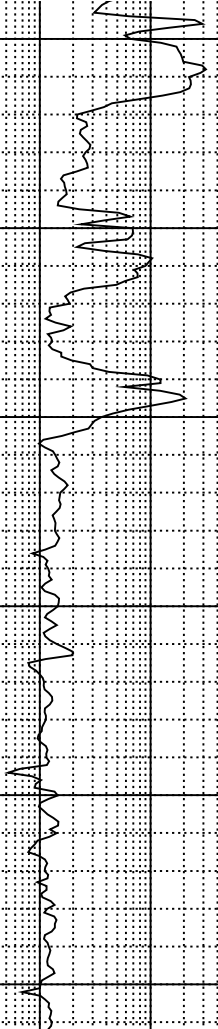
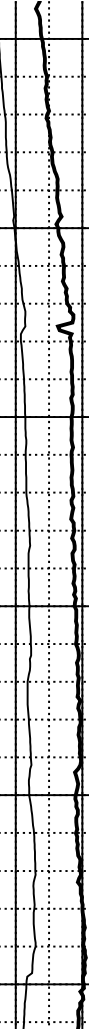
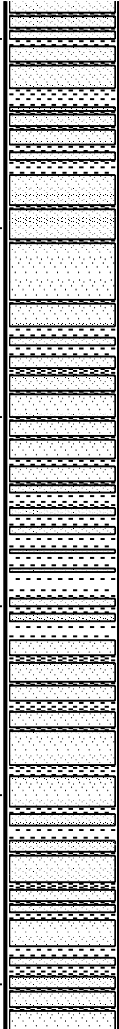


NB3 311mm (12.25)  
HUGHES MX03DX, 3 x 16 jets









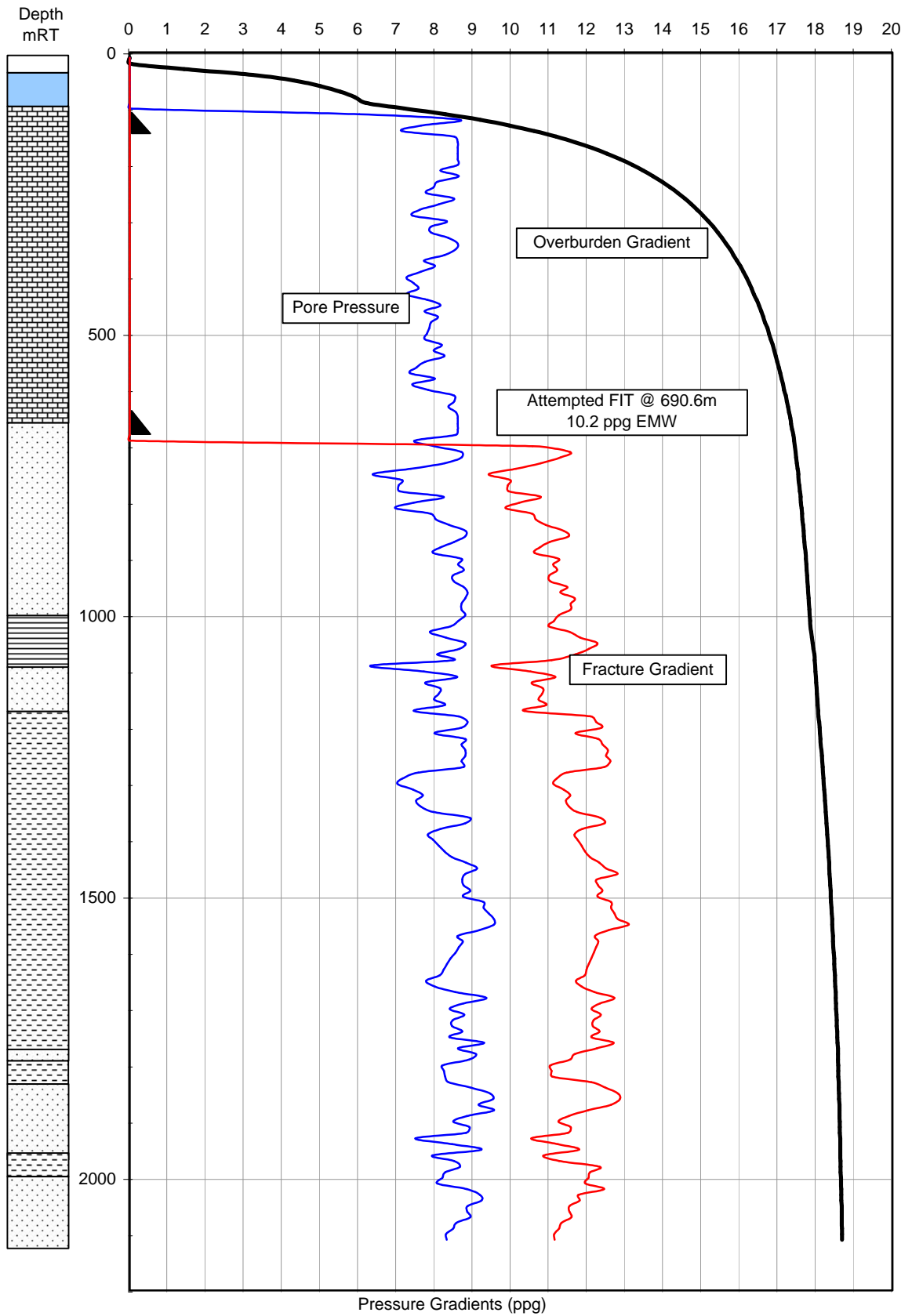
1850 1900 1950 2000 2050 2100 2150 2200





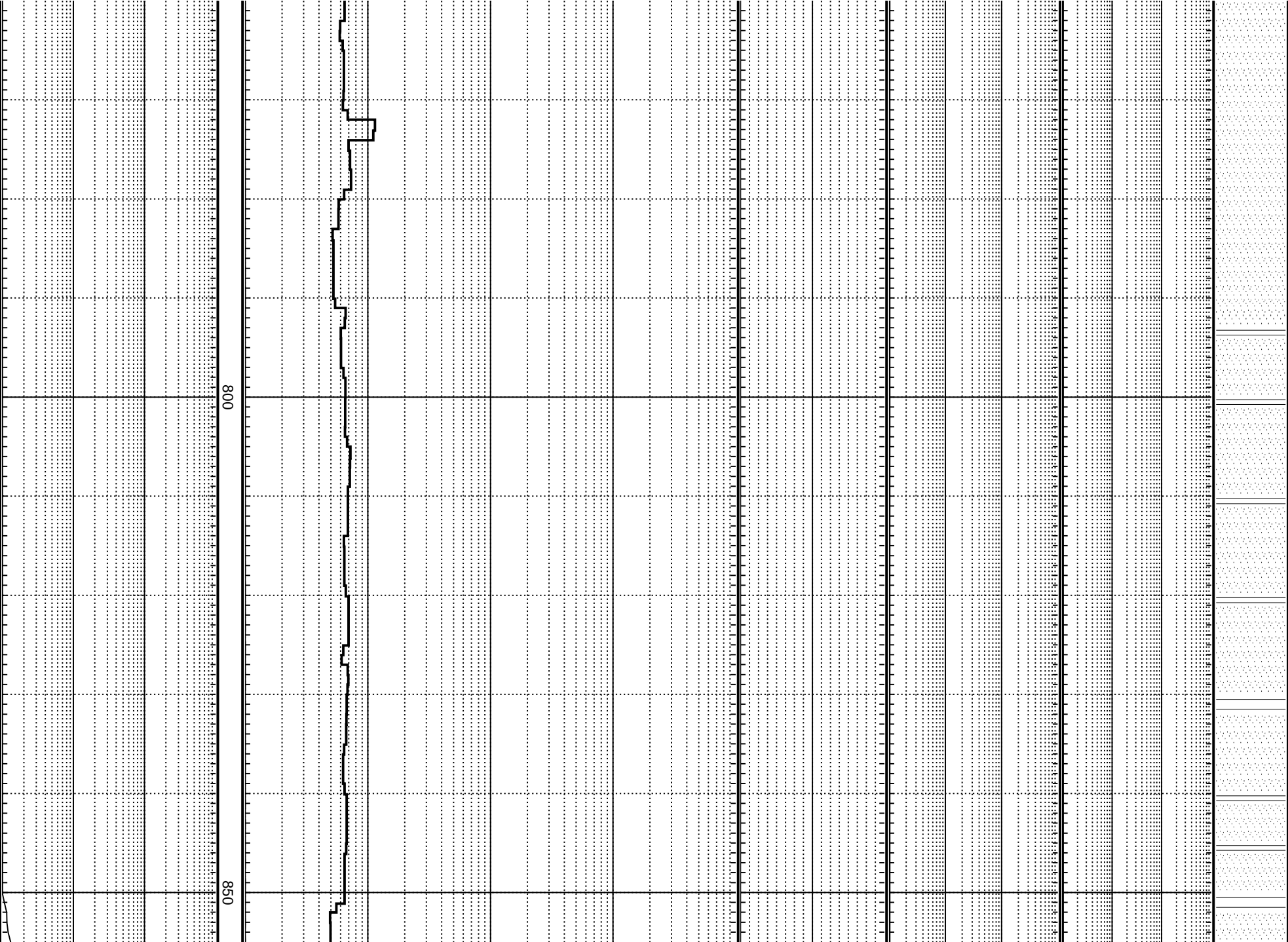
## **PRESSURE SUMMARY PLOT**

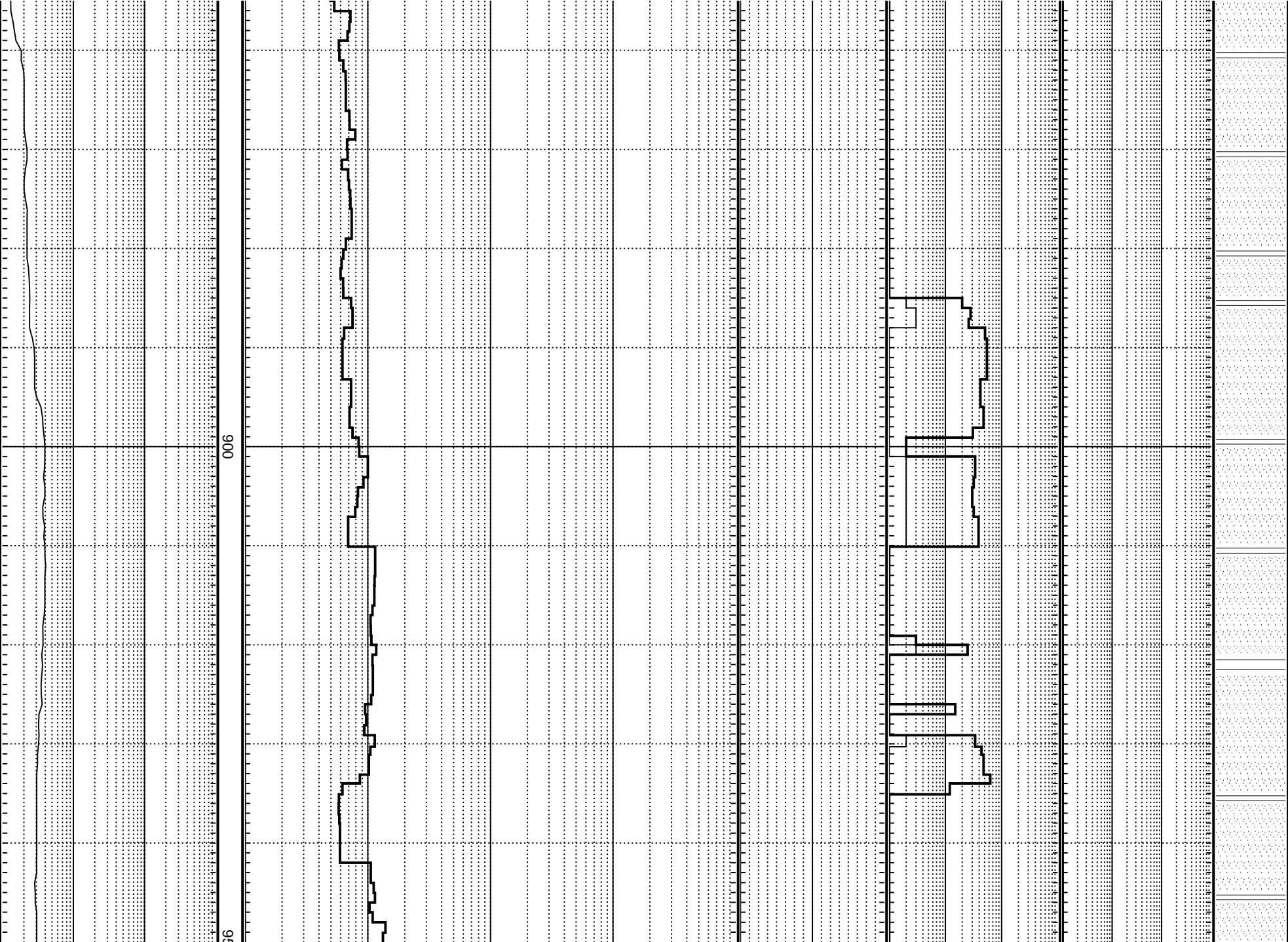
# Pressure Summary Plot Casino - 2

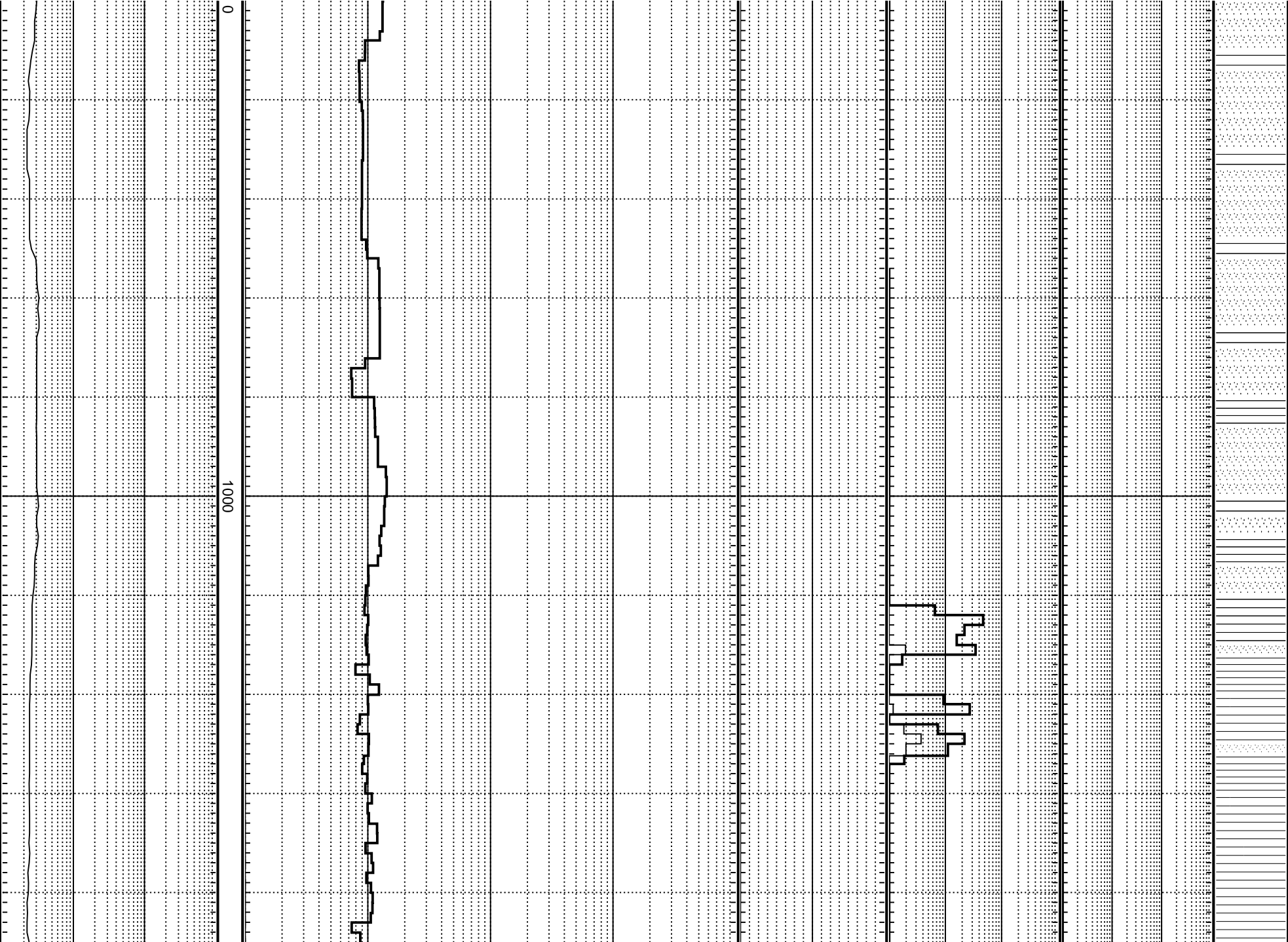


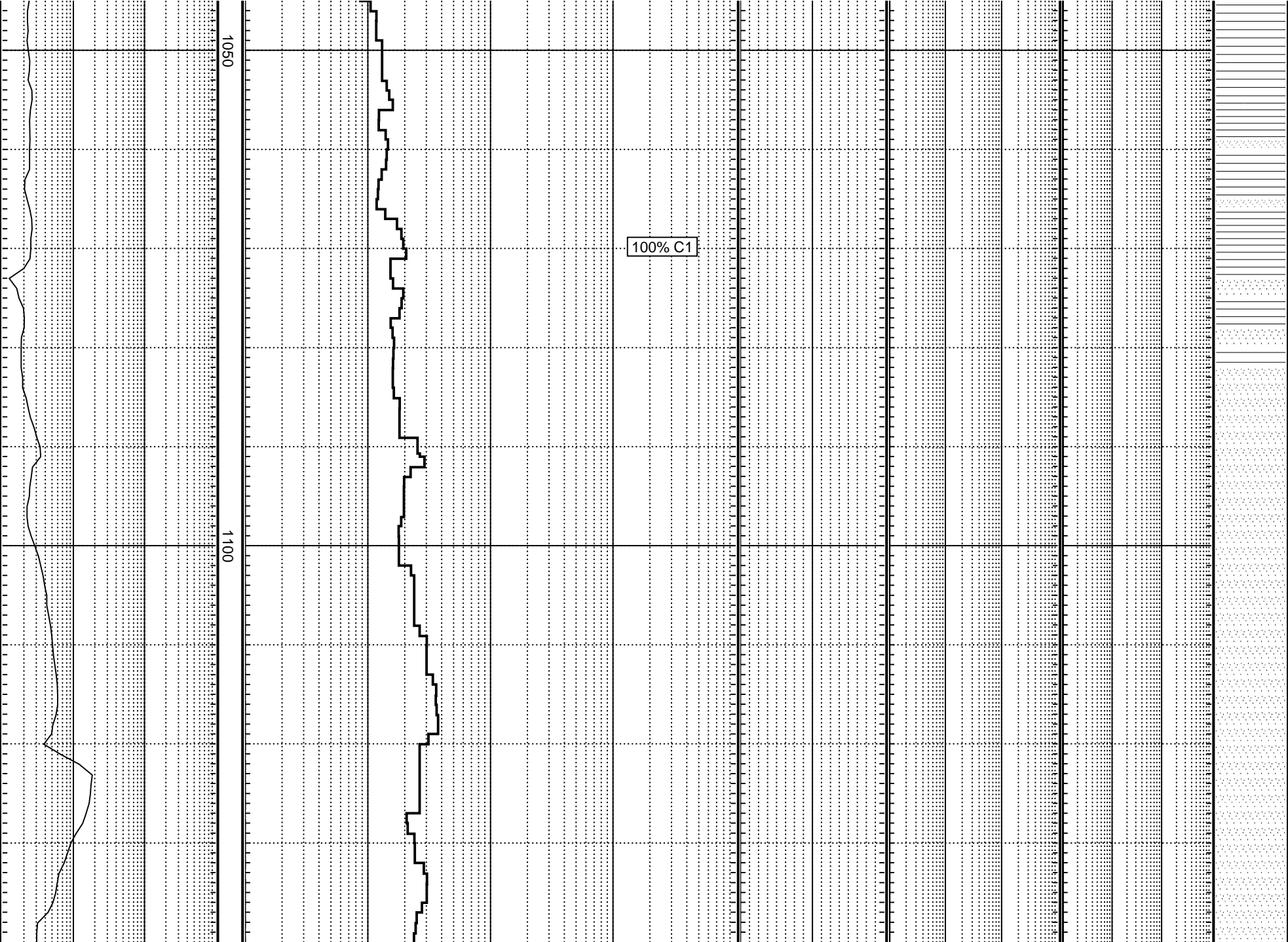
**GAS RATIO PLOT**  
1:500





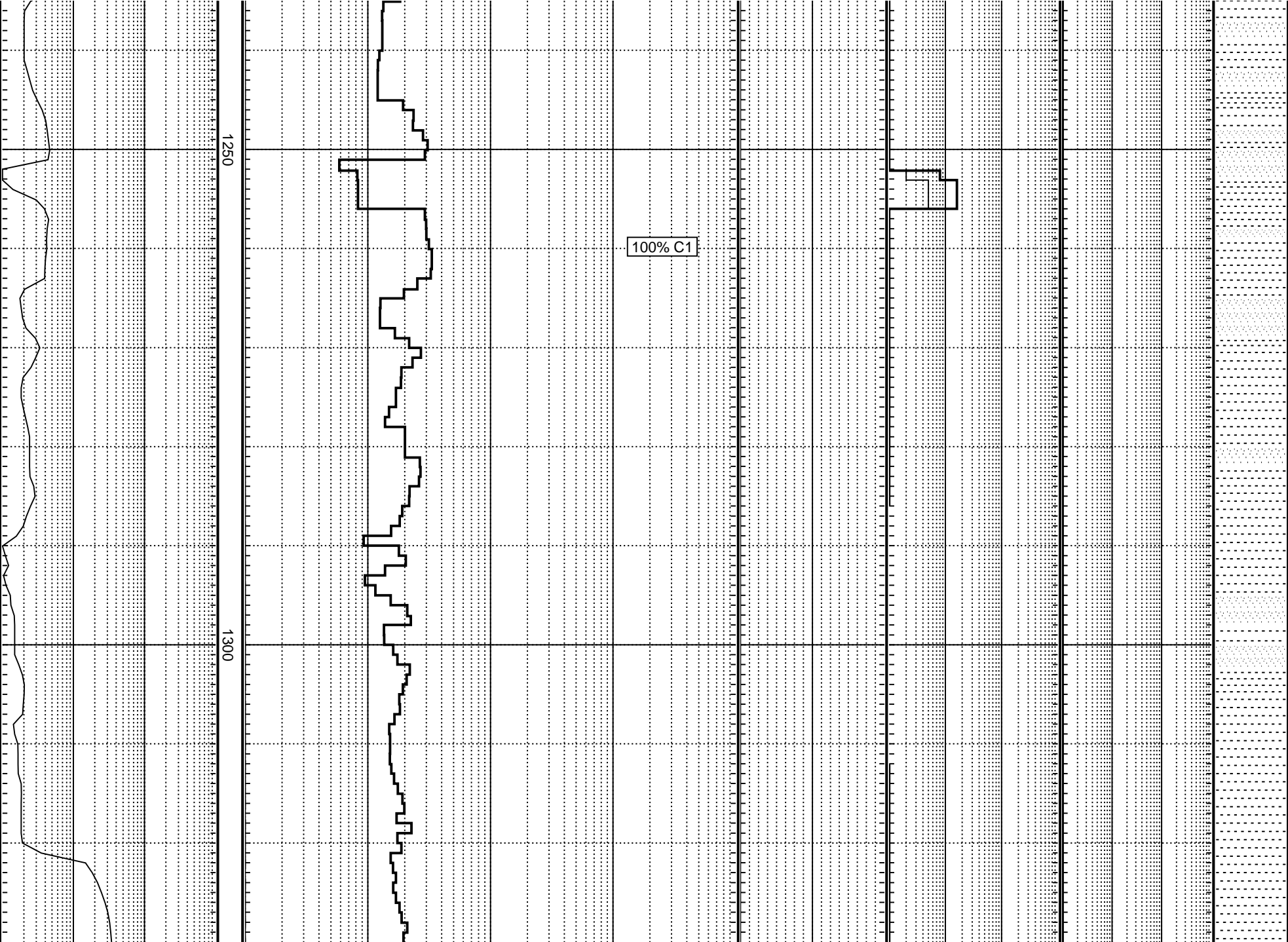


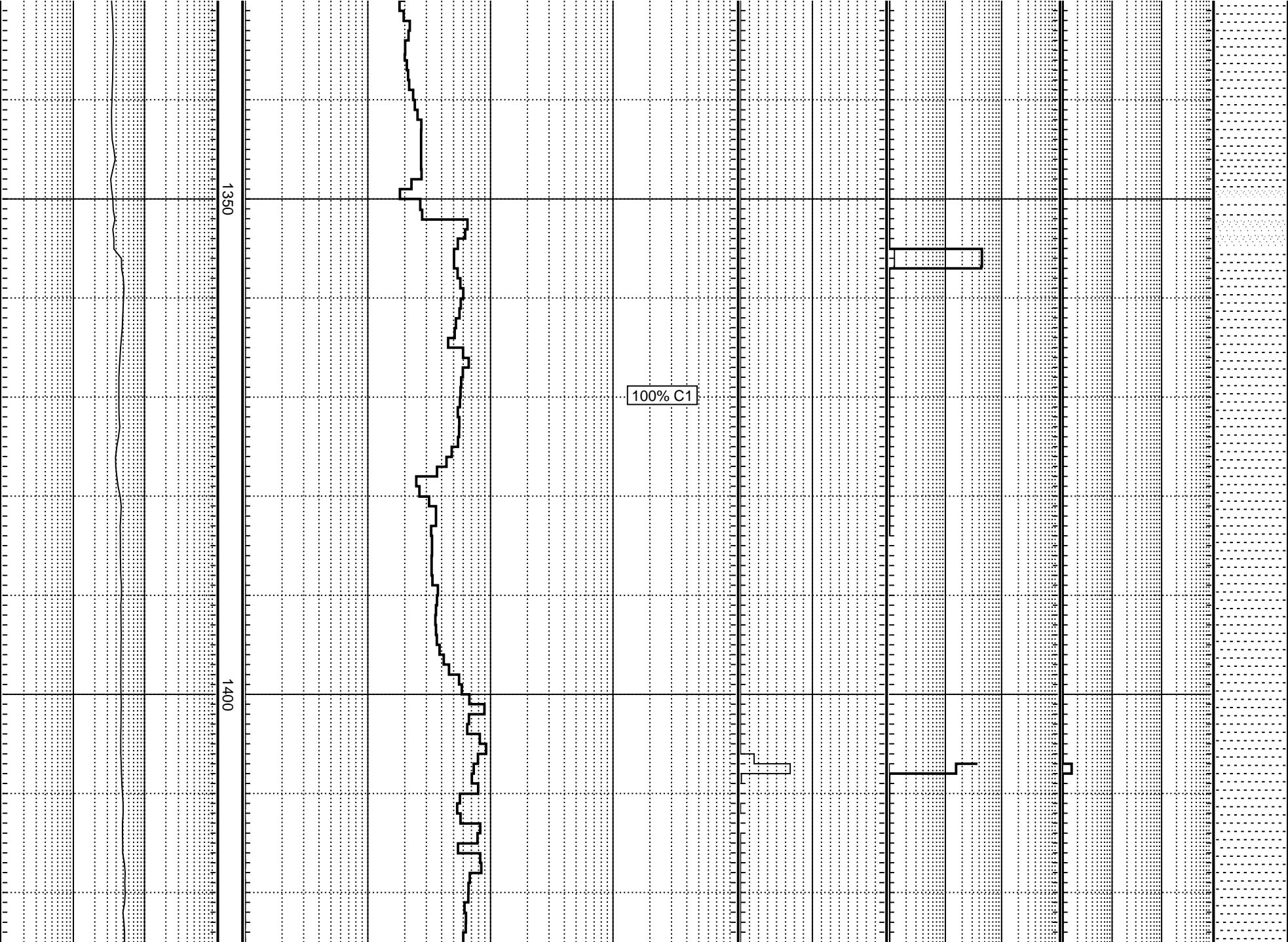


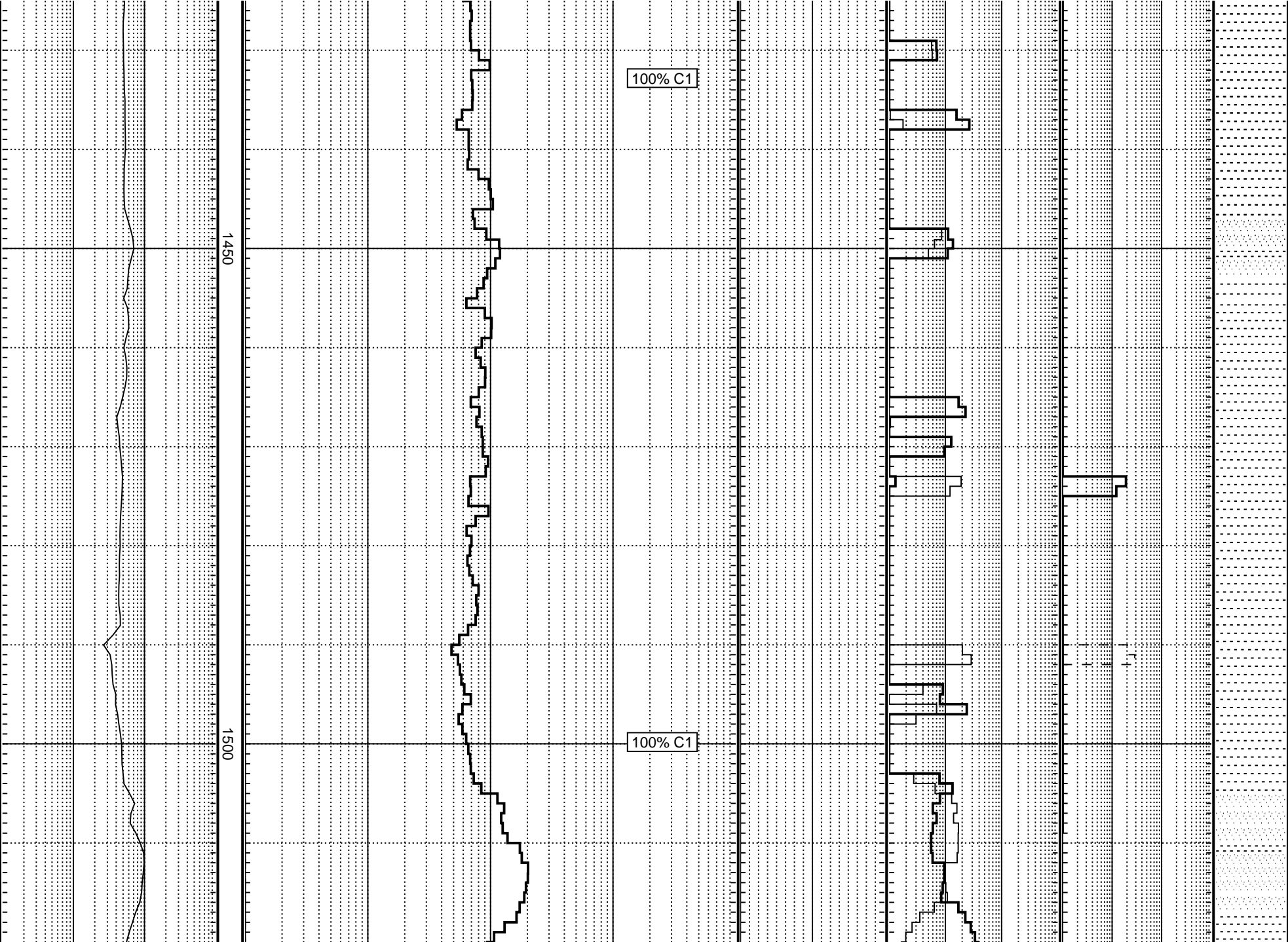


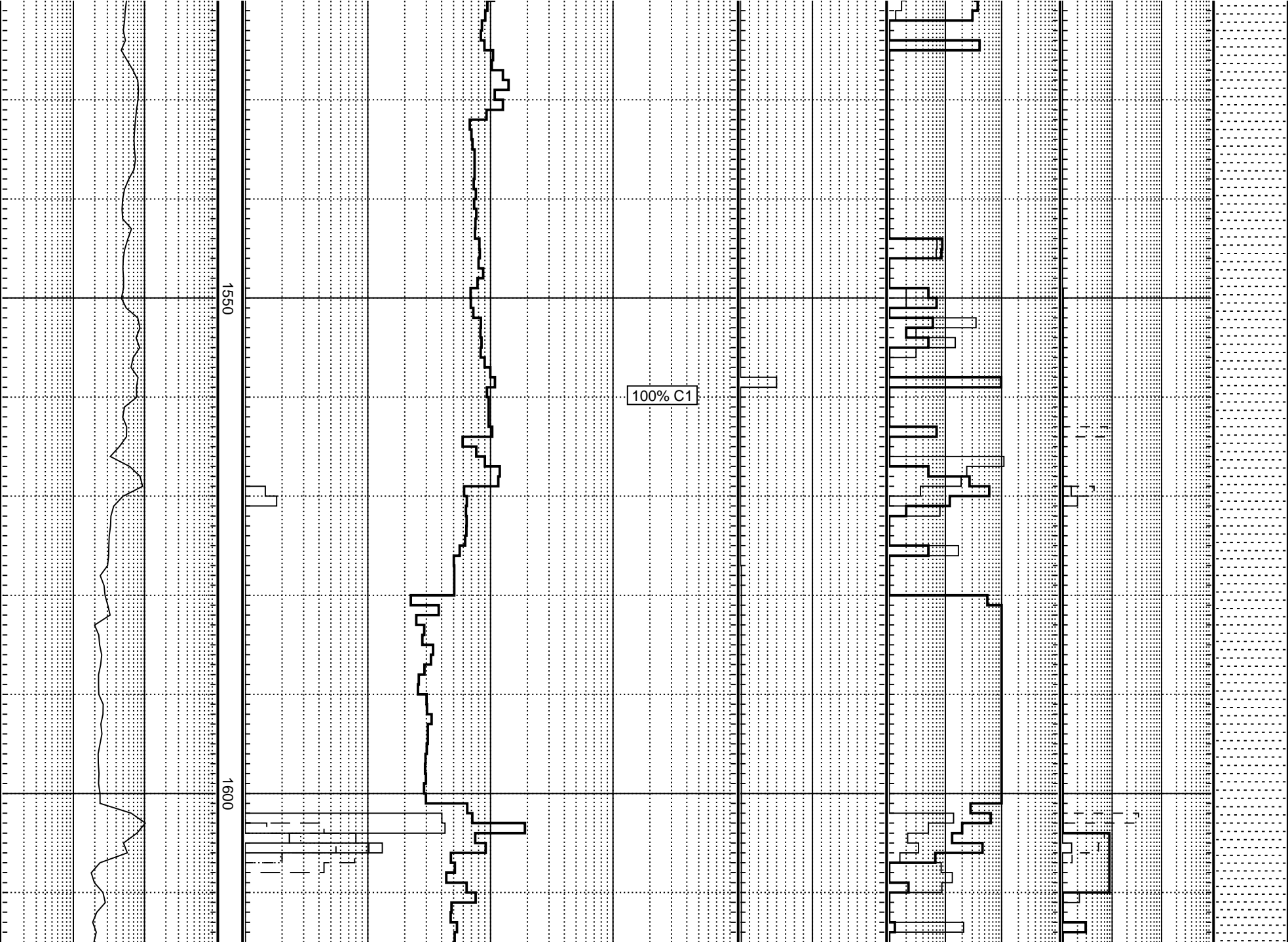


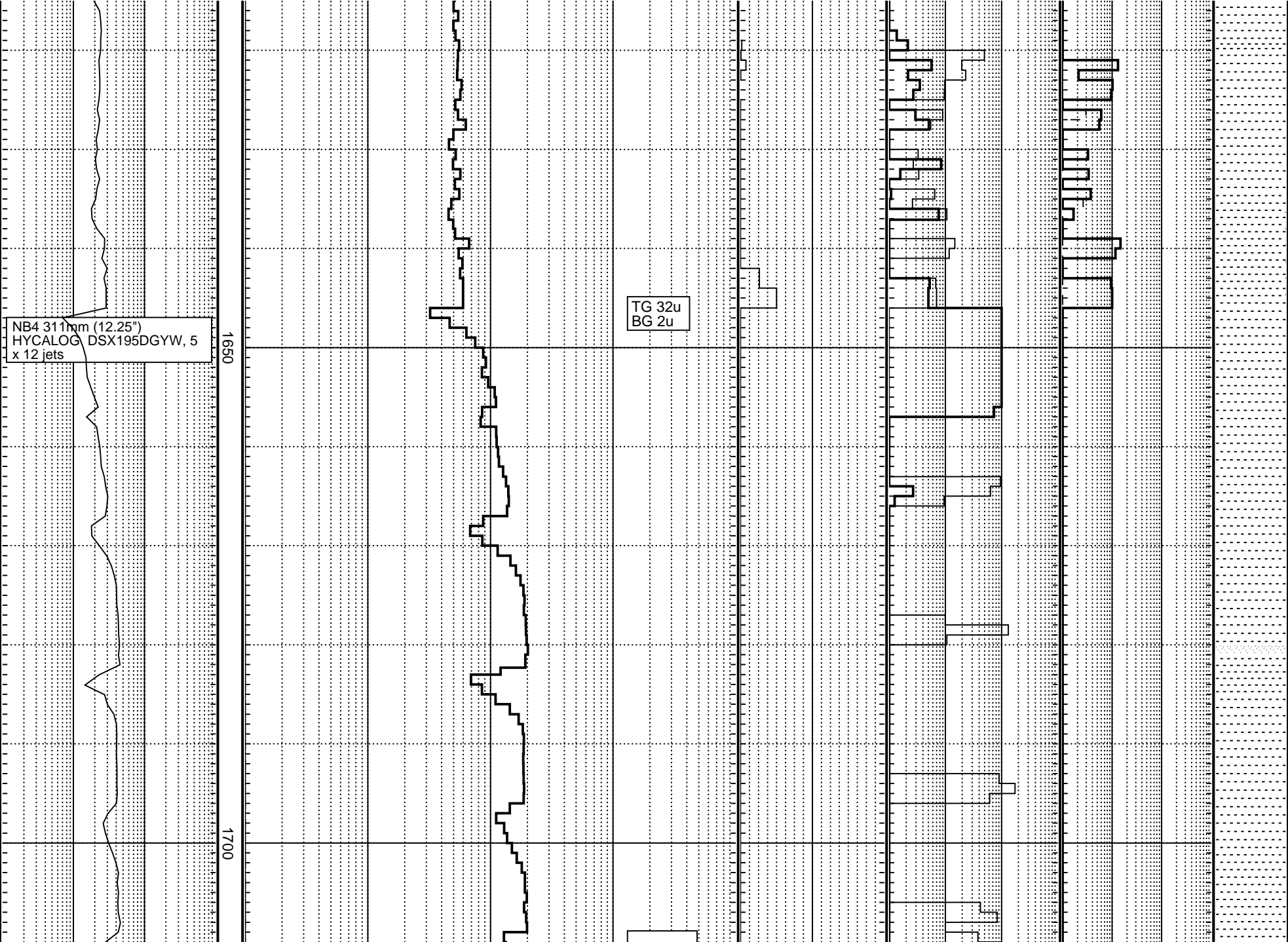


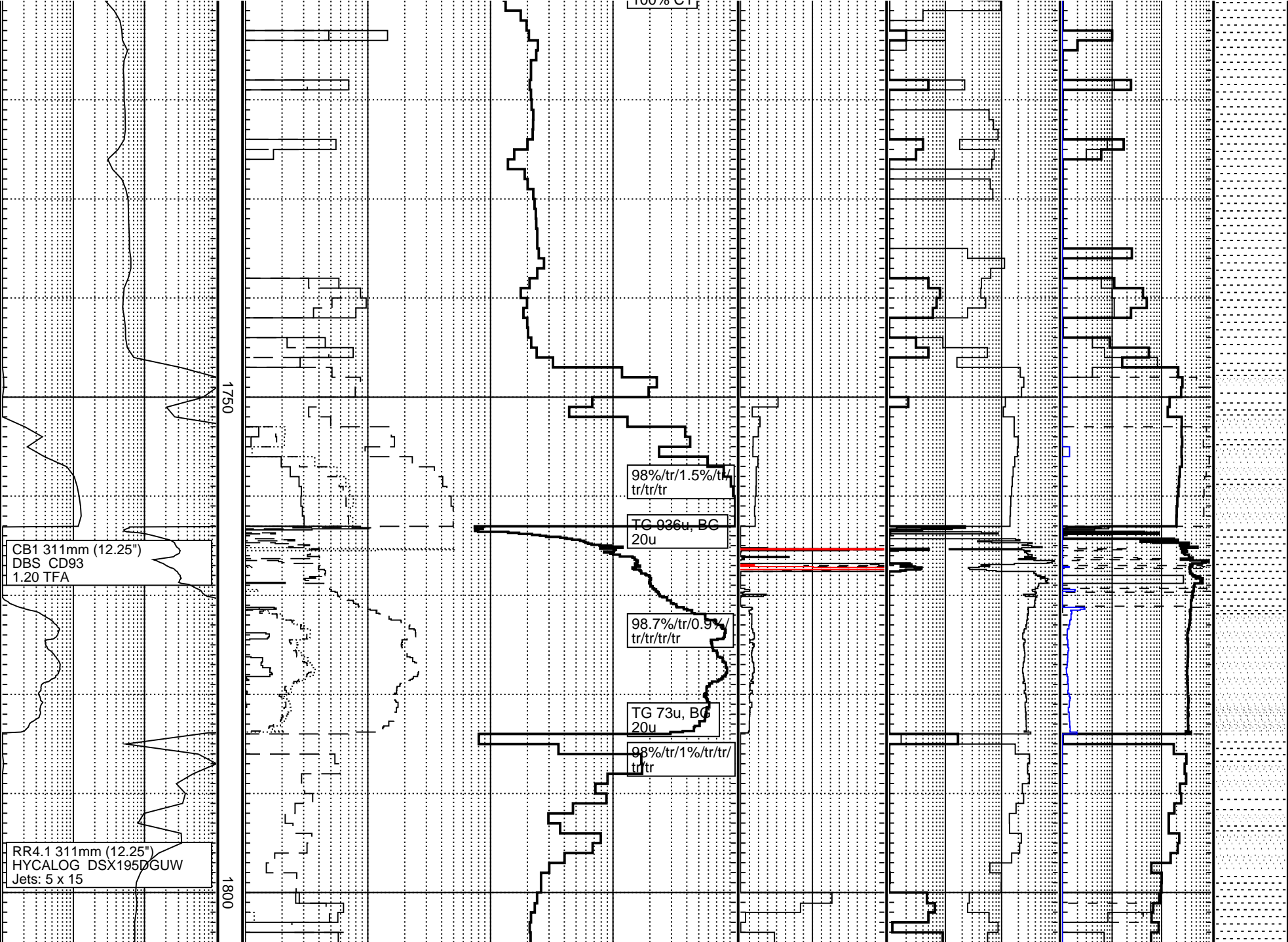












1750

1800

CB1 311mm (12.25")  
DBS CD93  
1.20 TFA

RR4.1 311mm (12.25")  
HYCALOG DSX195D GUW  
Jets: 5 x 15

100% CI

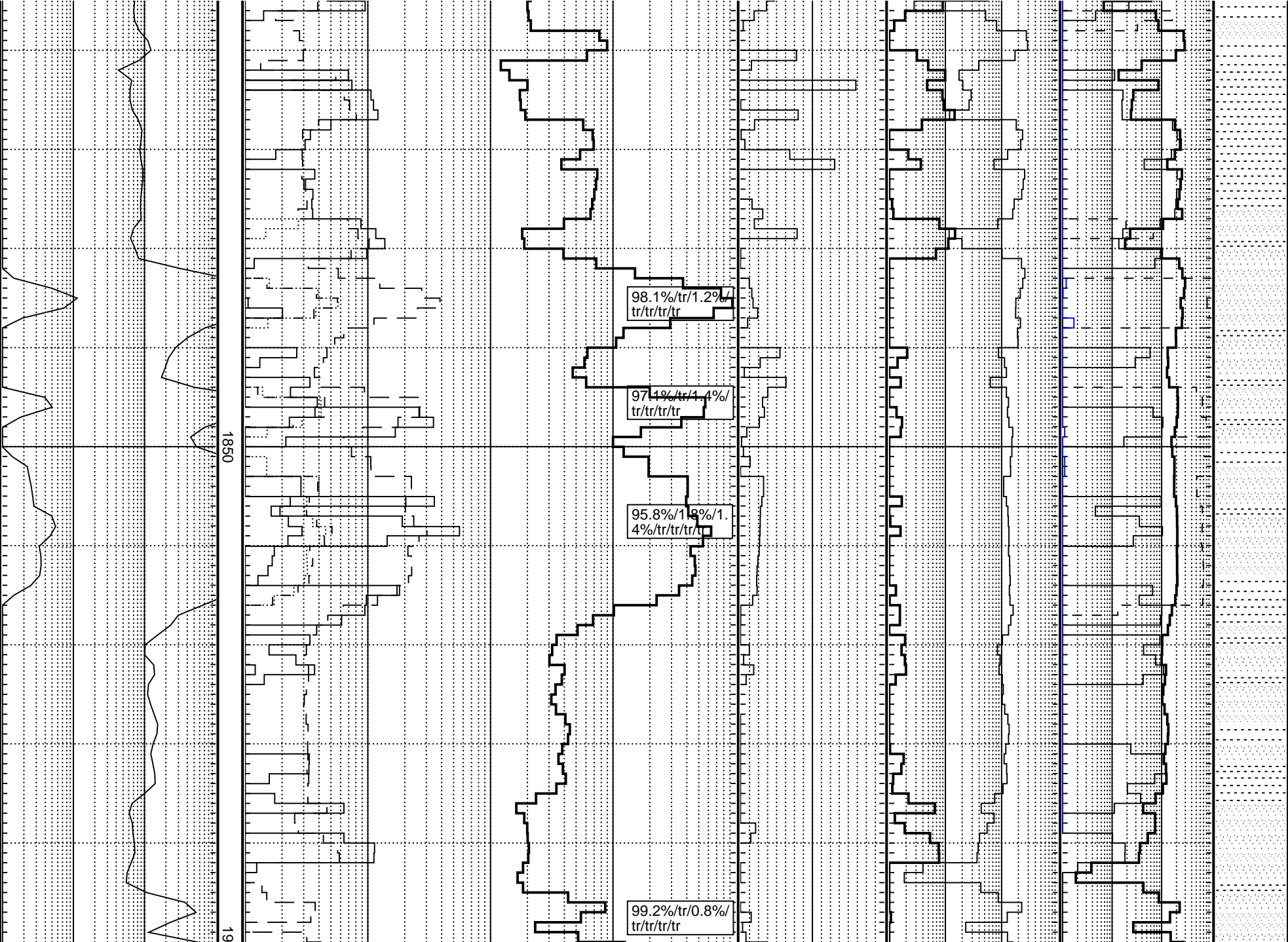
98%/tr/1.5%/tr/tr/tr

TG 036u, BG 20u

98.7%/tr/0.9%/tr/tr/tr/tr

TG 73u, BG 20u

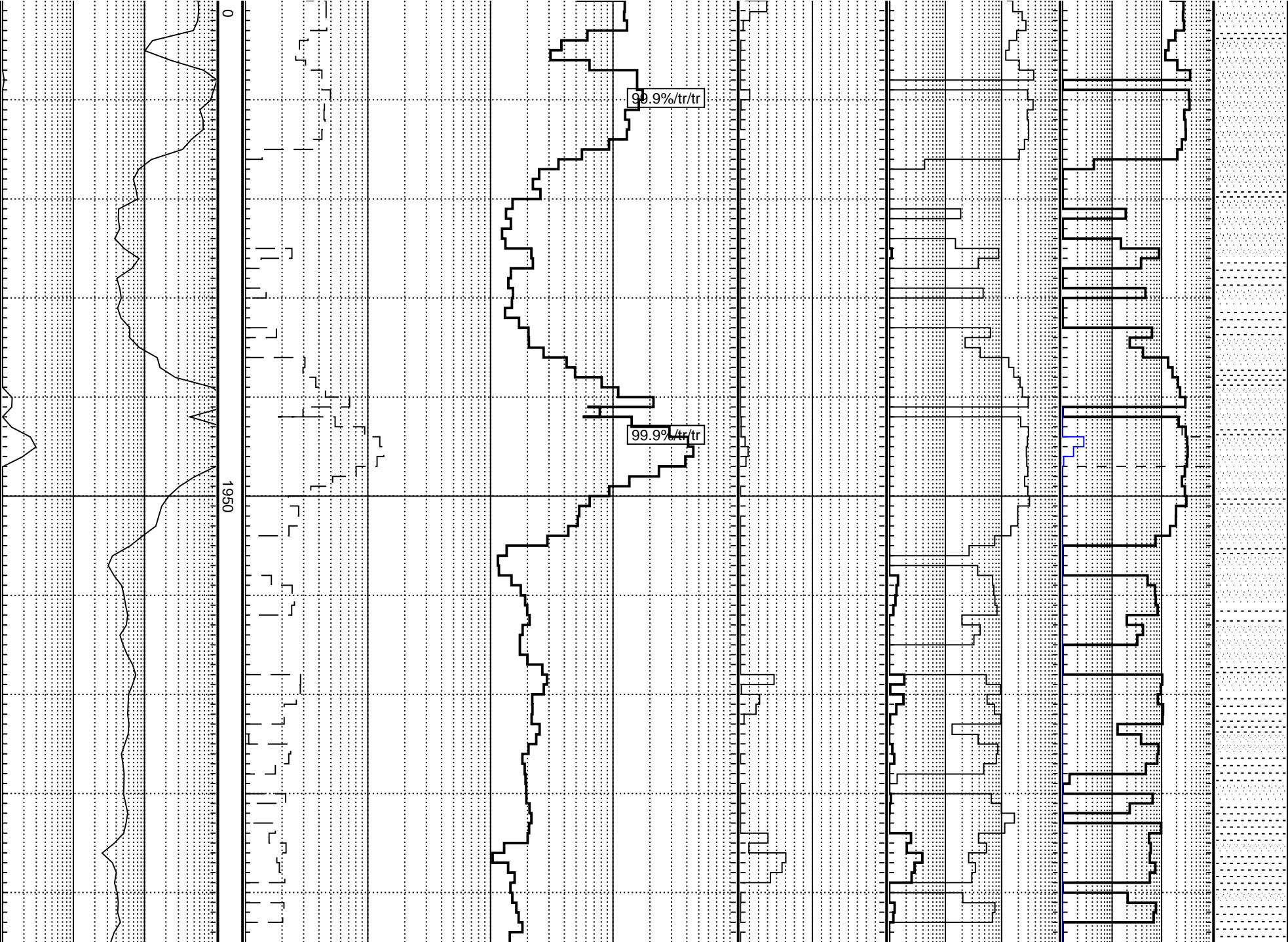
98%/tr/1%/tr/tr/tr/tr

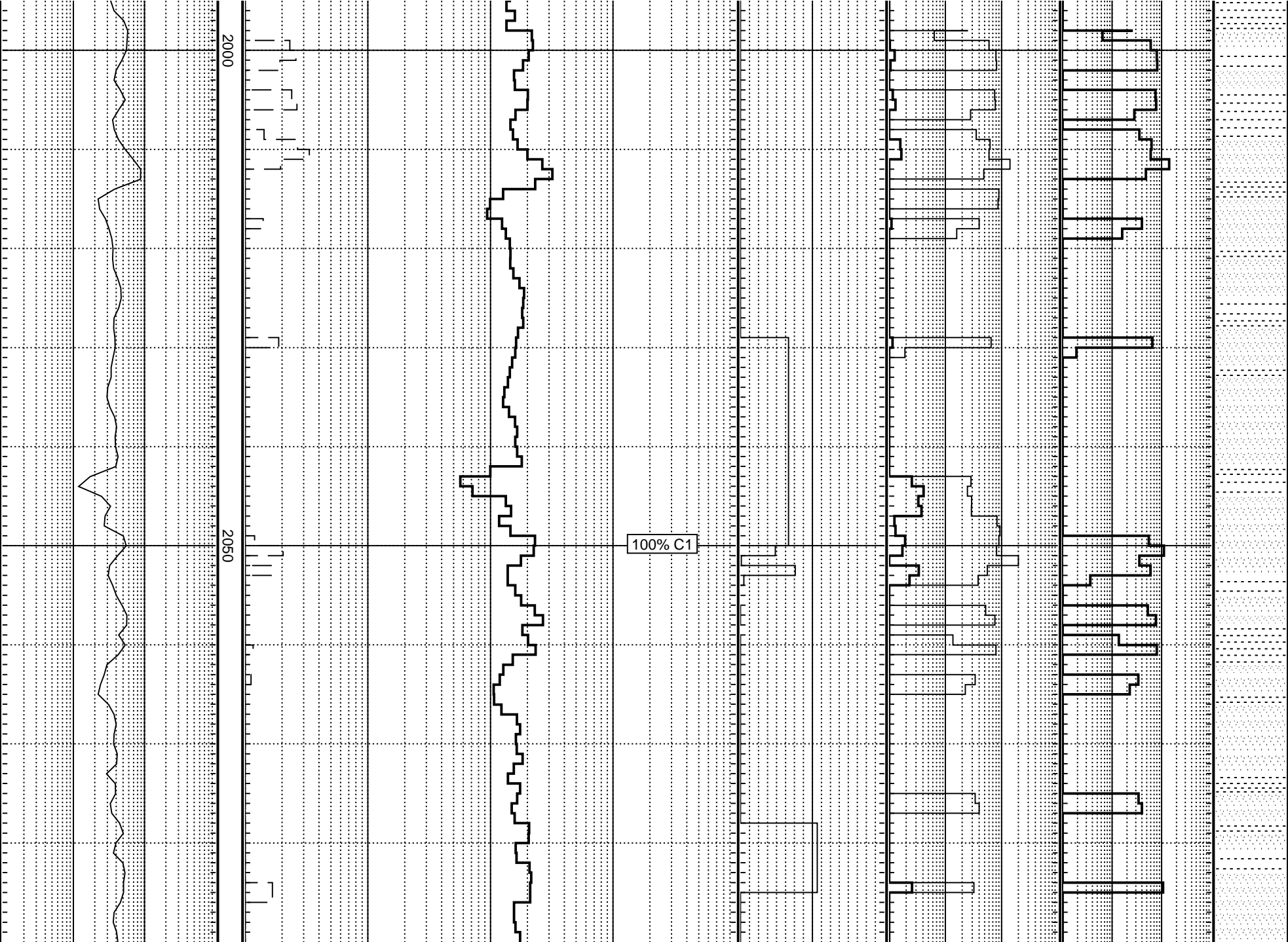


1850

19











## **SECTION 13:- RIG POSITIONING REPORT**

The Thales logo is displayed in white, uppercase letters within a dark blue rectangular box. The background of the entire page is a blue-toned image of a bathymetric map of the ocean floor, showing various depths and geological features. A small orange circle is visible on the map in the lower-left quadrant.

**THALES**

**Casino-2 Positioning Report of the  
Ocean Bounty**

**Prepared for  
Santos Offshore Pty Ltd**

**Report No: 3447A3**

Thales GeoSolutions (Australasia) Limited

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**SANTOS OFFSHORE PTY LTD**

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**CLIENT : SANTOS OFFSHORE PTY LTD**

**LOCATION : OTWAY BASIN, BASS STRAIT**

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## APPENDICES

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# LOCATION DIAGRAM



## ABSTRACT

This report details the positioning services provided by Thales GeoSolutions (Australasia) Limited (Thales), prior to and during the positioning of the semi-submersible drilling rig Ocean Bounty at the Casino-2 location for Santos Offshore Pty Ltd (Santos).

Positioning of the Ocean Bounty during the approach to and at the Casino-2 location was provided by Thales' SkyFix/SkyFix Spot Differential GPS (Differential GPS) interfaced to Thales' Multifix 3 multiple reference station positioning software and Thales' GNS2 navigation software. The two anchor handling vessels (AHVs), Pacific Sentinel and Pacific Conqueror were positioned using Thales' Tracs/Tug Display Vessel Tracking System (VTS). The Ocean Bounty was positioned at the Casino-2 location at 1500 on 24 September 2002.

### **Intended Casino-2 Location**

The co-ordinates of the intended Casino-2 location were provided by Santos as follows:

#### **Datum: GDA94**

Latitude : 38° 47' 43.980" South  
Longitude : 142° 44' 50.720" East

#### **Projection: MGA Zone 54, CM 141° East**

Easting : 651 751.95m  
Northing : 5 704 460.93m

Rig Positioning Tolerance : ± 25m

Intended Rig Heading : 240.0° (T)

### **Final Differential GPS Drillstem Position at the Casino-2 Location**

The final Differential GPS Position of the Ocean Bounty drillstem at the Casino-2 location was computed from data observed between 1400 and 1500 on 24 September 2002. The final position is as follows:

#### **Datum: GDA94**

Latitude : 38° 47' 43.887" South  
Longitude : 142° 44' 50.746" East

#### **Projection: MGA Zone 54, CM 141° East**

Easting : 651 752.63m  
Northing : 5 704 463.79m

The final Differential GPS drillstem position is 2.94m on a bearing of 12.3° (T) from the intended Casino-2 location.

Final Rig Heading : 242.0° (T)

All times quoted in this report are Eastern Standard Time (UTC + 10.0 hours).

## 1. RESULTS

### 1.1 FINAL DIFFERENTIAL GPS POSITION OF THE OCEAN BOUNTY DRILLSTEM AT THE CASINO-2 LOCATION

The Ocean Bounty was positioned at the Casino-2 location at 1500 on 24 September 2002.

The final Differential GPS position of the Ocean Bounty drillstem at the Casino-2 location, was determined using Thales' MultiFix 3 positioning software interfaced to a Trimble 4000 DS GPS receiver, with differential corrections being provided by Thales' SkyFix Spot Differential GPS services.

The final fix routine, within Thales' GNS2 navigation software version 2.35, was used to compute the final Differential GPS position of the drillstem at the Casino-2 location. A total of 720 position fixes were recorded at 5 second intervals between 1400 and 1500 on 24 September 2002.

Refer to Appendix A for the GNS2 final Differential GPS position printouts at the Casino-2 location. Associated graphs are located in Appendix B.

Differential corrections from the SkyFix Spot reference stations in Melbourne, Sydney and Adelaide were used in the MultiFix 3 software computations to derive the final Differential GPS position.

The final surface co-ordinates for the Casino-2 Ocean Bounty drillstem location, determined from Differential GPS observations are as follows:

Total number of samples used = 720.

The computed antenna position is as follows:

#### GPS Antenna Position

##### Datum: WGS84

Latitude	:	38° 47' 44.394" South	(S.D. 0.35m)
Longitude	:	142° 44' 49.500" East	(S.D. 0.42m)
Ellipsoidal Height	:	32.30m	(S.D. 0.72m)

Transforming the above WGS84 co-ordinates to GDA94 co-ordinates using the parameters in section 6, gives the following antenna co-ordinates:

#### GPS Antenna Position

##### Datum: GDA94

Latitude	:	38° 47' 44.394" South
Longitude	:	142° 44' 49.500" East
Ellipsoidal Height	:	32.30m

By applying a distance of 33.90m on a bearing of 62.5° (T) from the antenna position, the following drillstem co-ordinates are calculated:

## Final Differential GPS Position of the Drillstem at the Casino-2 Location

### Datum: GDA94

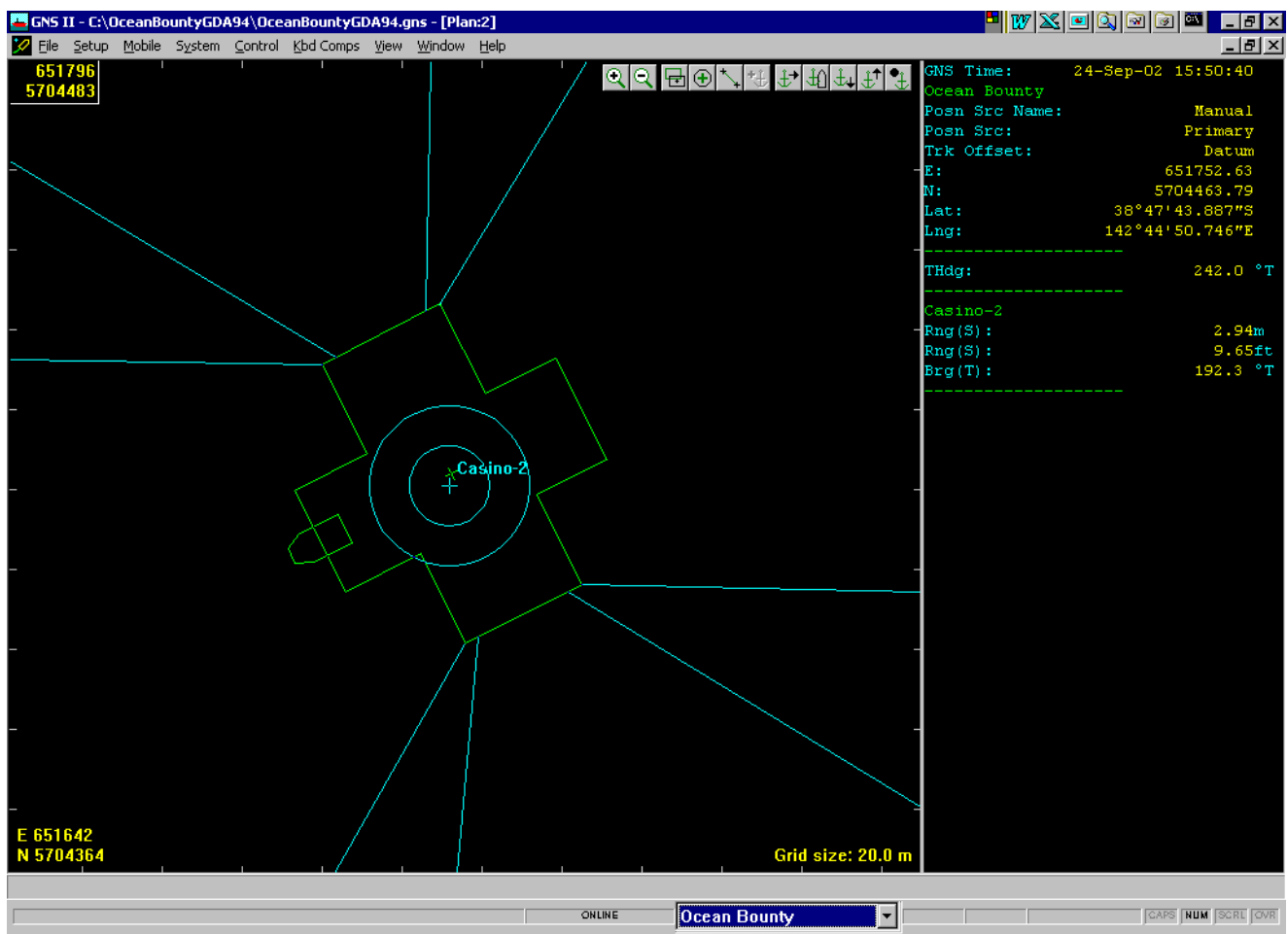
Latitude : 38° 47' 43.887" South  
Longitude : 142° 44' 50.746" East

### Projection: MGA Zone 54, CM 141° East

Easting : 651 752.63m  
Northing : 5 704 463.79m

This final Differential GPS position of the drillstem is 2.94m on a bearing of 12.3° (T) from the intended Casino-2 location.

Final Rig Heading : 242.0° (T)



## Skyfix Spot Differential GPS Position and Intended Position at the Casino-2 Location

## 1.2 OCEAN BOUNTY ANCHOR POSITIONS

Deployed anchor positions were derived from the computed anchor function within the GNS2 software. The function takes into account the length of anchor chain out, water depth, anchor tension and the wet weight of anchor chain to compute the deployed anchor positions. The final anchor positions are tabulated below:

**Datum: GDA94      Projection: MGA Zone 54, CM 141° East**

Anchor	Intended Anchor Position		Final Anchor Position	
	Easting (m)	Northing (m)	Easting (m)	Northing (m)
Anchor 1	651 736.75	5 703 208.80	651 665.20	5 703 401.40
Anchor 2	651 130.54	5 703 380.78	651 140.60	5 703 331.20
Anchor 3	650 507.00	5 704 510.46	650 464.90	5 704 511.00
Anchor 4	650 684.20	5 705 115.11	650 654.00	5 705 134.80
Anchor 5	651 767.14	5 705 713.06	651 769.50	5 705 698.30
Anchor 6	652 373.36	5 705 541.09	652 391.40	5 705 566.50
Anchor 7	652 996.00	5 704 411.00	652 930.20	5 704 410.00
Anchor 8	652 819.70	5 703 806.74	652 864.90	5 703 773.20

**Difference of final anchor positions from the intended anchor positions.**

Anchor	Dropped by	Eastings (m)	Northings (m)
Anchor 1	P. Conqueror	+71.55	-192.60
Anchor 2	P. Conqueror	-10.06	+49.58
Anchor 3	P. Conqueror	+42.10	-0.54
Anchor 4	P. Conqueror	+30.20	-19.69
Anchor 5	P. Conqueror	-2.36	+14.76
Anchor 6	Ocean Bounty	-18.04	-25.41
Anchor 7	P. Conqueror	+65.80	+1.00
Anchor 8	P. Sentinel	-45.20	+33.54

**Horizontal distance and bearing from the Ocean Bounty fairleads to the final anchor positions.**

Anchor	Bearing (T)	Horizontal Distance (ft)
Anchor 1	184.2°	3366
Anchor 2	208.3°	4107
Anchor 3	269.8°	4119
Anchor 4	299.9°	4093
Anchor 5	0.0°	3918
Anchor 6	30.1°	4066
Anchor 7	90.2°	3758
Anchor 8	120.3°	4164

Ocean Bounty anchor details are located in Appendices C, D and E of this report.

## 2. SAFETY

A pre-rig move meeting was held at Thales' Perth offices on 17 September 2002. Thales personnel M. Karklin and R. Bright were present. During the meeting safety procedures were discussed including correct operation and handling of equipment. It was also confirmed that personnel had been issued with the appropriate safety equipment.

On arrival at the Ocean Bounty R. Bright attended a rig induction incorporating:

- Rig Safety
- Emergency Response
- General Management
- Rig Tour

All Thales personnel attended DOGC's daily pre-tour meetings.

Should an incident occur, Thales' procedures require the incident to be recorded on the appropriate forms and Thales' QA & Safety Manager to be notified immediately. The QA & Safety Manager will initiate a full and thorough investigation with corrective action being introduced to prevent further incidents.

There were no incidents involving Thales personnel during this project. Thales personnel carried out their duties at all times in accordance with Company and Statutory Regulations and Guidelines.

When demobilising the Ocean Bounty, all equipment was packed securely in the designated area where it would not cause obstructions. All heavy or fragile boxes were clearly labelled to avoid accidents during handling.

A project debrief was also held at Thales' Perth offices on 26 September 2002. During the meeting the safety procedures that had been undertaken were discussed and reviewed. It was noted that all personnel had taken due care and as a result there had been no incidents.

### 3. SUMMARY

#### 3.1 REQUIREMENTS

Thales GeoSolutions (Australasia) Limited were contracted by Santos Offshore Pty Ltd to provide personnel and positioning equipment consisting of Thales' SkyFix/SkyFix Spot Differential GPS for the rig move of the Ocean Bounty to the Casino-2 location.

The project requirements were as follows:

- (a) Provide real-time positioning of the semi-submersible drilling rig Ocean Bounty and the anchor handling vessels Pacific Sentinel and Pacific Conqueror during the anchor recovery at the Casino-1 location.
- (b) Provide real-time positioning of the semi-submersible drilling rig Ocean Bounty and the anchor handling vessels Pacific Sentinel and Pacific Conqueror, during transit to the Casino-2 location.
- (c) Differential GPS Positioning of the Ocean Bounty at the Casino-2 location.
- (d) Real-time positioning (including GNS2 fixing/logging/streaming) of the Ocean Bounty, Pacific Sentinel and Pacific Conqueror during anchor deployment operations at the Casino-2 location.
- (e) Determine the final Differential GPS position of the Ocean Bounty drillstem at the Casino-2 location using a Multiple Reference Station Differential GPS solution.
- (f) The provision of a comprehensive positioning report containing the final Differential GPS position of the Ocean Bounty drillstem and anchors at the Casino-2 location.

The positioning requirements were as follows:

- (a) Intended Casino-2 location:

**Datum: GDA94**

Latitude : 38° 47' 43.980" South  
Longitude : 142° 44' 50.720" East

**Projection: MGA Zone 54, CM 141° East**

Easting : 651 751.95m  
Northing : 5 704 460.93m

- (b) Positioning tolerance : ± 25m
- (c) Intended rig heading : 240.0° (T)



### 3.2 SUMMARY OF EVENTS

All times quoted are in Eastern Standard Time (UTC + 10.0 hours).

#### 22 September 2002

1515 Thales personnel depart Perth for Melbourne.  
1840 Arrive Melbourne.  
1950 Check in at Holiday Inn Hotel.

#### 23 September 2002

0630 Thales personnel arrive at Bristow Heli Base.  
0830 Depart Bristow Heli Base for Ocean Bounty.  
0925 Arrive on board Ocean Bounty.  
0940 Commenced Induction.  
1050 Completed Induction.  
1200 Commenced tow to new location, Casino-2.  
1400 All equipment mobilised and operational. Checking System settings.  
1515 Checked offsets. Agreed with previous measurements.  
1650 Rig 1nm from ANC 6 drop location.  
1721 ANC # 6 deployed by rig. E 652 385 N 5 705 556 (AGD 84 MGA Zone 54 CM 141°).  
1800 ANC # 2 PCC passed to Conqueror.  
1831 ANC # 2 on bottom, Conqueror.  
2020 Conqueror recovered ANC # 2 to re-deploy.  
2040 ANC # 2 on bottom. E 651 132 N 5 703 316 (AGD 84 MGA Zone 54 CM 141°).  
2105 ANC # 2 PCC returned to rig.  
2115 ANC # 7 PCC passed to Conqueror.  
2147 ANC # 7 on bottom. E 652 974 N 5 704 409 (AGD 84 MGA Zone 54 CM 141°).  
2215 ANC # 7 PCC returned to rig.  
2228 ANC # 3 PCC passed to Conqueror.  
2251 ANC # 3 on bottom. E 650 466 N 5 704 511 (AGD 84 MGA Zone 54 CM 141°).  
2322 ANC # 3 PCC returned to rig.  
2340 ANC # 5 PCC passed to Conqueror.  
2350 Tow Bridle returned to rig by Sentinel.  
2351 ANC # 5 on bottom. E 651 770 N 5705723 (AGD 84 MGA Zone 54 CM 141°).

## 24 September 2002

- 0035 ANC # 4 PCC passed to Conqueror.
- 0054 ANC # 4 on bottom. E 650 637 N 5 705 145 (AGD 84 MGA Zone 54 CM 141°).
- 0130 ANC # 4 PCC returned to rig.
- 0140 ANC # 1 PCC passed to Conqueror.
- 0215 ANC # 1 on bottom. E 651 655 N 5 703 290 (AGD 84 MGA Zone 54 CM 141°).
- 0240 ANC # 1 PCC returned to rig.
- 0259 Lowered ANC # 8 to seabed for J-Hook operations as PCC is faulty. Will use J-Hook to recover chain of ANC # 8 for deployment. Recorded location: E 651 767 N 5 704 445 (AGD 84 MGA Zone 54 CM141°).
- 0630 Performed Gyro Calibration by means of sun obs. Result: +1.2°. Entered new c-o into system.
- 0715 Informed by Ron King (Company Rep) that all nav kit must be de-mobilised once positioning is complete.
- 0805 Sentinel, commenced running ANC # 8.
- 0812 ANC # 8 on bottom. E 652 857 N 5 703 778 (AGD 84 MGA Zone 54 CM 141°).
- 0905 Completed cross-tensioning.
- 0932 Spud operations commenced. J. Antao transfers to AHV's for demob of nav kit.
- 1400 Commenced Final Fix at Casino-2 location.
- 1500 Completed Final Fix. Result: Final Datum Position is 2.94m on a bearing of 12.3° True from intended location. Final Datum Position: E 651 752.63 N 5 704 463.79. Final Heading of 242.0° True (AGD 84 MGA Zone 54 CM 141°).
- 1515 Final Fix approved by Survey Rep.
- 1530 J. Antao returns to rig.
- 1815 Commenced demob of equipment on board rig.
- 2115 Completed demob. All equipment secure in container ready for transfer to AHV Conqueror.

## 25 September 2002

- 0830 Thales Personnel depart rig for transit to Essendon Airport.
- 1150 Depart Melbourne Airport for transit to Perth.
- 1550 Arrive Perth.

## **4. EQUIPMENT ANALYSIS**

### **4.1 EQUIPMENT PERFORMANCE**

During the positioning of the semi-submersible drilling rig Ocean Bounty from the Casino-1 location to the Casino-2 location, no significant problems were encountered with Thales' equipment or software.

One problem that did arise, was on the anchor handling vessel's (AHV) graphic displays, when deploying anchors at Casino-2 location a line showing run out of intended chain did not appear on the AHV's screens. The range and bearing to intended anchor position did appear, therefore giving the helmsman an indication of where the intended anchor drop location was.

This line from the fairlead to intended anchor position did appear on the main navigation system on board the Ocean Bounty. When necessary, verbal instructions were given to the AHV's via radio.

Due to Thales personnel arriving on board the rig shortly before tow commenced to Casino-2 and the rig move being a short distance, it was agreed by the client survey representative and offshore installation manager that transferring to AHV's wouldn't be necessary.

It should be noted that these issues caused no delays to the Casino-2 rig move.

## **5. EQUIPMENT CHECKS AND CALIBRATIONS**

### **5.1 DIFFERENTIAL GPS CHECK FIX**

Due to the Ocean Bounty having departed Casino-1 location once the equipment was operational, a Differential GPS check fix was not possible.

The Thales surveyor and Santos' survey representative reviewed all geodetic parameters and antenna offsets, at which time Thales' equipment was accepted as operating correctly.

## 5.2 GYROCOMPASS CALIBRATION

The S.G. Brown 1000S gyrocompass installed onboard the Ocean Bounty was calibrated on 24 September 2002 using a marine sextant. A series of measurements of the horizontal angle between the centreline of the rig and the sun was observed while accurately recording local time at the instant of each observation. The gyrocompass heading was simultaneously recorded within GNS2 data files.

Thales' Solar Observation software was used to determine the azimuth of the sun for each observation. The observed horizontal angle was applied to the sun's azimuth to determine the true heading of the rig. Each Computed (C) true heading was then compared with the Observed (O) gyrocompass heading to determine the Computed minus Observed (C-O) value for the gyrocompass. The C-O value in GNS2 was set to zero prior to conducting the gyrocompass calibration.

### Observation Date : 24 September 2002

Average Local Time (HMS)	Average Horizontal Angle (DMS)	Azimuth Sun (DMS)	Azimuth RO (DMS)	Calculated (C) True Heading (D.D)	Observed (O) True Heading (D.D)	C-O (D.D)
06:28:00	030° 02' 12"	089° 08' 50"	059° 06' 38"	59.11°	57.70°	1.41°
06:29:30	030° 01' 12"	088° 54' 45"	058° 53' 33"	58.89°	57.70°	1.19°
06:30:30	029° 18' 48"	088° 45' 21"	059° 26' 33"	59.44°	58.20°	1.24°
06:31:00	029° 55' 00"	088° 40' 39"	058° 45' 39"	58.76°	58.20°	0.56°
06:31:30	029° 28' 48"	088° 35' 57"	059° 07' 09"	59.12°	57.70°	1.42°
06:32:00	029° 29' 24"	088° 31' 15"	059° 01' 51"	59.03°	57.70°	1.33°
06:32:30	029° 01' 36"	088° 26' 33"	059° 24' 57"	59.42°	58.00°	1.42°
06:33:00	029° 33' 48"	088° 21' 51"	058° 48' 03"	58.80°	57.30°	1.50°
06:33:30	029° 23' 12"	088° 17' 09"	058° 53' 57"	58.90°	57.50°	1.40°
06:34:00	029° 25' 12"	088° 12' 27"	058° 47' 15"	58.79°	58.00°	0.79°
06:34:30	029° 16' 36"	088° 07' 45"	058° 51' 09"	58.85°	58.00°	0.85°
06:35:00	028° 45' 00"	088° 03' 03"	059° 18' 03"	59.30°	58.00°	1.30°

**Mean C-O = +1.20°**

The mean C-O of +1.20° was input into the GNS2 navigation software and used during the final fix routine at the Casino-2 location.

See Appendix F for the gyrocompass calibration results.

**Note:** All true headings displayed are reciprocal values of actual true heading.

## 6. GEODETIC PARAMETERS

Co-ordinates listed in this report are referenced to the Geocentric Datum of Australia 1994 (GDA94). The Global Positioning System (GPS) is referenced to the World Geodetic System 1984 (WGS84).

### 6.1 DATUMS

<b>Datum</b>	:	<b>Geocentric Datum of Australia 1994 (GDA94)</b>
Spheroid	:	Geodetic Reference System 1980 (GRS80)
Semi-major Axis (a)	:	6 378 137.000m
Semi-minor Axis (b)	:	6 356 752.314m
Eccentricity Squared ( $e^2$ )	:	0.006 694 380
Flattening ( $1/f$ )	:	298.257 222 101

<b>Datum</b>	:	<b>ITRF92 (Epoch 1994.0) WGS84 G730 (WGS84)</b>
Spheroid	:	World Geodetic System 1984 (WGS84)
Semi-major Axis (a)	:	6 378 137.000m
Semi-minor Axis (b)	:	6 356 752.314m
Eccentricity Squared ( $e^2$ )	:	0.006 694 380
Flattening ( $1/f$ )	:	298.257 223 563

The GRS80 and WGS84 ellipsoids have a very small difference in the inverse flattening. On a UTM projection this difference is at the centimetre level. WGS84 and GDA94 can be considered the same for most practical applications.

### 6.2 PROJECTION

<b>Projection Name</b>	:	<b>Map Grid of Australia (MGA)</b>
Projection Type	:	Universal Transverse Mercator (UTM)
MGA Zone	:	54
Central Meridian (CM)	:	141° East
Scale factor on the CM	:	0.9996
False Easting	:	500 000m
False Northing	:	10 000 000m
Latitude of Origin	:	0° (Equator)
Unit of Measure	:	International Metre

### 6.3 DATUM TRANSFORMATIONS

The following 7-parameter datum transformation was used by the GNS2 software to convert WGS84 co-ordinates to GDA94 co-ordinates:

Dx	=	0m
Dy	=	0m
Dz	=	0m
Rx	=	0"
Ry	=	0"
Rz	=	0"
Scale	=	0.0 p.p.m.

The sign convention in Thales' GNS2 survey software used is that used by the US Department of Defense where a positive rotation about the Z axis is an anti-clockwise movement of the X and Y axes (when viewed from the North Pole looking towards the center of the Earth).

## 7. EQUIPMENT DESCRIPTIONS

### 7.1 GNS2

GNS2 (General Navigation System) is Thales' third generation of On-line Navigation Survey Control software. It has been written by Thales' Software Support Group in C++ for operation under Windows® 95 or Windows® 98 or Windows® NT. GNS2 adheres to the operation and dialogue conventions of the Microsoft Windows® environment. Attention has been paid to preserving a consistent operator interface, while at the same time modifying individual dialogue boxes to reflect specific logical circumstances. It has been designed for operation with a pointing device such as a mouse or a tracker ball but control can still be effected in case of the absence or failure of such a device.

The program has the ability to accommodate a large number and variety of mobiles, including surface vessels/ships, anchor handling vessels, tugs, barges, ROVs, towfish, aircraft, vehicles and submersibles etc. The only limiting factors on the number of mobiles that can be tracked in GNS2 are the number of input/output serial communication ports available on the computer and the computer's memory.

For the input/output (I/O) of navigation and sensor data, GNS2 employs intelligent multi-channel serial communications boards to expand a computer's serial input/output facility. Currently GNS2 can support up to 26 communication (Comm) ports, which would consist of the computer's two internal Comm ports and three 8 channel serial communications boards fitted in the computer's internal expansion slots.

If Least Squares Computations (LSCs) are employed for positional calculations, whether two-dimensional (2D), three-dimensional (3D) or altitude aided, GNS2 uses standard iteration routines for the minimisation of residuals using 'variation of co-ordinate' algorithms. The number of positioning systems/computations that GNS2 can handle, is only limited by the number of I/O serial communication ports available on the computer and the computer's memory.

All input observables are accepted on interrupt. Screen updates and other internal triggers are paced to once per second but time critical activities occur at discrete moments as required.

The GNS2 application workspace can extend beyond the display area, which is normally restricted to a single monitor connected to the computer. By using one or more multiple VGA cards, an enlarged display area can spread across multiple monitors.

Currently GNS2 can display 14 different types of view windows. Several copies of the same type of view window can be invoked at any one time. This may be required when several mobiles are being tracked and a Plan, Helmsman's or Bullseye display are required for each one or when the data on several Comm ports are to be viewed simultaneously. Each window can be individually sized to optimise use of the available display area.

GNS2 can be operated in 2 modes; GNS2 Master or GNS2 Remote. GNS2 Master has the full functionality of GNS2. GNS2 Remote is run on a separate computer and allows independent configuration of the graphics display and its associated numeric information. GNS2 Remote is operated on Anchor Handling Vessels or anywhere where positional information is required. (eg. Vessel Masters, ROV Pilots, Winch Control Stations). The link between GNS2 Master and GNS2 Remote can be via a telemetry link or hard wired cable.

## 7.2 GLOBAL POSITIONING SYSTEM (GPS)

### System Description

The NAVSTAR GPS (Navigational Satellite Timing and Ranging Global Positioning System) is a USA Military all-weather, space-based positioning system that transmits signals from a constellation of satellites orbiting the Earth. It is capable of providing suitably equipped users worldwide with accurate three-dimensional positions on, or near, the Earth's surface. The accuracy of these determined positions can vary from a few millimetres to several 10's of metres depending on the GPS receiver and on the method of data acquisition and processing. System design consists of three integrated parts: the Ground Control Segment, the Space Segment and the User Segment.

The operational space segment consists of 24 production satellites and 3 active spares; the term Space Vehicle (SV) is used as a synonym for satellite. The satellites are in high orbits, at approximately 20,200km, having an orbit period of 12 hours. They are arranged in 6 orbital planes, inclined at 55 degrees with near circular orbits. The configuration provides complete 4-satellite (3D) coverage worldwide.

### GPS Observations

There are two important types of GPS observations (observables): Pseudo-range and Carrier Phase. Carrier phase is sometimes also referred to as carrier beat phase. Pseudo-range techniques are generally used for navigation. In high-precision baseline surveying the carrier phase is used. Although the (undifferenced) phase can be used directly, it has become common practice, at least in surveying applications, to process certain linear combinations of the original carrier phase observations (double differences and triple differences).

### Pseudo-ranges

The pseudo-range is a measure of the distance between the satellite and the receiver at the epochs of transmission and reception of the signals. The transit time of the signals is measured by comparing (correlating) identical pseudo-random noise (PRN) codes generated by the satellite and by the receiver. A code-tracking loop within the receiver shifts the internal replica of the PRN code in time until maximum correlation occurs. The codes generated at the receiver are derived from the receiver's own clock, and the codes of the satellite transmissions are generated by the satellite system of clocks. It follows that unavoidable timing errors in both the satellite and the receiver clock will cause the measured quantity (pseudo-range) to differ from the geometric distance.

Where instantaneous positions are required, pseudo-range is the preferred observable. Given the satellite ephemeris (i.e. the position of the satellite at the epoch of transmission), there are seven unknowns: two clock errors, three receiver co-ordinates and the ionospheric and tropospheric delays. The effect of the satellite clock error is negligible for the typical navigation solution, particularly considering that the time errors are indistinguishable from the ionospheric and tropospheric delays. The satellite clocks are constantly monitored and synchronised with GPS time as maintained by the control centre. Actual offsets of the satellite clocks are approximated by polynomials in time and transmitted as part of the navigation message to the user for the correction of the measured pseudo-ranges. The ionospheric and tropospheric delays can be computed on the basis of ionospheric and tropospheric models, thus there are four unknowns left X, Y, Z and receiver clock error. These can be determined from four pseudo-ranges measured simultaneously to four GPS satellites.



## **Carrier Phase**

The phase observable is the difference between the phase of the carrier signal of the satellite, measured at the receiver, and the phase of the local oscillator within the receiver at the epoch of measurement. This can be regarded as a biased range measurement of the satellite-receiver distance with the integer number of carrier waves being unknown. The wavelength of the L1 carrier is about 19cm. Because of the fraction of the carrier phase is measured, the term "interferometry" is often used to describe carrier phase techniques.

## 7.3 SKYFIX/SKYFIX SPOT DIFFERENTIAL GPS (DGPS)

### Differential GPS (DGPS)

GPS is primarily a USA Defence space-based positioning system capable of operating worldwide and in all weather conditions. The USA Military can degrade the accuracy of GPS with the use of Selective Availability (SA) to control the accuracy of Pseudo-range measurements. Essentially, the user is given a false Pseudo-range for each satellite so that the resulting measurement is in error by a controlled amount. On the 1 May 2000 SA was discontinued conditionally and coincided with the successful demonstration of the ability to selectively deny GPS signals on a regional basis. SA has been set to zero and can be reinstated during periods of heightened global tension.

GPS signals are affected by several sources of positional bias, the largest of which was SA. The remaining biases of the ionosphere, the troposphere, time, satellite ephemeris and inherent receiver noise also give rise to substantial bias of position.

Differential GPS is a means by which the civil user can improve the accuracy and quality of GPS to the 1-3 metre level. It requires a receiver be located at a precisely known point from which pseudo-range corrections for each satellite can be determined and monitored. These pseudo-range corrections are then communicated by means of a telecommunications link to users at unknown locations. In the relative mode, most of the important systematic errors common to the known station and at the unknown location cancel out to improve the accuracy of the computed position.

### SkyFix/SkyFix Spot Differential

#### SkyFix

Thales GeoSolutions (Australasia) Limited introduced its SkyFix Differential GPS System in Australia in February 1991, using the Inmarsat Pacific and Indian Ocean marine communications satellites as the differential data broadcast link. Extensive performance trials and projects undertaken to date have shown SkyFix to meet the best industry expectations in terms of quality of service and accuracy.

Satellite communications systems, particularly at the Inmarsat L-band frequencies of 1.5 GHz are reliable and free of the interference associated with the crowded MF/HF bands. This high data integrity gives users confidence that the corrections will be continuously received without interference.

The SkyFix Australian network comprises of reference stations at Dampier, Broome, Perth, Adelaide, Melbourne, Sydney, Cairns and Darwin.

#### SkyFix Spot

The SkyFix Spot Differential GPS System was launched in Australia in December 1994, using the OPTUS high powered focused communications satellite as the differential data broadcast link. Projects undertaken to date have shown SkyFix Spot to meet the industry expectations in terms of quality of service and accuracy.

The SkyFix Spot system has a link capacity of 1200 bits per second, similar to the SkyFix system but because it is only transmitting corrections from the Australian network an update rate of better than five seconds is achieved.

The OPTUS satellite uses the L-band frequencies of 1.5586 GHz and are very reliable and free of interference avoiding data loss associated with the crowded MF/HF bands.

The SkyFix Spot network comprises of reference stations at Dampier, Broome, Perth, Adelaide, Melbourne, Sydney, Cairns, Darwin, Alice Springs and also Ujung Pandang and Jakarta in Indonesia and Wellington, New Zealand.

The differential corrections generated at each reference station are brought via landline links to the data hub and control centre in Singapore, where the system is monitored for performance and quality. From there, a composite message containing full RTCM 104 version 2 formatted data from all reference stations are sent via dual redundant links to Satellite Earth Stations at Sentosa Island, Singapore, O.T.C. Perth, Western Australia and OPTUS, Perth, Western Australia, for uplink and broadcast over the Inmarsat Pacific and Indian Ocean Region satellites and the OPTUS Satellite.

The SkyFix/SkyFix Spot system includes a 24 hour monitoring facility to ensure the validity of data received at the control centre from the Differential GPS reference stations, and that the same data are received over the SkyFix/SkyFix Spot satellite data link.

## 7.4 TRIMBLE SERIES 4000 GPS RECEIVER

The Trimble Series 4000 GPS receiver is designed for moderate precision static and dynamic positioning applications. The GPS receiver provides time and three-dimensional station co-ordinates at a once-per-second update rate.

The receiver receives the civilian coded signal (C/A) from the GPS NAVSTAR satellites. The receiver automatically acquires and simultaneously tracks GPS satellites and precisely measures code phase and computes position and velocity.

Latitude, longitude and height values are output on the World Geodetic System (WGS84) Earth-centred, Earth-fixed co-ordinate system.

The receiver is designed to measure the following observables:

- Coarse/Acquisition (C/A) code Pseudo-ranges
- Rate of change of Pseudo-range
- Integrated Carrier

C/A code correlation techniques measure the propagation time of the signal from the satellite to the antenna. Latitude, longitude, height and time can be determined from measurements made from at least 4 satellites, by a process similar to triangulation.

To determine speed and heading, the receiver calculates the rate of change of Range (the range-rate) by measuring the Doppler shift of the carrier.

It is capable of receiving and processing differential corrections from other reference sources using the standard format of the Radio Technical Commission for Maritime Services, Special Committee 104 (RTCM SC-104), Version 1.0 or 2.0 protocols.

The Trimble Series 4000 GPS receiver has several options available, including internal data logging memory, event marker logging etc. and therefore may be used alone or as part of a more extensive navigation system.

## 7.5 MULTIFIX 3

### 7.5.1 System Overview

MultiFix 3 is Thales GeoSolutions third generation *multiple reference station* differential GPS (DGPS) real time position computation and quality control program. It is an integral part of the Thales SkyFix Premier service but can also be used with the standard SkyFix service. MultiFix 3 has more advanced features than its predecessor, MultiFix 2, including being able to use dual frequency receivers and form real time 'Iono-Free DGPS position solutions'.

MultiFix 3 is one of a series of programs available under the group name Zero, which includes other tools and utilities with a similar user interface and layout structure, like static and dynamic position comparison programs, a correction monitor program, a terminal program and a replay utility.

MultiFix 3 takes in Almanac, Ephemeris and Raw Code and Carrier measurements from a single or dual frequency GPS receiver (or, for replay, from logged files). It takes in RTCM SC104 Version 2 differential correction messages from one or more RTCM correction delivery systems. It also takes in RTCM Type 15 or Thales Proprietary RTCM Type 55 Ionospheric range corrections generated at selected SkyFix Premier reference stations and broadcast via the Thales global network of high (SkyFix Spot-Optus) and low (SkyFix-Inmarsat) power satellite based L-Band beams.

Key features of the program are:

- No limit on the number of RTCM correction delivery systems (data links)
- No limit on the number of RTCM differential reference stations
- No limit on the number of computations (solutions)
- Each computation can employ corrections from any combination of reference stations available
- Computations are weighted least squares with statistical evaluation based upon the UKOOA recommendations
- No limit on the number of outputs
- No limit on the number of view windows
- View windows can be customised
- Extra NMEA outputs can be defined
- TCP/IP communication via sockets for GPS, RTCM and position data transfer between networked computers

MultiFix 3 has been designed in a modular fashion such that data is passed between modules as if over a computer network. The core module MultiFix 3 performs the computation of position. Additional modules are available and more will be made available in the future. While a single computer can be used, the various modules will equally be able to be run on different computers, provided there is a network interconnection.

MultiFix 3 uses the EGM96 geoid/spheroid separation model.

The RTCM corrections that are generated at reference stations are contaminated by a variety of error components, one of which is ionospheric delay. The ionospheric delay is currently more variable because of greater sun spot activity. MultiFix 2 and MultiFix 3's standard computation uses the Klobuchar ionospheric delay model. This model is updated periodically but is not responsive to the current short-term variability. MultiFix 3 has an additional calculation option when working with dual frequency receivers and in receipt of Type 15 or 55 RTCM messages. With dual frequency receivers, estimates can be made of the ionospheric delay by examining the differences between the measurements from the two frequencies. If the same procedure for estimation of ionospheric delay is performed at the reference stations and on the mobile, both the RTCM corrections and the pseudo-ranges can have the ionospheric delay removed, effectively providing an Iono-Free DGPS position solution.

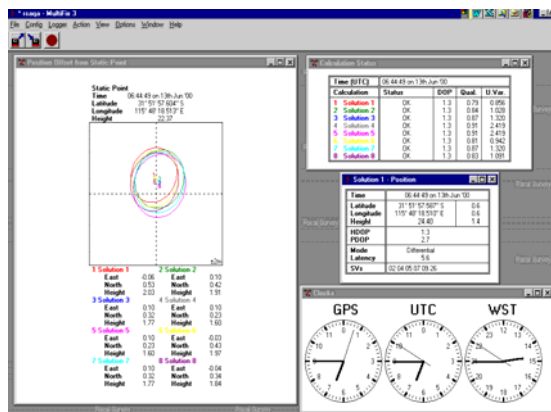
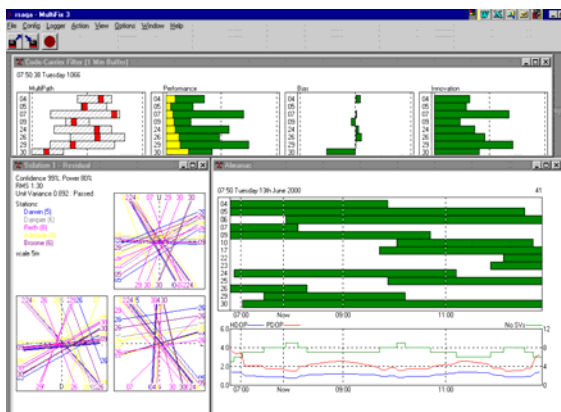
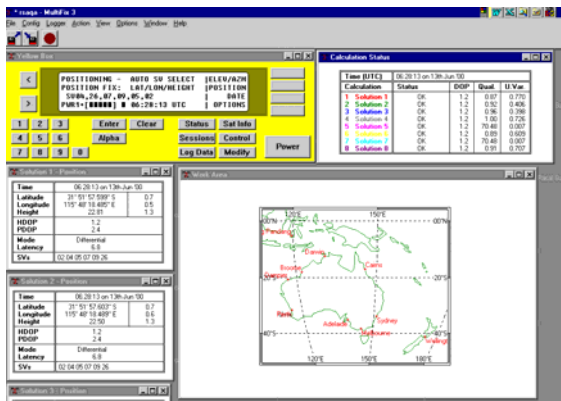
### 7.5.2 Hardware Requirements

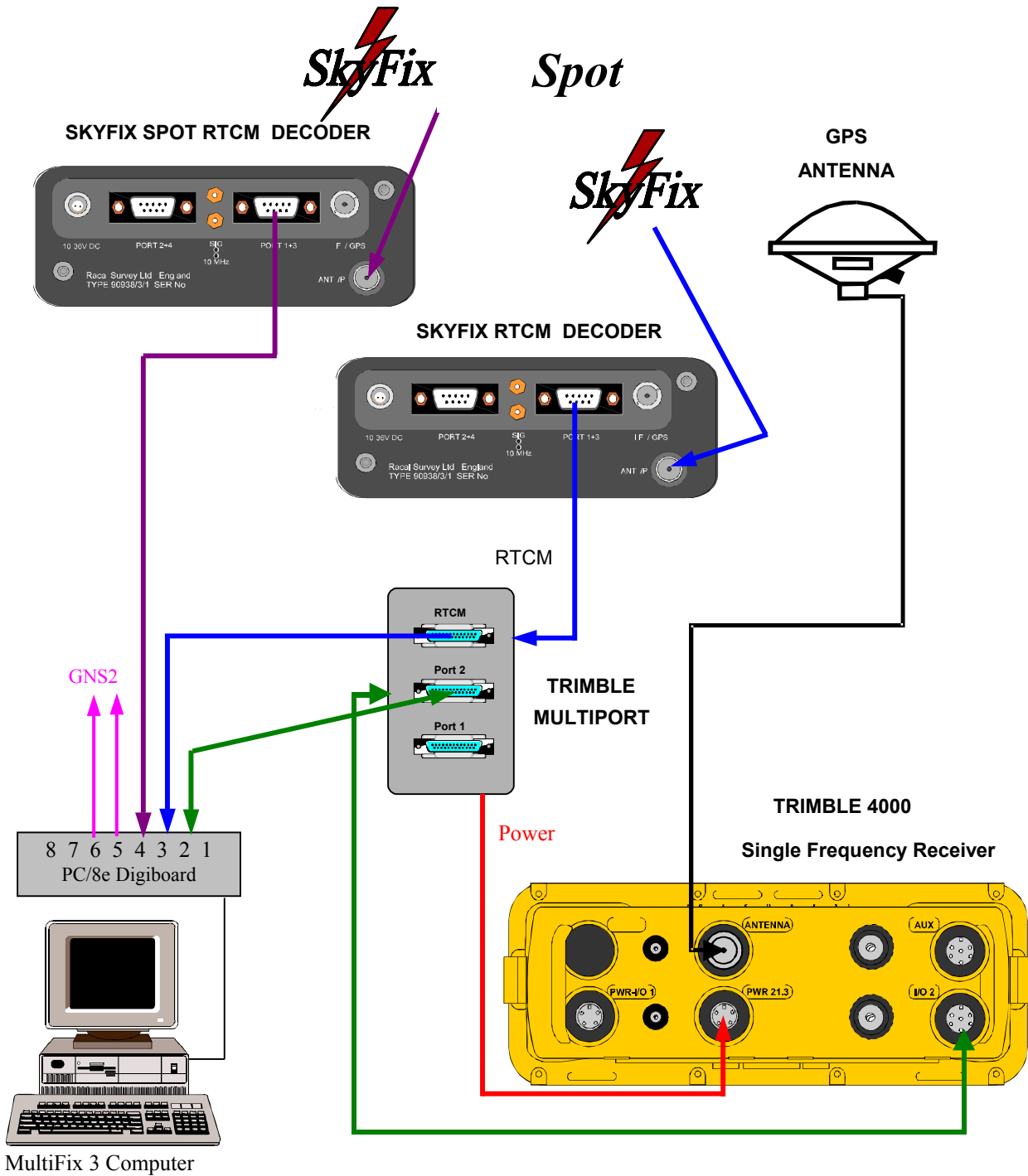
Optimum requirements for MultiFix 3 are:

- 350 MHz Pentium II computer
- 32 Mb RAM
- Windows 95, 98 or NT operating system
- Graphics resolution of at least 800 x 600 pixels
- Intelligent multi-port serial I/O board

### 7.5.3 Positioning and Quality Control Displays

MultiFix 3 has a large number of features to accommodate the user requirements of highly accurate positions with quality control (QC) information and outputs in different formats. MultiFix 3 runs in a Windows environment, which allows the user to design a preferred screen layout by opening, sizing and placing the numerous displays that are available. Examples of the various displays can be found below.





Typical MultiFix 3 Interconnection With Trimble 4000 GPS Receiver

## 7.6 TRACS TDMA

Tracs TDMA (Time Division Multiple Access) is a high speed, intelligent network radio datalink which can operate in the VHF or UHF bands to provide an addressable network with integrated position reporting from an integrated/internal GPS receiver. The standard Tracs units are fitted with a Trimble SK8 GPS receiver, or a Trimble DSM GPS receiver.

Each unit in the network is assigned a unique address (1 to 255) enabling messages can be specifically addressed to that unit. A broadcast address (0) is provided to allow multiple units to receive a message, for example RTCM corrections. The system manages the data bandwidth by dividing it into timeslots synchronised by means of GPS 1PPS (pulse per second) timing pulse from an internal GPS receiver.

The standard Tracs system has a frequency band of 455.0MHz to 465.0MHz (frequency module 53R). The channel frequencies can be selected in 25kHz steps and the units are equipped with the facility to pre-store 10 selected frequencies within the 10MHz band. Units for use in Australia are fitted with 471MHz radios.

There are four types of messages that can be transmitted in a Tracs network.

- Position Reports automatically generated from the SK8 or DSM GPS receiver as a NMEA type or Raw Pseudo Range information.
- Transparent messages used to send unformatted data across the network eg. RTCM corrections.
- Open messages used to provide a general-purpose data link between units. This format is used by GNS to transfer information.
- Configuration messages used for remote configuration of units using the Destination ID to identify which unit is being configured.



## **7.7 S.G. BROWN 1000S GYROCOMPASS**

The S.G. Brown 1000S Gyrocompass is a compact, simple-to-operate master heading reference instrument employing the effect of gravity and the earth's rotation to produce a True North reference. This reference may be read off the compass card or from a digital display and can be interfaced to the GNS2 navigation system.

The normal starting cycle of the instrument is fully automatic and is initiated when the system power supply is switched on. A fail safe control circuit is incorporated which ensures that the compass is not damaged after a power failure when power is restored; the compass will restart automatically and carry out its normal settling program.

## 8. PERSONNEL AND EQUIPMENT

### 8.1 PERSONNEL

The following personnel were employed on this project:

For : Thales GeoSolutions (Australasia) Limited

R. Bright	:	Surveyor/Team Leader
J. Antao	:	Engineer

For : Santos Offshore Pty Ltd

J. Tighe	:	Client Representative
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## **8.2 EQUIPMENT**

The following equipment was provided for this project:

### **Ocean Bounty**

2 x Compaq Computer, inc monitor, keyboard (for GNS2 / MultiFix 3)

1 x Thales SkyFix Mini Rig Portable

3 x SkyFix/SkyFix Spot MK II Receivers

1 x Compaq Computer, inc. monitor, keyboard (for GNS2 Remote)

1 x S.G. Brown 1000S gyrocompass

1 x Uninterruptable Power Supply (UPS)

2 x Epson LX300 Printers

2 x SkyFix Spot Whip Antennae

1 x SkyFix Spot Antenna 90962/3/1

2 x Trimble 4000DS GPS Receivers

2 x SkyFix Spot Antennae

2 x Tracs Bricks

2 x Tracs Multiplexer

2 x UHF Antennae

1 x Marine Sextant

### **Pacific Sentinel and Pacific Conqueror (Each)**

1 x Tracs Geopod

1 x Fluxgate compasses

1 x Tracs Box and Interface Box

1 x Compaq computer, inc. monitor, keyboard (GNS2 Tug Display)

1 x Uninterruptable Power Supply (UPS)

plus all associated software (GNS 2 version 2.35, MultiFix 3 version 1.24) c/w cables, consumables, software dongles etc.

## 9. DISTRIBUTION

Copies of this report have been distributed as follows:

Santos Offshore Pty Ltd : 3 copies  
Attn: Ole Moller

Thales GeoSolutions (Australasia) Limited : 1 copy



Rob Bright  
Surveyor



Anthony Kerr  
Survey Manager

# **APPENDIX A**

**FINAL DIFFERENTIAL GPS DRILLSTEM POSITION AT  
CASINO-2**

**FINAL POSITION FIX – DIFFERENTIAL GPS**

**Job Description:** Ocean Bounty to Casino-2  
**Job Number:** 3447A3  
**Thales Surveyor:** R. Bright  
**Client:** Santos  
**Client Representative:** J. Tighe

**Sampling started:** 24 Sep 2002 14:00:35  
**Sampling end:** 24 Sep 2002 15:00:29

**Ocean Bounty**

**Intended datum location**

**Datum:** GDA94  
Latitude: 38°47'43.980"S Longitude: 142°44'50.720"E  
**Projection:** MGA Zone 54  
Easting: 651751.95 m Northing: 5704460.93 m

**Final Antenna Position (T1 Thales UKOOA):**

**Sample size:** 720 fixes used out of a total of 720.

**Antenna offset**

X: 0.28m Y: 33.90m Z: 0.00m  
Range: 33.90m Rel Brg from datum to antenna: 0.5°

Datum: WGS 84  
Latitude: 38°47'44.394"S Longitude: 142°44'49.500"E  
Datum: GDA94  
Latitude: 38°47'44.394"S Longitude: 142°44'49.500"E  
Projection: MGA Zone 54  
Easting: 651722.27 Northing: 5704448.7

**Standard deviations**

Long or E: 0.42m  
Lat or N: 0.35m  
Height: 0.72m  
Position: 0.55m

**Final Datum Position**

**Datum:** GDA94  
Latitude: 38°47'43.887"S Longitude: 142°44'50.746"E  
**Projection:** MGA Zone 54  
Easting: 651752.63 m Northing: 5704463.79 m

Mean corrected heading: 242.0°T  
SD heading: 0.2°T  
Intended heading: 240.0°T  
Difference from intended: 2.0°  
Gyro C-O: 1.2°  
Convergence: -1.10°

**Final Datum Position is 2.94m on a bearing of 12.3°T ( 13.4°G) from the intended location.**

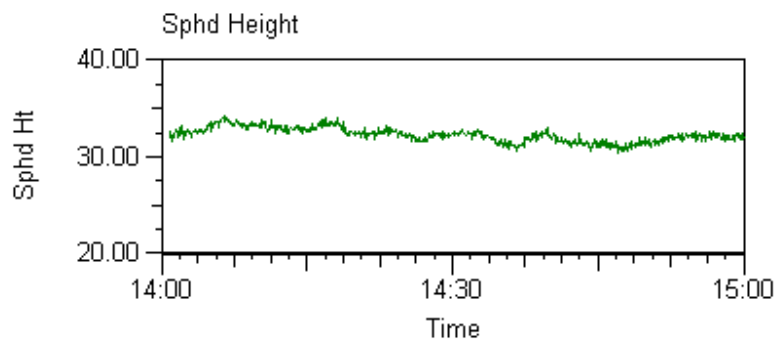
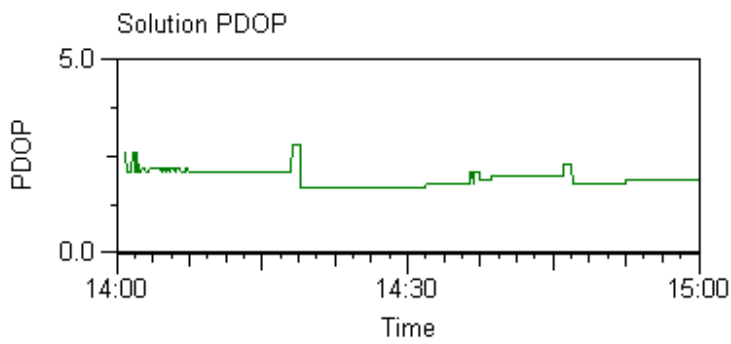
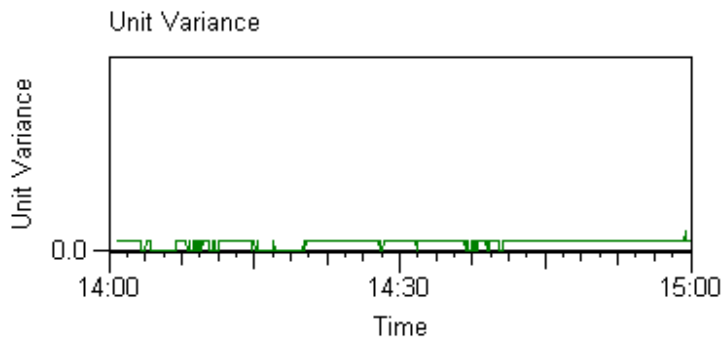
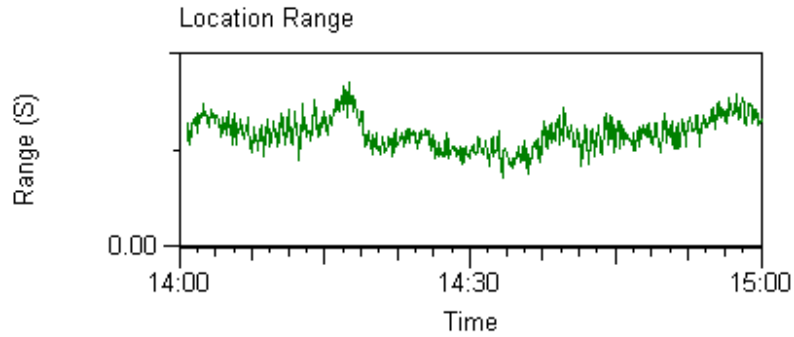
# **APPENDIX B**

## **GNS2 STATIC DIFFERENTIAL GPS FIX GRAPHS**

**THALES** Thales Geosolutions (Australasia) Limited

Project: Casino-2 Positioning Report of the Ocean Bounty

Client: Santos Australia

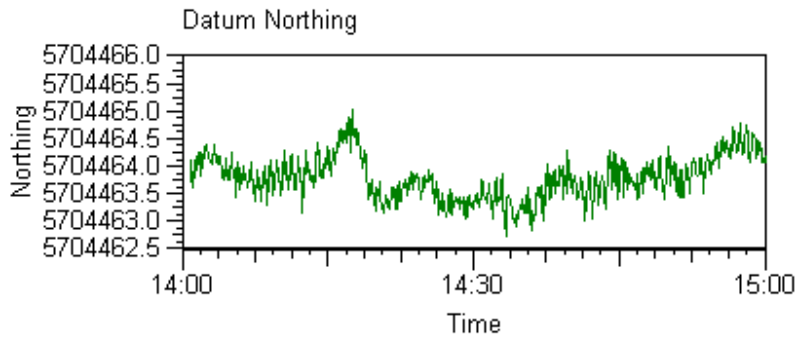
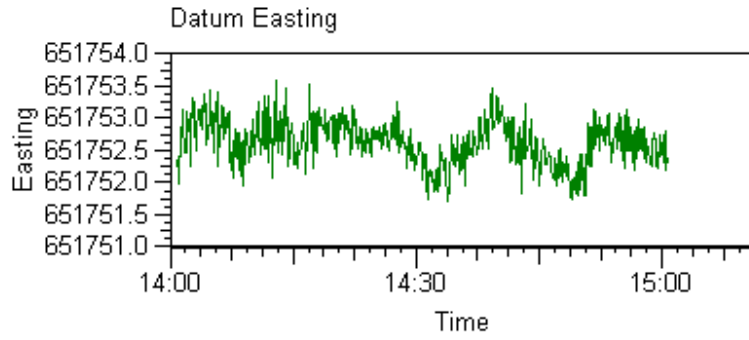
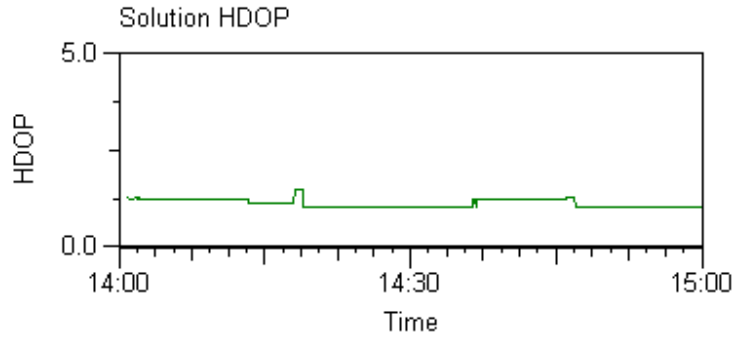




**THALES** Thales Geosolutions (Australasia) Limited

**Project:** Casino-2 Positioning Report of the Ocean Bounty

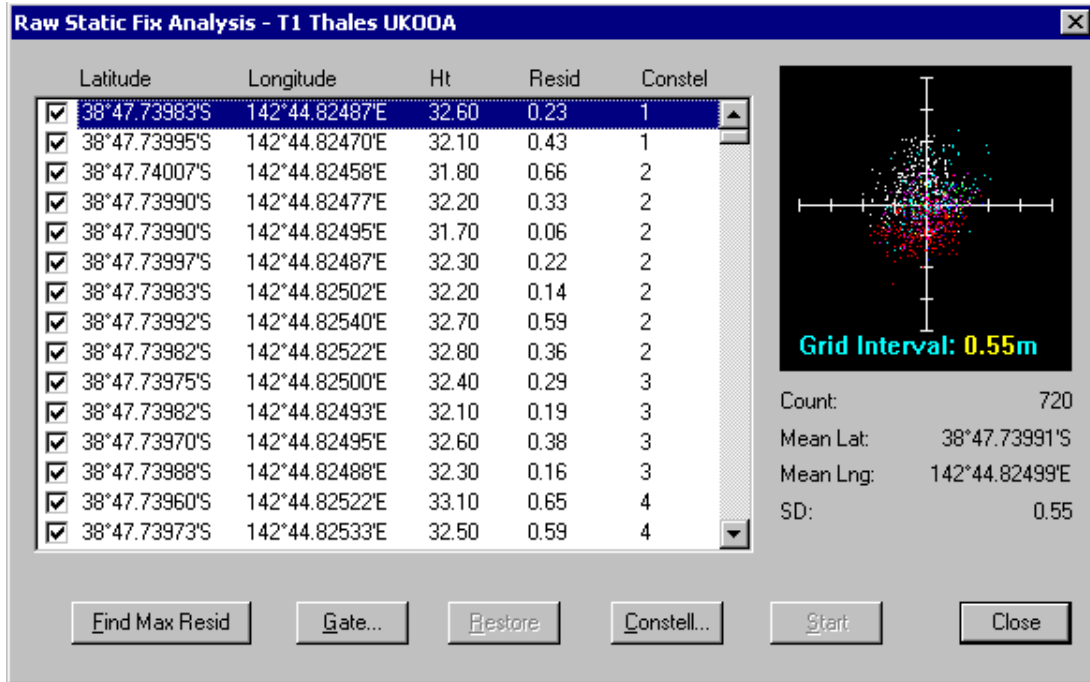
**Client:** Santos Australia



# THALES Thales Geosolutions (Australasia) Limited

Project: Casino-2 Positioning Report of the Ocean Bounty

Client: Santos Australia



# **APPENDIX C**

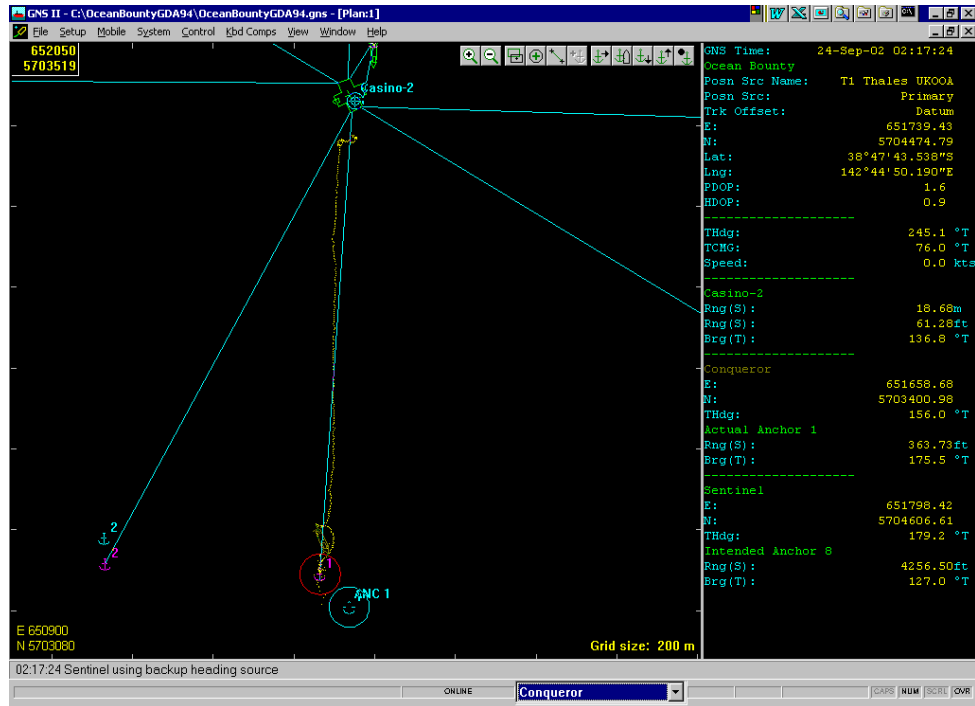
## **RUN LINE GRAPHICS OF ANCHOR HANDLING VESSELS**

# THALES Thales GeoSolutions (Australasia) Limited

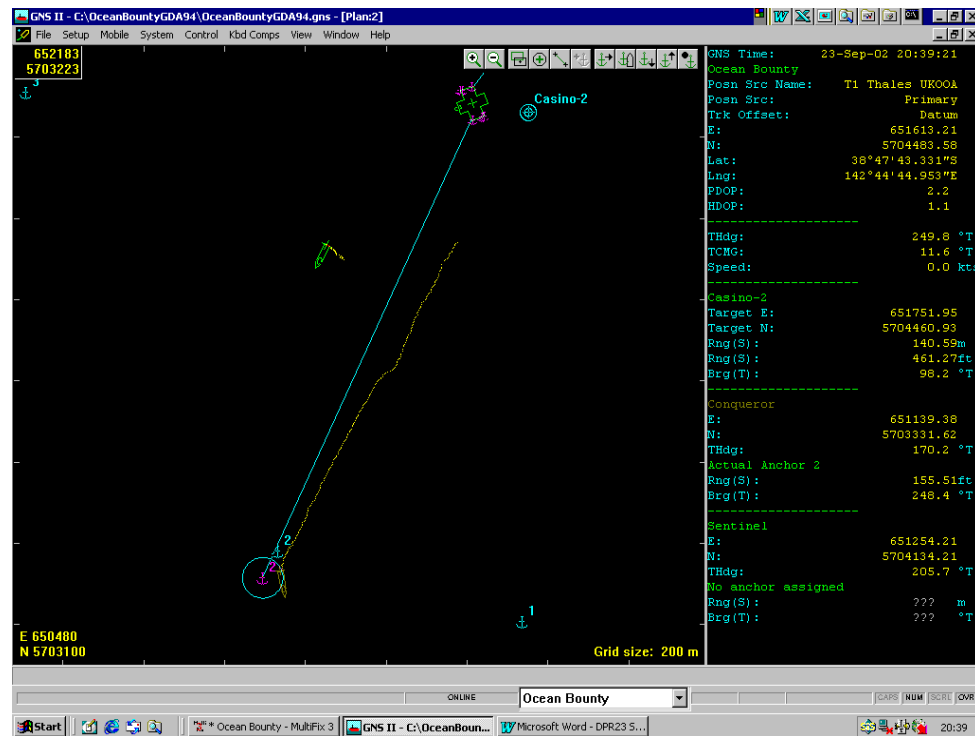
Project: Casino-2 Positioning Report of the Ocean Bounty

Client: Santos Australia

## Anchor 1 – Pacific Conqueror



## Anchor 2 – Pacific Conqueror

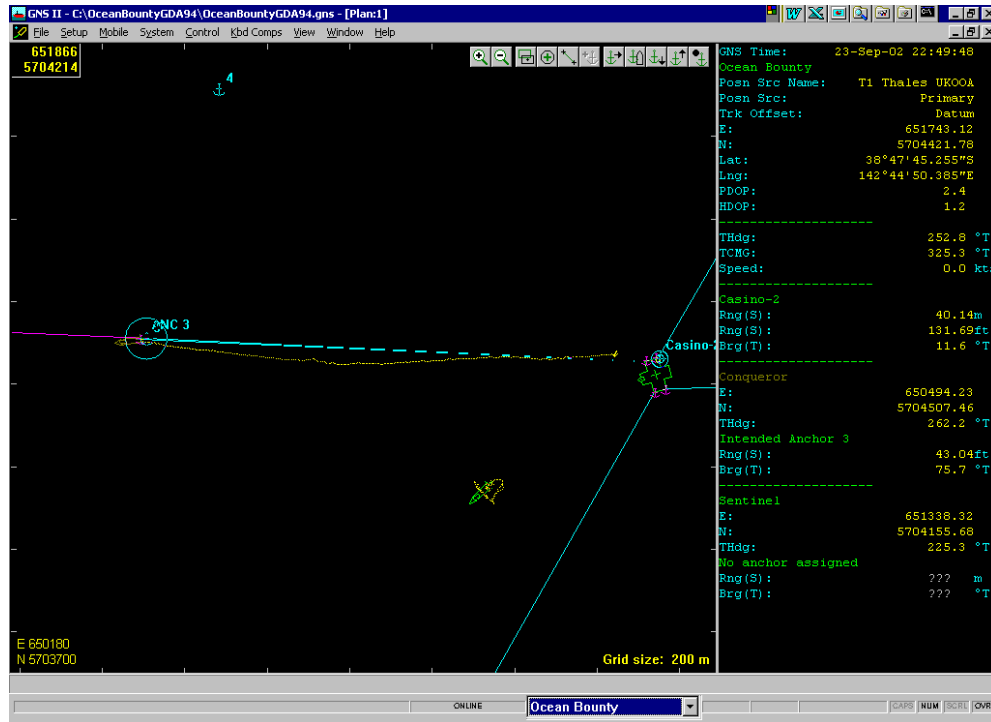


# THALES Thales GeoSolutions (Australasia) Limited

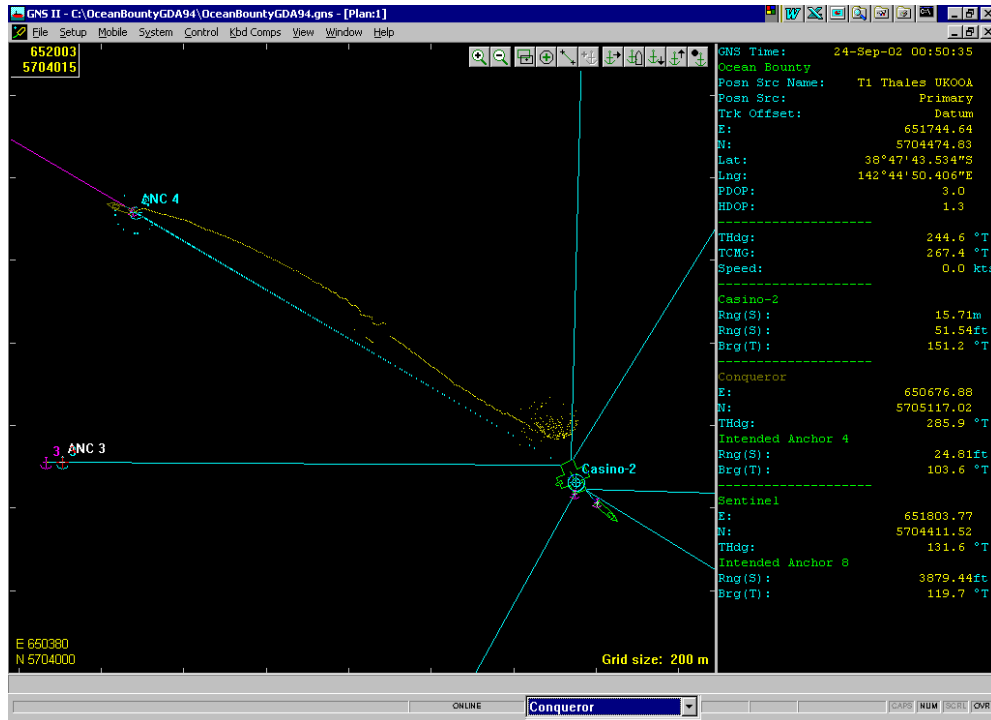
Project: Casino-2 Positioning Report of the Ocean Bounty

Client: Santos Australia

## Anchor 3 – Pacific Conquerer



## Anchor 4 – Pacific Conquerer

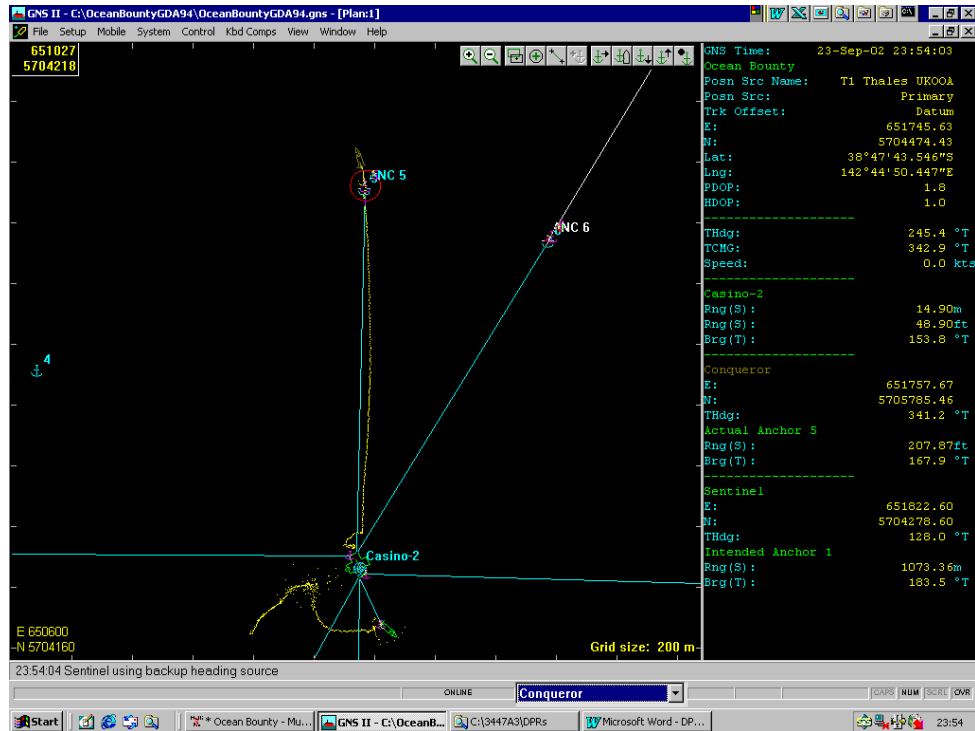


# THALES Thales GeoSolutions (Australasia) Limited

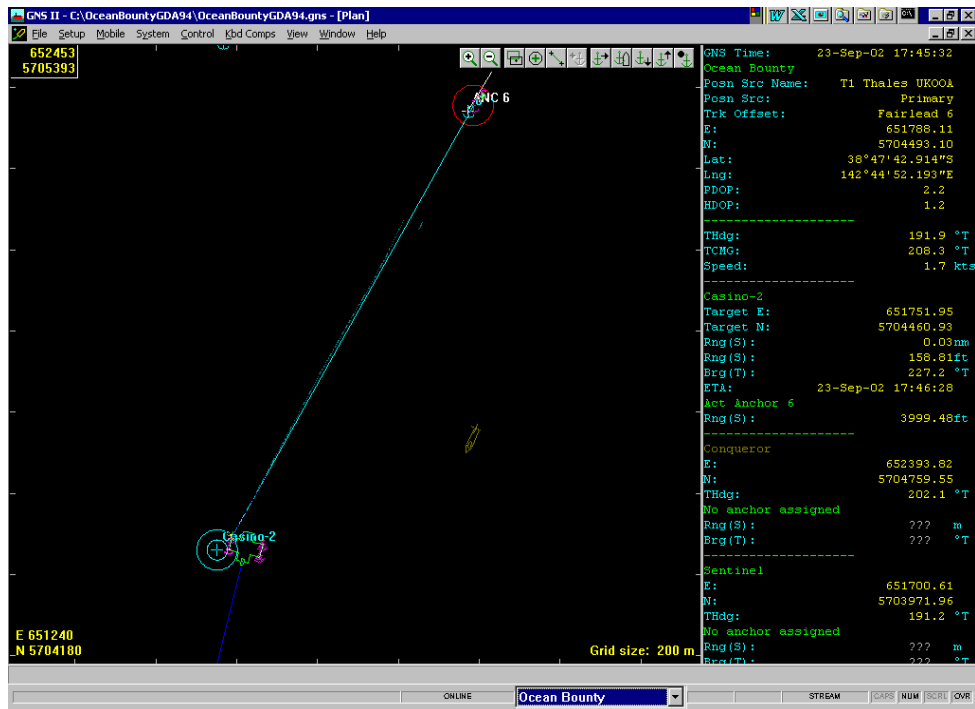
Project: Casino-2 Positioning Report of the Ocean Bounty

Client: Santos Australia

## Anchor 5 – Pacific Conquerer



## Anchor 6 – Ocean Bounty

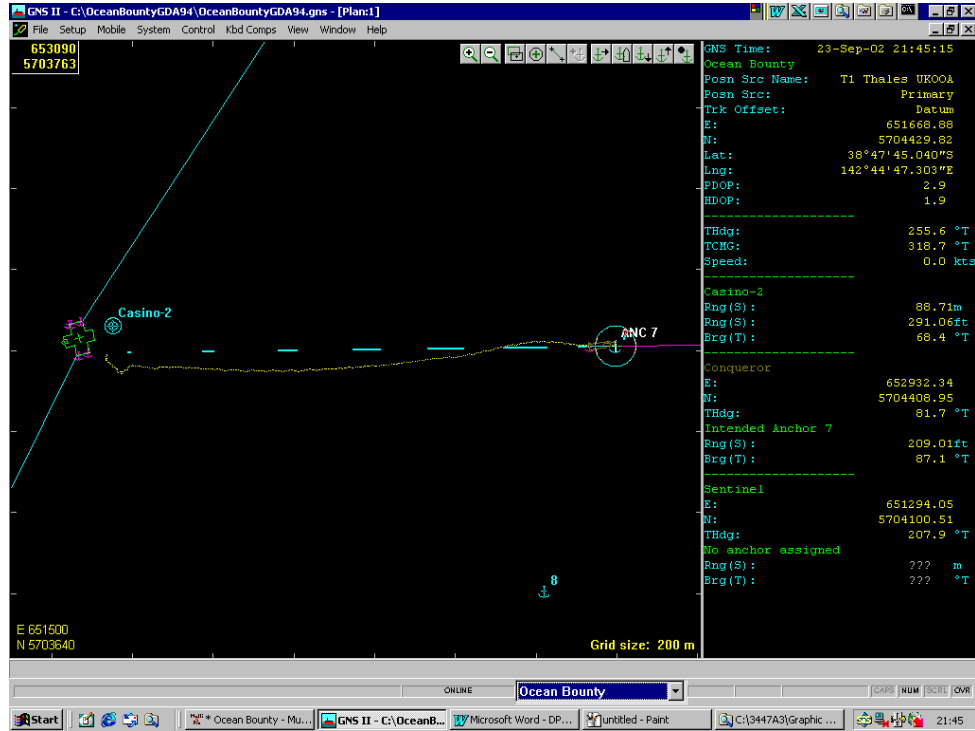


# THALES Thales GeoSolutions (Australasia) Limited

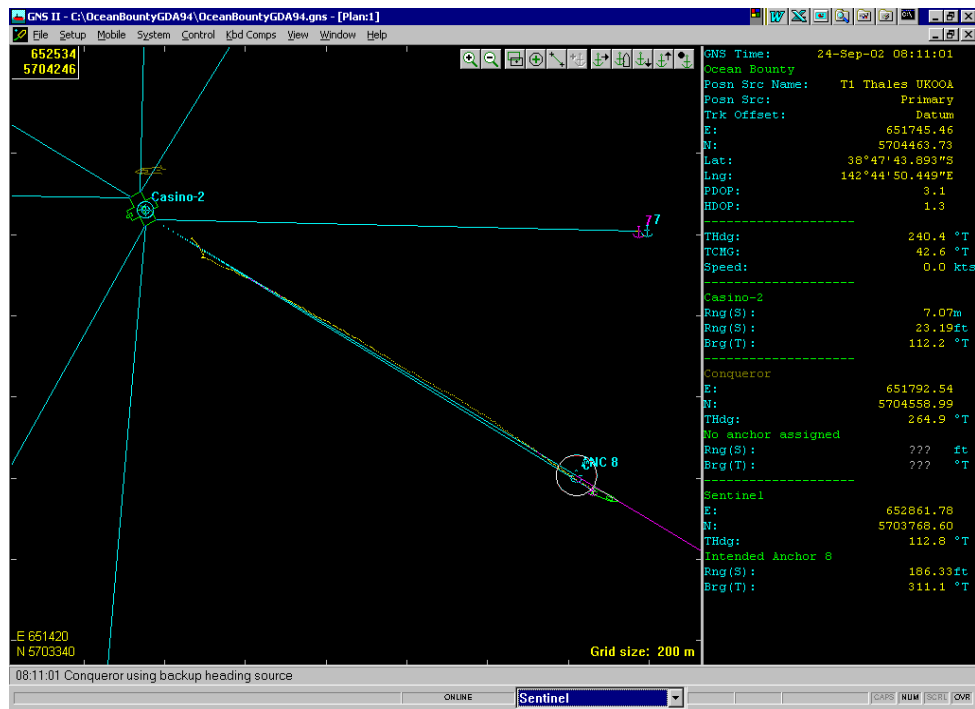
Project: Casino-2 Positioning Report of the Ocean Bounty

Client: Santos Australia

## Anchor 7 – Pacific Conqueror



## Anchor 8 – Pacific Sentinel



# **APPENDIX D**

**OCEAN BOUNTY ANCHOR PATTERN DETAILS AT CASINO-2**





## OCEAN BOUNTY ANCHOR POSITIONS

24 Sep 2002 16:17

**Datum: GDA94**

**Projection: MGA Zone 54, CM 141° East**

### Main Anchors

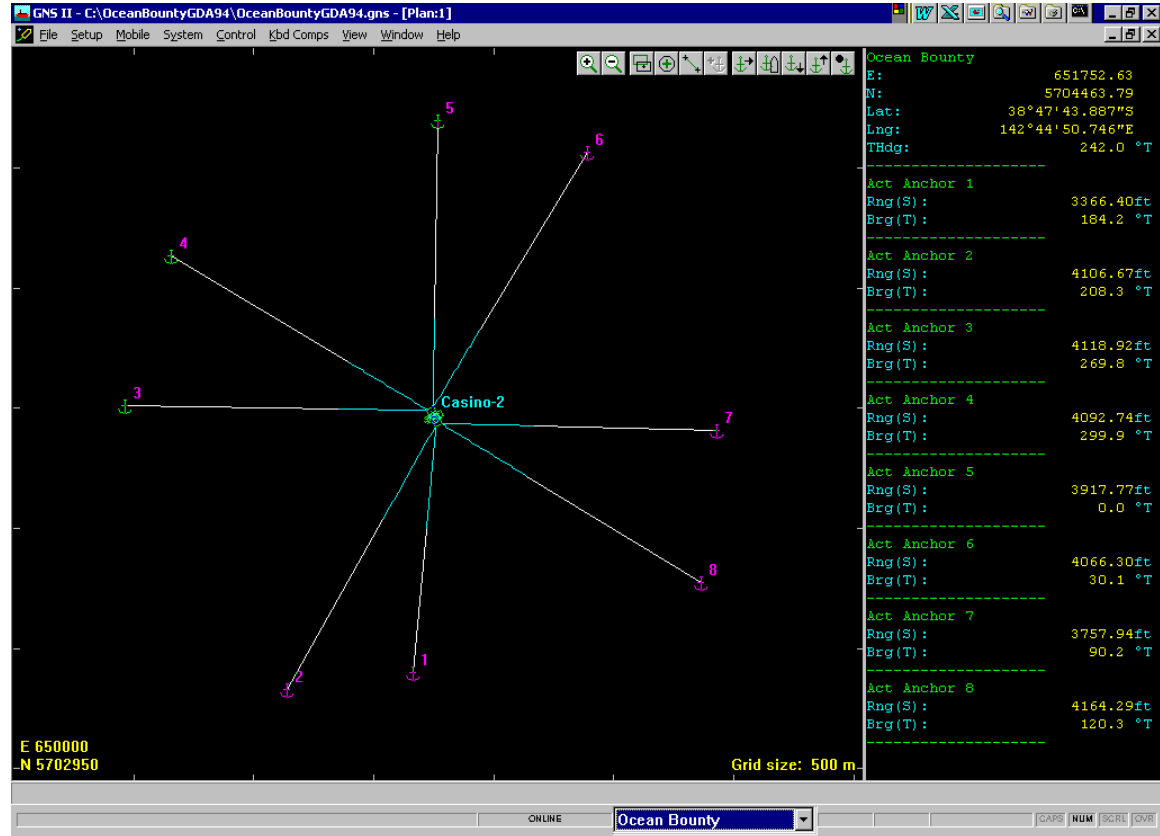
<b>Name</b>	<b>Intended E</b>	<b>Intended N</b>	<b>Dropped E</b>	<b>Dropped N</b>
Anchor 1	651736.75	5703208.80	651665.20	5703401.40
Anchor 2	651130.54	5703380.78	651140.60	5703331.20
Anchor 3	650507.00	5704510.46	650464.90	5704511.00
Anchor 4	650684.20	5705115.11	650654.00	5705134.80
Anchor 5	651767.14	5705713.06	651769.50	5705698.30
Anchor 6	652373.36	5705541.09	652391.40	5705566.50
Anchor 7	652996.00	5704411.00	652930.20	5704410.00
Anchor 8	652819.70	5703806.74	652864.90	5703773.20

# THALES Thales Geosolutions (Australasia) Limited

Project: Casino-2 Positioning Report of the Ocean Bounty

Client: Santos Australia

## Ocean Bounty Anchor Pattern at Casino-2



# **APPENDIX E**

## **OCEAN BOUNTY ANCHOR CATENARY CALCULATIONS**

# THALES Thales GeoSolutions (Australasia) Limited

**Project:** Casino-2 Positioning Report of the Ocean Bounty

**Client:** Santos Australia

**Ocean Bounty Catenary Control**

Anchor 1 ON SEABED

Fairlead Cable  
Out  
Winch Counter Reading  
Manual: 3388 ft  
Counter: Not Available

Corr to Fairlead... 0.00 ft  
Total (corrected): 3388.00 ft  
On Seabed: 594.97 ft  
Suspended: 437.69 ft

Tension  
Manual: 381 kips  
Tensionometer: Not Available  
Current Value: 381.00 kips

Cable Components

	Length	Wt (Wt/L)
Fairlead		
F'lead Seg 1	3388.00	78.00
Anchor		0.00
AHV to Anc	0.00	0.00

Anchor Handling Vessel Cable  
Weight/Length... Out: 0 ft  
Depth... 70.00 m View Section...  
 Enable Comp Update Catenary

Anchor  
Computed Actual  
E: 651665.25 651655.00  
N: 5703401.44 5703290.00  
Depth: 69.90 m 0.00 m  
Horizontal Range From Fairlead  
Comp: 1026.04 m Act: 1137.96 m  
Computed Minus Actual: -111.92 m  
Brig From Fairlead  
Comp: 184.2 \*T Act: 184.2 \*T  
 Use Intended (Planning Only)  
Transfer All Comp -> Actual

Touchdown Points  
Point: 1 Down Total: 1  
E: 651719.71 N: 5703993.84  
Horiz Rng From F'lead: 431.07 m  
Units... Close

**Ocean Bounty Catenary Control**

Anchor 2 ON SEABED

Fairlead Cable  
Out  
Winch Counter Reading  
Manual: 4128 ft  
Counter: Not Available

Corr to Fairlead... 0.00 ft  
Total (corrected): 4128.00 ft  
On Seabed: 809.38 ft  
Suspended: 448.84 ft

Tension  
Manual: 400 kips  
Tensionometer: Not Available  
Current Value: 400.00 kips

Cable Components

	Length	Wt (Wt/L)
Fairlead		
F'lead Seg 1	4128.00	78.00
Anchor		0.00
AHV to Anc	0.00	0.00

Anchor Handling Vessel Cable  
Weight/Length... Out: 0 ft  
Depth... 70.00 m View Section...  
 Enable Comp Update Catenary

Anchor  
Computed Actual  
E: 651140.56 651132.00  
N: 5703331.18 5703316.00  
Depth: 69.94 m 0.00 m  
Horizontal Range From Fairlead  
Comp: 1251.75 m Act: 1269.18 m  
Computed Minus Actual: -17.43 m  
Brig From Fairlead  
Comp: 208.3 \*T Act: 208.3 \*T  
 Use Intended (Planning Only)  
Transfer All Comp -> Actual

Touchdown Points  
Point: 1 Down Total: 1  
E: 651538.25 N: 5704036.01  
Horiz Rng From F'lead: 442.37 m  
Units... Close

**Ocean Bounty Catenary Control**

Anchor 3 ON SEABED

Fairlead Cable  
Out  
Winch Counter Reading  
Manual: 4144 ft  
Counter: Not Available

Corr to Fairlead... 0.00 ft  
Total (corrected): 4144.00 ft  
On Seabed: 883.52 ft  
Suspended: 379.57 ft

Tension  
Manual: 288 kips  
Tensionometer: Not Available  
Current Value: 288.00 kips

Cable Components

	Length	Wt (Wt/L)
Fairlead		
F'lead Seg 1	4144.00	78.00
Anchor		0.00
AHV to Anc	0.00	0.00

Anchor Handling Vessel Cable  
Weight/Length... Out: 0 ft  
Depth... 70.00 m View Section...  
 Enable Comp Update Catenary

Anchor  
Computed Actual  
E: 650464.94 650466.00  
N: 5704511.02 5704511.00  
Depth: 70.05 m 0.00 m  
Horizontal Range From Fairlead  
Comp: 1255.41 m Act: 1254.35 m  
Computed Minus Actual: 1.06 m  
Brig From Fairlead  
Comp: 269.8 \*T Act: 269.8 \*T  
 Use Intended (Planning Only)  
Transfer All Comp -> Actual

Touchdown Points  
Point: 1 Down Total: 1  
E: 651348.25 N: 5704497.16  
Horiz Rng From F'lead: 371.89 m  
Units... Close

# THALES Thales GeoSolutions (Australasia) Limited

**Project:** Casino-2 Positioning Report of the Ocean Bounty

**Client:** Santos Australia

**Ocean Bounty Catenary Control**

Anchor 4 ON SEABED

**Fairlead Cable**

Out

Winch Counter Reading

Manual: 4117 ft

Counter: Not Available

Corr to Fairlead... 0.00 ft

Total (corrected): 4117.00 ft

On Seabed: 859.36 ft

Suspended: 395.50 ft

**Tension**

Manual: 312 kips

Tensionometer: Not Available

Current Value: 312.00 kips

**Cable Components**

	Length	Wt (Wt/L)
Fairlead		
F'lead Seg 1	4117.00	78.00
Anchor	0.00	0.00
AHV to Anc	0.00	0.00

Anchor Handling Vessel Cable

Weight/Length... Out: 0 ft

Depth... 70.00 m View Section...

Enable Comp Update Catenary

**Anchor**

Computed	Actual
E: 650653.98	650637.00
N: 5705134.81	5705145.00
Depth: 70.04 m	0.00 m
Horizontal Range From Fairlead	
Comp: 1247.49m	Act: 1267.30 m
Computed Minus Actual: -19.80 m	
Brig From Fairlead	
Comp: 299.9 *T	Act: 299.9 *T
<input type="checkbox"/> Use Intended (Planning Only)	

Transfer All Comp -> Actual

**Touchdown Points**

Point: 1 Down Total: 1

E: 651390.82 N: 5704692.78

Horiz Rng From F'lead: 388.13 m

Units... Close

**Ocean Bounty Catenary Control**

Anchor 5 ON SEABED

**Fairlead Cable**

Out

Winch Counter Reading

Manual: 3943 ft

Counter: Not Available

Corr to Fairlead... 0.00 ft

Total (corrected): 3943.00 ft

On Seabed: 821.71 ft

Suspended: 380.12 ft

**Tension**

Manual: 289 kips

Tensionometer: Not Available

Current Value: 289.00 kips

**Cable Components**

	Length	Wt (Wt/L)
Fairlead		
F'lead Seg 1	3943.00	78.00
Anchor	0.00	0.00
AHV to Anc	0.00	0.00

Anchor Handling Vessel Cable

Weight/Length... Out: 0 ft

Depth... 70.00 m View Section...

Enable Comp Update Catenary

**Anchor**

Computed	Actual
E: 651769.52	651770.00
N: 5705698.33	5705723.00
Depth: 70.01 m	0.00 m
Horizontal Range From Fairlead	
Comp: 1194.16m	Act: 1218.84 m
Computed Minus Actual: -24.68 m	
Brig From Fairlead	
Comp: 0.0 *T	Act: 0.0 *T
<input type="checkbox"/> Use Intended (Planning Only)	

Transfer All Comp -> Actual

**Touchdown Points**

Point: 1 Down Total: 1

E: 651753.39 N: 5704876.88

Horiz Rng From F'lead: 372.46 m

Units... Close

**Ocean Bounty Catenary Control**

Anchor 6 ON SEABED

**Fairlead Cable**

Out

Winch Counter Reading

Manual: 4091 ft

Counter: Not Available

Corr to Fairlead... 0.00 ft

Total (corrected): 4091.00 ft

On Seabed: 859.63 ft

Suspended: 387.31 ft

**Tension**

Manual: 300 kips

Tensionometer: Not Available

Current Value: 300.00 kips

**Cable Components**

	Length	Wt (Wt/L)
Fairlead		
F'lead Seg 1	4091.00	78.00
Anchor	0.00	0.00
AHV to Anc	0.00	0.00

Anchor Handling Vessel Cable

Weight/Length... Out: 0 ft

Depth... 70.00 m View Section...

Enable Comp Update Catenary

**Anchor**

Computed	Actual
E: 652391.38	652385.00
N: 5705566.54	5705556.00
Depth: 69.94 m	0.00 m
Horizontal Range From Fairlead	
Comp: 1239.43m	Act: 1227.11 m
Computed Minus Actual: 12.33 m	
Brig From Fairlead	
Comp: 30.1 *T	Act: 30.1 *T
<input type="checkbox"/> Use Intended (Planning Only)	

Transfer All Comp -> Actual

**Touchdown Points**

Point: 1 Down Total: 1

E: 651946.30 N: 5704831.22

Horiz Rng From F'lead: 379.80 m

Units... Close

# THALES Thales GeoSolutions (Australasia) Limited

**Project:** Casino-2 Positioning Report of the Ocean Bounty

**Client:** Santos Australia

**Ocean Bounty Catenary Control**

Anchor: Anchor 7 DN SEABED

Fairlead Cable Out

Winch Counter Reading

Manual: 3782 ft

Counter: Not Available

Corr to Fairlead...: 0.00 ft

Total (corrected): 3782.00 ft

On Seabed: 758.09 ft

Suspended: 394.66 ft

Tension

Magual: 311 kips

Tensionometer: Not Available

Current Value: 311.00 kips

Cable Components

	Length	Wt (Wt/L)
Fairlead		
F'lead Seg 1	3782.00	78.00
Anchor	0.00	0.00
AHV to Anc	0.00	0.00

Anchor Handling Vessel Cable

Weight/Length... Out: 0 ft

Depth...: 70.00 m View Section...

Enable Comp Update Catenary

Anchor

Computed	Actual
E: 652930.17	652974.00
N: 5704410.01	5704409.00
Depth: 69.98 m	0.00 m

Horizontal Range From Fairlead

Comp: 1145.38m Act: 1189.24 m

Computed Minus Actual: -43.85 m

Brg From Fairlead

Comp: 90.2 °T Act: 90.2 °T

Use Intended (Planning Only)

Transfer All Comp --> Actual

Touchdown Points

Point: 1 Down Total: 1

E: 652172.36 N: 5704427.38

Horiz Rng From F'lead: 387.29 m

Units... Close

**Ocean Bounty Catenary Control**

Anchor: Anchor 8 DN SEABED

Fairlead Cable Out

Winch Counter Reading

Manual: 4187 ft

Counter: Not Available

Corr to Fairlead...: 0.00 ft

Total (corrected): 4187.00 ft

On Seabed: 851.83 ft

Suspended: 424.36 ft

Tension

Magual: 358 kips

Tensionometer: Not Available

Current Value: 358.00 kips

Cable Components

	Length	Wt (Wt/L)
Fairlead		
F'lead Seg 1	4187.00	78.00
Anchor	0.00	0.00
AHV to Anc	0.00	0.00

Anchor Handling Vessel Cable

Weight/Length... Out: 0 ft

Depth...: 70.00 m View Section...

Enable Comp Update Catenary

Anchor

Computed	Actual
E: 652864.94	652857.00
N: 5703773.15	5703778.00
Depth: 70.03 m	0.00 m

Horizontal Range From Fairlead

Comp: 1269.34m Act: 1260.03 m

Computed Minus Actual: 9.31 m

Brg From Fairlead

Comp: 120.3 °T Act: 120.3 °T

Use Intended (Planning Only)

Transfer All Comp --> Actual

Touchdown Points

Point: 1 Down Total: 1

E: 652137.96 N: 5704216.94

Horiz Rng From F'lead: 417.50 m

Units... Close

# **APPENDIX F**

## **GYROCOMPASS CALIBRATION REPORT**



# Thales GeoSolutions (Australasia) Limited

ABN 82 000 601 909

## Solar Observation for Azimuth (Hour Angle) 2002

Thales Job Number: 3447A3  
 Job Description: Ocean Bounty Rig Move to Casino-2  
 Client: Santos  
 Party Chief: R. Bright  
 Surveyor: R. Bright  
 Rig Name: Ocean Bounty  
 Date: 24 September 2002

### Control Point Co-ordinates

**Datum: GDA94 Note: All True Hdg's displayed here are reciprocal values of actual True Hdg**

Latitude (DMS): -038 47 44  
 Longitude (DMS): 142 44 50  
 UTC Correction (HMS): 10.00

### Total Station Observations:

Face	Local Time (HMS)			Observed Direction to R.O. (DMS)			Observed Direction to Sun (DMS)			Observed (O) True Heading (D.D)
Left	06	28	00	000	00	00	030	02	12	57.70
Right	06	28	00	180	00	00	210	02	12	
Left	06	29	30	000	00	00	030	01	12	57.70
Right	06	29	30	180	00	00	210	01	12	
Left	06	30	30	000	00	00	029	18	48	58.20
Right	06	30	30	180	00	00	209	18	48	
Left	06	31	00	000	00	00	029	55	00	58.20
Right	06	31	00	180	00	00	209	55	00	
Left	06	31	30	000	00	00	029	28	48	57.70
Right	06	31	30	180	00	00	209	28	48	
Left	06	32	00	000	00	00	029	29	24	57.70
Right	06	32	00	180	00	00	209	29	24	
Left	06	32	30	000	00	00	029	01	36	58.00
Right	06	32	30	180	00	00	209	01	36	
Left	06	33	00	000	00	00	029	33	48	57.30
Right	06	33	00	180	00	00	209	33	48	
Left	06	33	30	000	00	00	029	23	12	57.50
Right	06	33	30	180	00	00	209	23	12	
Left	06	34	00	000	00	00	028	55	12	58.00
Right	06	34	00	180	00	00	209	55	12	
Left	06	34	30	000	00	00	028	46	36	58.00
Right	06	34	30	180	00	00	209	46	36	
Left	06	35	00	000	00	00	028	45	00	58.00
Right	06	35	00	180	00	00	208	45	00	

Signature

\_\_\_\_\_  
SURVEYOR/PARTY CHIEF

\_\_\_\_\_  
CLIENT SURVEY REPRESENTATIVE





## Thales GeoSolutions (Australasia) Limited

ABN 82 000 601 909

### Solar Observation for Azimuth (Hour Angle) 2002

Thales Job Number: 3447A3  
Job Description: Ocean Bounty Rig Move to Casino-2  
Client: Santos  
Party Chief: R. Bright  
Surveyor: R. Bright  
Rig Name: Ocean Bounty  
Date: 24 September 2002

Datum: GDA94 Note: All True Hdg's displayed here are reciprocal values of actual True Hdg

Average Local Time (HMS)			Average Horizontal Angle (DMS)			Azimuth Sun (DMS)			Azimuth RO (DMS)			Calculated (C) True Heading (D.D)	Observed (O) True Heading (D.D)	C-O (D.D)
06	28	00.0	030	02	12	089	08	50	059	06	38	59.11	57.70	1.41
06	29	30.0	030	01	12	088	54	45	058	53	33	58.89	57.70	1.19
06	30	30.0	029	18	48	088	45	21	059	26	33	59.44	58.20	1.24
06	31	00.0	029	55	00	088	40	39	058	45	39	58.76	58.20	0.56
06	31	30.0	029	28	48	088	35	57	059	07	09	59.12	57.70	1.42
06	32	00.0	029	29	24	088	31	15	059	01	51	59.03	57.70	1.33
06	32	30.0	029	01	36	088	26	33	059	24	57	59.42	58.00	1.42
06	33	00.0	029	33	48	088	21	51	058	48	03	58.80	57.30	1.50
06	33	30.0	029	23	12	088	17	09	058	53	57	58.90	57.50	1.40
06	34	00.0	029	25	12	088	12	27	058	47	15	58.79	58.00	0.79
06	34	30.0	029	16	36	088	07	45	058	51	09	58.85	58.00	0.85
06	35	00.0	028	45	00	088	03	03	059	18	03	59.30	58.00	1.30

Mean C-O 1.20

Signature

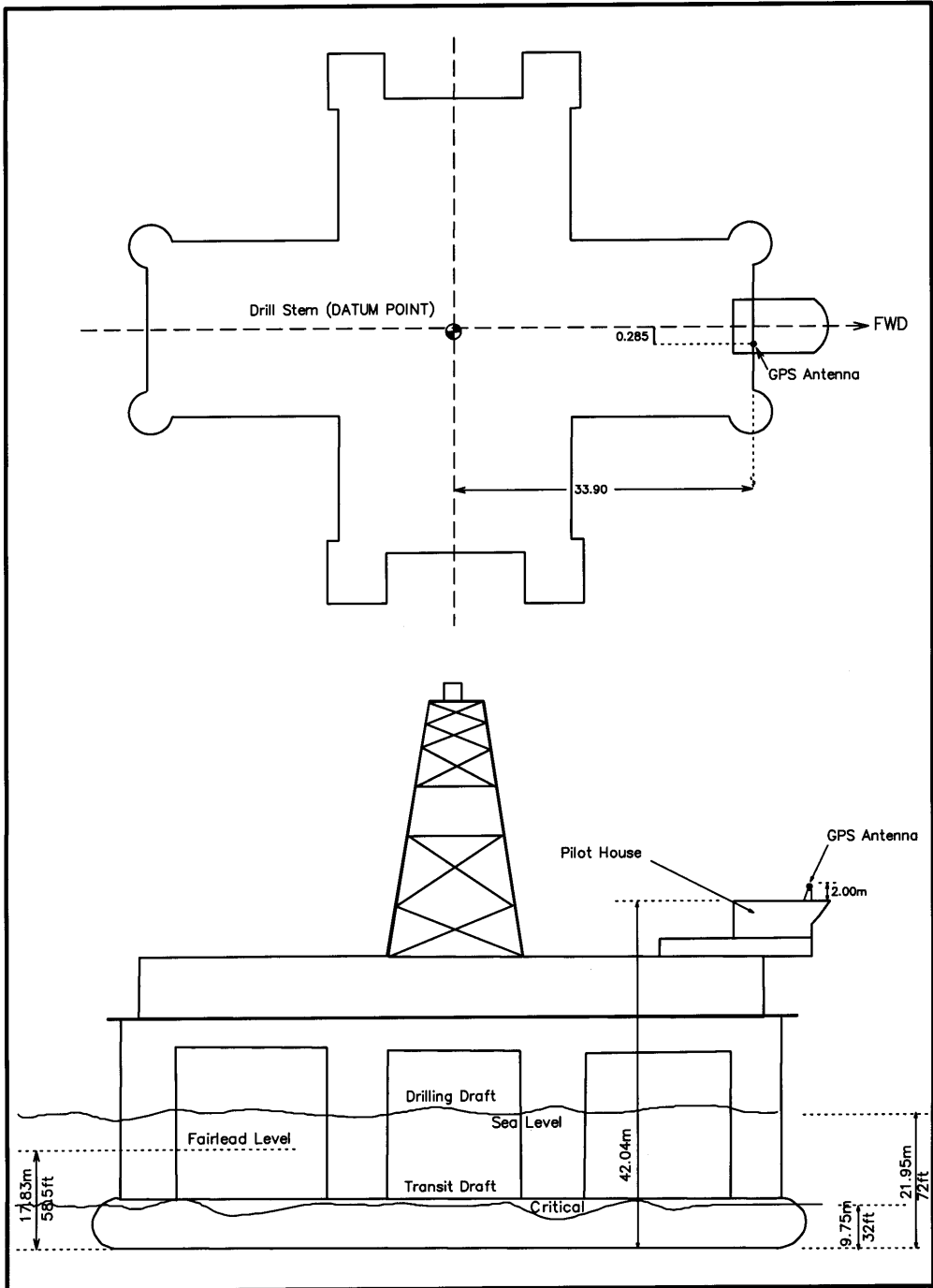
\_\_\_\_\_  
SURVEYOR/PARTY CHIEF

\_\_\_\_\_  
CLIENT SURVEY REPRESENTATIVE

# **APPENDIX G**

## **OCEAN BOUNTY OFFSET DIAGRAM**

# OCEAN BOUNTY OFFSET DIAGRAM

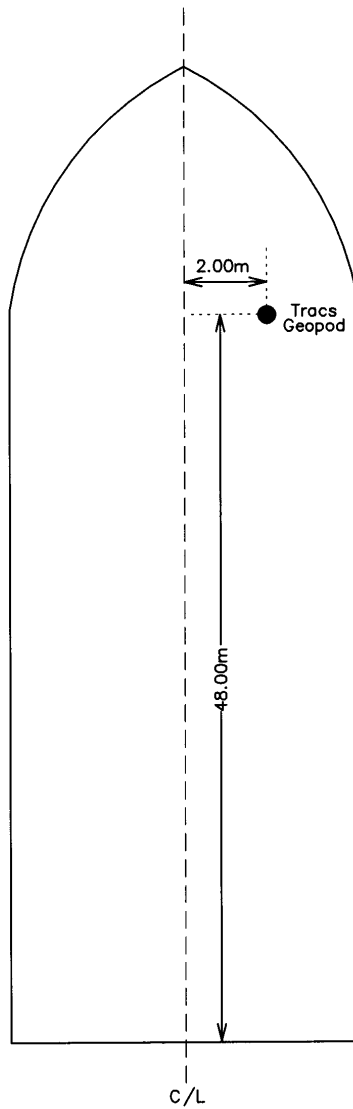


NOT TO SCALE

# **APPENDIX H**

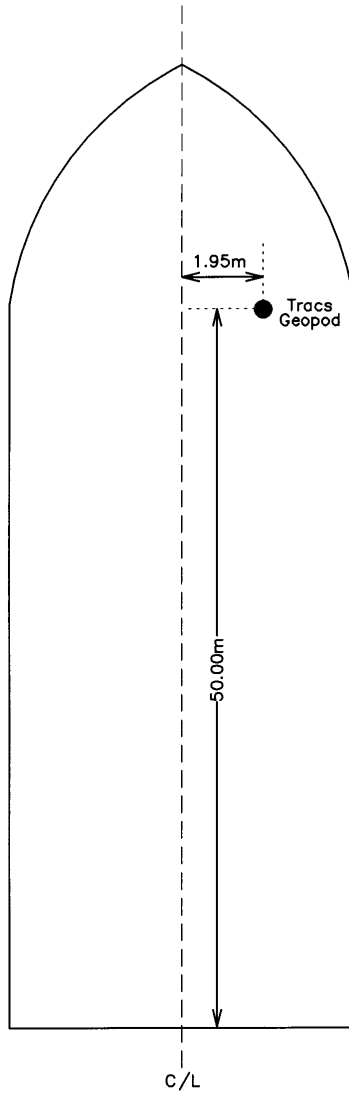
## **PACIFIC SENTINEL AND PACIFIC CONQUEROR OFFSET DIAGRAMS**

# PACIFIC CONQUEROR



(NOT TO SCALE)

# PACIFIC SENTINEL



(NOT TO SCALE)

# **APPENDIX I**

## **GNS2 CONFIGURATION FILE PRINTOUT**

JOB DETAILS

Job Number : 3447A3
Job Description : Ocean Bounty to Casino-2
Company : Thales GeoSolutions Group Ltd
Client : Santos
Time Zone : GMT +9:00 +10:00

WORKING SPHEROID

GDA94
Semi-major : 6378137.000 m
e Squared : 0.006694380023

WORKING PROJECTION

MGA94 Zone 54
Lat of Origin : 00°00.00000'N
Long of Origin : 141°00.00000'E
False Easting : 500000.00
False Northing : 10000000.00
Scale Factor : 0.999600
Units : Metres

GPS TRANSFORMATION

From : WGS 84
Semi-major : 6378137.000 m
e Squared : 0.006694380067
To : GDA94
Dx : 0.000 m
Dy : 0.000 m
Dz : 0.000 m
Rot x : 0.0000 secs
Rot y : 0.0000 secs
Rot z : 0.0000 secs
Scale : 0.0000 ppm

WAYPOINTS

Casino-1 E: 647653.72 N: 5705320.87 Ht: 0.00 m
Run In E: 651362.33 N: 5711529.73 Ht: 0.00 m
Casino-2 E: 651751.95 N: 5704460.93 Ht: 0.00 m Toll: 10.00 m Tol:
WP2 E: 655242.00 N: 5710298.00 Ht: 0.00 m Toll: 25.00 m Tol:
ANC8 E: 652820.00 N: 5703807.00 Ht: 0.00 m Toll: 50.00 m Tol:
ANC 8 LOWERED E: 651767.00 N: 5704445.00 Ht: 0.00 m

MOBILES

Ocean Bounty (semi-sub rig)
Shape Definition: Ocean Bounty
Line:-
X: 14.20 m Y: 37.00 m
X: 14.20 m Y: 16.60 m
X: 39.30 m Y: 16.60 m
X: 39.30 m Y: -16.60 m
X: 14.20 m Y: -16.60 m
X: 14.20 m Y: -36.20 m

Verified by: (sign) [Signature] (print) J.C. TIGHE



GNS II CONFIGURATION FILE C:\OceanBountyGDA94\OceanBountyGDA94.gns

X: -14.20 m Y: -36.20 m  
X: -14.20 m Y: -16.60 m  
X: -39.30 m Y: -16.60 m  
X: -39.30 m Y: 16.00 m  
X: -14.20 m Y: 16.00 m  
X: -14.20 m Y: 37.00 m  
X: 14.20 m Y: 37.00 m

Line:-

X: -4.00 m Y: 30.00 m  
X: 4.00 m Y: 30.00 m  
X: 4.00 m Y: 41.00 m  
X: 2.00 m Y: 45.00 m  
X: -2.00 m Y: 45.00 m  
X: -4.00 m Y: 41.00 m  
X: -4.00 m Y: 30.00 m

Tracking Point : Datum  
Pitch and Roll Centre: Datum

Selected Sources:-

Primary Position : T1 Thales UKOOA (Using Antenna Offset : GPS Ae)  
Backup Position : T2 Thales UKOOA (Using Antenna Offset : GPS Ae)  
Primary Heading : S1 SGB 1000S  
Primary Height : Datum Displacement  
Pitch and Roll : G1 Ocean Bounty  
Heave Sensor : G1 GNS II Master  
Soundings : G1 Ocean Bounty  
Speed : Position Filter  
Course Made Good : Posn Filter CMG

Equipment:-

T3 Tracs TDMA Master

Status: ON Interface: COM10

Antenna Offset Selected: Datum

X: 0.00 m Y: 0.00 m Z: 0.00 m Rng: 0.00 m Brg: 0.0°

T1 Thales UKOOA

Status: ON Interface: Sock1

Antenna Offset Selected: GPS Ae

X: 0.28 m Y: 33.90 m Z: 0.00 m Rng: 33.90 m Brg: 0.5°

Apply Pitch Roll: Off Stale Time: 5.0 s Posn SD: 3.0 m Ht SD: 1.0 m

Update posn regardless of whether diff corrected

Filter: Off Time Constant: 60.0 s Sample Dwell: 0.5 s

Gate: Off Gate Width: 9.0 xSD Minimum Gate: 0.0 m

T2 Thales UKOOA

Status: ON Interface: Sock2

Antenna Offset Selected: GPS Ae

X: 0.28 m Y: 33.90 m Z: 0.00 m Rng: 33.90 m Brg: 0.5°

Apply Pitch Roll: Off Stale Time: 5.0 s Posn SD: 3.0 m Ht SD: 1.0 m

Update posn regardless of whether diff corrected

Filter: Off Time Constant: 60.0 s Sample Dwell: 0.5 s

Gate: Off Gate Width: 9.0 xSD Minimum Gate: 0.0 m

Verified by: (sign)  (print) J. C. TIGHE

S1 SGB 1000S

Status: ON Interface: COM6

\* C-O: 1.1 degs Stale Time: 5.0 s SD: 0.1 degs

Filter: Off Gate: Off Time Constant: 5.0 s Sample Dwell: 0.5 s

\* ENTERED NEW C-O OF +1.2° ON 24/09/02 AFTER CALIBRATION

Defined Offsets:-

Datum

X: 0.00 m Y: 0.00 m Z: 0.00 m Rng: 0.00 m Brg: 0.0°

GPS Ae

X: 0.28 m Y: 33.90 m Z: 0.00 m Rng: 33.90 m Brg: 0.5°

Fairlead 1

X: -39.30 m Y: 12.60 m Z: -4.11 m Rng: 41.27 m Brg:287.8°

Fairlead 2

X: -39.30 m Y: 16.60 m Z: -4.11 m Rng: 42.66 m Brg:292.9°

Fairlead 3

X: 39.30 m Y: 16.60 m Z: -4.11 m Rng: 42.66 m Brg: 67.1°

Fairlead 4

X: 39.30 m Y: 12.60 m Z: -4.11 m Rng: 41.27 m Brg: 72.2°

Fairlead 5

X: 39.30 m Y: -12.60 m Z: -4.11 m Rng: 41.27 m Brg:107.8°

Fairlead 6

X: 39.30 m Y: -16.60 m Z: -4.11 m Rng: 42.66 m Brg:112.9°

Fairlead 7

X: -39.30 m Y: -16.60 m Z: -4.11 m Rng: 42.66 m Brg:247.1°

Fairlead 8

X: -39.30 m Y: -12.60 m Z: -4.11 m Rng: 41.27 m Brg:252.2°

Tow Bridle

X: 0.00 m Y: 38.00 m Z: 0.00 m Rng: 38.00 m Brg: 0.0°

Sentinel (ship)

Shape Definition: Pac Sentinel

Line:-

X: -6.80 m Y: 0.00 m

X: -6.80 m Y: 49.40 m

X: 0.00 m Y: 65.00 m

X: 6.80 m Y: 49.40 m

X: 6.80 m Y: 0.00 m

X: -6.80 m Y: 0.00 m

Line:-

X: -1.50 m Y: 35.00 m

X: -3.50 m Y: 37.00 m

X: -3.50 m Y: 45.00 m

X: -6.00 m Y: 45.00 m

X: -6.00 m Y: 47.00 m

X: -3.50 m Y: 47.00 m

X: -3.50 m Y: 49.00 m

X: -2.00 m Y: 51.00 m

X: 2.00 m Y: 51.00 m

X: 3.50 m Y: 49.00 m

X: 3.50 m Y: 47.00 m

X: 6.00 m Y: 47.00 m

X: 6.00 m Y: 45.00 m

X: 3.50 m Y: 45.00 m

X: 3.50 m Y: 37.00 m

Verified by: (sign) *J.C. Tighe* (print) J.C. TIGHE

GNS II CONFIGURATION FILE C:\OceanBountyGDA94\OceanBountyGDA94.gns

X: 1.50 m Y: 35.00 m  
X: -1.50 m Y: 35.00 m

Tracking Point : Datum  
Pitch and Roll Centre: Datum

Selected Sources:-

Primary Position : T4 Tracs TDMA Remote (Using Antenna Offset : Pod)  
Primary Heading : T4 Tracs TDMA Remote  
Primary Height : Datum Displacement  
Pitch and Roll : Manual  
Soundings : Manual  
Speed : Position Filter  
Course Made Good : Posn Filter CMG

Equipment:-

T4 Tracs TDMA Remote  
Status: ON Interface: Not defined  
Antenna Offset Selected: Pod  
X: 1.95 m Y: 50.00 m Z: 0.00 m Rng: 50.04 m Brg: 2.2°

Defined Offsets:-

Datum  
X: 0.00 m Y: 0.00 m Z: 0.00 m Rng: 0.00 m Brg: 0.0°  
delete  
X: 2.00 m Y: 2.00 m Z: 0.00 m Rng: 2.83 m Brg: 45.0°  
Pod  
X: 1.95 m Y: 50.00 m Z: 0.00 m Rng: 50.04 m Brg: 2.2°

Conqueror (ship)

Shape Definition: Pac Conquerer

Line:-  
X: -6.80 m Y: 0.00 m  
X: -6.80 m Y: 49.40 m  
X: 0.00 m Y: 65.00 m  
X: 6.80 m Y: 49.40 m  
X: 6.80 m Y: 0.00 m  
X: -6.80 m Y: 0.00 m

Line:-  
X: -1.50 m Y: 35.00 m  
X: -3.50 m Y: 37.00 m  
X: -3.50 m Y: 45.00 m  
X: -6.00 m Y: 45.00 m  
X: -6.00 m Y: 47.00 m  
X: -3.50 m Y: 47.00 m  
X: -3.50 m Y: 49.00 m  
X: -2.00 m Y: 51.00 m  
X: 2.00 m Y: 51.00 m  
X: 3.50 m Y: 49.00 m  
X: 3.50 m Y: 47.00 m  
X: 6.00 m Y: 47.00 m  
X: 6.00 m Y: 45.00 m  
X: 3.50 m Y: 45.00 m  
X: 3.50 m Y: 37.00 m

Verified by: (sign) *J.C. Tighe* (print) J.C. TIGHE

GNS II CONFIGURATION FILE C:\OceanBountyGDA94\OceanBountyGDA94.gns

X: 1.50 m Y: 35.00 m  
 X: -1.50 m Y: 35.00 m

Tracking Point : Datum  
 Pitch and Roll Centre: Datum

Selected Sources:-

Primary Position : T5 Tracs TDMA Remote (Using Antenna Offset : Pod)  
 Primary Heading : T5 Tracs TDMA Remote  
 Primary Height : Datum Displacement  
 Pitch and Roll : Manual  
 Soundings : Manual  
 Speed : Position Filter  
 Course Made Good : Posn Filter CMG

Equipment:-

T5 Tracs TDMA Remote  
 Status: ON Interface: Not defined  
 Antenna Offset Selected: Pod  
 X: 2.00 m Y: 48.00 m Z: 0.00 m Rng: 48.04 m Brg: 2.4°

Defined Offsets:-

Datum  
 X: 0.00 m Y: 0.00 m Z: 0.00 m Rng: 0.00 m Brg: 0.0°  
 Pod  
 X: 2.00 m Y: 48.00 m Z: 0.00 m Rng: 48.04 m Brg: 2.4°

ANCHORS

Ocean Bounty

Fairleads:-

Name	X	Y	Z	Rng	Brg
Fairlead 1	-39.30 m	12.60 m	-4.11 m	41.27 m	287.8°
Fairlead 2	-39.30 m	16.60 m	-4.11 m	42.66 m	292.9°
Fairlead 3	39.30 m	16.60 m	-4.11 m	42.66 m	67.1°
Fairlead 4	39.30 m	12.60 m	-4.11 m	41.27 m	72.2°
Fairlead 5	39.30 m	-12.60 m	-4.11 m	41.27 m	107.8°
Fairlead 6	39.30 m	-16.60 m	-4.11 m	42.66 m	112.9°
Fairlead 7	-39.30 m	-16.60 m	-4.11 m	42.66 m	247.1°
Fairlead 8	-39.30 m	-12.60 m	-4.11 m	41.27 m	252.2°

Main Intended Positions:-

Name	Easting	Northing	Depth	Tolerance
Anchor 1	651736.75	5703208.80	0.00 m	50.00 m
Anchor 2	651130.54	5703380.78	0.00 m	50.00 m
Anchor 3	650507.00	5704510.46	0.00 m	50.00 m
Anchor 4	650684.20	5705115.11	0.00 m	50.00 m
Anchor 5	651767.14	5705713.06	0.00 m	50.00 m
Anchor 6	652373.36	5705541.09	0.00 m	50.00 m
Anchor 7	652996.00	5704411.00	0.00 m	50.00 m
Anchor 8	652819.70	5703806.74	0.00 m	50.00 m

Main Actual Positions:-

Verified by: (sign)  (print) J.C. TIGHE

GNS II CONFIGURATION FILE C:\OceanBountyGDA94\OceanBountyGDA94.gns

Name	Easting	Northing	Depth	Tolerance
Anchor 1	651655.00	5703290.00	0.00 m	50.00 m
Anchor 2	651132.00	5703316.00	0.00 m	50.00 m
Anchor 3	650466.00	5704511.00	0.00 m	50.00 m
Anchor 4	650637.00	5705145.00	0.00 m	50.00 m
Anchor 5	651770.00	5705723.00	0.00 m	50.00 m
Anchor 6	652385.00	5705556.00	0.00 m	50.00 m
Anchor 7	652974.00	5704409.00	0.00 m	50.00 m
Anchor 8	0.00	0.00	0.00 m	50.00 m

Verified by: (sign) \_\_\_\_\_ (print) \_\_\_\_\_

# **APPENDIX J**

## **DAILY REPORT SHEETS**





# THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED DAILY RECORD SHEET

Date: 23-Sept-2002 Client: Santos Job No.: 3447A3 Vessel: Ocean Bounty Location: Casino-2

Equipment	Op	
<b>Ocean Bounty</b>		
SkyFix	1	
SkyFix Spot	2	
Gyro	1	
GNS 2	1	1
MultiFix 3	1	1
Remote Disp	1	1
Tracs	1	1

Equipment	Op	
<b>AHV's</b>		
Tug Display	2	
Tracs	2	
Fluxgate gyro	2	

Racal Personnel
R. Bright
J. Antao
<b>Client Personnel</b>
J. Tighe

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200			
1800			

DIARY OF OPERATIONS

PAGE 2 OF

TIME	Time Zone=UTC+10.00 <b>Monday, 23 September 2002</b>
0630	Thales personnel arrive at Bristow Heli Base
0830	Depart Bristow Heli Base for Ocean Bounty
0925	Arrive on board Ocean Bounty
0940	Commenced Induction
1050	Completed Induction
1200	Commenced tow to new location, Casino-2
1400	All equipment mobilised and operational. Checking System settings
1515	Checked offsets. Agreed with previous measurements
1650	Rig 1nm from ANC 6 drop location
1721	ANC # 6 deployed by rig. <b>E 652 385 N 5 705 556 (AGD 84 MGA Zone 54 CM 141°)</b>
1800	ANC # 2 PCC passed to Conqueror
1831	ANC # 2 on bottom, Conqueror
2020	Conqueror recovered ANC # 2 to re-deploy
2040	ANC # 2 on bottom. <b>E 651 132 N 5 703 316 (AGD 84 MGA Zone 54 CM 141°)</b>
2105	ANC # 2 PCC returned to rig
2115	ANC # 7 PCC passed to Conqueror
2147	ANC # 7 on bottom. <b>E 652 974 N 5 704 409 (AGD 84 MGA Zone 54 CM 141°)</b>
2215	ANC # 7 PCC returned to rig
2228	ANC # 3 PCC passed to Conqueror
2251	ANC # 3 on bottom. <b>E 650 466 N 5 704 511 (AGD 84 MGA Zone 54 CM 141°)</b>
2322	ANC # 3 PCC returned to rig
2340	ANC # 5 PCC passed to Conqueror
2350	Tow Bridle returned to rig by Sentinel
2351	ANC # 5 on bottom. <b>E 651 770 N 5705723 (AGD 84 MGA Zone 54 CM 141°)</b>

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature \_\_\_\_\_  
SURVEYOR/ENGINEER

WHITE	: Accounts Department
BLUE	: Operations Department
YELLOW	: Clients Representative

Signature \_\_\_\_\_  
CLIENT REPRESENTATIVE





# THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED DAILY RECORD SHEET

Date: 24-Sept-2002 Client: Santos Job No.: 3447A3 Vessel: Ocean Bounty Location: Casino-2

Equipment	Op	
<b>Ocean Bounty</b>		
SkyFix	1	
SkyFix Spot	2	
Gyro	1	
GNS 2	1	1
MultiFix 3	1	1
Remote Disp	1	1
Tracs	1	1

Equipment	Op	
<b>AHV's</b>		
Tug Display	2	
Tracs	2	
Fluxgate gyro	2	

Thales Personnel
R. Bright
J. Antao
Client Personnel
J. Tighe

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200			
1800			

DIARY OF OPERATIONS

PAGE 3 OF

TIME	Time Zone=UTC+10.00	Tuesday, 24 September 2002
0035	ANC # 4 PCC passed to Conqueror	
0054	ANC # 4 on bottom. <b>E 650 637 N 5 705 145 (AGD 84 MGA Zone 54 CM 141°)</b>	
0130	ANC # 4 PCC returned to rig	
0140	ANC # 1 PCC passed to Conqueror	
0215	ANC # 1 on bottom. <b>E 651 655 N 5 703 290 (AGD 84 MGA Zone 54 CM 141°)</b>	
0240	ANC # 1 PCC returned to rig	
0259	Lowered ANC # 8 to seabed for J-Hook operations as PCC is faulty. Will use J-Hook to recover chain of ANC # 8 for deployment. Recorded location: <b>E 651 767 N 5 704 445 (AGD 84 MGA Zone 54 CM141°)</b>	
0630	Performed Gyro Calibration by means of sun obs. <b>Result: +1.2°</b> . Entered new c-o into system	
0715	Informed by Ron King (Company Rep) that all nav kit must be de-mobilised once positioning is complete	
0805	Sentinel, commenced running ANC # 8	
0812	ANC # 8 on bottom. <b>E 652 857 N 5 703 778 (AGD 84 MGA Zone 54 CM 141°)</b>	
0905	Completed cross-tensioning	
0932	Spud operations commenced. J. Antao transfers to AHV's for demob of nav kit.	
1400	Commenced Final Fix at Casino-2 location	
1500	Completed Final Fix. Result: Final Datum Position is <b>2.94m</b> on a bearing of <b>12.3°</b> True from intended location. Final Datum Position: <b>E 651 752.63 N 5 704 463.79</b> . Final Heading of <b>242.0°</b> True <b>(AGD 84 MGA Zone 54 CM 141°)</b>	
1515	Final Fix approved by Survey Rep	
1530	J. Antao returns to rig	
1815	Commenced demob of equipment on board rig	
2115	Completed demob. All equipment secure in container ready for transfer to AHV Conqueror	

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature \_\_\_\_\_  
SURVEYOR/ENGINEER

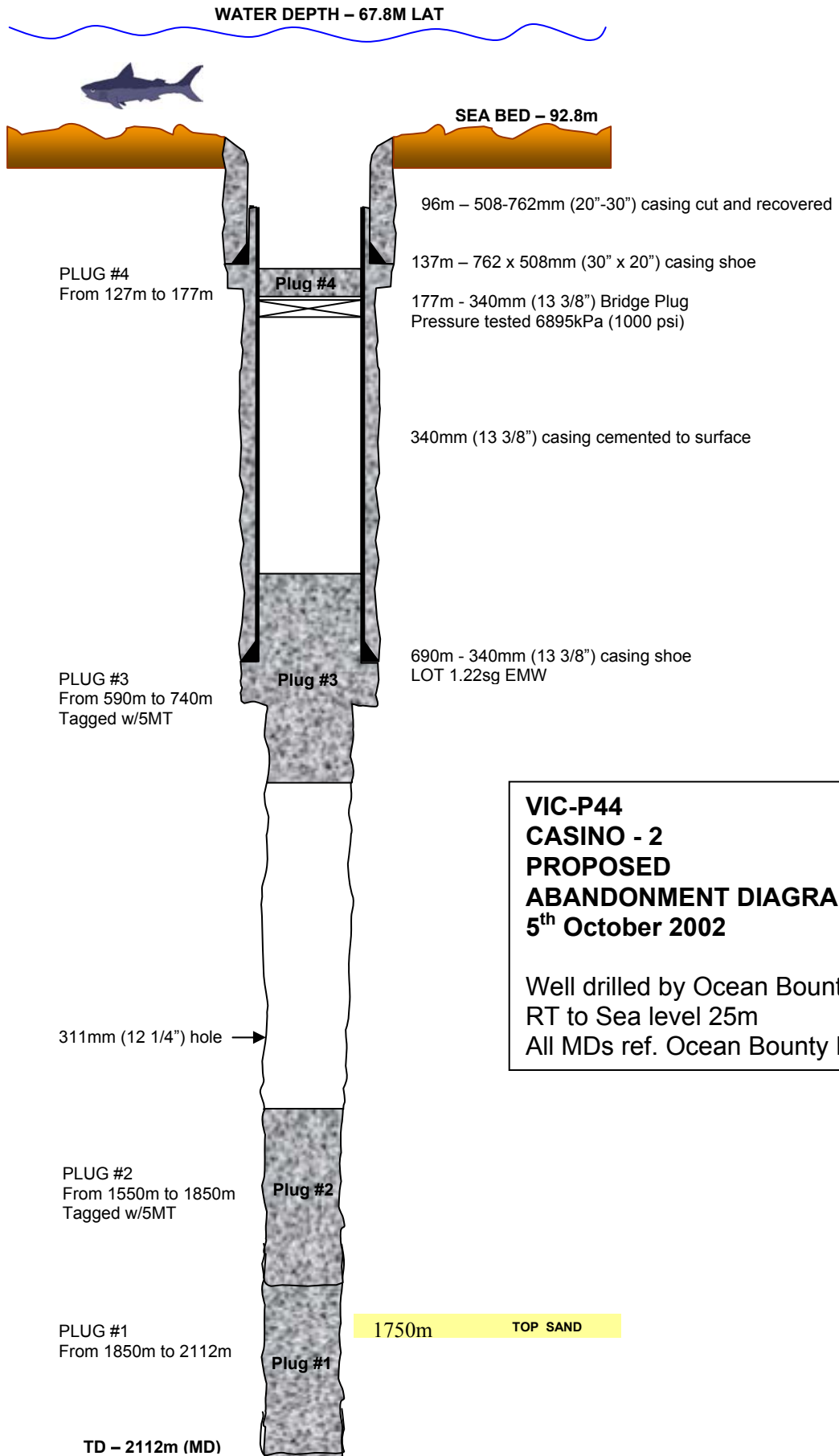
WHITE	: Accounts Department
BLUE	: Operations Department
YELLOW	: Clients Representative

Signature \_\_\_\_\_  
CLIENT REPRESENTATIVE



## **SECTION 14:- WELL ABANDONMENT AND PLUG REPORT**

# WELL ABANDONMENT DIAGRAM



**VIC-P44  
CASINO - 2  
PROPOSED  
ABANDONMENT DIAGRAM  
5<sup>th</sup> October 2002**

Well drilled by Ocean Bounty  
RT to Sea level 25m  
All MDs ref. Ocean Bounty RT

Santos OABU

ABANDONMENT CEMENT # 1

WELL: Casino 2 DATE: 7/10/2002  
 ELEVATIONS: RT to seabed (m): 92.8 T.D (m): 2112  
 RT to MSL (m): 25 PBTD (m):  
 SERIES: Dril Quip SS-10 REPORT BY: Steve Hodgetts

Cmt Plug # 1 from 2,000m to 1,825m

PREFLUSH: Seawater Volume (m3): 1.6 Density (SG): 1  
 Additive: Amount Used: Additive: % Amount Used

CEMENT:

TAIL SLURRY

		Additive	litre/sx	Amount Used (litre)
Class G :	462 sxs	MT: 19.7	HR 6-L	64
Mixwater litr/sk:	Yield litr/sk: 1.16	Density sg: 1.89	Dair 3000L	19
Volume pumped	14.8 m3	Excess: 10 %	Oped hole	

TAIL SLURRY (mixed with seawater)

		Additive	litre/sx	Amount Used (litre)
Brand: Adelaide Brighton Cement	Class:	MT:		
Mixwater litr/sk:	Yield litr/sk:	Density sg:		
Volume pumped	m3	Excess: %		

DISPLACEMENT

Fluid: Mud Calc. Displacement (m3): 16.2 kPa 2503 Pressure Tested to 6895 kPa  
 Density sg: 1.24 Actual Displacement (m3): 16.0 at Rate: 1.27 m3/min Bleed Back: m3

ACTIVITY

Activity	Time	Returns to Surface:	Yes	bbbs cement	Nil
Pump Drill water spacer	6/10/02 0:36	Reciprocate/Rotate Casing:			
Test Lines	6/10/02 0:42	During; Circulating	Top Up Job run: No	sacks of Clas	N/A
Pump Drill water spacer	6/10/02 0:48	Cementing			
Mix & Pump Tail Slurry	6/10/02 0:56	Displacing			
Pump Drill water	6/10/02 1:11	Wiper Plugs:	Type		
Displace Slurry	6/10/02 1:14	Bottom			
		Top			
		Cementing Contractor: Halliburton			

CEMENT JOB DETAIL/REMARKS

Pumped 0.8 m3 (5bbbs) of drillwater, tested lines to 6.895 MPa (1,000psi). Pumped 0.8 m3 (5bbbs) of drillwater. @ 0.64 m3/min  
 Mixed & pumped 14.8 m3 (93.4bbbs) 452sx of tail slurry @ 1.89sg with 8.8 m3 (55.5bbbs) of mix water. @ 0.95 m3/min  
 Displaced with 16 m3 (101bbbs) of mud. @ 1.27 m3/min

Santos OABU		ABANDONMENT CEMENT # 2					
WELL: Casino 2		RT to seabed (m): 92.8		DATE: 7/10/2002			
ELEVATIONS:		RT to MSL (m): 25		T.D (m): 2112			
		SERIES: Drill Quip SS-10		PBDT (m):		REPORT BY: Steve Hodgetts	
Cmt Plug # 1 from 2,000m to 1,825m							
PREFLUSH: Seawater		Volume (m3): 1.6		Density (SG): 1			
Additive:		Amount Used:		Additive: %		Amount Used	
<b>CEMENT:</b>							
TAIL SLURRY				Additive		litre/sx Amount Used (litre)	
Class G : 904 sxs		MT: 38.6		HR 6-L		83	
Mixwater litr/sk:		Yield litr/sk: 1.16		Density sg: 1.89			
Volume pumped 29.7 m3		Excess: 10		% Oped hole			
TAIL SLURRY (mixed with seawater)				Additive		litre/sx Amount Used (litre)	
Brand: Adelaide Brighton Cement		Class:		MT:			
Mixwater litr/sk:		Yield litr/sk:		Density sg:			
Volume pumped m3		Excess:		%			
<b>DISPLACEMENT</b>							
Fluid: Mud		Calc. Displacement (m3): 14.3		kPa 3013		Pressure Tested to 6895 kPa	
Density sg: 1.24		Actual Displacement (m3): 14.1		at Rate: 1.27 m3/min		Bleed Back: m3	
<b>ACTIVITY</b>		Time					
Pump Drill water spacer		6/10/02 2:04		Returns to Surface: Yes		bbls cement Nil	
Test Lines		6/10/02 2:07		Reciprocate/Rotate Casing:			
Pump Drill water spacer		6/10/02 2:10		During; Circulating		Top Up Job run: No	
Mix & Pump Tail Slurry		6/10/02 2:14		Cementing		sacks of Clas N/A	
Pump Drill water		6/10/02 2:50		Displacing			
Displace Slurry		6/10/02 2:52		Wiper Plugs: Type			
				Bottom			
				Top			
				Cementing Contractor: Halliburton			
<b>CEMENT JOB DETAIL/REMARKS</b>							
Pumped 0.8 m3 (5bbls) of drillwater, tested lines to 6.895 MPa (1,000psi). Pumped 0.8 m3 (5bbls) of drillwater. @ 0.8 m3/min							
Mixed & pumped 29.7 m3 (186.8bbls) 904sx of tail slurry @ 1.89sg with 17.6 m3 (111bbls) of mix water. @ 0.95 m3/min							
Displaced with 14.1 m3 (89bbls) of mud. @ 1.27 m3/min							

Santos OABU		ABANDONMENT CEMENT # 3					
WELL: Casino 2		RT to seabed (m): 92.8		DATE: 7/10/2002			
ELEVATIONS:		RT to MSL (m): 25		T.D (m): 2112			
		SERIES: Drill Quip SS-10		PBDT (m):		REPORT BY: Steve Hodgetts	
Cmt Plug # 1 from 2,000m to 1,825m							
PREFLUSH:		Seawater		Volume (m3): 1.6		Density (SG): 1	
Additive:		Amount Used:		Additive:		%	
						Amount Used	
<b>CEMENT:</b>							
TAIL SLURRY				Additive		litre/sx	
						Amount Used (litre)	
		Class G : 387 sxs		MT: 16.5			
Mixwater litr/sk:		Yield litr/sk: 1.16		Density sg: 1.89			
Volume pumped 12.7 m3		Excess: 10		% Oped hole			
TAIL SLURRY (mixed with seawater)				Additive		litre/sx	
						Amount Used (litre)	
Brand: Adelaide Brighton Cement		Class:		MT:			
Mixwater litr/sk:		Yield litr/sk:		Density sg:			
Volume pumped m3		Excess:		%			
<b>DISPLACEMENT</b>							
Fluid: Mud		Calc. Displacement (m3): 5.6		kPa 1951		Pressure Tested to 6895 kPa	
Density sg: 1.24		Actual Displacement (m3): 5.4		at Rate: 1.11 m3/min		Bleed Back: m3	
<b>ACTIVITY</b>							
		Time					
Pump Drill water spacer		6/10/02 14:50		Returns to Surface: Yes		bbls cement Nil	
Test Lines		6/10/02 14:54		Reciprocate/Rotate Casing:			
Pump Drill water spacer		6/10/02 14:58		During; Circulating		Top Up Job run: No	
Mix & Pump Tail Slurry		6/10/02 15:08		Cementing		sacks of Clas N/A	
Pump Drill water		6/10/02 15:21		Displacing			
Displace Slurry		6/10/02 15:23		Wiper Plugs: Type			
				Bottom			
				Top			
				Cementing Contractor: Halliburton			
<b>CEMENT JOB DETAIL/REMARKS</b>							
Pumped 0.8 m3 (5bbls) of drillwater, tested lines to 6.895 MPa (1,000psi). Pumped 0.8 m3 (5bbls) of drillwater. @ 0.95 m3/min							
Mixed & pumped 12.7 m3 (80bbls) 387sx of tail slurry @ 1.89sg with 7.6 m3 (47.6bbls) of mix water. @ 0.8 m3/min							
Displaced with 5.4 m3 (34bbls) of mud. @ 1.27 m3/min							

Santos OABU		ABANDONMENT CEMENT # 4				
WELL: Casino 2		RT to seabed (m): 92.8		DATE: 7/10/2002		
ELEVATIONS:		RT to MSL (m): 25		T.D (m): 2112		
		SERIES: Drill Quip SS-10		PBDT (m):		
				REPORT BY: Steve Hodgetts		
Cmt Plug # 1 from 2,000m to 1,825m						
PREFLUSH:		Seawater	Volume (m3): 1.6	Density (SG): 1		
Additive:		Amount Used:		Additive:	%	Amount Used
<b>CEMENT:</b>						
TAIL SLURRY				Additive	litre/sx	ount Used (litre)
		Class G :	120 sxs	MT:	5.1	
Mixwater litr/sk:		Yield litr/sk:	1.16	Density sg:	1.89	
Volume pumped	3.9 m3	Excess:	10	% Oped hole		
TAIL SLURRY (mixed with seawater)				Additive	litre/sx	ount Used (litre)
Brand: Adelaide Brighton Cement		Class:	MT:			
Mixwater litr/sk:		Yield litr/sk:	Density sg:			
Volume pumped	m3	Excess:	%			
<b>DISPLACEMENT</b>						
Fluid:	Mud	Calc. Displacement (m3):	0.9	kPa	1517	Pressure Tested to 6895 kPa
Density sg:	1.24	Actual Displacement (m3):	0.8	at Rate:	1.27 m3/min	Bleed Back: m3
<b>ACTIVITY</b>		Time				
Pump Sea water spacer	7/10/02 3:14	Returns to Surface:	Yes	bbls cement Nil		
Test Lines	7/10/02 3:19	Reciprocate/Rotate Casing:				
Pump Drill water spacer	7/10/02 3:28	During; Circulating		Top Up Job run:	No	sacks of Class N/A
Mix & Pump Tail Slurry	7/10/02 3:36	Cementing				
Displace Slurry	7/10/02 3:40	Displacing				
		Wiper Plugs:		Type		
		Bottom				
		Top				
		Cementing Contractor:	Halliburton			
<b>CEMENT JOB DETAIL/REMARKS</b>						
		Set EZSV Packer @ 177 mts				
Pumped 0.8 m3 (5bbls) of drillwater, tested lines to 6.895 MPa (1,000psi). Pumped 0.8 m3 (5bbls) of drillwater. @ 0.8 m3/min						
Mixed & pumped 3.9 m3 (24.7bbls) 120sx of tail slurry @ 1.89sg with 2.3 m3 (14.7bbls) of mix water. @ 0.8 m3/min						
Displaced with 0.8 m3 (5bbls) of mud. @ 1.27 m3/min						



**SECTION 15:- DEVIATION SUMMARY**

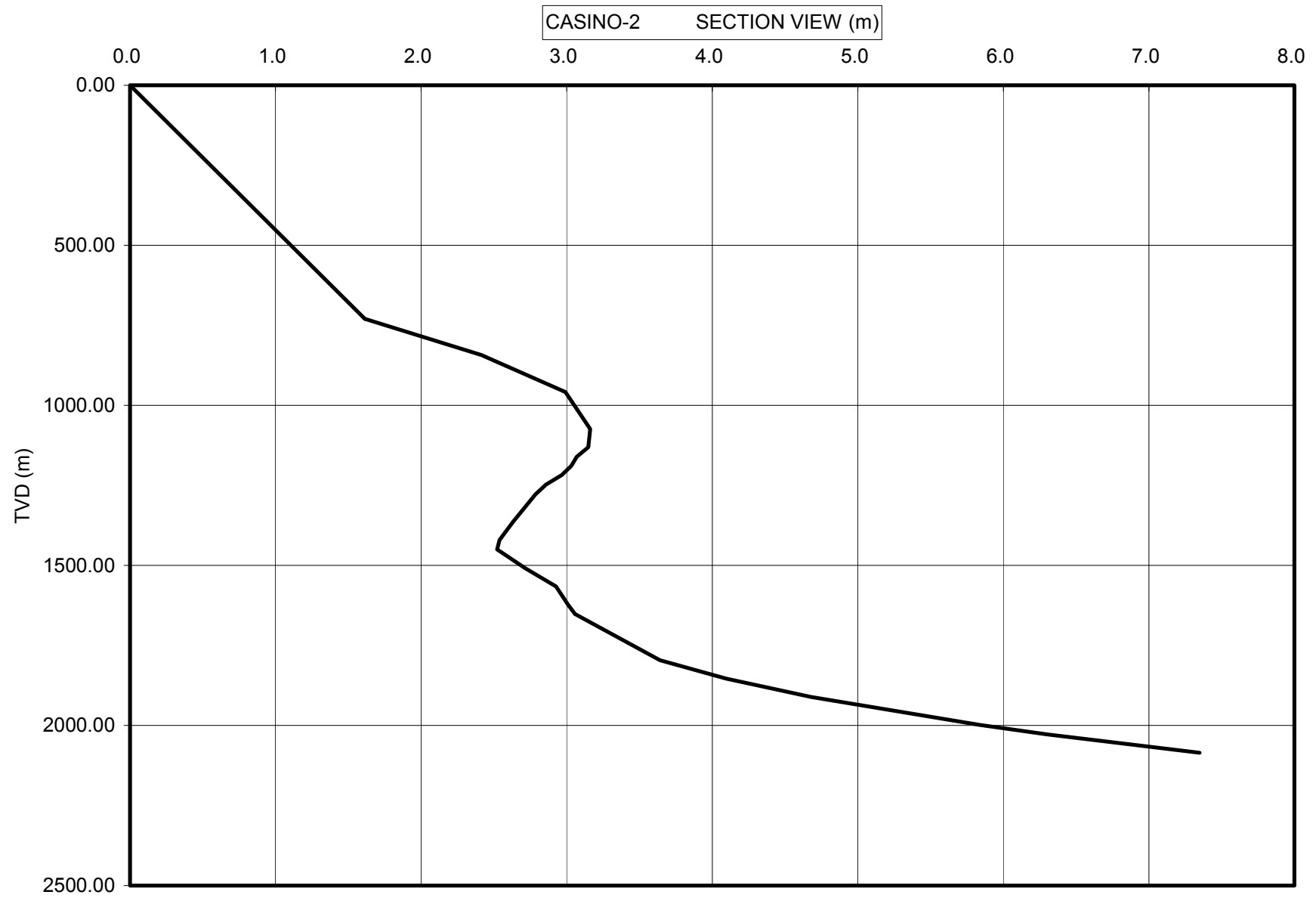
**SURVEY CALCULATION METHOD USED : MINIMUM CURVATURE**

**WELLNAME: Casino-2**

**ALL BEARINGS CORRECTED TO TRUE NORTH. DEPTHS IN FEET (MDRT)**

**REFERENCED TO WELLHEAD COORDINATES**

No.	MD	INC	AZ	+E/-W	+N/-S	Closure	Direction	TVD	Build/30m	Walk /30m	Dog Leg	V.Sect.
1	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00				0.0
2	729.86	0.57	116.39	3.25	-1.61	3.6	116.39	729.85	0.078	0.000	0.078	1.6
3	842.72	0.61	203.59	3.51	-2.41	4.3	124.48	842.70	0.035	77.264	0.796	2.4
4	958.13	0.69	268.77	2.57	-2.99	3.9	139.29	958.11	0.069	56.477	0.644	3.0
5	1074.07	0.52	252.87	1.37	-3.16	3.4	156.52	1074.04	-0.147	-13.714	0.206	3.2
6	1130.64	0.79	283.25	0.75	-3.15	3.2	166.63	1130.61	0.477	53.703	0.778	3.1
7	1161.14	0.82	278.20	0.33	-3.07	3.1	173.91	1161.10	0.098	-16.557	0.253	3.1
8	1188.85	0.76	272.62	-0.05	-3.03	3.0	180.99	1188.81	-0.217	-20.137	0.352	3.0
9	1217.68	0.78	286.97	-0.43	-2.97	3.0	188.27	1217.64	0.069	49.775	0.672	3.0
10	1247.53	0.88	282.51	-0.85	-2.86	3.0	196.55	1247.49	0.335	-14.941	0.399	2.9
11	1277.80	0.94	274.80	-1.32	-2.79	3.1	205.41	1277.75	0.198	-25.471	0.450	2.8
12	1364.44	1.05	276.88	-2.82	-2.63	3.9	226.98	1364.38	0.127	2.401	0.134	2.6
13	1421.10	1.45	272.46	-4.05	-2.54	4.8	237.93	1421.03	0.706	-7.801	0.726	2.5
14	1450.24	1.55	270.01	-4.81	-2.52	5.4	242.35	1450.16	0.343	-8.408	0.408	2.5
15	1508.96	1.49	255.36	-6.35	-2.72	6.9	246.84	1508.86	-0.102	-24.949	0.670	2.7
16	1565.71	1.58	268.16	-7.84	-2.93	8.4	249.53	1565.59	0.159	22.555	0.625	2.9
17	1622.24	1.67	265.96	-9.44	-3.01	9.9	252.32	1622.09	0.159	-3.892	0.194	3.0
18	1652.08	1.45	267.41	-10.25	-3.06	10.7	253.40	1651.92	-0.737	4.859	0.749	3.1
19	1796.08	1.43	253.78	-13.80	-3.64	14.3	255.22	1795.88	-0.014	-9.465	0.238	3.6
20	1853.43	1.50	250.23	-15.19	-4.10	15.7	254.91	1853.21	0.122	-6.190	0.200	4.1
21	1911.17	1.48	243.72	-16.57	-4.68	17.2	254.23	1910.93	-0.035	-11.275	0.295	4.7
22	1998.68	1.91	243.21	-18.89	-5.84	19.8	252.82	1998.40	0.491	-0.583	0.492	5.8
23	2028.08	2.08	243.11	-19.80	-6.30	20.8	252.35	2027.78	0.578	-0.340	0.578	6.3
24	2085.35	2.47	242.08	-21.82	-7.35	23.0	251.39	2085.01	0.681	-1.798	0.685	7.3



CASINO-2 PLAN VIEW

