

CRAIGOW-1
WELL COMPLETION REPORT
BASIC DATA

T/47P



BASS BASIN
Tasmania

Tap Oil Ltd
March 2011

TABLE OF CONTENTS

WELL INDEX SHEET	1
1 OPERATIONS SUMMARY	3
1.1 Rig Mobilisation and Rig Up	3
1.2 Craigow-1 Drilling Operations	3
1.2.1 36" Hole Section and 30 x 20" Conductor	3
1.2.2 17 ½" Hole Section and 13 3/8" Surface Casing.	3
1.2.3 Run BOP's	4
1.2.4 12 ¼" Hole Section	4
1.3 Plug and Abandon	5
1.4 Pull Anchors and Move Off Location	6
2 DRILLING AND COMPLETION DATA	8
2.1 Hole Sizes and Depths	8
2.2 Casing Data – Craigow-1	8
2.3 Cementing Data	8
2.4 Surveys	10
2.5 Bit Record	10
2.6 Mud Data	10
2.7 Testing	10
3 FORMATION EVALUATION	12
3.1 Mudlogging	12
3.1.1 Mudlogging	12
3.1.2 Ditch Cutting Samples	12
3.1.3 Hydrocarbon Indications	13
3.2 Coring	13
3.2.1 Coring	13
3.2.2 Sidewall Cores	13
3.3 MWD/LWD Logging	13
3.4 Wireline Logging	14
3.5 Temperature Surveys	14
3.6 Velocity Survey	14
4 POST WELL ANALYSIS (BASIC DATA)	14

FIGURES, TABLES, APPENDICES AND ENCLOSURES

LIST OF TABLES

Table 1: Casing Data	8
Table 2: Craigow-1 Final Geodetic Survey Listing	11
Table 3: Cuttings Sample Collection Summary	12
Table 4: MWD/LWD Logging Data	13
Table 5: Wireline Logging data	14

LIST OF FIGURES

Figure 1: Craigow-1 Location Map	2
Figure 2: Craigow-1 Drilling Time/Depth Curve	7
Figure 3: Craigow-1 P&A Schematic	9

LIST OF APPENDICES

Appendix 1: Drilling End of Well Report
Appendix 2: Daily Drilling Reports
Appendix 3: Rig Positioning Report
Appendix 4: Directional Drilling MWD and LWD End of Well Report
Appendix 5: Mudlogging End of Well Report
Appendix 6: Daily Geological Reports
Appendix 7: Cuttings Descriptions
Appendix 8: Wireline Logging Diary
Appendix 9: FLAIR Report
Appendix 10: Wireline QA/QC Report

LIST OF ENCLOSURES

Enclosure 1: Mudlogs
Enclosure 2: Gas Ratio Logs
Enclosure 3: Drill Logs
Enclosure 4: Pressure Logs
Enclosure 5: FLAIR Log

WELL INDEX SHEET**CRAIGOW-1****Page 1 of 1**

LOCATION: Survey: Labatt 3D			PERMIT: T/47P		
InLine: 1894			BASIN: Offshore Bass Basin		
Xline: 4290			PARTICIPANTS: Tap Oil Ltd 100%		
SURFACE LOCATION:	Latitude:	39° 35' 31.686" S	WELL DESIGNATION: Exploration		
	Longitude:	145° 38' 34.586" E	STATUS: Plugged and Abandoned		
	Easting:	383 473.486 m	STRUCTURE TYPE: Anticline		
	Northing:	5 616 630.646 m	RIG NAME AND TYPE: Kan Tan IV Jack-Up, MODU.		
Datum: GDA94			RIG CONTRACTOR: Maersk Drilling Pty Ltd		
Spheroid: GRS80					
Map Grid: MGA 94					
Projection: UTM Zone 55, CM 147					
TOTAL DEPTH: (mMD) (mTVDSS)			HOLE SIZES: Size Interval (mMD)		
Driller: 1800.0 1799.8			36" 100.0 - 159.0		
Logger: 1764.0 1764.0			17 ½" 159.0 - 745.0		
			12 ¼" 745.0 - 1800.0		
ELEVATION:	Datum:	MSL	CASING: Size Shoe (mMD)		
	RT-ASL (MSL):	26.0m	30" x 20" 157.0		
	WD (MSL):	74.0m	13 3/8" 735.0		
	RT-ML:	100.0m	SPUD DATE: 03:00hrs 24/12/2010		
			REACHED TD: 12:30hrs 31/12/2010		
			RIG RELEASED: 14:30hrs 07/01/2011		

LWD LOGS				
DATE	HOLE SIZE	RUN NUMBER	MEASUREMENT	INTERVAL
25-26/12/2010	17 ½"	1	D/DGW	157.0 to 745.0m
29-30/12/2010	12 ¼"	2	PEF	745.0 to 1311.0m
30-31/12/2010	12 ¼"	3	PEF	1311.0 to 1800.0m

WIRELINE LOGS			
LOG TYPE	SUITE/RUN	INTERVAL mRT	BHT/TIME
PPC-MSIP-HRLA-SP-PEX-GR	1/1	1745.5 to 734.5.0 GR recorded to seafloor	76.0 deg C / 13.17hrs

DRILL STEM TESTING - NIL				
TEST	TEST INTERVAL	FLOW RATE	CHOKE	FWHP

CEMENT PLUGS			
PLUG	INTERVAL	CEMENT TYPE	CEMENT VOLUME
1	1070 to 1220m	Class G Abandonment	94 bbls / 15.8ppg
2	576 to 770m	Class G Abandonment	100 bbls / 15.8 ppg
3	130 to 230m	Class G Abandonment	50 bbls / 15.8 ppg

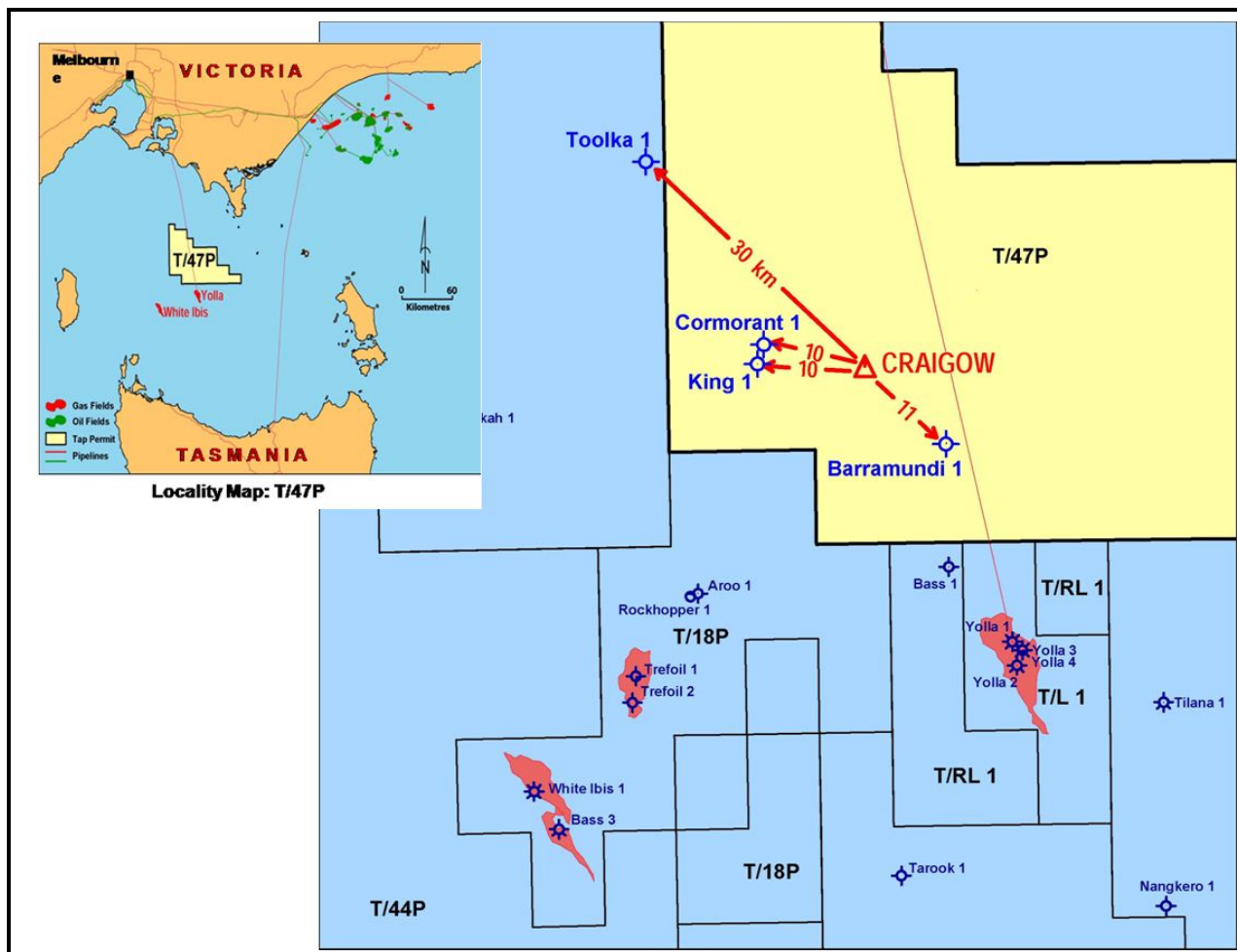


Figure 1: Craigow-1 Location Map

1 OPERATIONS SUMMARY

1.1 Rig Mobilisation and Rig Up

The Maersk semi-submersible drilling rig "Kan Tan IV" came on contract to Tap Oil Ltd for the Craigow-1 well at 14:30 hrs on 22nd December 2010, when the rig was under tight tow from previous well Silvereye-1 (Origin). The rig completed the tow at 22:00 hrs on 22nd December 2010 and began anchor running operations which were completed at 15:30hrs on the 23 December 2010 when all eight anchors had been run and cross tensioned.

The rig was ballasted down to an operational draft of 19.8 m (65 ft), with the final rig position at 2.22 m from the intended location which is within the specified tolerance of 10 m radius. The ROV was launched and a seabed survey was conducted.

The Kan Tan IV rig elevation was 26m from Rotary Table to sea level. Water depth was recorded as 74 m MSL.

1.2 Craigow-1 Drilling Operations

1.2.1 36" Hole Section and 30 x 20" Conductor

The 36" x 26" drilling BHA was made up comprising a 26" Smith XR-VCPS milled tooth bit and a 36" hole opener which was run in to tag seabed at 100mMDRT. The 36" hole was then drilled from 100mMDRT to section TD at 159mMDRT in 1.5hrs. The first 10m was drilled with PHG mud then drilling continued to 159m with sea water while pumping 50bbls PHG pills every 15m and spotting PHG around the BHA on connections. At section TD a 100bbls hi vis pill was pumped around and the well was displaced to 360bbl of 8.6ppg PHG mud. A final Anderdrift survey taken at section TD recording 0.5° before the BHA was pulled out of hole to run the conductor.

The 30" x 20" shoe joint was made up before running the conductor string inside the PGB in the moonpool. The conductor string was landed and latched inside the PGB. The HAC control lines were connected and checked. Guidelines were attached to the guideposts on the PGB and the assembly was run in hole on drill pipe to 157mMDRT where circulation was established.

Cementing lines were rigged up and tested before the 30" conductor was cemented with 264 bbls of 15.8 ppg Class G cement slurry and displaced with 39 bbls of seawater. The ROV observed returns throughout the cement job, with no obvious signs of cement or mica at the seabed. Subsequent to waiting on cement for 4 hrs the wellhead housing running tool was released and pulled out of hole.

1.2.2 17 ½" Hole Section and 13 3/8" Surface Casing.

A 17.5" Smith VR+VEJ3PS milled tooth bit was made up to a BHA including MWD with directional and GR sensors. The BHA was run in the hole and tagged top of cement (TOC) at 150mMDRT. The 17.5" hole was then drilled from 159m to section TD at 745 m MDRT with sea water and PHG pills (70 bbls of Hi Vis Guar Gum sweeps at half stand and 70bbls of Hi Vis PHG around the BHA on connections). At section TD 100 bbl of Hi-Vis PHG and 100bbls of Guar Gum Hi-Vis sweeps were circulated and the well was then displaced to 1000 bbls of 9.0 ppg PHG mud prior to pulling out of hole to surface. The 17.5" hole section was drilled from 159m to 745mMDRT (586m section) in one run, in a total of 18 hrs with an average ROP of 32.5 m/hr.

A two joint shoe track was made up and the 13 3/8" casing was run to a setting depth at 735m MDRT. The surface lines were pressure tested with the cementing unit to 3000 psi. At that stage the cement unit hose failed on the additive system and a temporary repair was made to continue the operation and. An 80 bbls seawater spacer was pumped before the 380bbls of 12.5ppg lead slurry and 104bbls of 15.8ppg tail slurry was pumped. The 18 3/4" wellhead running tool was released and the running tool was pulled out of hole to surface in preparation to run BOP's.

1.2.3 Run BOP's

The riser double was prepared and BOP stack was skidded to the well centre when operations were suspended due to high wind. After waiting on weather for 9 hours, the riser double was made up to the BOP stack. The stack was run and landed out on the wellhead and a 50 Klbs over-pull test was performed. The BOP connector and the 13 3/4" casing were successfully pressure tested against the blind shear rams to 2500psi. The BOP had previously been pressure tested on the test stump. The BOP landing joint was then laid out and the Diverter was installed.

1.2.4 12 1/4" Hole Section

A 12 1/4" BHA was made up with a Reed Hycalog RSR616M PDC bit, Sperrydrill motor with 0.78 deg bend, MWD tools with DIR-GR-RES sensors. The BHA was run in the hole and TOC was found at 696m. The cement was drilled with sea water and Guar Gum Hi-Vis sweeps to 732m, at which point the well was displaced to 9.8ppg KCL PHPA mud while drilling cement to 735m (shoe depth). The rat hole was cleaned out to 745m and 3m of new formation was drilled to 748m prior to pulling the BHA into casing shoe to perform a LOT (14.9ppg EMW).

The 12 1/4" section was then drilled from 748 to 1311mMDRT. While drilling a dolomite stinger at 1266mMDRT, the ROP dropped to 10-15m/hr and did not increase again when bit was went back into shale. Drilling parameters were varied

in an attempt to increase the ROP with no improvement. 45bbls of Steelseal pill (20lbs/bbls) was pumped in an attempt to clear possible bit balling with (no effect). The decision was made to make pull out of hole. While pulling out at 1243mMDRT a tight spot was observed requiring 55 Klbs over-pull and the well swabbing. From that depth it required was necessary to pump out of hole to the casing shoe. At the casing shoe the well was circulated the BHA was pulled out of hole to surface. Once at surface the bit was graded 2-6-LT-N-X-I-CT-PR, having drilled from 745 to 1311mMDRT (566m of formation) in 13.5hr on bottom (19hr IADC time) with an average on bottom ROP of 41.9m/hr.

The bit was changed to a Reed Hycalog RSR516S PDC and the BHA was run back to bottom (washed through two tight spots at 756 and 784mMDRT. Drilling continued to well TD at 1800mMDRT without problems.

At section TD, the well was circulated clean and the BHA was pulled to surface (pumping out from 1655 to 1300mMDRT due to high drag). At surface, the bit was graded 1-6-WT-T-X-I-ER-TD, having drilled from 1311 to 1800mMDRT (489m) in 12.9hr on bottom (IADC drilling time 17.5hr) with 37.9 m/hr on bottom ROP.

The following wireline suite was run:

Run #1: PPC-MSIP-HRLA-SP-PEX

While running in the hole, the tool string hung up at 1762mMDRT. Several attempts were made to pass that depth without success, and section was logged up to the casing shoe.

1.3 Plug and Abandon

The well was plugged and abandoned as per the well schematic in Figure 3.

Craigow-1 was abandoned with three (3) cement plugs set in the well. A 2 7/8" cement stinger, consisting of 19 joints of tubing and mule a shoe was made up to 5" drill pipe and run in hole to 1370mMDRT. A 94 bbl, 11 ppg hi-vis pill was spotted from 1220 to 1370mMDRT to support abandonment plug #1. Plug #1 was set across the interval 1070 - 1220mMDRT with 94 bbls of 15.8 ppg Class G cement.

The cement stinger was pulled to 920mMDRT and a 94bbl, 11ppg hi-vis pill was spotted from 770 to 920mMDRT to support cement plug #2. Cement plug #2 was set across the casing shoe from 576 (tagged) to 770mMDRT with 94bbls of 15.8ppg Class G cement. The cement stinger was pulled to 540mMDRT and casing above the cement plug was displaced to inhibited 10ppg KCL PHPA mud. The plug was tagged with 10Klbs and pressure tested to 1000psi for 10min after 8hr waiting on cement.

An 82bbls, 11ppg inhibited hi-vis pill was spotted from 380 to 230mMDRT to support cement plug #3 which was set from 230m to 130mMDRT with 50 bbls of 15.8 ppg Class G cement with a top of cement at set 30m below seabed. Excess drill pipe were laid out and the wellhead was jetted prior to pulling the BOPs.

The Dril-Quip Hydraulic Abandonment Connector (HAC) was functioned using the ROV while rigging down the riser handling equipment. The 30" x 20" casing cutting assembly was then run to the wellhead. The assembly was latched into the wellhead and the 13 3/8" casing was cut at 111.4mMDRT. The PGB, wellhead and casing stump was then successfully recovered to surface.

The ROV performed a seabed clearance check offline prior to commencing rig move operations.

After completing the abandonment operations on the well, the rig was handed over to the Consortium to offload all 3rd party equipment in preparation for the rig demobilisation.

1.4 Pull Anchors and Move Off Location

After finishing with ballast tank repairs (as a preparation for the long tow), and backloading all equipment from the rig, the anchors were retrieved. The anchor retrieval operations were completed at 14:30 hrs on the 7th of January 2011. 67.5hrs were subtracted from that time to reflect true well operations time. The end of Craigow-1 well operations was at 19:00 hrs on the 4th of January 2011.

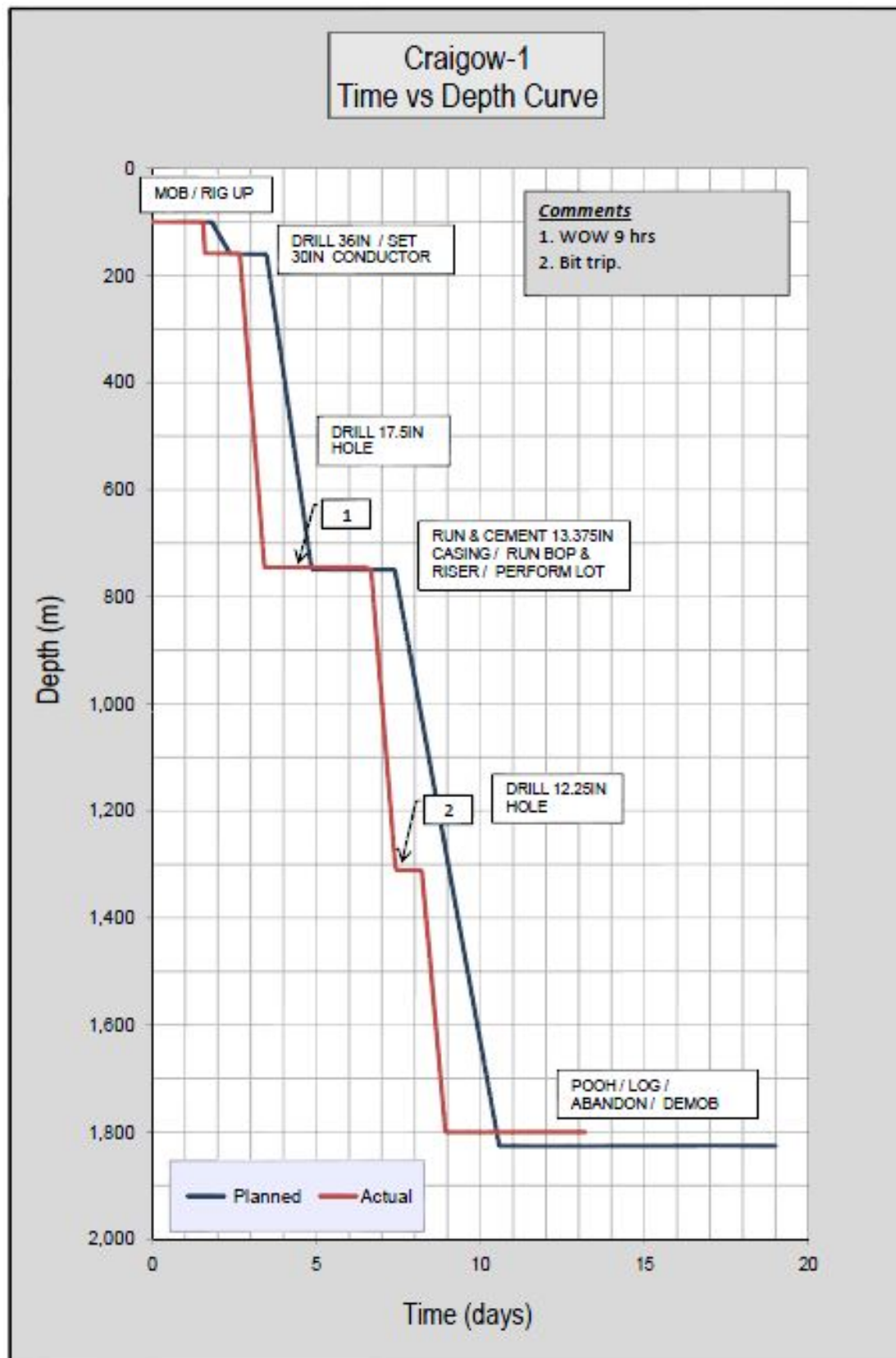


Figure 2: Craigow-1 Drilling Time/Depth Curve

2 DRILLING AND COMPLETION DATA

The drilling and engineering end of well report, prepared by Australian Drilling Associates Pty Ltd (ADA) on behalf of Tap Oil Ltd is contained in Appendix 1. Copies of the Daily Drilling Reports are contained in Appendix 2. Documentation of the rig move and the final well location survey prepared by Fugro is contained in Appendix 3 and Attachment 11 of Appendix 1. A schematic diagram of the well bore after plug and abandonment is shown in Figure 3.

2.1 Hole Sizes and Depths

Hole sizes and the depths for to which they were drilled in Craigow-1 were as follows:

36" x 20"	100.0	to	159.0mMD
17 ½"	159.0	to	745.0mMD
12 ¼"	745.0	to	1800.0mMD

2.2 Casing Data – Craigow-1

TYPE	Size	Weight/Wall (in/ppf)	Grade	Thread	Shoe Depth
Conductor (30" x 20" tapered shoe joint)	30"	1.5" / 1"	X52	SF-60	148.8
	20"	0.625"	X52	Welded	157.0
Surface Casing	13 3/8"	68	K-55	BTC	735.0

Table 1: Casing Data

A full casing report for Craigow-1 is contained in Appendix 1, Attachment 4.

2.3 Cementing Data

Cementing operations on Craigow-1 are detailed in the cementing report contained in Appendix 1, Attachment 5.

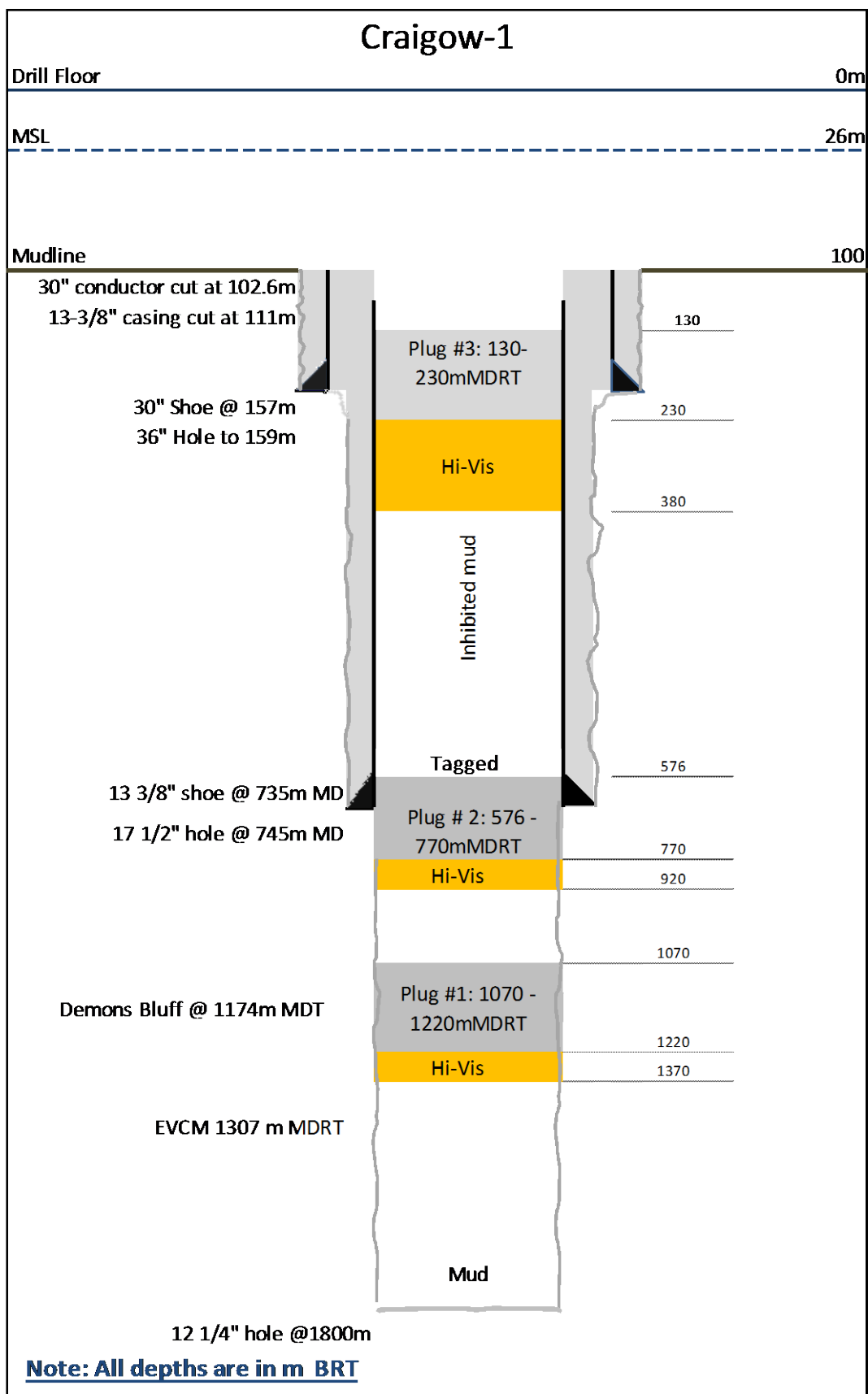


Figure 3: Craigow-1 P&A Schematic

2.4 Surveys

Directional surveying of the well path was conducted by Sperry Sun using Measurement While Drilling (MWD) equipment. The final Geodetic Survey is listed in Table 2 on the following page. A full report is contained in Appendix 1, Attachment 7 and also in Appendix 4 of this report.

2.5 Bit Record

The bit and BHA record for Craigow-1 is included in Appendix 1, Attachment 2.

2.6 Mud Data

Baroid Fluid Services provided the drilling mud for Craigow-1. A full report of drilling fluids, physical mud properties and chemicals used are provided in Appendix 1, Attachment 3.

2.7 Testing

No wireline formation test or DST's were carried out in Craigow-1.

HALLIBURTON

Sperry Drilling

Directional Survey Data

Tie-in

100.000	0.00	0.00	100.000	0.000 N	0.000 E	***	
Measured Depth (m)	Inclination (deg)	Direction (deg)	Vertical Depth (m)	Latitude (m)	Departure (m)	Vertical Section (m)	Dogleg (°/30m)
351.470	0.49	238.19	351.468	0.501 S	0.098 W	-0.501	0.69
379.670	0.50	200.42	379.667	0.681 S	0.244 W	-0.681	0.34
437.630	0.22	246.22	437.626	0.965 S	0.436 W	-0.965	0.20
466.660	0.20	245.13	466.656	1.009 S	0.533 W	-1.009	0.03
494.840	0.09	24.79	494.836	1.009 S	0.568 W	-1.009	0.29
523.840	0.09	12.10	523.836	0.965 S	0.553 W	-0.965	0.02
553.900	0.22	159.47	553.895	0.994 S	0.528 W	-0.994	0.30
583.400	0.25	220.99	583.395	1.094 S	0.551 W	-1.094	0.24
613.000	0.13	187.03	612.995	1.175 S	0.597 W	-1.175	0.16
642.750	0.24	156.95	642.745	1.265 S	0.577 W	-1.265	0.15
670.880	0.11	195.47	670.875	1.345 S	0.561 W	-1.345	0.18
700.020	0.09	260.83	700.015	1.376 S	0.591 W	-1.376	0.11
723.950	0.07	20.35	723.945	1.366 S	0.605 W	-1.366	0.17
763.590	0.25	253.49	763.585	1.368 S	0.679 W	-1.368	0.22
792.600	0.26	270.64	792.594	1.385 S	0.805 W	-1.385	0.08
821.350	0.25	230.08	821.344	1.425 S	0.920 W	-1.425	0.19
850.440	0.38	252.66	850.434	1.495 S	1.061 W	-1.495	0.18
879.880	0.57	252.68	879.873	1.567 S	1.292 W	-1.567	0.19
909.230	0.65	254.81	909.221	1.654 S	1.593 W	-1.654	0.09
938.410	0.83	249.82	938.399	1.771 S	1.952 W	-1.771	0.19
967.740	0.89	247.97	967.725	1.930 S	2.362 W	-1.930	0.07
996.770	0.79	253.44	996.752	2.071 S	2.763 W	-2.071	0.13
1025.870	0.94	263.63	1025.849	2.155 S	3.194 W	-2.155	0.22
1054.700	0.88	263.07	1054.675	2.208 S	3.650 W	-2.208	0.07
1083.470	0.88	259.60	1083.442	2.275 S	4.086 W	-2.275	0.06
1111.870	0.91	254.98	1111.838	2.372 S	4.518 W	-2.372	0.08
1140.070	0.94	262.34	1140.035	2.461 S	4.963 W	-2.461	0.13
1197.980	1.20	275.42	1197.935	2.467 S	6.035 W	-2.467	0.18
1226.830	1.18	286.27	1226.778	2.356 S	6.620 W	-2.356	0.23
1255.820	1.22	283.77	1255.762	2.199 S	7.205 W	-2.199	0.07
1287.020	1.11	285.68	1286.956	2.038 S	7.817 W	-2.038	0.11
1313.560	1.27	284.73	1313.490	1.894 S	8.350 W	-1.894	0.19
1342.870	1.22	279.60	1342.793	1.759 S	8.972 W	-1.759	0.13
1371.530	1.08	282.39	1371.447	1.650 S	9.537 W	-1.650	0.16
1401.260	1.20	284.21	1401.171	1.514 S	10.113 W	-1.514	0.13
1430.650	1.15	282.94	1430.555	1.372 S	10.699 W	-1.372	0.06
1489.200	1.05	289.05	1489.094	1.065 S	11.780 W	-1.065	0.08
1517.010	1.18	285.80	1516.899	0.904 S	12.297 W	-0.904	0.15
1547.040	1.29	286.90	1546.922	0.721 S	12.918 W	-0.721	0.12
1603.820	1.27	287.88	1603.688	0.341 S	14.130 W	-0.341	0.02
1632.100	1.33	283.81	1631.961	0.167 S	14.746 W	-0.167	0.11
1661.120	1.22	294.79	1660.974	0.042 N	15.352 W	0.042	0.27
1690.110	1.35	286.89	1689.956	0.271 N	15.959 W	0.271	0.23
1773.440	1.48	292.66	1773.261	0.972 N	17.894 W	0.972	0.07

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

Table 2: Craigow-1 Final Geodetic Survey Listing

3 FORMATION EVALUATION

3.1 Mudlogging

3.1.1 Mudlogging

Geoservices provided mudlogging, formation evaluation and monitoring of drilling parameters from spud. Full mudlogging services, including cuttings collection and gas detection were provided from first returns (745mMD) to total depth using a high speed gas chromatograph system (Reserval).

The mudlog, gas log, drill log and pressure logs recording lithology, penetration rate, mud gas, drilling and other data were prepared and are contained in Enclosure 1, 2, 3 and 4 of this report and the Geoservices Final Well Report is contained in Appendix 5.

Geochemical and isotope logging were provided from first returns (745mMD) to total depth using FLAIR logging services. The FLAIR service was employed on the well for quantitative gas acquisition in the C1-C5 range, determination of any fluid variation and/or fluid contacts to better locate eventual pay zones within the investigated intervals, establish typical fluid signatures to correlate to offset wells and to monitor for the presence of Ethene, if any, generated by drilling / bit artifact.

The FLAIR log is contained in Enclosure 5 of this report. The Geoservices Final FLAIR evaluation report is contained in Appendix 9.

3.1.2 Ditch Cutting Samples

Cuttings were collected and described from 745mMD (first returns) to TD at 1800.0mMD. The sampling intervals are described in Appendix 5, Section 2.5. The numbers of cuttings samples sets are tabulated below.

Formation and Mud Samples			
Type	No. of Sets	Quantity	Set No
Lightly washed dried and bagged cuttings (Palaeontology).	1	200g	A
Type	No. of Sets	Quantity	Set No
Washed and dried and bagged cuttings.	1	200g	B
	1	200g	C
	1	200g	D
	1	Samplex	E

Table 3: Cuttings Sample Collection Summary

The wellsite daily geological reports are provided in Appendix 6 and the Wellsite Geologists' cuttings sample descriptions are contained in Appendix 7.

Two sets of washed and dried cuttings samples were delivered to Mineral Resources Tasmania and Geoscience Australia respectively. A third set of washed and dried samples, along with a set of lightly washed cuttings and a set of Samplex Trays was sent to Core Laboratories Australia Pty Ltd (Perth) for storage.

One set of 3 Isotubes with surface collected (atmospheric pressure) gas samples from 1250m, 1350m and 1507m has been stored at Core Laboratories in Perth.

3.1.3 Hydrocarbon Indications

Craigow-1 was drilled with seawater and high viscosity Bentonite sweeps in the 36" and 16" hole sections with no returns. The 12 ¼" hole was drilled with a KCl / Polymer mud system. Gas was monitored from first returns at 1886mMD and significant peaks and breakdowns are recorded in Appendix 5, Section 3.6 and on the Mudlog and Gas Ratio Logs (Enclosures 1 and 2).

Geoservices FLAIR Fluid and Isotope Logging with analysis in real time was employed on Craigow-1. However due to equipment shortfalls coupled with the very low gas levels detected in the well, no conclusions could be made. The FLAIR log is contained in Enclosure 5 of this report. And the Geoservices Final FLAIR evaluation report is contained in Appendix 9.

3.2 Coring

3.2.1 Coring

No conventional cores were taken in Craigow-1.

3.2.2 Sidewall Cores

No wireline rotary or percussion cores were taken in Craigow-1.

3.3 MWD/LWD Logging

Real-time and recorded MWD /LWD data acquisition was provided by Sperry Sun in the 445mm (17 ½) and 311mm (12 ¼") hole sections. Run summaries are tabulated below.

Run	Hole Size mm	MWD/LWD Services	Start Depth (m)	Stop Depth (m)	Distance (m)	Start Date	Stop Date
1	17 ½"	Directional	157.0	745.0	588.0	24/12/10	26/12/10
2	12 ¼"	DDS-DGR-EWR-P4	745.0	1311.0	566.0	28/12/10	30/12/10
3	12 ¼"	DDS-DGR-EWR-P4	1311.0	1800.0	489.0	30/12/10	31/12/10

Table 4: MWD/LWD Logging Data

The Sperry Sun End of Well Report is contained in Appendix 4 of this report.

3.4 Wireline Logging

Schlumberger Wireline acquired open hole logging data in the 12 ¼" hole in Craigow-1 in one TD logging run. Details are summarised in the following table.

Log Tool String	Suite/Run	Interval mRT	Comments
MSIP-HRLT-SP-PEX-GR	1/1	1745.5 - 734.5.0	GR recorded through casing to seafloor. Sonic recorded through casing till loss of signal DEPTH?.

Table 5: Wireline Logging data

The wellsite geologist logging diary is contained in Appendix 8.

LQC Group also provided pre drill and wellsite logging QA/QC for the Craigow-1 logging program and their report is contained in Appendix 10.

3.5 Temperature Surveys

Wireline logs recorded the following maximum temperature;

Logging Tool String	Temp	Temp	Temp	Depth	Time After Last Circulation
	(Deg C)	(Deg C)	(Deg C)	(mMD)	(Hours)
MSIP-HRLT-SP-PEX-GR	76	76	76	1745.5	13:10

Using the LWD BHT (EWTEMP) an approximate maximum BHT of 80 Deg C is assumed.

3.6 Velocity Survey

No borehole seismic survey was carried out in Craigow-1.

4 POST WELL ANALYSIS (BASIC DATA)

No post well analysis has been carried out on Craigow-1.

Appendices

Appendix 1: Drilling End of Well Report



End of Well Report

Craigow-1

Document Number: 10-03-02-02-03

1	0	Issued for comment	DE	DS	DM	22/02/11
Issue	Rev	Description	Prepared By:	Reviewed By:	Approved By:	Date:

Craigow-1**TABLE OF CONTENTS**

1.	DISTRIBUTION LIST	3
2.	APPROVALS.....	4
3.	EXECUTIVE SUMMARY.....	5
4.	WELL SUMMARY & OVERVIEW	6
4.1	Well Summary	6
4.1.1	License and Field data	6
4.1.2	Surface Location	6
4.1.3	MODU Data.....	6
4.1.4	Key Dates.....	6
4.1.5	Bottom Hole Location.....	7
4.1.6	Hole Section and Casing Summary	7
4.2	Casing and Cementing Data.....	8
4.2.1	Casing Data	8
4.2.2	Cementing Data	8
4.3	Operations Summary	9
4.3.1	Rig Mobilisation and Rig Up.....	9
4.3.2	Drilling 36in Hole section.....	9
4.3.3	Setting 30in Conductor.....	9
4.3.4	Drilling 17.5in Hole Section	10
4.3.5	Setting 13.375in Casing	10
4.3.6	Running BOPs	11
4.3.7	Drilling 12.25in Hole	11
4.3.8	Logging	12
4.3.9	Well Abandonment.....	12
4.3.10	Anchor Retrieval	13
4.4	Health, Safety and Environment (HSE)	14
4.5	Well Highlights.....	17
4.6	Well Lowlights.....	17
5.	TIME ANALYSIS.....	18
5.1	Breakdown by Well Phase	18
5.2	Non Productive Time Analysis.....	21
5.3	Time Depth Curve	24
6.	WELL SCHEMATIC	25
7.	RECOMMENDATIONS	26
8.	ATTACHMENTS	27
1	Well Montage and Performance Report	
2	Bit Record (IDS)	
3	Mud Report (Halliburton)	
4	Casing Report	
5	Cementing Report (Halliburton)	
6	LOT/FIT Report	
7	Deviation Survey and MWD Report (Sperry)	
8	Activity Summary Reports (IDS)	
9	NPT Summary (IDS)	
10	ROV EOWR (Fugro)	
11	Final Rig Position Summary (Fugro)	
12	Seabed Clearance Certificate (Fugro)	

Craigow-1

1. Distribution List

Copy	Location	Recipient	Hard Copy	E-Copy
1	ADA	Document Control (File)	-	1
2	Tap Oil	Engineering and Development Manager	-	1
3	Tap Oil	Project Geologist	-	1
4	ADA	Drilling Manager	-	1
5	ADA	Drilling Superintendent	-	1
6	ADA	Senior Drilling Engineer	-	1

Craigow-1

2. Approvals

Prepared by:



ADA Drilling Engineer

22 February 2011

Date

Reviewed by:

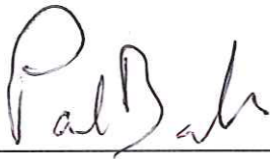


ADA Senior Drilling Engineer

22 February 2011

Date

Approved by:



ADA Drilling Manager

22 February 2011

Date

Tap Oil Engineering and Development Manager

Date

Disclaimer

This document has been prepared on behalf of and for the use of Tap Oil Limited (Tap) in accordance with generally accepted consulting practices, and is issued in accordance with the agreement between Tap and Australian Drilling Associates Pty Ltd (ADA). The information contained in this document is provided as a guide only. Although every effort has been made to ensure the accuracy of the information, ADA disclaims any liability or responsibility for the accuracy of the information contained herein.

Craigow-1

3. Executive Summary

Craigow-1 exploration well was drilled by the operator Tap Oil Limited (Tap) in Permit T/47P in the Bass Basin, Tasmania. The objective of the well was to drill and evaluate the sandstone reservoirs of the Eastern View Coal Measures (EVCN). The well was drilled to a total depth of 1,800 m MDRT but no hydrocarbons were found.

The Maersk semi-submersible drilling rig "Kan Tan IV" came on contract to Tap for the Craigow-1 well at 14:00 hrs on 22 December 2010, on completion of the previous well Silvereye-1 (Origin Energy). The well was spudded at 03:00 hrs on the 24 December 2010. The well was spudded in 74m (MSL) of water with the rotary table elevation at 26 m above sea level.

The 36in conductor hole was drilled to 159 m MDRT and the 30in conductor with a 20in shoe was run to 157 m MDRT and cemented to sea bed. The 17.5in surface hole was drilled to 745 m MDRT with returns to sea bed. The 13.375 casing and 18.75in wellhead was run to 735 m MDRT and cemented to sea bed. The BOP stack and riser were successfully run and landed onto the wellhead. The 12.25in hole was then drilled to well TD at 1,800m MDRT (1799.8m TVDRT) with 2 bit runs.

One logging run was performed at TD to evaluate the formation. The following logging suite was run: PPC-MSIP-HRLA-SP-PEX

The well was subsequently plugged and abandoned with three (3) cement plugs according to regulatory requirements. Operations on Craigow-1 were completed at 14:30 hrs on 7 January 2011, with the rig on tight tow to Western Port, Melbourne. 2.81 days were subtracted from that date to reflect actual well time and account for time spent to backload all equipment and prepare the rig for a tow at the end of Kan Tan IV Consortium campaign.

The total time spent on Craigow-1 was 13.21 days, compared with the total AFE time for the well of 19.0 days. The well duration was 5.8 days (30.5 %) under the AFE.

Of the 13.21 days spent on Craigow-1 a total of 0.5 day (3.8 %) of operations were recorded as non-productive time (NPT) for the well, 0.38 days (2.8 %) due to waiting on weather and the remaining 0.12 days (1 %) was due to other reasons.

At the time of writing this end of well report the final cost for Craigow-1 is estimated to be US\$ 12.22 million against the AFE estimate of US\$17.43 million which is US\$5.21 million (29.9%) under the AFE.

Craigow-1**4. Well Summary & Overview****4.1 Well Summary****4.1.1 License and Field data**

Well Name	Craigow-1
Well Type	Exploration
Field Name	n/a
License/Permit	T/47P
Well Operator	Tap Oil Limited
Permit Operator	Tap Oil Limited
Partners	-
Total Depth	1800mMDRT / 1799.8mTVDRT
Well Profile	Vertical
Water Depth	74m MSL

4.1.2 Surface Location

Spheroid and Datum	GDA94
Latitude	039° 35' 31.6857" S
Longitude	145° 38' 34.5855" E
Projection	UTM (south) Zone 55
Easting	383 473.486mE
Northing	5 616 630.646mN

4.1.3 MODU Data

Drilling Unit	Kan Tan IV
Drilling Unit Type	Semi Submersible
Drilling Unit Owner	Sinopec Star Petroleum Company Ltd
Drilling Contractor	Maersk Drilling Pty Ltd
Depth Measurement Units	Metres (m)
Measurement Datum	Rotary Table (RT)
Datum Elevation	26m above Sea Level
Rig Heading	248.11° (True)

4.1.4 Key Dates

Well Start	1400 hrs on 22-December-2010
Rig on Location	2200 hrs on 22-December-2010
Spud Date	0300 hrs on 24-December-2010
Reached TD	1230 hrs on 31-December-2010
End of Well	1900 hrs on 4-January-2011
Total Days on Operations	13.2 days
Total Days AFE	19.0 days

Craigow-1**4.1.5 Bottom Hole Location**

<i>Projected location at TD 1800 m MDRT (1799.8 m TVDRT)</i>	
<i>Datum & Ellipsoid</i>	<i>UTM, Zone 55S, GDA94, ellipsoid GRS1980</i>
Latitude	39° 35' 31.64 S
Longitude	145° 38' 33.81 E
<i>Grid Coordinates for</i>	<i>UTM Zone 55S Central Meridian 147° 00' 00" E</i>
Easting	383 454.59m E
Northing	5 616 631.88m N
Maximum Deviation Angle	1.54° at 1800m MDRT

4.1.6 Hole Section and Casing Summary

Hole size	Depth Interval (m MDRT)	Casing Size Depth (m MDRT)
36in	100m – 159m	30in (20in shoe) at 157m
17.5in	159m – 745m	13.375in at 735m
12.25in	754m – 1800m	Open Hole

Craigow-1**4.2 Casing and Cementing Data****4.2.1 Casing Data**

Type	Size (inches)	Weight / Wall Thickness (in) (ppf)	Grade	Thread	Depth (m MDRT)
Conductor (30in x 20in tapered shoe joint)	30	1.5 in / 1 in	X52	SF60	148.8
	20	0.625 in	X52	Welded	157
Surface Casing	13.375	68	K-55	BTC	735

Further casing details are located in Attachment 4.

4.2.2 Cementing Data

String / Plug	Cement Type	Dry Cmt Vol (MT)	Cement Additives	Mix Water (gal/sk)	Slurry Vol (bbls)	Slurry Density (ppg)	Cement to / from (mMDRT)	Csg Test Pressure (psi)
30in	Class G	53.4	+CaCl ₂ +NF-6 +Drillwater	5.18	264	15.8	100-157	n/a
13.375in Lead	Class G	41.4	+Econolite Liquid +NF-6 +SCR-100L +Seawater	12.50	380	12.5	100-585	2500
13.375in Tail	Class G	21.4	+Halad-413L +NF-6 +SCR-100L +Drillwater	4.77	104	15.8	585-735	
Plug #1	Class G	19.4	+Halad-413L +NF-6 +SCR-100L +Drillwater	4.76	94	15.8	1070-1220	n/a
Plug #2	Class G	19.6	+Halad-413L +NF-6 +Drillwater	4.79	100	15.8	576-770 (tagged)	1000
Plug #3	Class G	10.2	+CaCl ₂ +NF-6 +Seawater	5.18	50	15.8	130-230	n/a

Further cementing details are located in Attachment 5.

Craigow-1

4.3 Operations Summary

4.3.1 Rig Mobilisation and Rig Up

The Maersk semi-submersible drilling rig "Kan Tan IV" came on contract to Tap Oil for the Craigow-1 well at 14:30 hrs on 22 December 2010, when rig was under tight tow from previous well Silvereye-1 (Origin).

The rig completed the tow at 22:00 hrs on 22 December 2010, travelled 29.8 nm with average speed 3.7 kts.

Anchor running operations were completed at 15:30hrs on 23 December 2010 when all eight anchors had been run and cross tensioned.

The rig was ballasted down to an operational draft of 19.8 m (65 ft), with the final rig position at 2.22 m from the intended location which is within the specified tolerance of 10 m radius.

The ROV was launched and a seabed survey was conducted. The Kan Tan IV rig elevation was 26m from Rotary Table to sea level. Water depth was recorded as 74 m MSL.

Conclusions and Recommendations

- (i) The rig move and anchoring operations took 1.06 days vs 1.81 planned days. No NPT were incurred during these operations.

4.3.2 Drilling 36in Hole section

The 36in x 26in drilling BHA was made up comprising a 26in Smith XR-VCPS milled tooth bit and 36in hole opener and ran to tag seabed at 100 m MDRT. The 36in x 26in hole was then drilled from 100 to 159 m MDRT (in 1.5hrs). The first 10m was drilled with PHG mud at a flow rate of 300 gpm increasing up to 500gpm, 40rpm increasing up to 60 rpm. From 110m to 159m drilled with sea water at 800gpm and pumped 50bbbls PHG pills every 15m and spotted PHG around BHA on connections.

At section TD a 100bbl hi vis pill was pumped around and the well was displaced to 360bbl of 8.6ppg PHG mud. A final Anderdrift survey taken at section TD recorded 0.5°. The ROV positioned sonar Buoys around the well and the BHA was POOH to run conductor.

Conclusions and Recommendations

- (i) Overall time associated with drilling the 36in x 26in hole was 0.63 days vs 0.57 planned days.

4.3.3 Setting 30in Conductor

The 30in x 20in shoe joint was made up and flow was checked through the float valve before running the conductor string inside the PGB in the moonpool. The conductor string was landed and latched inside the PGB. The HAC control lines were connected and checked. Guidelines were attached to the guideposts on the PGB and the assembly was RIH on DP to 157 m MDRT. Circulation was established and 100 bbls of seawater was pumped.

Cementing lines were rigged up and 5 bbls of drill water was pumped with the cement unit prior to pressure testing surface lines to 3000 psi. The cement unit pumped 20 bbls of drillwater with mica spacer (to help identifying cement returns at mudline). The 30in conductor was then cemented with 264 bbls of 15.8 ppg Class G cement slurry and displaced with 39 bbls of seawater (the floats holding). The ROV observed returns throughout the cement job, with no obvious signs of cement or mica at the seabed.

10-03-02-02-03 Post Well Report	Page 9 of 27	Issue No: 1
EOWR	Approved	Rev No: 0

Craigow-1

Subsequent to waiting on cement for 4 hrs the wellhead housing running tool was released and POOH. The bull's eye readings were 0.75° fwd (aft bull's eye) and 0.75° port (starboard bull's eye).

Conclusions and Recommendations

- (i) The time associated to this phase was 0.6 days vs 1.1 days planned. 0.02 days was incurred as NPT due to helicopter operations interrupting work on the deck.
- (ii) The 5 joint conductor string proved to be a successful design and can be recommended for future wells drilled in this area.

4.3.4 Drilling 17.5in Hole Section

A 17.5in Smith VR+VEJ3PS milled tooth bit was made up to a BHA. The BHA included MWD with directional and GR sensors. The BHA was RIH to tag top of cement (TOC) at 150 m MDRT. The 17.5in hole was drilled from 159 m to section TD at 745 m MDRT with sea water (flow rate 1150 gpm) and PHG pills (70 bbls of Hi Vis Guar Gum sweeps at half stand and 70bbls of Hi Vis PHG around the BHA on connections).

At section TD 1x100 bbl of Hi-Vis PHG and 1x100bbls of Guar Gum Hi-Vis sweeps were circulated and the well was displaced to 1000 bbls (1.5 time open hole volume) of 9.0 ppg PHG mud prior to POOH to surface. The BHA was POOH to surface without problems (wiping a few tight spots with 50 Klbs over pull at 660 to 656m, 640, 503 and 492 to 482m) the bit was graded 2-2-WT-A-E-I-CT-TD.

Overall the 17.5in hole section was drilled from 159 m to 745 m MDRT (586 m section) in one run, in a total of 18 hrs with an average IADC ROP for the section of 32.5 m/hr (on bottom time 11.1hr; on bottom ROP 52.8 m/hr) .

Conclusions and Recommendations

- (i) The time associated with drilling the 17.5in hole section was 1.35 days vs 1.38 days planned. No NPT was recorded during that hole section.

4.3.5 Setting 13.375in Casing

A two joint shoe track was made up and the float valves checked. The 13.375in casing was run to setting depth at 745 m MDRT without any problems. The cement head assembly was picked up and the wellhead landed out in the 30in wellhead housing. Latching of the wellhead in the housing was confirmed with a 50klbs over pull.

The cementing unit was used to pressure test the surface lines to 3000 psi. At that stage the cement unit hose failed on the additive system. A temporary repair was made to continue the operation and the cement line was retested prior to continue operations.

An 80 bbls seawater spacer (in total) was pumped before the cement unit pumped 380bbls of 12.5ppg lead slurry and 104bbls of 15.8ppg tail slurry. The dart for the top plug was released and chased with sea water at a flow rate of 1.5bpm. The plug sheared with 500psi after 5.8bbls of sea water was pumped. The cement unit pumped a further 14.2bbls before being displaced with the rig pump at a rate 12bpm (slowed to 4bpm for the final 10bbls). A calculated displacement volume of 289.5bbls plus another 3bbls (50% of shoe track volume) was pumped with no plug bump. Check for back flow – float was holding.

The 18.75in wellhead running tool was released and the running tool was POOH to surface.

Conclusions and Recommendations

- (i) Overall the time associated with setting the 13.375in surface casing was 0.92 days vs 0.97 days planned. A total of 0.04 days was incurred as NPT due to

10-03-02-02-03 Post Well Report	Page 10 of 27	Issue No: 1
EOWR	Approved	Rev No: 0

Craigow-1

helicopter operations and problem with the hose on cementing unit.

4.3.6 Running BOPs

The riser double was prepared and BOP stack was skidded to the well centre when operations were suspended due to high wind. After waiting on weather for 9 hrs, the riser double was made up to BOP stack. The stack was run and landed out on the wellhead and a 50 Klbs over pull test was performed. The BOP connector and the 13.375in casing were successfully pressure tested against the blind shear rams to 2500psi. The BOP had previously been pressure tested on the test stump.

The BOP landing joint was then laid out and the Diverter was installed.

Conclusions and Recommendations

- (i) The time associated with BOP running operations was 1.31 days vs 1.56 planned days. A total of 0.38 days were recorded as NPT, due to waiting on weather.

4.3.7 Drilling 12.25in Hole

A 12.25in BHA was made up with the following key components: Reed Hycalog RSR616M PDC bit; Sperrydrill motor with 0.78 deg bend; MWD tools with following sensors: DIR-GR-RES. The bend on the motor was put in as a contingency measure if well path deviated off the plan and correction was required.

The BHA was RIH and TOC was found at 696m. The cement was drilled with sea water and Guar Gum Hi-Vis sweeps to 732m. The well was displaced to 9.8ppg KCL PHPA mud while drilling cement to 735m (shoe depth). The rat hole was cleaned out to 745m and 3m of new formation was drilled to 748m. The mud was conditioned prior to pulling the BHA into casing shoe to perform a LOT (14.9ppg EMW).

The 12.25in section was then drilled from 748 to 1311mMDRT. While drilling a dolomite stinger at 1266mMDRT, the ROP dropped to 10-15m/hr and did not increase again when the bit went back into shale. Drilling parameters were varied in an attempt to increase the ROP with no improvement and so 45bbls of Steelseal pill (20lbs/bbls) was pumped in an attempt to clear possible bit balling with no effect. The decision was made to make a bit trip. At 1311mMDRT, a 40bbls Hi-Vis sweep was pumped and circulated out prior to POOH.

While POOH at 1243mMDRT a tight spot was observed with 55 Klbs overpull and the well swabbing. From that depth it was necessary to pump out of hole to the casing shoe. Attempted to pull on elevators twice (at 1161 and 1016mMDRT) on both occasions high overpull (max 70Klbs) and swabbing were observed.

At the casing shoe bottom up was circulated and the BHA was POOH to surface.

Once at surface the bit was graded 2-6-LT-N-X-I-CT-PR, having drilled from 745 to 1311mMDRT (566m of formation) in 13.5hr on bottom (19hr IADC time) with an average on bottom ROP of 41.9m/hr. At the same time the bit had some signs of balling.

The bit was changed to a Reed Hycalog RSR516S PDC and the BHA was run back to bottom (washed through two tight spots at 756 and 784mMDRT). Drilling continued to well TD at 1800mMDRT without problems.

At section TD, the well was circulated clean and the BHA was pulled to surface (pumped out from 1655 to 1300mMDRT due to high drag). At surface, the bit was graded 1-6-WT-T-X-I-ER-TD, having drilled from 1311 to 1800mMDRT (489m) in 12.9hr on bottom (IADC drilling time 17.5hr) with 37.9 m/hr on bottom ROP.

10-03-02-02-03 Post Well Report	Page 11 of 27	Issue No: 1
EOWR	Approved	Rev No: 0

Craigow-1

Conclusions and Recommendations

- (i) The time associated with drilling the 12.25in hole was 3.46 days vs 3.19 days planned. A total of 0.06 days of NPT was recorded during this phase, due to interruption in mud logging service.
- (ii) For the future well(s), plan on 2 PDC bit runs for the section. Detailed bit run evaluation was conducted by Reed Hycalog, it was pointed that harder PDC set may not drill the section in one run, as it would encounter similar problems drilling through dolomitic and chert stingers (excessive wear) but compromise ROP in other intervals. Refer to 12 ¼" section bit run report in appendix.

4.3.8 Logging

The following wireline suite was run as programmed:

Run #1: PPC-MSIP-HRLA-SP-PEX

While running in the hole, the tool string held up at 1762mMDRT, a few attempts were made to pass that depth without success and section was logged up to the casing shoe. All required data was collected during that run.

Conclusions and Recommendations

- (i) The time associated with logging the section was 0.46 days vs 1.19 days planned. The reasons for such a short time compare to AFE were: no NPT while logging and reducing logging program from two logs to only one.

4.3.9 Well Abandonment

Craigow-1 was abandoned with three (3) cement plugs set in the well.

A 2 7/8" cement stinger, consisting of 19 joints of tubing and mule shoe (total length - 179.5m) was made up to 5in drill pipe and RIH to 1370 m MDRT. A 94 bbl, 11 ppg, hi-vis pill was spotted from 1220 to 1370 mMDRT to support abandonment plug #1. Plug #1 was set across shallowest sand in the Demons Bluff formation in the interval 1070 - 1220 mMDRT with 94 bbls of 15.8 ppg Class G cement. The well was abandoned on "dry hole" basis, so the plug was not tagged (no requirements to verify plug position).

The cement stinger was pulled to 920mMDRT and 94bbls of 11ppg hi-vis pill was spotted from 770 to 920mMDRT to support cement plug #2. Cement plug #2 was set across the casing shoe from 576 (tagged) to 770mMDRT with 100bbls of 15.8ppg Class G cement. The cement stinger was pulled to 540mMDRT and casing above the cement plug was displaced to inhibited 10ppg KCL PHPA mud. The plug was tagged with 10Klbs and pressure tested to 1000psi for 10min after 8hr waiting on cement.

An 82bbls 11ppg inhibited hi-vis pill was spotted from 380 to 230m MDRT to support cement plug #3. The surface cement plug was set from 230m to 130m MDRT with 50 bbls of 15.8 ppg Class G cement with top of cement set 30 m below seabed. Excess drill pipe were laid out and the wellhead was jetted prior to pulling the BOPs. The BOPs were then pulled without incident.

The Dril-Quip Hydraulic Abandonment Connector (HAC) was functioned using the ROV while rigging down the riser handling equipment. The 30in x 20in 2M Single-Trip-Casing-Cutting-Assembly was then run to the wellhead. The assembly was latched into the wellhead and the 13 3/8in casing was cut at 111.4mMDRT. The PGB, wellhead and casing stump was then successfully recovered to surface.

10-03-02-02-03 Post Well Report	Page 12 of 27	Issue No: 1
EOWR	Approved	Rev No: 0

Craigow-1

The ROV performed a seabed clearance check offline prior to commencing rig move operations.

After completing the abandonment operations on the well, the rig was handed over to the Consortium to offload all 3rd party equipment in preparation for the rig demobilisation.

Conclusions and Recommendations

- (i) Overall abandonment operations were successfully completed in 2.44 days vs 4.0 days planned. No NPT were recorded during that phase.
- (ii) HAC system proved to be reliable in soft seabed soil condition.

4.3.10 Anchor Retrieval

After finishing with ballast tank repairs (as a preparation for the long tow) and backloading all equipment from the rig, what took 67.5hr (35hrs – ballast tank repair and 32.5hrs - backloading), the anchors were retrieved. The anchor retrieval operations were finished at 14:30 hr on 7th January 2011; 67.5hrs were subtracted from that time to reflect true well operations time. The end of Craigow-1 well operations was at 19:00 hr on 4 January 2011

Conclusions and Recommendations

- (i) The Anchor Retrieval phase was completed in 0.98 days vs 1.24 days planned. No NPT were recorded during that phase

Craigow-1

4.4 Health, Safety and Environment (HSE)

Parameter		Number	Units	Comments
SAFETY				
Manhours	Kan Tan IV	30480	Man day x24 hrs	Offshore ADA/Tap Oil /Maersk/TPC from 22 nd December 2010 to 6 th Jan 2011.
	AHTS	8808	Man day x24 hrs	Far Fosna & Far Scimitar.
	Shore Support	540	hrs	ADA office based staff in Melbourne (x12), OPC (Mgt x 8 hrs) plus Stevedores (x hrs worked)
	Bristow Pilots	5040	hrs	2 x pilot per trip x flight hours (Total hours calculated using LAH spreadsheet adding flights in and out x 60 minutes ex Essendon)
Personnel Flying Hours		17280	Exposures hrs	Total flying exposure for personnel 'To' and 'From' the rig (288 to date personnel movements – average of 60 mins per trip)
ACTIVE cards generated		278	ea	Participation measured from 22 nd December 2010 to 6 th Jan 2011. Quality of cards has been consistently high and participation demonstrates commitment to the system. Daily awards are issued for two quality cards and cards of note are discussed in pre-start meeting and the Daily Drilling morning meeting. Overall participation from the Crew, Client and TPC's is monitored and targets have exceeded the target.
Safe Observation (proACTIVE)		163	ea	58.6% of ACTIVE Cards were deemed safe (proACTIVE).
Unsafe Observation (reACTIVE)		115	ea	41.4% of ACTIVE Cards were deemed unsafe (reACTIVE).
Total MODU Proactive Safety Efforts		317	ea	PSE categories include Active Cards, PTW Audits, Emergency Drills Carried Out (Fire/Abandon/MOB), Area Authority Audits/Hazard Hunt, General HSE Meetings and Departmental Meetings.
AUDIT				
Regulatory Audit		0	ea	No regulatory audits undertaken
Audits General		2	ea	- Lifting equipment completed by Maersk third-party. - ADA undertook the EP Compliance Audit from 29th – 31st Dec.
MODU Mini HSE Audits		3	ea	The ADA Offshore HSE Advisor on board the Kan Tan IV conducted the following audit: 29th Dec 2010 – Induction Process; 5th Jan 2011 – Waste Management; 6th Jan 2011 – Occupational Health All identified actions from this mini audit have been reviewed and closed.
MODU Environmental Inspection		1	ea	The following environmental inspection was carried out by the ADA Offshore HSE Advisor; 28th Dec; All actions identified during the inspections have been closed.
TRAINING				

Craigow-1

Parameter	Number	Units	Comments
ADA ERG Exercise	1	ea	15th Dec - ADA undertook an ERG live exercise with a diesel transfer spill scenario. Note: 16 th Dec – Tap Oil hold a CMT desktop exercise.
Environment Plan Training	Compliant	ea	Tap Oil Environment Plan Compliance: Specific Tap Oil HSE Inductions with Environmental Plan expectations were delivered on the following dates: 27th Dec – 3 sessions; 28th Dec – 1 session; DSEWPC Requirement Compliance: - No VSP activity was undertaken during Craigow-1 drilling operations.
MODU Emergency Drill	3	ea	The following Emergency Drills were held: 1st Jan 2011 – Fire & Abandon Drill; 28th Dec 2010 – Fire & Abandon Drill; 27th Dec 2010 – Spill Drill. Objectives have been met and there are no outstanding actions required.
REPORTABLE INCIDENT (NOPS)			
Lost Time Injury (LTI)	0	ea	Nil Lost Time Injuries. Final day of Kan Tan IV Craigow-1 drilling operations recorded 416 days LTI free.
Alternate Duties Injury (ADI/RWC)	0	ea	Nil Restricted Workcase injuries
Medical Treatment Injury (MTI)	1	ea	27 th Dec – The IP was walking across the pipe deck guiding a bundled load of 3 drill collars with a tag line as it was moved by the crane. As he stepped over a deck rail (“I beam”) he stood on a Sampson post that he did not see as it had been rolled in alongside & under the deck rail. His right foot rolled off the Sampson Post and he twisted his right ankle on the deck. Rig Medic assessed the IP’s injured right ankle as a probable soft tissue injury ligament sprain / strain and treated him with R.I.C.E, rest, ice, compression & elevation. The IP returned to work the next day. The injury was categorised as an MTC by Kan Tan IV OIM based on purely that the IP went back to see the Rig Medic again the next morning before work and no additional medical treatment was given. Corrective and preventive actions have been closed.
NON REPORTABLE INCIDENT			
First Aid Case (FAC)	1	ea	3 rd Jan 2011 - The IP was accessing some equipment underneath the workbench when he pulled out the drawer and he caught his hand on a roll of Stainless Steel “Band it” strap cutting the top of his knuckle 1.5cm long. The IP was wearing protective gloves with at the time. Rig Medic assessed the IP’s injured hand as a minor laceration that did not open up when bending his fingers. The wound was cleaned with antiseptic and dressed accordingly. The IP

Craigow-1

Parameter	Number	Units	Comments
			then returned to full work duty. Corrective and preventive actions have been closed.
Near Miss (NM)	0	ea	No near miss incident recorded
Medical Evacuation	0	ea	No MEDIVAC called during Craigow-1.
RECORDABLE INCIDENT			
Spills – occurrence	0	ea	No spill incidents during Craigow-1.
Sewerage Disposal			
Problems with sewerage plant resulted in discharge of untreated sewage to the marine environment	0	ea	No concerns identified.
Waste			
Hazardous Waste			
Waste oil	9664	litre	All wastes are separated & then appropriately packed, stored and sent onshore & disposed of accordingly by Transpacific Cleanaway through OPC Pty Ltd in Port of Melbourne.
Paint tins	0	Bulk Bag	
Oily rags/filters	0	Wheelie Bin	
Non-hazardous waste			
Scrap metal	2	Skip	12 m ³
General waste	15	Skip	Solid waste / 66 m ³
	8	Bulk Bag	General waste
Recyclable waste	0	Bulk Bag	
	0	Wheelie Bin	
Environmental Initiatives: Whale observations continued on Craigow-1, in line with DSEWPC requirement compliance.			
Marine User Interaction			
Cetacean sightings	2	ea	2 dolphin sightings recorded on the 23 rd Dec 2010 and 6 th Jan 2011.
Errant vessel interaction	0	ea	No unauthorised vessel issues
Impacts from Fishing Operations	0	ea	No impacts
Water Based Muds (WBM)			
Volume water based drilling fluid dispose into the ocean (m ³)	1081.7 (6803.5 bbl)	m ³	No recordable incident arising from the Kan Tan IV well activity that breaches the performance objectives for the Tap Oil Environment Plan.
Volume of drill cuttings using WBM disposed to the seabed (m ³)	206.2 (1297 bbl)	m ³	
Volume of drill cuttings using WBM injected into the annulus (m ³)	0	m ³	
Oil / Chemical spills discharged to the marine environment	0		No spill incidents - No reportable incidents recorded.

Craigow-1

4.5 Well Highlights

The main highlights on the well were as follows:

- No LTIs occurred during the well
- No hydrocarbon / chemical spills were recorded during the well
- The well was drilled 30% under the AFE time
- The well was successfully plugged and abandoned in accordance with regulatory requirements
- The KCI/PHPA/ClaySeal Plus mud formulation proved to be successful.

4.6 Well Lowlights

The main lowlights on the well were as follows:

- 9hrs waiting on weather while running BOP's

End of Well Report

Craigow-1



5. Time Analysis

5.1 Breakdown by Well Phase

Table 1 summarizes the planned versus actual time breakdown, by operational phase, for the well. Figure 1 presents the same data in graphical format. Figure 2 shows the breakdown of the actual phase times as productive and non-productive times.

Operation Phase	Time (days)						
	Planned	Actual	Programmed	Un-Programmed	NPT Programmed	NPT Un-Programmed	Delta
Mobilisation	1.81	1.06	1.06		0.00		-0.75
36in Hole	0.57	0.63	0.63		0.00		+0.06
30in Casing	1.10	0.60	0.60		0.02		-0.50
12.25in Hole	1.38	1.35	1.35		0.00		-0.03
9.625in Casing	0.97	0.92	0.92		0.04		-0.05
Run BOP/Riser	1.56	1.31	1.31		0.38		-0.25
8.5in Hole	3.19	3.46	3.46		0.06		+0.27
Log 8.5in Hole	1.19	0.46	0.46		0.00		-0.73
Abandon Well	4.00	2.44	2.44		0.00		-1.56
Demobilisation	1.24	0.98	0.98		0.00		-0.26
On location WOW Days	1.00	0.00	0.00		0.00		-1.00
Mob/Demob WOW Days	1.00	0.00	0.00		0.00		-1.00
TOTALS	19.01	13.21	13.21	0.00	0.50	0.00	-5.80

Table 1

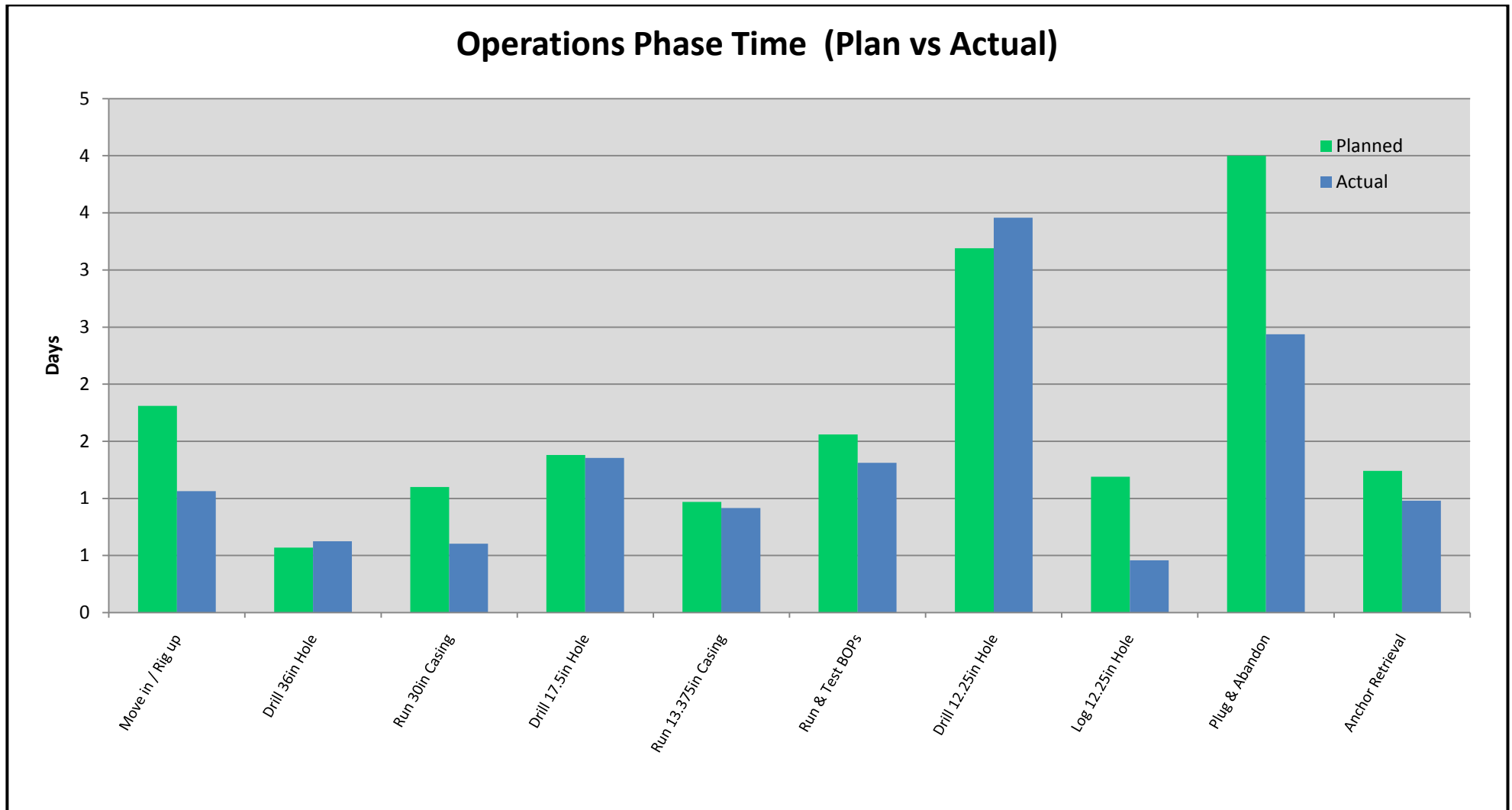


Figure 1

End of Well Report

Craigow-1

Australian Drilling Associates Pty Ltd

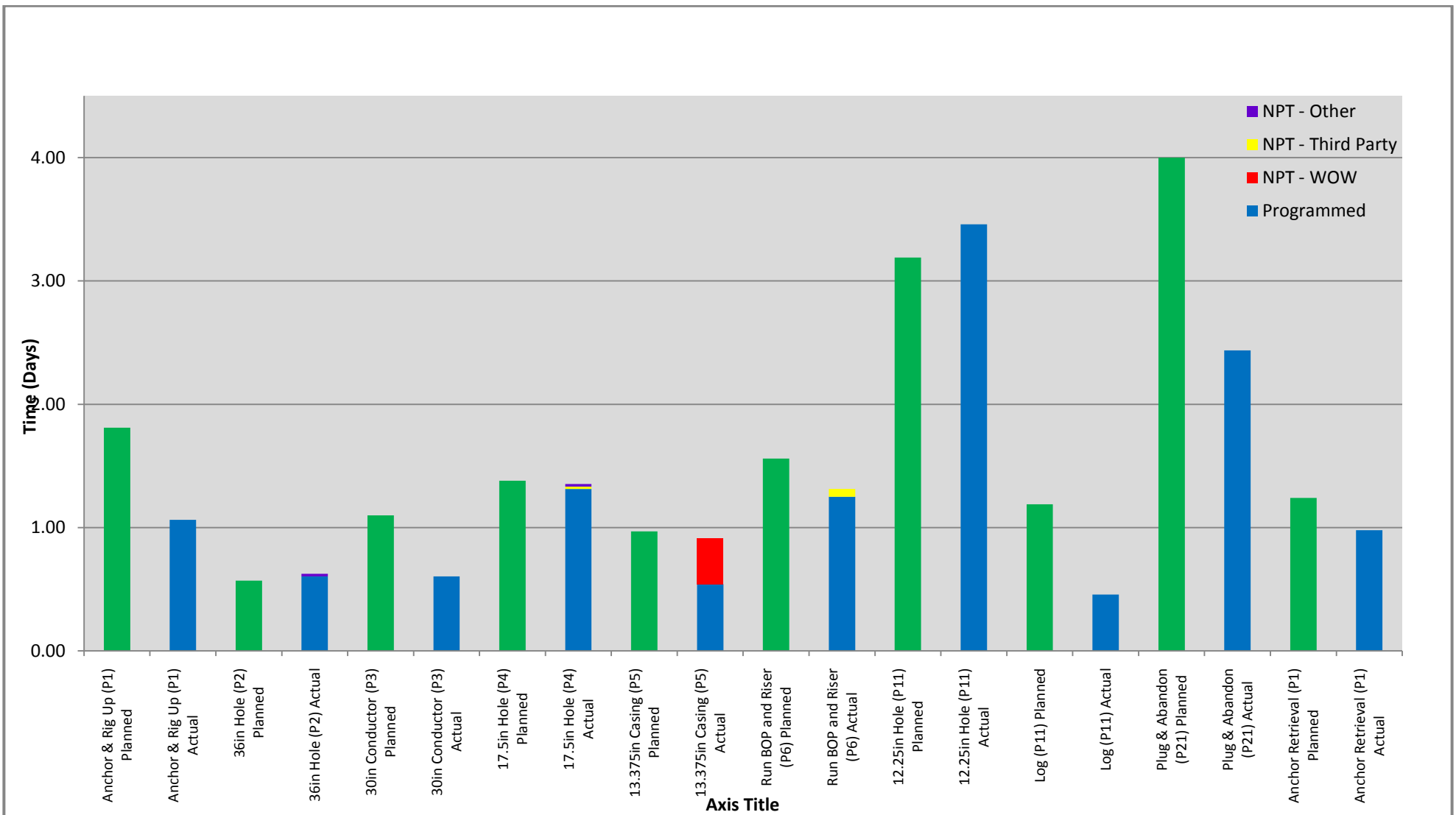


Figure 2

Craigow-1**5.2 Non Productive Time Analysis**

The total time spent on Craigow-1 was 13.21 days, compared with the total AFE time for the well of 19.01 days. The well duration was 5.8 days (30.51 %) under the AFE. Of the 13.21 days spent on Craigow-1 a total of 0.5 days (3.79 %) of operations were recorded as non-productive time (NPT) for the well:

- 0.38 days (2.84 %) of which is due to waiting on weather
- 0.08 days (0.63 %) incurred as a result of third party equipment downtime
- 0.04 days (0.32 %) due to other causes.

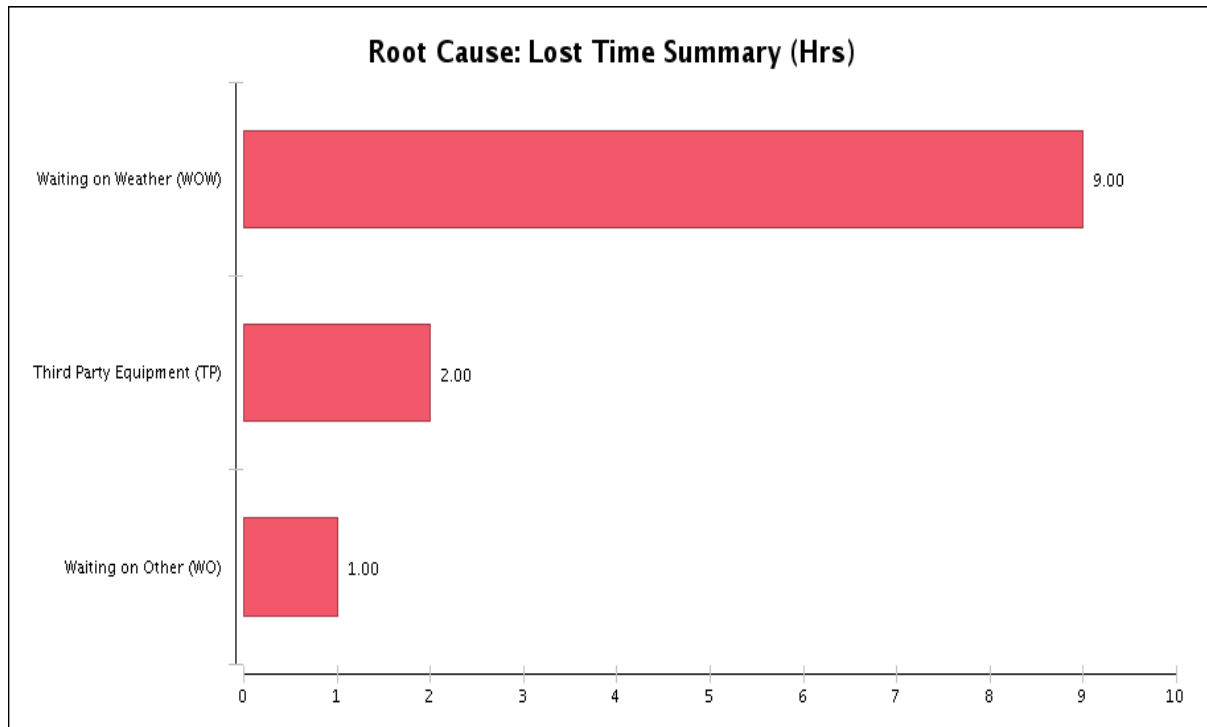


Figure 3

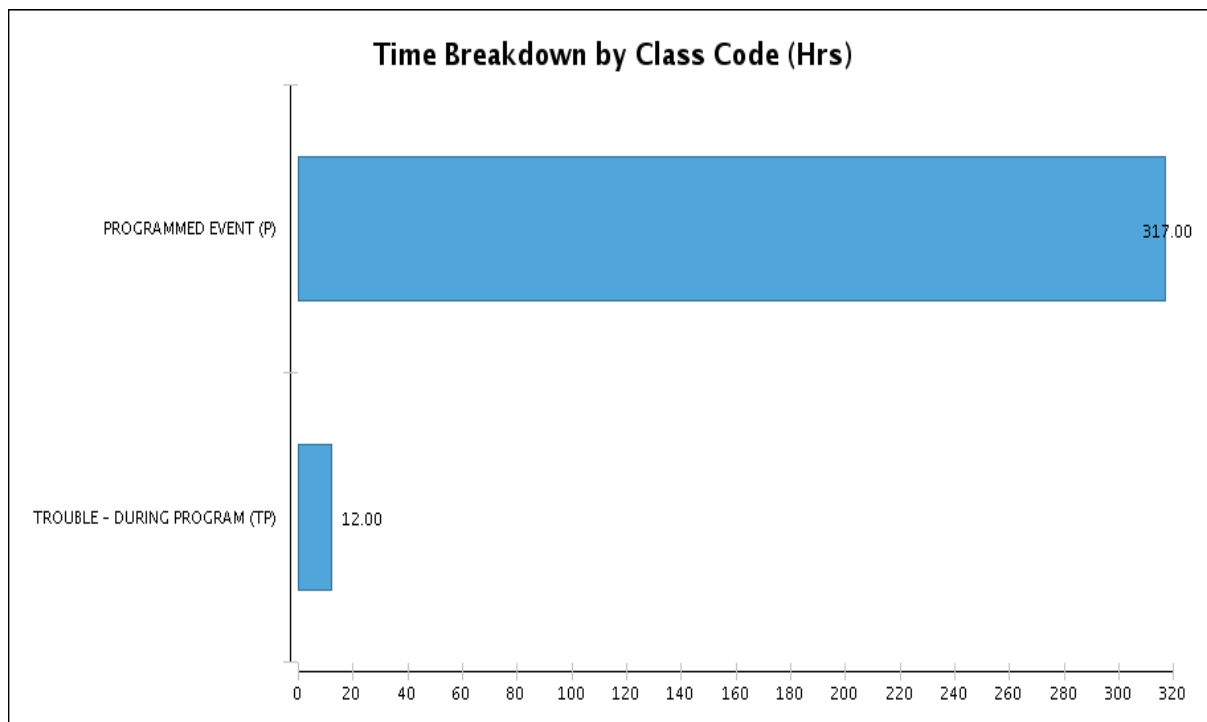


Figure 4

A complete listing of all the NPT events on Craigow-1 is located in Attachment 9.

End of Well Report

Craigow-1

Australian Drilling Associates Pty Ltd



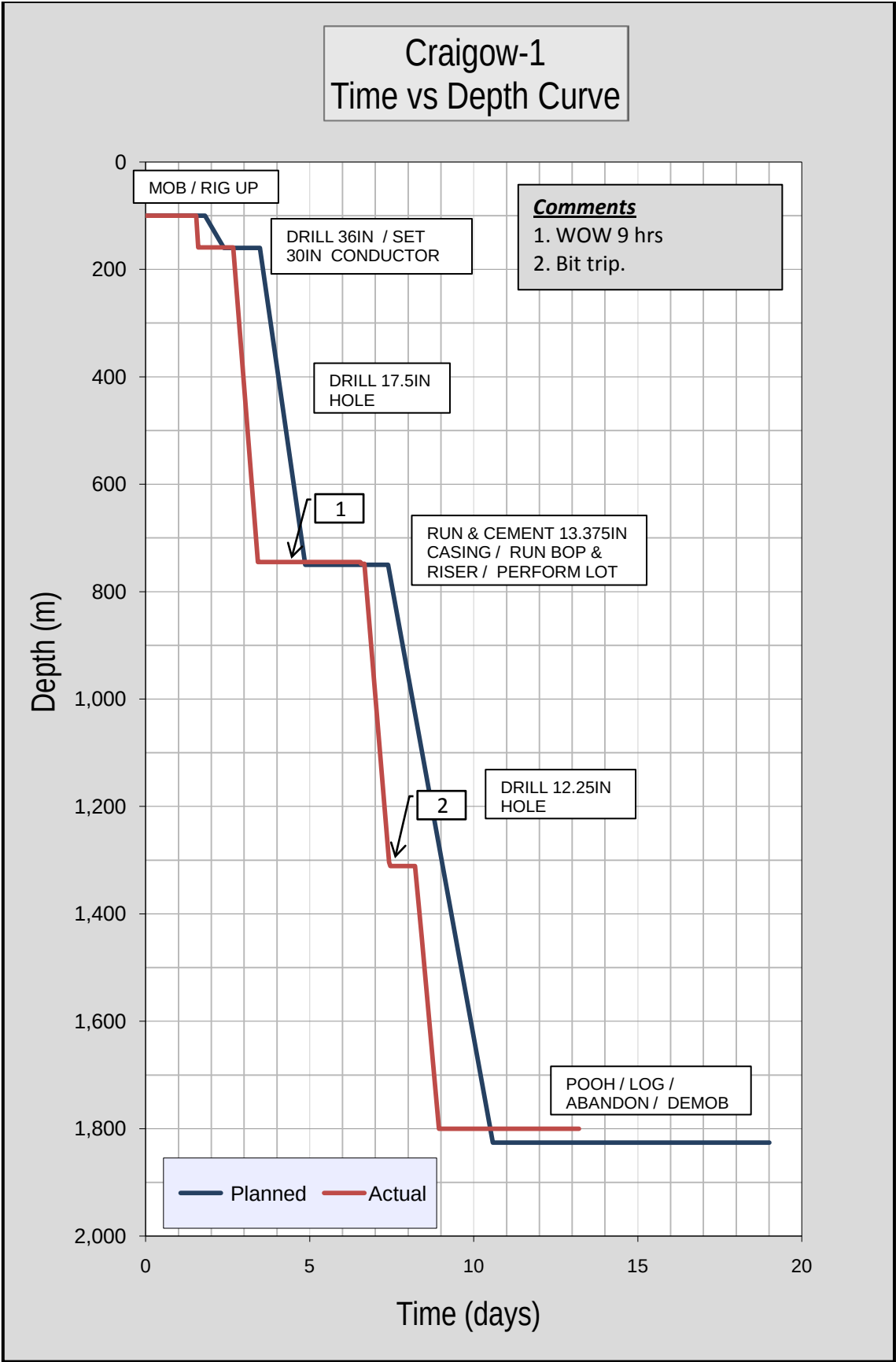
OPERATIONS PHASE	DEPTH	ACTUAL PHASE DURATION		TOTAL NPT		NPT BREAKDOWN					
						WOW		THIRD PARTY		OTHER	
		HRS	DAYS	HOURS	DAYS	HOURS	DAYS	HOURS	DAYS	HOURS	DAYS
Move in / Rig up	100	25.50	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill 36in Hole	159	15.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.02
Run 30in Casing	159	14.50	0.60	0.50	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Drill 17.5in Hole	745	32.50	1.35	0.00	0.00	0.00	0.00	0.50	0.02	0.50	0.02
Run 13.375in Casing	745	22.00	0.92	1.00	0.04	9.00	0.38	0.00	0.00	0.00	0.00
Run & Test BOPs	745	31.50	1.31	9.00	0.38	0.00	0.00	1.50	0.06	0.00	0.00
Drill 12.25in Hole	1800	83.00	3.46	1.50	0.06	0.00	0.00	0.00	0.00	0.00	0.00
Log 12.25in Hole	1800	11.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plug & Abandon	1800	58.50	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Anchor Retrieval	1800	23.50	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL (DAYS / %)			13.21 100%		0.50 3.79%		0.38 2.84%		0.08 0.63%		0.04 0.32%

Table 2

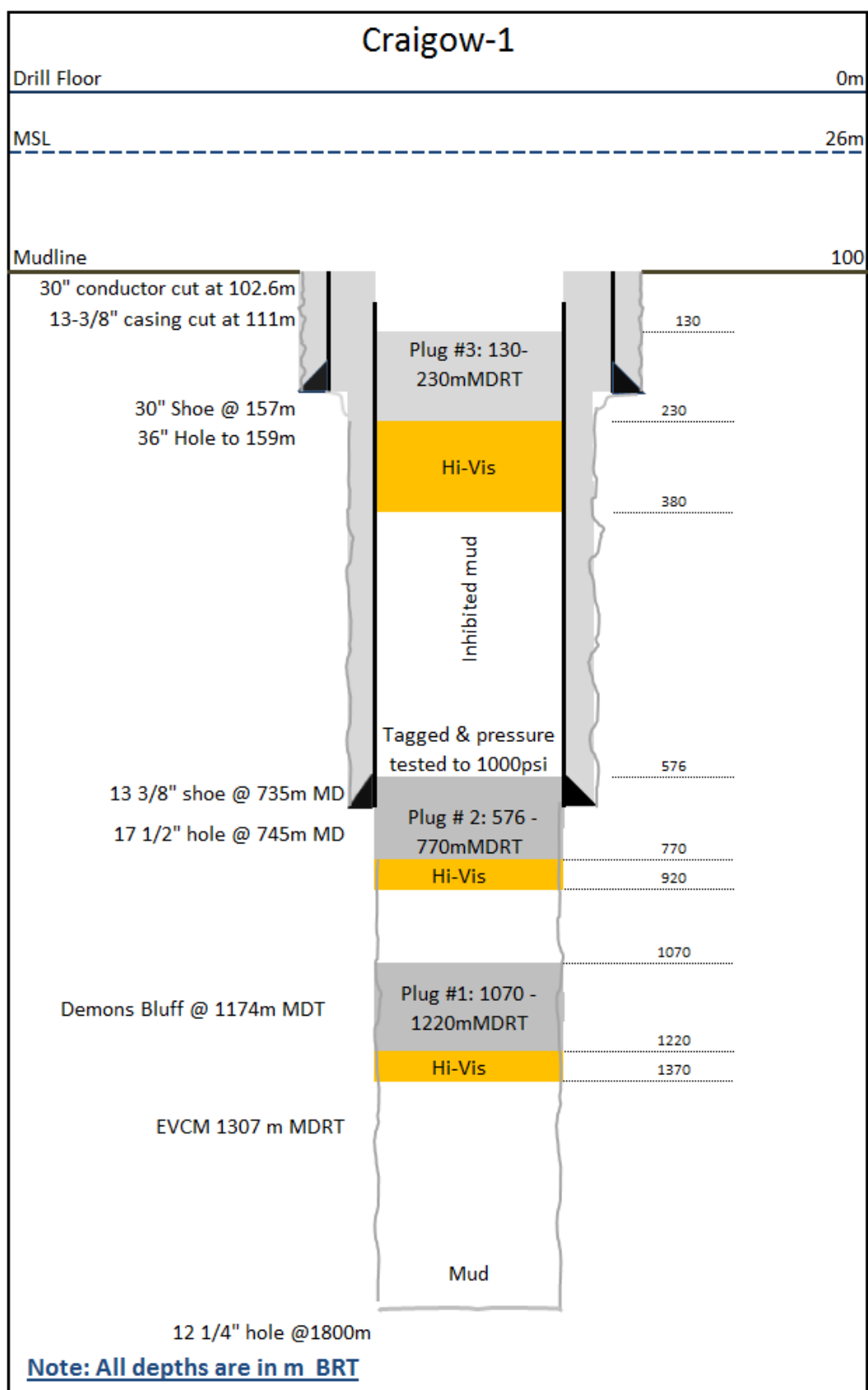


Craigow-1

5.3 Time Depth Curve



6. Well Schematic



7. Recommendations

Item	Phase	Lesson Learned / Opportunity	Actions Suggested
1	12.25in Hole	This hole section was planned to be drilled in one bit run with the Reed Hycalog RSR616M PDC, however while drilling through a dolomite stinger at 1266mMDRT, the ROP dropped to 10-15m/hr and did not increased again when bit went back into shale. The BHA was POOH and the bit changed out to a harder Reed Hycalog RSR516S PDC bit.	For the future well(s), plan on 2 PDC bit runs for the section. Detailed bit run evaluation was conducted by Reed Hycalog, it was pointed that harder PDC set may not drill the section in one run, as it would encounter similar problems drilling through dolomitic and chert stingers (excessive wear) but compromise ROP in other intervals. Refer to 12 1/4" section bit run report in appendix.



8. Attachments

- 1 Well Montage and Performance Report
- 2 Bit Record (IDS)
- 3 Mud Report (Halliburton)
- 4 Casing Report
- 5 Cementing Report (Halliburton)
- 6 LOT/FIT Report
- 7 Deviation Survey and MWD Report (Sperry)
- 8 Activity Summary Reports (IDS)
- 9 NPT Summary (IDS)
- 10 ROV EOWR (Fugro)
- 11 Final Rig Position Summary (Fugro)
- 12 Seabed Clearance Certificate (Fugro)

[illegible]

Well Data						
Well Name	Craigow-1	Country	Australia			
Company	Tap (Shelfal) Pty Ltd (Tap Oil)	Field / basin	Craigow / Bass Basin			
Designation	Exploration Well	Permit	T/47P			
Deviation	Vertical	Drilling Company	Maersk			
Water Depth (MSL)	74 m	Rig	Kan Tan IV (Semi Sub)			
RT-ASL (MSL)	26 m	Planned TD TVDRT	1826 m			
RT-ML	100 m	Planned TD MDRT	1826 m			

OPERATION	Planned	Actual	Total NPT	Rig Repair	WOW	Delta
Move in / Rig up	1.81	1.06				-0.75
Drill 36in Hole	0.57	0.63				+0.06
Run 30in Casing	1.10	0.60	0.02			-0.50
Drill 17.5in Hole	1.38	1.35				-0.03
Run 13.375in Casing	0.97	0.92	0.04			-0.05
Run & Test BOPs	1.56	1.31	0.38		0.38	-0.25
Drill 12.25in Hole	3.19	3.46	0.06			+0.27
Log 12.25in Hole	1.19	0.46				-0.73
Plug & Abandon	4.00	2.44				-1.56
Move Out	1.24	0.98				-0.26
On location WOW Days	1.00					-1.00
Rig Move WOW Days	1.00					-1.00
TOTAL	19.00	13.21	0.50	0.00	0.38	-5.80

Well Status	
Total Depth (metres)	1,800m
Days on Well	13.21
Cumulative Days Ahead/Behind	-5.80
Well Completion Date (estimated)	7/01/2011

HSE Targets/Aspiration	This Week	Cumulative
LTA - Lost Time Accident	0	0
RWC - Restricted Workday Case	0	0
FAC/MTC - First Aid / Medical Treatment Case	1	2
NM - Near Miss	0	0
OCS - Oil and/or Chemical Spill	0	0

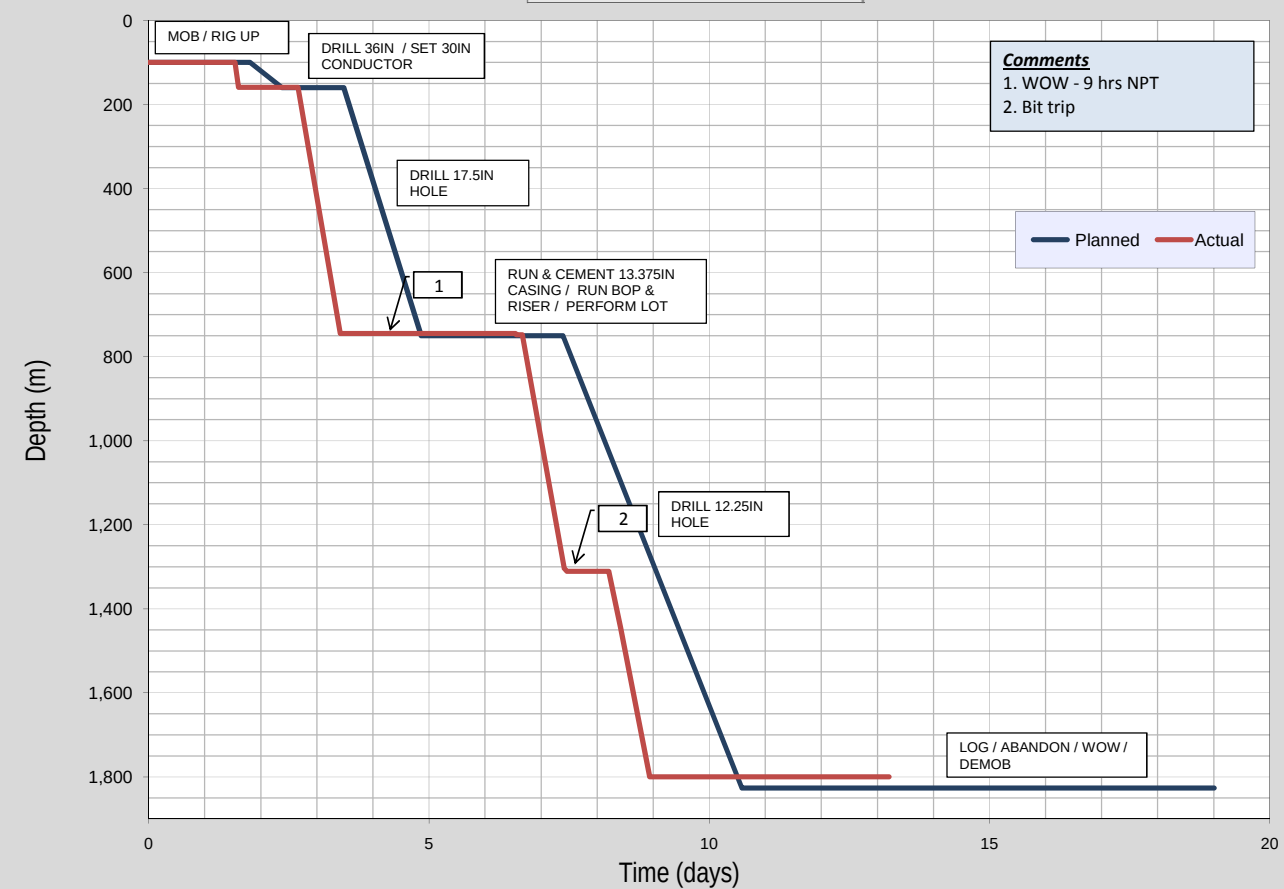
Weekly Activity
Continued POOH to surface. Changed out bit. RIH and continued to drill 12.25in hole section from 1311m to well TD at 1800m MDRT. POOH 12.25in BHA and racked back same. Rigged up and ran Schlumberger wireline log run #1: PPC-MSIP-HRLA-SP-PEX. RIH cement stinger. Set cement plug #1 from 1220m to 1070m. Set cement plug #2 from 770m to 620m. RIH and tagged plug #2 at 576m. Pressure tested plug #2 to 1000psi. Set cement plug #3 from 230m to 130m. Pulled BOPs. Cut casing at 111.43m and recovered wellhead and PGB to surface. Rig on Consortium time for demob operations. Deballasted rig to transit draft. Rig on Consortium time for demob operations. Pulled anchors. ***End of Craigow-1 at 14:30hrs, 7th January 2011 with rig on tight tow***

Forward Programme

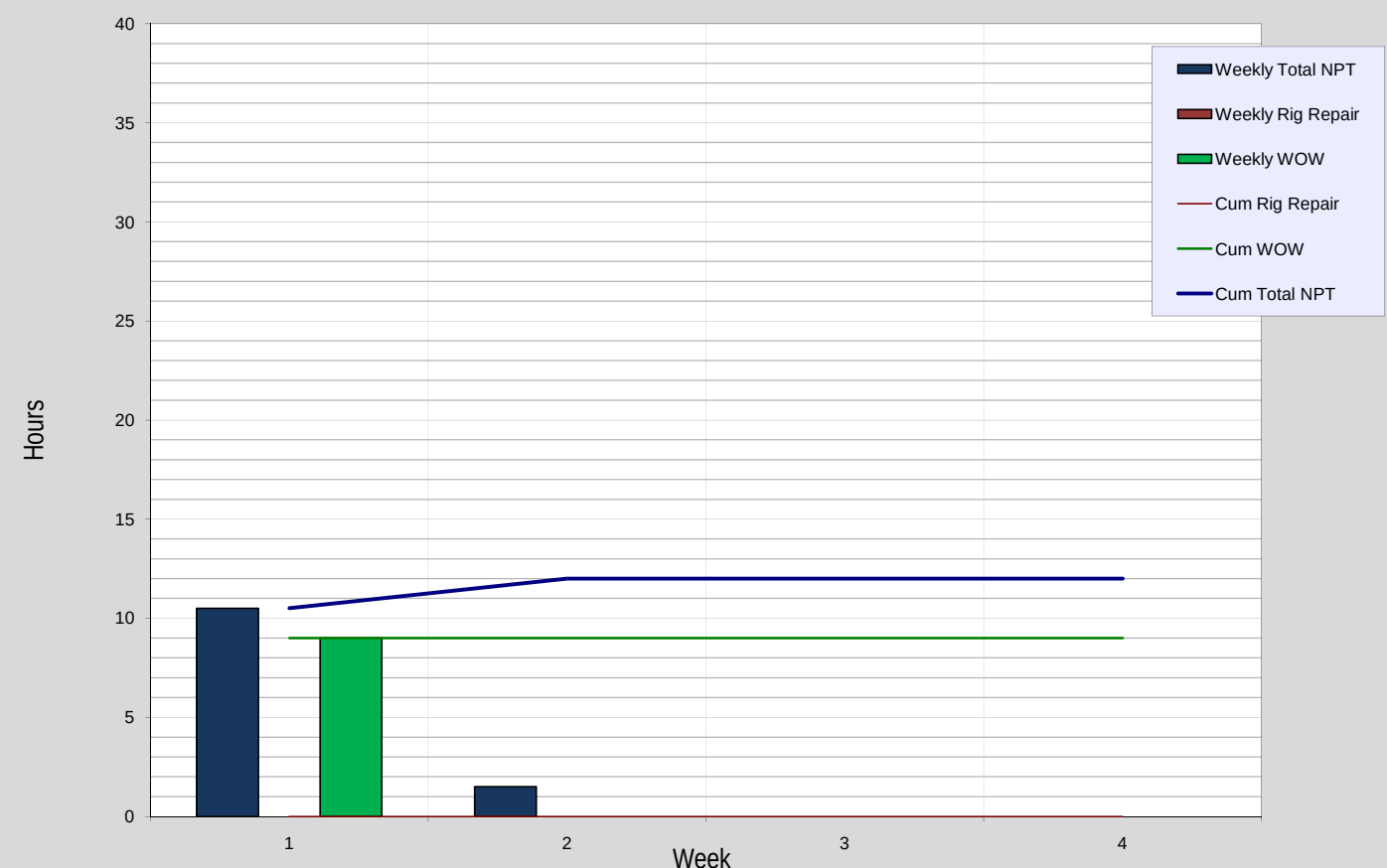
Key Dates	
Rig On Hire:	14:00 hrs, 22nd December 2010
Rig On Location:	23:00 hrs, 22nd December 2010
Well Spudded:	03:00 hrs, 24th December 2010
Reached TD	12:30 hrs, 31st December 2010
Rig Onhire to Consortium(Demob Ops)	19:30 hrs, 3rd January 2011
Rig Onhire to Tap Oil for deballasting	04:00 hrs, 5th January 2011
Rig Onhire to Consortium (Demob Ops)	13:00 hrs, 5th January 2011
Rig Onhire to Tap Oil for pulling anchors	00:00hrs, 7th January 2011
Rig Off Well Location:	14:30 hrs, 7th January 2011

Cost Analysis (USD)	
Planned	\$18,289,310
Estimated Cost to Date	\$12,622,573
Estimated NPT Cost (Incl WOW)	\$325,000
Estimated WOW Cost	\$243,750

Time vs Depth Curve



NPT & WOW Chart





Bit Report

Craigow-1

Bit # 1														
Date In/Out	IADC	Size	Serial No	Make	Model	Type	Jets (/32nd")	In (m)	Out (m)	Mtrge	Hrs (h)	TFA	ROP	Bitwear I-O1-D-L-B-G-O2-R
24 Dec 2010 / 24 Dec 2010	L111	660 mm (26")	TOT RR B26-C	Smith Bits		Milled Tooth	2 x 20 2 x 18	100.0	159.0	59.0	1.2	1.111	49.17	2-2-WT-A-2-I-NO-TD
Bit Run Comment:								Bit Wear Comment:						
Drilling Parameters														
Day	SPP (psi)			Flow (gpm)			WOB (klb)			RPM (rpm)			RPM (DH) (rpm)	
#3 (24 Dec 2010)	617			803			2.00			60				
Bit # 2														
Date In/Out	IADC	Size	Serial No	Make	Model	Type	Jets (/32nd")	In (m)	Out (m)	Mtrge	Hrs (h)	TFA	ROP	Bitwear I-O1-D-L-B-G-O2-R
25 Dec 2010 / 26 Dec 2010	115	444 mm (17 1/2")	PR4804	Smith Bits	VR+VEJ3 PS	Milled Tooth	3 x 16 3 x 13	159.0	745.0	586.0	22.2	0.978	52.79	2-2-WT-A-E-I-CT-TD
Bit Run Comment:								Bit Wear Comment:						
Drilling Parameters														
Day	SPP (psi)			Flow (gpm)			WOB (klb)			RPM (rpm)			RPM (DH) (rpm)	
#4 (25 Dec 2010)	2,304			1,134			15.00			80				
Bit # 3														
Date In/Out	IADC	Size	Serial No	Make	Model	Type	Jets (/32nd")	In (m)	Out (m)	Mtrge	Hrs (h)	TFA	ROP	Bitwear I-O1-D-L-B-G-O2-R
28 Dec 2010 / 30 Dec 2010	M432	311 mm (12 1/4")	223735	Reed Hycalog	RSR616M	PDC	8 x 14	745.0	1,311.0	566.0	13.5	1.203	43.33	2-6-LT-N-X-I-CT-PR
Bit Run Comment:								Bit Wear Comment:						
Drilling Parameters														
Day	SPP (psi)			Flow (gpm)			WOB (klb)			RPM (rpm)			RPM (DH) (rpm)	
#8 (29 Dec 2010)	2,700			961			20.00			73			125	
Bit # 4														



Bit Report

Craigow-1

Date In/Out	IADC	Size	Serial No	Make	Model	Type	Jets (/32nd")	In (m)	Out (m)	Mtrge	Hrs (h)	TFA	ROP	Bitwear I-O1-D-L-B-G-O2-R
30 Dec 2010 / 31 Dec 2010	M432	311 mm (12 1/4")	22440	Reed Hycalog	RSR516S	PDC	7 x 14	1,311.0	1,800.0	489.0	4.0	1.052	37.91	1-6-WT-T-X-I-ER-TD
Bit Run Comment:								Bit Wear Comment:						
Drilling Parameters														
Day	SPP (psi)			Flow (gpm)			WOB (klb)			RPM (rpm)			RPM (DH) (rpm)	
#9 (30 Dec 2010)	2,941			960			2.00			76			125	
#10 (31 Dec 2010)	2,941			960			2.00			76			125	
#9 (30 Dec 2010)	2,941			960			2.00			76			125	
#10 (31 Dec 2010)	2,941			960			2.00			76			125	

Craigow-1 Well
12 ¼" Section Bit Run Report

Contents

12¼" Section Summary:	3
Lithology summary:.....	3
Bit Selection:.....	4
Drilling Parameters:	5
Dull Evaluation:.....	9
Conclusion:	10

12¼" Section Summary:

The 12.25" section was drilled in two intervals; from 745m to 1311m and 1311m to 1800m. The first run was drilled with a six blade RSR616M whereas the second run was drilled with a more aggressive five blade RSR516S. Figure 1 below illustrates a summary of the 12.25" section.

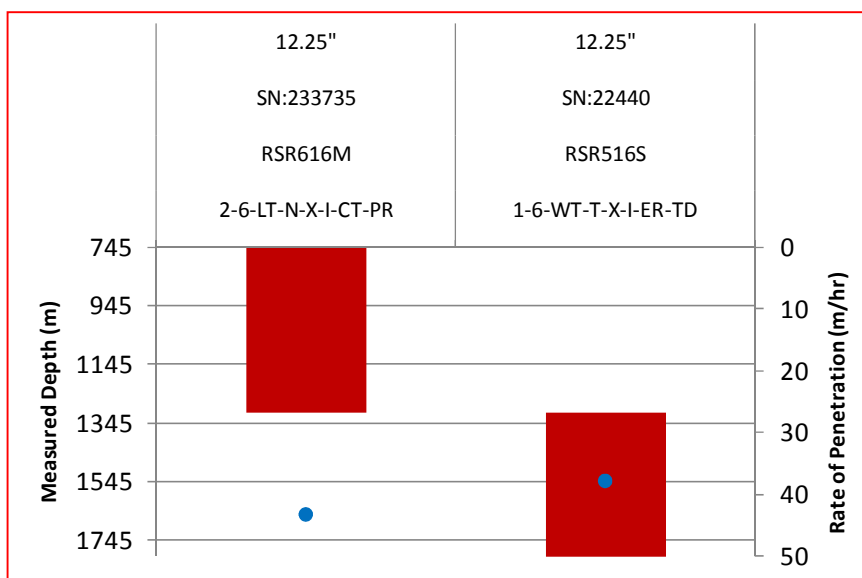


Figure 1: 12.25" section bit run summary

Run 1 drilled an interval of 566m at an average ROP of 43.3 m/hr. Run 2 drilled an interval of 489m at an average ROP of 37.91 m/hr.

Lithology summary:

Table 1 below illustrates the various lithologies drilled. Dolomitic and chert stringers were encountered during the run which can cause impact damage to the polycrystalline diamond compact (PDC) cutters.

Table 1

From (m)	To (m)	Description
745	810	Mainly claystone with slight sandstone interbedding and one limestone stringer @ 795mMD.
810	859	Interbedded claystone and siltstone.
859	1002	Interbedded limestone and siltstone.
1002	1456	Interbedded limestone and claystone, with slight sandstone interbedding. Various dolomitic stringers.
1456	1641	Interbedded siltstone, sandstone and coal deposits.
1641	1664	Two chert beds 6m @ 1641m and 8m @ 1658m respectively.
1664	1800	Interbedded shale and sandstone.

Bit Selection:

Run 1: RSR616M 745m to 1311m; 566m interval at 43.33m/hr

The first 12¼" run was drilled with the RSR616M. The 6 blade matrix bodied design with 16mm cutters and the addition of diamondback™ cutters was chosen to ensure high durability. Due to the probability of bit balling across the cone face an 8 nozzle design was used.



Run 2: RSR516S 1311m to 1800m; 489m interval at 37.91m/hr

The second 12¼" run was drilled with the RSR516S. The 5 blade steel bodied design utilized the same cutter size as the previous bit however it was designed with one less nozzle due to the larger open face volume. The more aggressive 5 blade design was used to drill the second run with a higher ROP to make up for the round trip from run 1.



Drilling Parameters:

To evaluate the performance of the 12 ¼" section a Mechanical Specific Energy (MSE) Analysis was used. MSE combines the continuously varying drilling parameters; Rate of Penetration (ROP), Weight on Bit (WOB), Surface RPM and Surface Torque to give an indication of drilling efficiency.

MSE is defined by the relationship:

$$MSE = Weight\ Energy + Rotational\ Energy$$

$$MSE = \frac{WOB}{A_B} + \frac{120\pi \times RPM \times Torque}{A_B \times ROP \times 3.28}$$

- Where A_B represents the borehole area in square inches.
- MSE has units kpsi, WOB has units klbf, Torque has units kft.lbf and ROP has units m/hr.

An increase in MSE generally indicates that more energy has been put into the system than what is being used to fail the formation and thus drilling efficiency decreases.

Run 1:

The depths in an out for Run 1 were 745m and 1311m respectively. Three instances of drilling inefficiency are highlighted by increased in MSE.

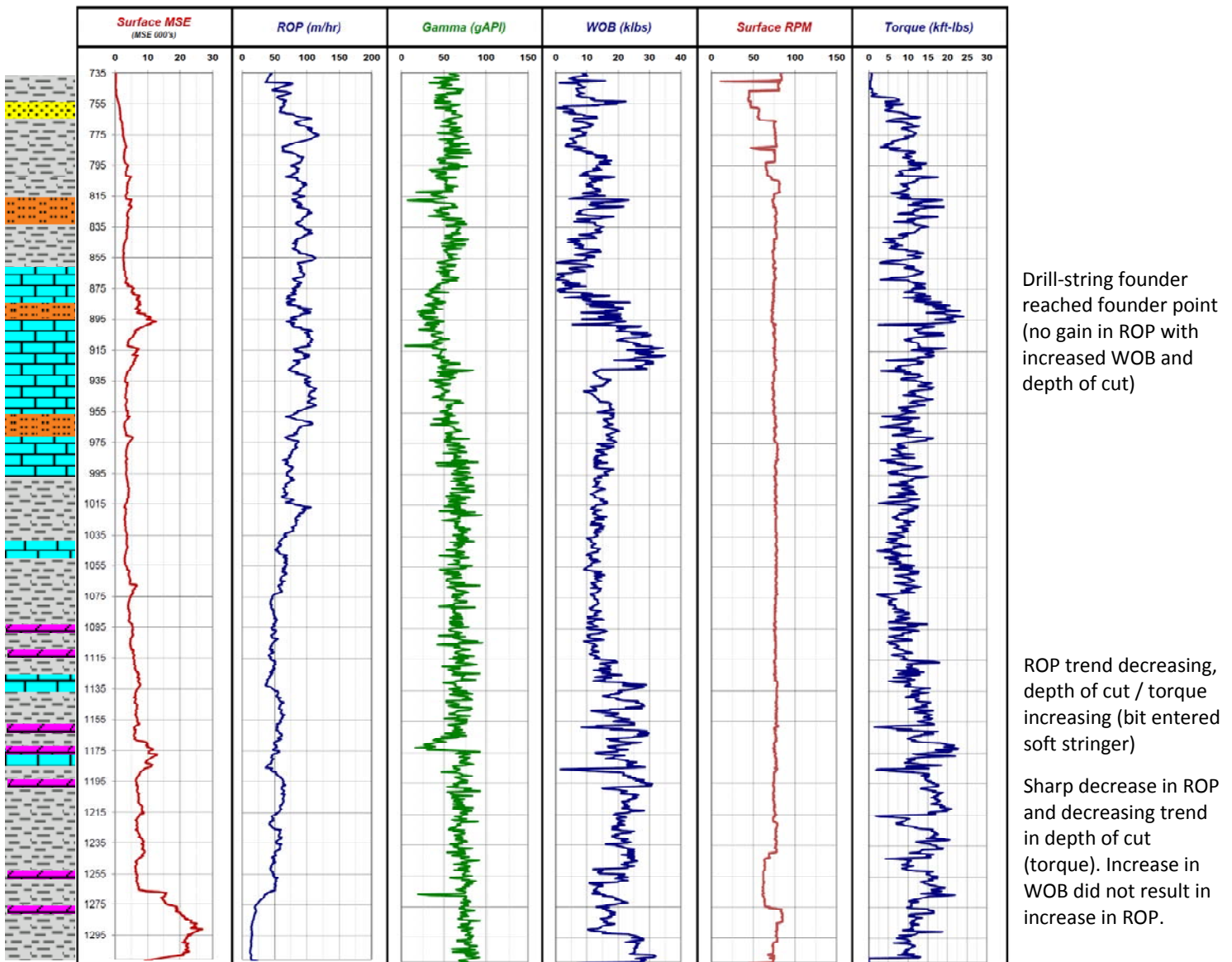


Figure 2: Run 1 Drilling Mechanics Log

The drill string foundered three times during run 1. At 895mMD torque did not increase with WOB which indicates that either the formation was quite hard or weight was stacking along the borehole preventing the cutters from engaging the formation efficiently. The additional weight was thus not adding any usable energy and most likely caused overloading of the cutters promoting failure via impact damage.

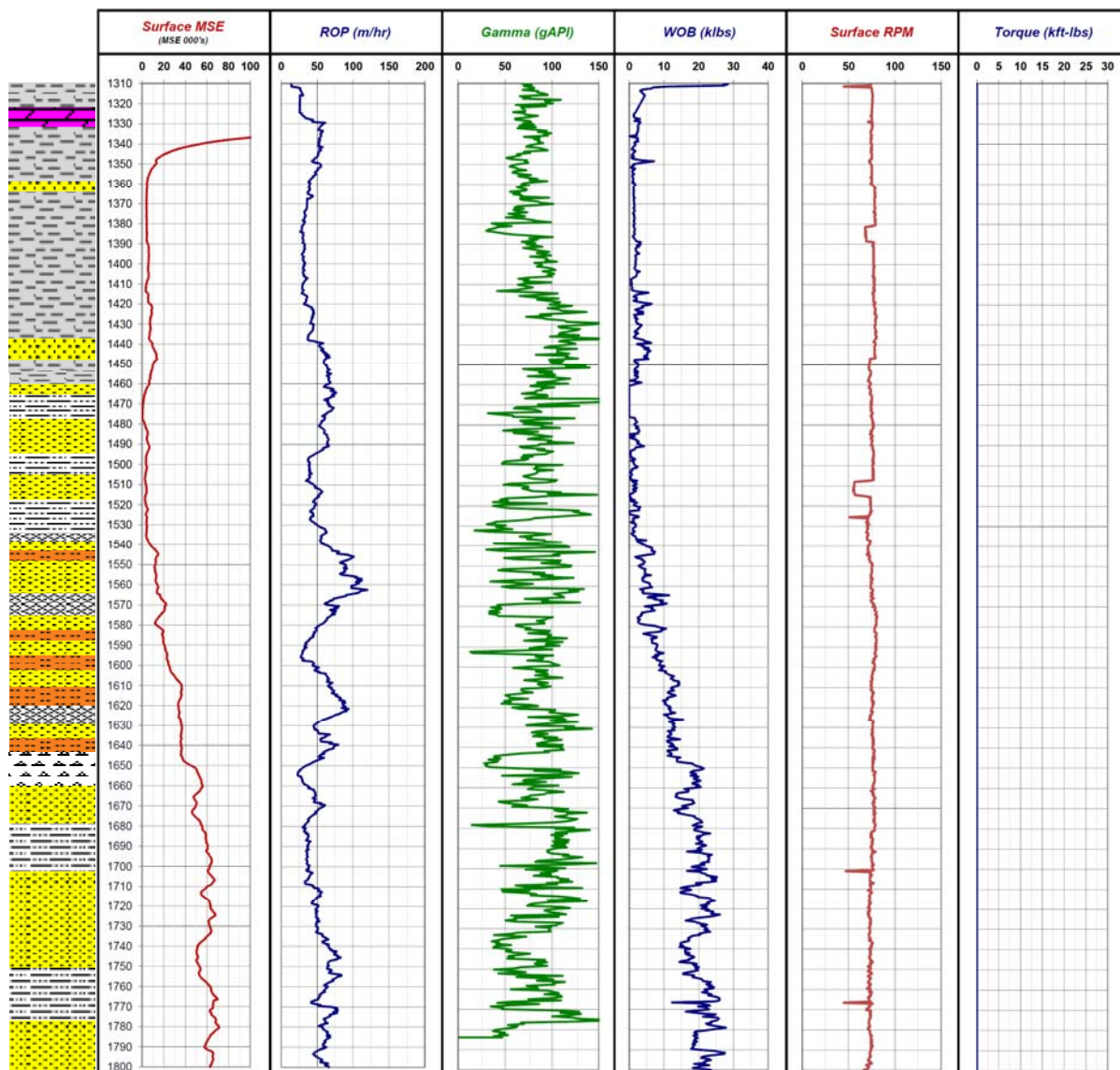
At approximately 1173mMD the bit entered a sand region (indicated by the low gamma) and torque sharply increased. The depth of cut however could not have increased as the ROP was decreasing through this region. The sudden change of formation properties may have initiated bit whirl which would be accompanied by an increase in torque due to the increase in drill string eccentricity.

Beyond 1263mMD the ROP dropped off significantly and was followed by a drop in torque as more rotational and weight energy was applied indicating that the bits cutting structure was damaged.

The RSR616M was pulled at 1311mMD due to poor penetration rate and was graded 2-6-LT-N-X-I-CT-PR.

Run 2:

The depths in an out for Run 2 were 1311m and 1800m respectively. MSE is much lower than the previous run as it is only representative of weight energy. Torque data was not supplied and thus rotational energy could not be calculated.



Drill-string foundering:
Sharp decreases in ROP occur with constant RPM and increasing WOB trend indicating that depth of cut must be decreasing at these points due to hard formations and possible bit damage further along interval.

Figure 3: Run 2 Drilling Mechanics Log

With the absence of torque data meaningful deductions based on MSE cannot be performed as ROP changes are not accounted for. It can be seen at various depths that sharp decreases in ROP occurred with constant RPM and gradually increasing WOB. The string has foundered at these points.

It is possible that the chert stringers could have worn the bit such that more WOB was required to achieve the same ROP below approximately 1641mMD and 1658mMD as the cutting structure was damaged.

The bit was pulled at 1800mMD after reaching target depth. The bit was graded 1-6-WT-S-X-I-ET-TD.

Dull Evaluation:

Dull photos were not supplied for Run 2.

Run 1:



Chipped teeth have occurred shoulder of blade 5. Teeth have been lost from the shoulder area of blade 1 and nose of blade 3.

Majority of teeth across the cone and nose region on other blades have minimal wear.

Although the backs of each blade do not show any significant damage the loss of teeth on blades 1 and 3 and the broken tooth on blade 5 could be indicative of bit whirl. A high force was applied to each blade independently causing failure due to the eccentric rotation. This is consistent with the ROP response at 1173mMD after entering the sand stringer. Bit whirl could have also occurred at 1263mMD as the low gamma spike is consistent with a high torque spike.



The gauge areas balled up during the run. The gauge between blades 1 and 2, blades 4 and 5 and potentially other blades balled significantly. It is impossible to conclude how many gauge areas balled due to photographs available. The balling effect is consistent with the lack of damage to the gauge area which would have ordinarily appeared during bit whirl.

Conclusion:

The RSR616M achieved an average ROP of approximately 75 m/hr for majority of Run 1. As the bit drilled through the limestone and dolomitic stringers it would have had accelerated wear. The life of the bit could have been extended by avoiding drill-string founding as the extra energy in the system would have built up as stress concentrations throughout the cutting structure. The more aggressive RSR516S achieved a similar ROP and was not pushed quite as hard as the RSR616M at the start of Run 2. This highlights that the excessive weight applied during Run 1 was not beneficial. The RSR516S would have been able to drill further if not pulled due to reaching TD although wear would have been accelerated through the chert stringer.

Due to the high ROP's achieved by both bits, running a heavier set bit would not necessarily save time as it would still encounter difficulty drilling through the dolomitic stringers and chert towards the end of the 12 ¼" section. Thus if the cutting structure was compromised the 12 ¼" section would still need to be drilled in two runs.



HALLIBURTON

BAROID

BAROID FLUID SERVICES RECAP

**ADA / TAP OIL (Shelfal) Pty Ltd.
KanTan IV
BASS BASIN, TASMANIA, AUSTRALIA

Craigow-1**

Prepared by: Steve Welch
Amit Godara
James Munford

Date: 14th Jan, 2011

Table Of Contents

1. WELL SUMMARY
2. COST SUMMARY
3. PERFORMANCE SUMMARY
4. INTERVAL 1 (36" hole)
5. INTERVAL 2 (17 ½" hole)
6. INTERVAL 3 (12 ¼" hole)
7. GRAPHS
 - Daily Cost Vs Depth
 - Daily Cost
 - Recap Mud Properties Vs Depth Set 1
 - Recap Mud Properties Vs Depth Set 2
 - Recap Mud Properties Vs Depth Set 3
8. POST WELL AUDIT
 - Well Summary
 - Total Cost Breakdown
 - Net Well Cost Breakdown
 - Interval Summary
 - Interval Cost Breakdown
 - Interval Inventory Report
 - Fluid Volume Record
 - Interval Chemical Concentrations
 - Fluid Property Recap
 - Fluid Program Exceptions Report
 - Operations Log Recap
 - Well Deviation (Actual)
9. DAILY MUD REPORTS

1. WELL SUMMARY**1.1 Well Data**

Well Name	:	Craigow-1
Operator	:	TAP (Shelfal) Pty Ltd
Well Type	:	Offshore Development
Bottom Hole Temperature	:	52 ° C
Maximum Inclination	:	Vertical
Location	:	Bass Basin
Contractor/Rig	:	KanTan IV
Rig On Location	:	22/12/2010
Baroid On Location	:	22/12/2010
Drill Out Date (Spud)	:	24/12/2010
RT to Mud line	:	100 m
Total Depth	:	1800 m
Date TD Reached	:	31/12/2010
Total Days Actual Drilling	:	9 Days
Date Released	:	04/01/2011
Total Days on Well	:	14 Days
Drilling Cuttings Volume	:	1320 bbl

Formation Tops

Formation	MDRT (m)	TVDRT (m)	Actual (m MD)	Actual (m TVD)
Torquay Group	508	508	*	*
Volcanics	788	788	*	*
Demons Bluff Fm	1180	1180	*	*
Top EVCM	1309	1309	*	*
Top of reservoir for primary target	1569	1569	*	*
TD	1826	1826	1800	1800

* Due to the tight-hole classification of this well, no formation top information was relayed to the Baroid crew.

1.3 Casing Program

30"	Conductor	@	157 m MD 157 m TVD
13 3/8"	Intermediate Casing	@	735 m MD 735 m TVD
12 1/4"	Open Hole	@	1800 m MD 1800 m TVD

1.4 Personnel

Drilling Supervisors	:	Paul Jenkins	Kevin Monkhouse
	:		
Baroid Field Service Reps.	:	Stephen Welch	James Munford
		Amit Godara	

2. COST SUMMARY**2.1 Drilling Fluid Costs**

	Drilling Fluid	Hole Size	MD From	MD To	Cost AUD \$
1.	Seawater / Hi-Vis Gel Sweeps - Pad Mud / Kill Mud	36"	100 m	159 m	14,078.14
2.	Seawater / Hi-Vis Gel Sweeps - Pad Mud	17 ½"	159 m	745 m	27,352.23
3.	KCI / PHPA / CLAYSEAL PLUS	12 ¼"	745 m	1800 m	198,041.31
Total Mud Materials used for Drilling				AUD \$	<u>239,471.68</u>
Mud Materials used for Cementing				AUD \$	42.42
Contingency Chemicals i.e. spotting fluids				AUD \$	0.00
Cost of Shaker Screens				AUD \$	2,341.60
Mud Materials lost or damaged				AUD \$	2,259.08
Bulk Materials dumped at prior to rig move				AUD \$	38,836.30
Total Mud Materials Cost AUD \$					282,951.08

2.2 Engineering Costs

Service Representatives	From (date)	To (date)	Days
Stephen Welch	22/12/2010	03/01/2011	12.5 ●
James Munford	22/12/2010	26/12/2010	4 ●
Amit Godara	27/12/2010	04/01/2011	9.5
Total Days:			26
Service Cost @ AUD \$1,540/day		AUD \$	40,040.00
Total Actual Cost of Materials & Engineering AUD \$:			322,991.08
Predicted Cost of Materials & Engineering AUD \$:			365,415.55
Variance :			11.6 % (Lower)

● Note: Rig Move to Craigow-1 occurred on 22/12/2010 around midday therefore engineers charges for that day were divided evenly between Silvereys-1 and Craigow-1.

3. PERFORMANCE SUMMARY**3.1 Comments**

Craigow-1 is a subsea exploration well and was drilled with semi-submersible – Kan Tan IV.

3.2 Performance Indicators

Interval 1. (100 m – 159 m) – 36" Interval	Program	Actual	Achieved (+/- 10 %)
• Drilled, m	60	59	Yes
• Volume Built, bbl	710	2233	No
• Mud Cost / bbl, AUD\$	33.42	6.30	No
• Interval Mud Cost, AUD	23,730.94	14,078.14	No
Interval 2. (159 m- 745 m) – 17 ½" Interval	Program	Actual	Achieved (+/- 10 %)
• Drilled, m	590	586	Yes
• Volume Built, bbl	3280	3311	Yes
• Mud Cost / bbl, AUD\$	6.39	8.26	No
• Interval Mud Cost, AUD\$	20,949.24	27,352.23	No
Interval 3. (745 m – 1800 m) – 12 ¼" Interval	Program	Actual	Achieved (+/- 10 %)
• Drilled, m	1076	1055	Yes
• Volume Built, bbl	2693	1787	No
• Dilution Rate, bbl/m	0.46	0.49	Yes
• Consumption Rate, bbl/m	1.9	3.3	No
• Mud Cost / bbl, AUD\$	73.01	111.06	No
• Mud Cost / m, AUD\$	180.23	188.12	Yes
• Interval Mud Cost, AUD\$	193,924.17	198,471.68	Yes

3.3 Explanation of Non-Conformance

- Interval 1**

The performance targets were met for this interval. Cost for the 36" interval was lower than programmed as some of the volume was carried over into the next interval.

- Interval 2**

The performance indicators were met or exceeded, however the cost was higher than expected. This is partially due to volume from the first interval being carried over and charged off in this interval.

- Interval 3**

The cost for the 12 ¼" interval was slightly higher than programmed although not significantly so. Due to lower volumes of mud being built than programmed and the solids control efficiency the per-barrel price has been inflated. This is due to chemicals required for maintenance of the fluid system being used rather than dumping fluid volume.

4. INTERVAL - 1**4.1 SUMMARY**

36" Hole From 100 m To 159 m In 1 Drilling Day

Drilling Fluid Seawater and Bentonite Viscous Sweeps
Formations Torquay Group

The 36" interval was drilled riser-less, using seawater and unweighted hi-vis flocculated spud mud sweeps. The spud mud used for sweeps was built from pre-hydrated bentonite at 30-35 ppb. While drilling 50 barrel sweeps were pumped mid stand and 75 barrel PHB sweep pumped before connections. All mud returns to seabed.

At TD, 159 m, the hole was swept with 100 barrels of PHB and 360 barrels of hi-vis PHB was spotted as a pad mud. The bit was pulled out of hole slick to run a 30" conductor.

The 30" conductor was landed at 157 m with no problems. It was then cemented as per program while the ROV monitored cement returns at seabed.

Properties	Programmed		Actual (Typical Drilling)		Conformance
	Min	Max	Min	Max	
Mud Weight, sg	8.6	8.8	8.7	8.7	Yes
Viscosity, sec/qt	100		200	300	Yes
pH	9	10	9.4	9.6	Yes

Explanation of Non-Conformance

- All properties conformed to programme requirements.

Maintenance

- The Bentonite used was prehydrated in drill water at a concentration of 30-35 ppb after pretreatment using soda ash. Caustic soda was used to further flocculate the gel. Sweeps were prepared by cutting back PHB to 25 ppb Bentonite with seawater.

INTERVAL - 2**5.0 SUMMARY**

17 ½" Hole From 159 m To 745 m In 2 Drilling Days

Drilling Fluid Seawater and Viscous Bentonite sweeps
Formations Torquay Group

A 17 ½" bit and BHA were run in and tagged the top of cement 150 m. The cement and shoe track were drilled out using seawater and drilling ahead commenced riser less with returns to the seabed. The PHB mud used for sweeps was built from pre-hydrated Bentonite at 35 ppb.

While drilling 70 barrel Guar Gum hi-vis sweeps were pumped every half stand and 70 barrel hi-vis sweeps were spotted around BHA before connections. When TD was approached, 1500 barrels of 9 ppg pad mud was prepared and kept on standby.

At the TD of 745 m, prior to POOH, 100 barrels of PHB was swept around followed by another 100 barrel guar gum sweep. The hole was then displaced with 1000 barrels of 9 ppg PAD Mud. The pipe was tripped out of the hole for 13 ⅝" Casing.

The 13 ⅝" casing shoe was run to 735 m and cemented as per program.

Properties	Programmed		Actual		Conformance
	Min	Max	Min	Max	
Mud Weight, ppg	8.6	8.8	8.5	8.8	Yes
Viscosity, sec/qt	100		200	300	Yes
pH	9	10	9.5	9.5	Yes

Explanation of Non-Conformance

- All properties conformed to programme requirements.

Maintenance

- The Bentonite used was prehydrated in drill water at a concentration of 30 - 35 ppb after pretreatment using soda ash. Caustic Soda was used to further flocculate the PHB. The Prehydrated gel was used for sweeping the hole as required along with the Guar Gum hi-vis Sweeps. Pad Mud was mixed by blending PHB, Seawater and 11.0 ppg Kill Mud to make 9 ppg Pad Mud.

5.1 EVALUATION

Comments

The 36" and 17 ½" intervals were drilled and cased off without incident or issues. Availability of drillwater was good. Ample time was available which ensured optimum yield of the prehydrated Bentonite.

Problems, Causes, Remedial Action Taken or Recommended

Hole Conditions

1)	Problem	There was no evidence of any hole problems for both 36" and 17 ½" intervals
	Cause	No Problems
	Action	No Problems

Drilling Fluid

1)	Problem	No Problems
	Cause	No Problems
	Action	No Problems

Solids Control and Mud Mixing Equipment

1)	Problem	No Problems
	Cause	No Problems
	Action	No Problems
2)	Problem	No Problems
	Cause	No Problems
	Action	No Problems

5.2 RECOMMENDATIONS FOR IMPROVEMENT

Drilling Fluid

- No changes are required or recommended to the programme for drilling top hole.

Solids Control and Mud Mixing Equipment

- None

Other issues

- None.

INTERVAL - 3**6.0 SUMMARY**

12 ¼" Hole From 745 m To 1800 m In 8 Days

Drilling Fluid KCI/ PHPA/Polymer/CLAYSEAL PLUS
Formations Angahook / Demons Bluff / Basement

At 735 m the hole was displaced to 9.8 ppg 8 % KCI/Polymer mud. This mud was pre-treated with 0.2 ppb of Sodium Bicarbonate and 0.1 ppb of Citric Acid to treat out the cement contamination. As drilling commenced and once the pH was below 9.5, additions of EZ-MUD and CLAYSEAL-PLUS were made to the desired programmed levels.

While drilling ahead, more additions of DEXTRID-LTE and PAC-L were required to stay below the mud programmed targets for fluid loss. As the mud heated up, more additions of drill water were needed to control the mud weight and to mitigate evaporation losses. The yield point needed to be controlled with BARAZAN-D PLUS.

At 1000 m, 10 ppb of BARACARB 25 was added to the active system in anticipation of the Top EVCM formation at 1555 m. This was to preemptively stop any seepage losses into sandy formations.

At around 1311 m the ROP slowed down to 10m per hour. The hole was circulated clean prior to tripping out the bit. Tight spots were seen during the trip and some back reaming was necessary. The bit was observed to be slightly balled up and was changed out. The trip back to bottom was without problems and continued to drill ahead with no mud issues to a TD of 1800 mMDRT.

The hole was circulated clean, before pumping a weighted slug and POOH.

Thereafter the well was logged and the rig prepared to plug and abandon the well. Three cement plugs were used during the abandonment process.

Mud Property Specifications

Properties	Programmed		Actual (Typical Drilling)		Conformance
	Min	Max	Min	Max	
Mud Weight, ppg	10	10.5	9.8	10.3	YES
Tau-0, lb/100 ft ²	5	8	3.5	7	YES
API Filtrate, ml/30 min	4	6	4.6	6	YES
HPHT Filtrate @ 250 °F, ml		12	9.2	10	YES
KCI Content, % by wt soln	6	8	8	8.5	YES
PHPA Content, ppb	1	1.5	1.5	1.5	YES
pH	8.5	9.5	8.5	9.8	YES
Low Gravity Solids, % by vol.		6	2.55	6.45	YES
CLAYSEAL PLUS, % by vol.	2.5	3.5	3.5	3.5	YES

Explanation of Non-Conformance

None:

Maintenance

- An initial volume of 1500 barrels of new KCl/Polymer mud was mixed and weighted up with Barite to 9.8 ppg.
- The hole was displaced to new KCl/Polymer mud at 735 m. The system was also pretreated with 0.2 ppb of Sodium Bicarbonate and 0.1 Citric Acid.
- At 748 m a LOT test was performed to 14.9 ppg EMW.
- Once the pH was lower than a 10 pH, additions of EZ MUD to the system at a concentration of 1.5 ppb were carried out.
- The CLAYSEAL PLUS was added directly to the active system at a concentration of 3.0 % by volume. CLAYSEAL PLUS provides additional shale inhibition, filtrate reduction (through the formation of micro-emulsions) and lubricity.
- As the primary indicator of hole cleaning, the 6 rpm reading was closely monitored and maintained in the 10-15 lb/100ft² range with additions of BARAZAN D PLUS.

Solids Control Equipment

The cost of the shaker screens for Craigow-1 was AUD 2,341.60 compared to the estimated cost of AUD 59,051.20 in the drilling fluid program. The cost difference is due to the condition of the screens from the previous job. Since the screens were in good condition they were easily able to be carried over into this well resulting in almost no cost. In all only four new 120 API mesh XTRAFLOW screens with TECHMESH were required on this well.

- The four shale shakers were initially both dressed with used 20 mesh scalper screens and 80 mesh for the bottom screens.
- At 1,000 m the required active concentration of PHPA was achieved and screening up could begin.
- With the aggressive drill bit, the solids slowly increased the mud weight and the mesh size were increased to API 100 mesh and then API 120 mesh by the time TD was reached.

6.1 EVALUATION

Comments

The hole section was successfully drilled from 745 m to 1800 m without any mud related problems. Some tight spots were observed and reamed through on trips out and some slight bit balling was noticed after a trip.

Problems, Causes, Remedial Action Taken or Recommended

Hole Conditions

1) Problem	Observed tight spots while pulling out of the hole
Cause	Not enough circulating time to clean hole.
Action	We did pump and back ream out of the hole.

Drilling Fluid

1) Problem	None.
Cause	
Action	

Solids Control and Mud Mixing Equipment

1) Problem	None.
Cause	
Action	

6.2 RECOMMENDATIONS FOR IMPROVEMENT

Hole Conditions

- The hole was in good condition, but did have a few tight spots while pulling out of the hole to change the MWD tool.

Drilling Fluid

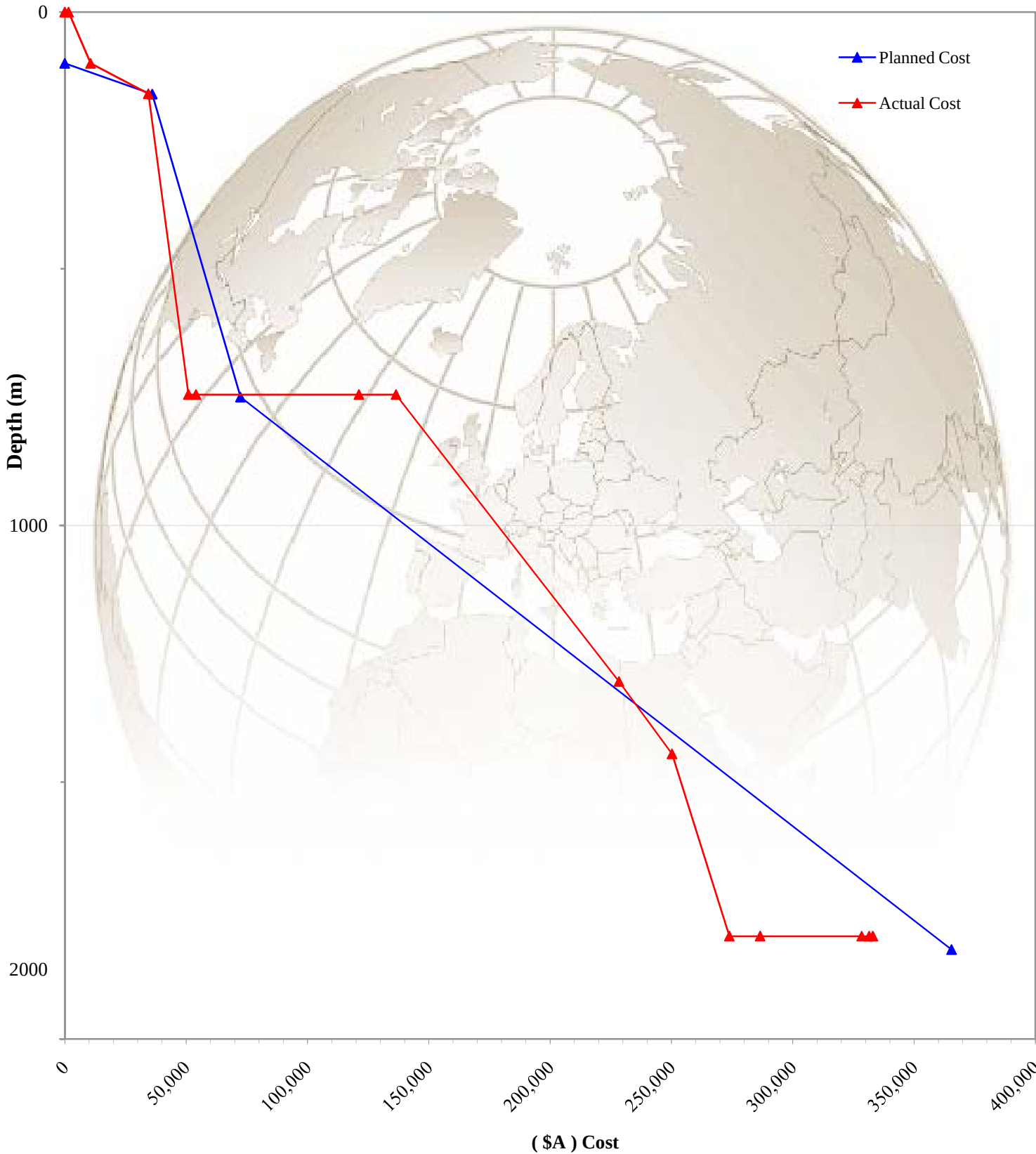
- Further testing on formation samples may be beneficial in assessing the optimum concentrations of KCL, PHPA (EZ-MUD) and CLAYSEAL PLUS for future wells in this area.

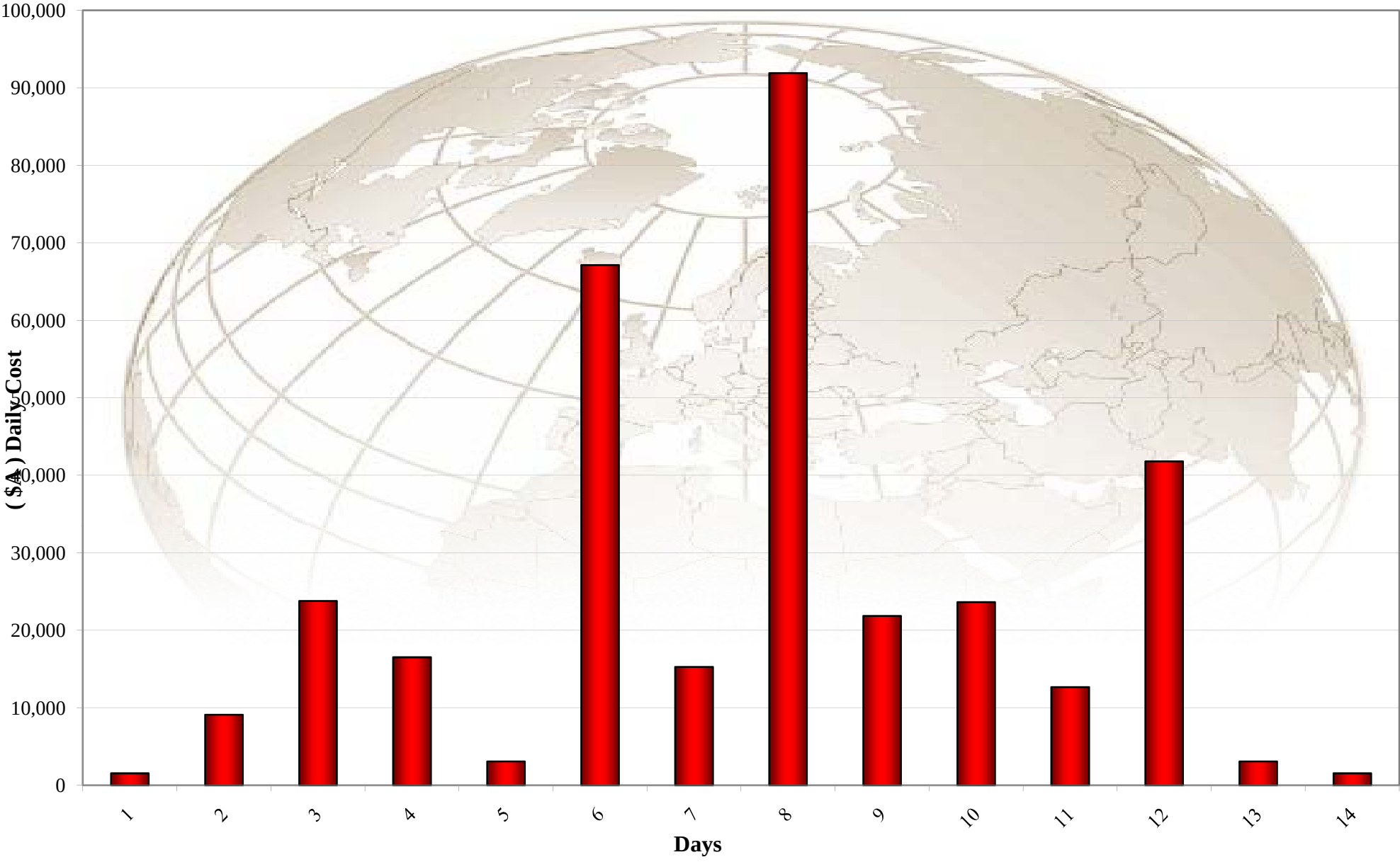
Solids Control and Mud Mixing Equipment

- None.

GRAPHS

Depth vs Cost





Australia

Tasmania

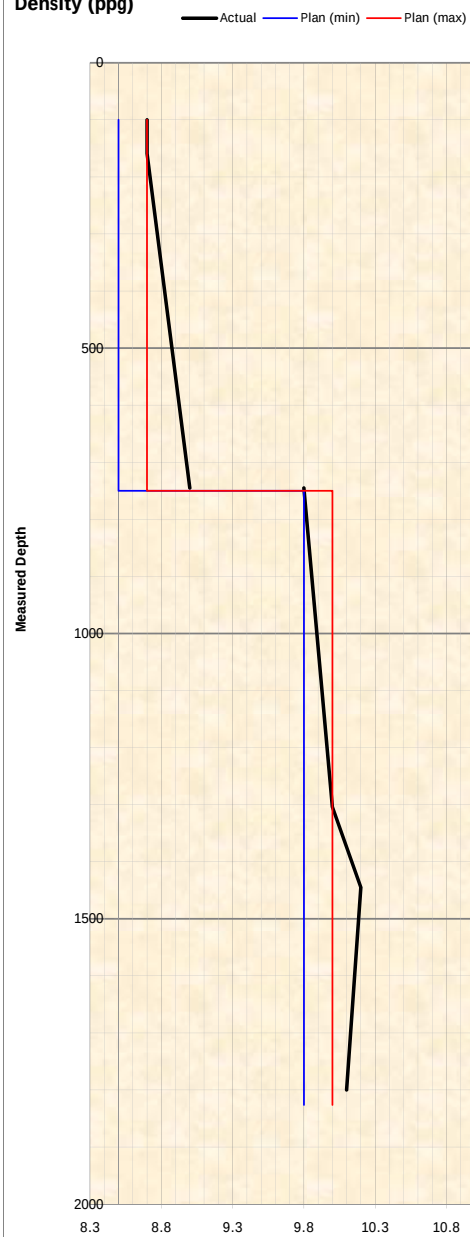
Baroid Fluids Services

TAP Shelfal Pty Ltd.

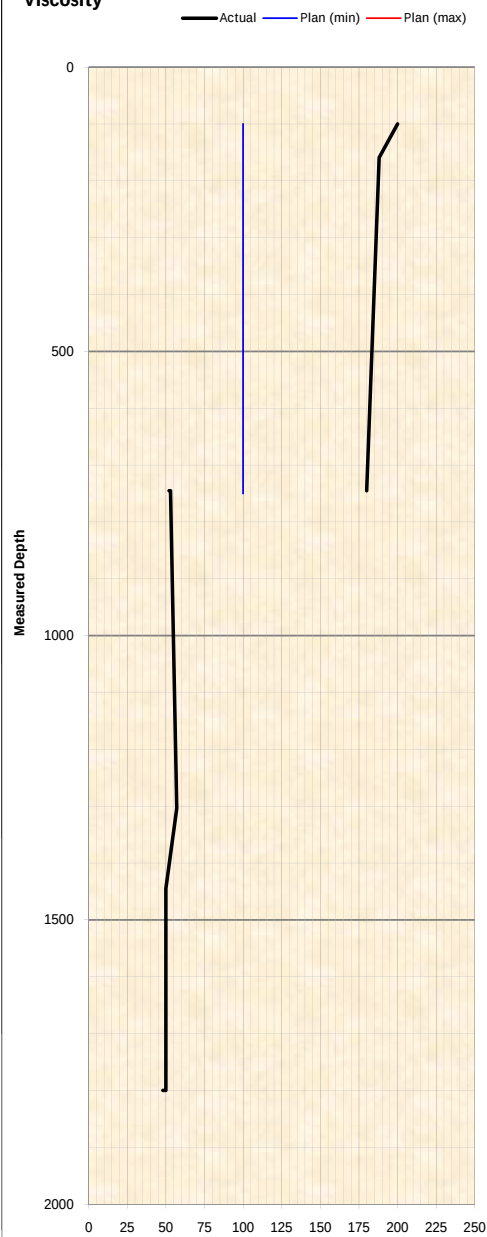
Craigow-1

39° 54' 19.8250"S Lat X 145° 03' 32.6409"E Long

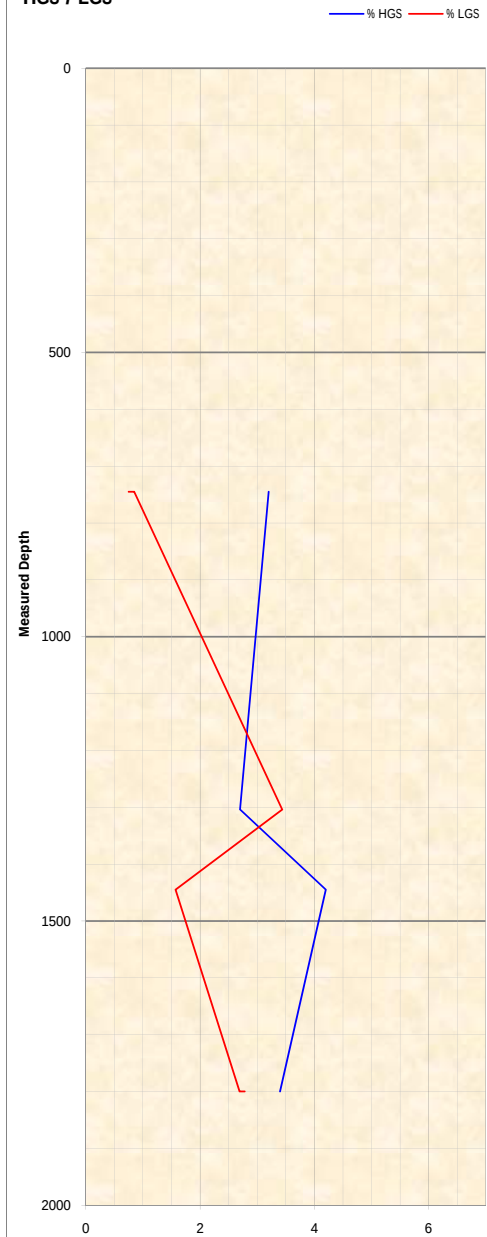
Density (ppg)



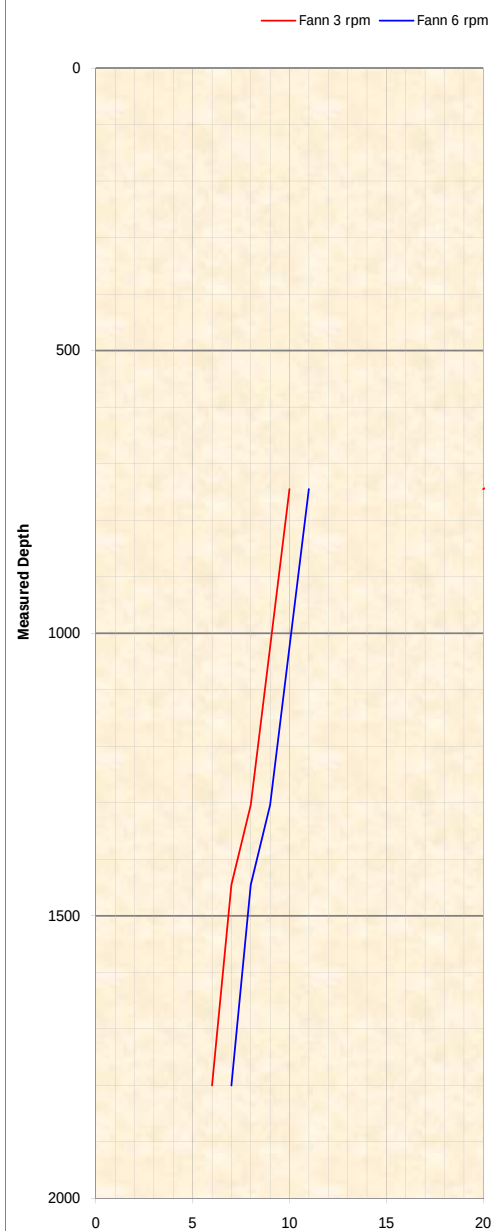
Viscosity



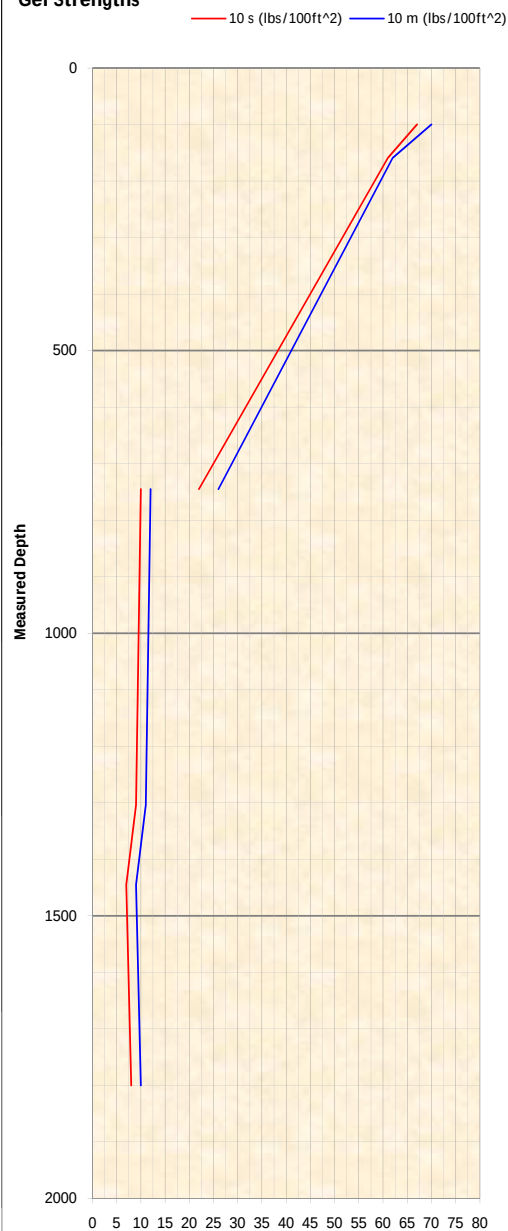
HGS / LGS



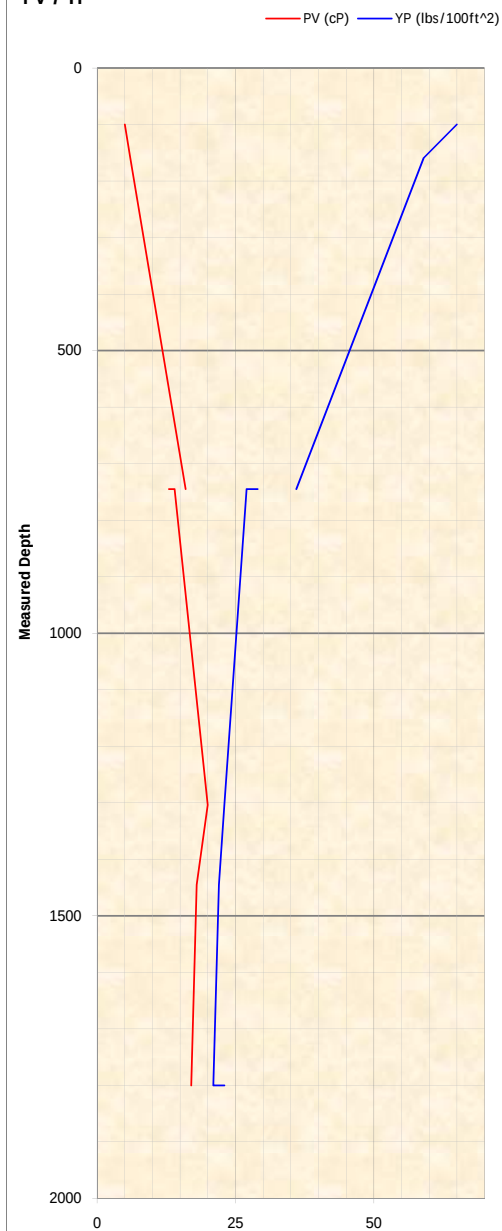
Fann 3/6 rpm



Gel Strengths



PV / YP

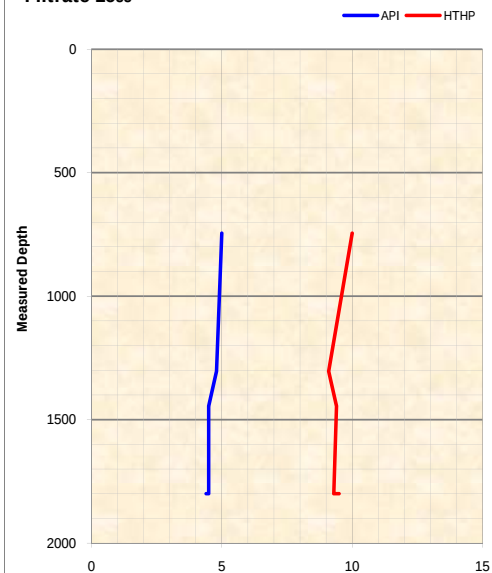


TAP Shelfal Pty Ltd.

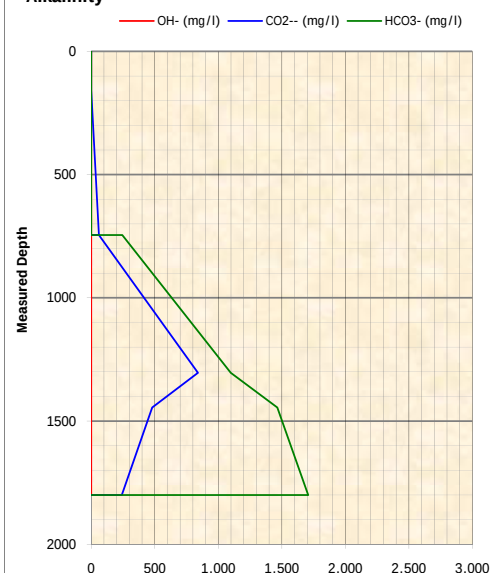
Craigow-1

39o 54' 19.8250"S Lat X 145o 03' 32.6409"E Long

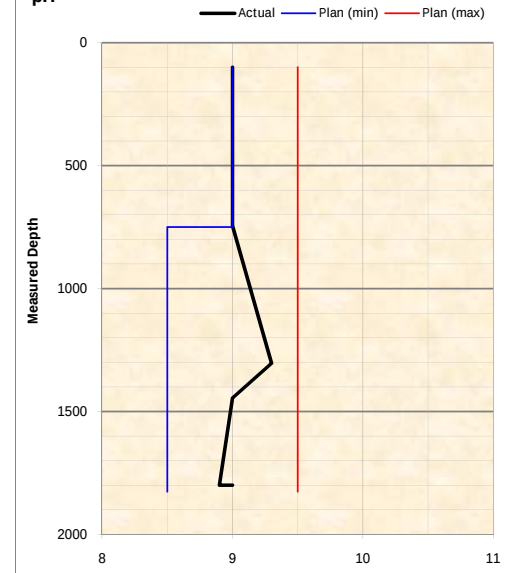
Filtrate Loss



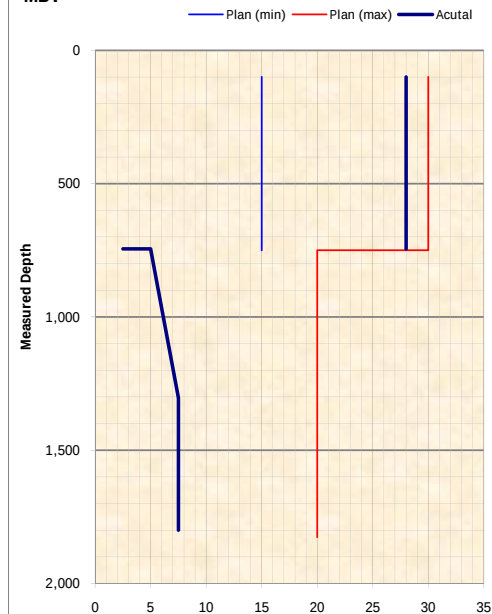
Alkalinity



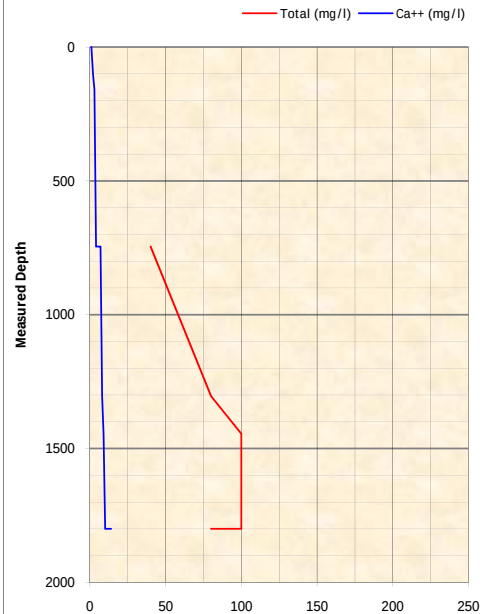
pH



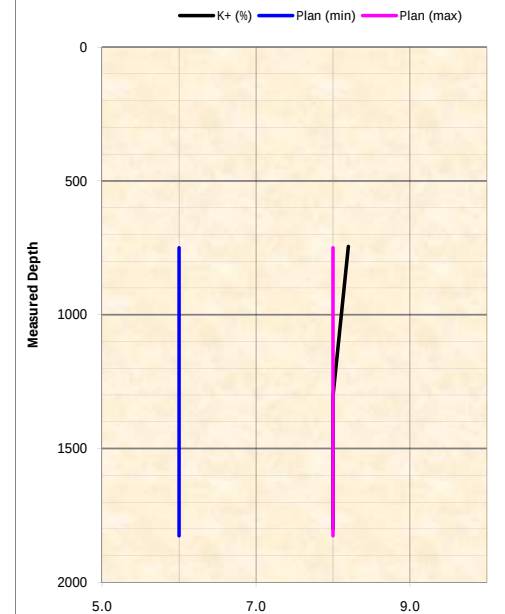
MBT



Hardness



Potassium Ion



POSTWELL AUDIT

Well Summary Report

Well Data

Spud Date	24/12/2010	Fluids/Products: Drilling Cost	\$A	249,471.16
TD Date	31/12/2010	Fluids/Products: Completion Cost	\$A	0.00
Project	1001	Solids Control/Waste Management Cost	\$A	2,341.60
Days on Well	14	Fluids/Products: Cementing Cost	\$A	42.42
From Date	22/12/2010	Prod Lost/Damaged Cost	\$A	2,259.60
To Date	04/01/2011	Engineer Services Cost	\$A	40,040.00
Drilling Days	5	Equipment Cost	\$A	0.00
Rotating / Drilling Hours	58.0/56.0	Transport/Packaging	\$A	0.00
Average ROP	ft/hr 99.6	Other Cost	\$A	38,836.30
Maximum Density	ppg 10.20	Total Well Cost	\$A	332,991.08
Total Measured Depth	m 1,800	Planned Cost	\$A	365,414.00
True Vertical Depth	m 1,800	Fluid Cost Per Fluid Volume	\$A/bbl	24.34
Distance Drilled	m 1,700	Fluid Cost Per Length Drilled	\$A/m	139.23
Maximum Deviation	deg 1.20	Fluid Cost/Vol of Hole Drilled	\$A/bbl	179.28
Max. Horz. Displacement	m 0	Total Additions/Hole Drilled	bbl/bbl	7.366
Bottom Hole Temp		Total Additions/Length Drilled	bbl/m	5.721

Casing Design

Description	Set Date & Time	Top MD m	Top TVD m	End MD m	End TVD m	CSG OD in	CSG ID in	Max. Hole Size in	Hole MD m	Hole TVD m
30 X-52 310.0	25/12/2010 1:00	98	98	157	157	30.000	27.500	36.000	159	159
13.625 N-80 68.0	27/12/2010 23:59	98	98	735	735	13.625	12.415	17.500	735	735

Fluid Program

Int #	Fluid Type	Interval Days	BHT Deg C	Max. Dens ppg	Whole fluid + Mix products	Other material charges	Other charges	Total Interval Cost \$A		
								Plan	Actual	Variance
1	Seawater	3		8.70		12,653.76	7,700.00	36,050.00	20,353.76	-15,696.24
2	PHG	3		9.80	27,352.23	168.24	9,240.00	36,349.00	36,760.47	411.47
	9ppg PAD MUD									
3	KCL/PHPA/CLAYSEAL	8		10.20	209,339.35	43,437.50	23,100.00	293,015.00	275,876.85	-17,138.15
Total Well Cost \$A					236,691.58	56,259.50	40,040.00	365,414.00	332,991.08	-32,422.92

Total Cost Breakdown

	Unit Size	Quantity	Total Cost
Engineering/Services			
Drilling Fluids Engineer	day(s)	14.00	20,790.00
Drilling Fluids Engineer 2	day(s)	13.00	19,250.00
		SubTotal	\$A 40,040.00
Fluids/Products: Cementing Cost			
mica	25 kg bag	1.00	42.42
		SubTotal	\$A 42.42
Fluid/Product: Lost Damage			
barite	1 tons bulk	5.000	2,259.60
		SubTotal	\$A 2,259.60
Other			
barite	1 tons bulk	61.000	27,567.12
bentonite	1000 kg bulk	25.000	10,943.50
caustic soda	25 kg can	6.00	325.68
		SubTotal	\$A 38,836.30
Solids Control/Waste Management Cost			
X FLOW (API 120)	1 each box	4.00	2,341.60
		SubTotal	\$A 2,341.60
Fluids/Products: Drilling Cost			
ALDACIDE G	25 kg can	9.00	1,557.81
BARACARB 25	25 kg sack	384.00	5,967.36
BARA-DEFOAM W300	25 l can	6.00	754.92
BARAZAN D PLUS	25 kg bag	72.00	15,504.48
barite	1 tons bulk	100.000	45,192.00
bentonite	1000 kg bulk	31.000	13,569.94
Brine 21% KCL	1 each bbl	942.00	62,426.34
caustic soda	25 kg can	9.00	488.52
citric acid	25 kg bag	10.00	762.00
CLAYSEAL PLUS	55 gal drum	40.00	60,382.80
DEXTRID LTE	25 kg sack	138.00	7,311.24
EZ-MUD	25 kg pail	59.00	5,604.41
guar gum	25 kg bag	80.00	7,100.00
Kelzan XCD	25 kg bag	11.00	2,368.74
OXYGON	50 lb can	7.00	4,004.21
PAC-L	25 kg bag	69.00	11,062.08
potassium hydroxide	20 kg pail	9.00	1,188.99
soda ash	25 kg bag	21.00	638.82
sodium bicarbonate	25 kg bag	8.00	226.00
STEELSEAL 400	50 lb sack	22.00	3,360.50
		SubTotal	\$A 249,471.16
		Total Well Cost:	\$A 332,991.08

Net Well Cost Breakdown

Cost Breakdown I \$A	Interval 01	Interval 02	Interval 03	Total
Fluid/Product: Drilling	26,731.90	77,465.05	145,274.21	249,471.16
Fluid/Product: Comp/Filtration				
Solids Control/Waste Management Cost			2,341.60	2,341.60
Fluids/Products: Cementing Cost		42.42		42.42
Engineering Services	7,700.00	9,240.00	23,100.00	40,040.00
Fluid/Product: Lost Damage			2,259.60	2,259.60
Other Cost			38,836.30	38,836.30
Equipment Cost				
Transport/Packaging Cost				
Total Cost	34,431.90	86,747.47	211,811.71	332,991.08

Cost Breakdown II \$A	Interval 01	Interval 02	Interval 03	Total
Total Products Cost	26,731.90	77,507.47	188,711.71	292,951.08
Total Fluids Cost				
Total Charges Cost	7,700.00	9,240.00	23,100.00	40,040.00
Allocated To / From Other Interval				
Total Cost	34,431.90	86,747.47	211,811.71	332,991.08
Planned Cost	36,050.00	36,349.00	293,015.00	365,414.00
Variance	-1,618.10	50,398.47	-81,203.29	-32,422.92

Volume Breakdown bbl	Interval 01	Interval 02	Interval 03	Total
Total Base Fluids Addition				
Total Chemical Addition	78.9	49.3	79.4	207.5
Total Barite Addition		9.0	98.9	107.9
Total Water Addition	2,153.9	3,252.9	749.1	6,156.0
Total Fluid Built	2,232.8	3,311.2	927.4	6,471.4
Total Fluid Received	101.3	904.1	2,248.7	3,254.1
Total Influx Addition				
Not Used In Interval	-1,318.2	-1,570.7	-1,817.1	
Total Fluid Volume	1,015.9	4,432.7	3,146.9	9,725.5

Australia

T 47P
Tasmania

Baroid Fluid Services

Interval Summary

Interval #		Max Bit Size: 36.000 in		Hole Size Avg/Max		36.000 / 36.000 in	
Interval Start Date		22/12/2010		Planned Cost		\$A 36,050.00	
Interval End Date		24/12/2010		Total Interval Cost		\$A 20,353.76	
Interval TD Date		24/12/2010		Program Variance		\$A -15,696.24	
Drilling Days		1.00		Other material charges		\$A 12,653.76	
Rotating/Hours		1.50 / 1.50		Total Fluids Cost			
Interval Top MD/TVD		m	100.0 / 100.0	Total Charges Cost		\$A 7,700.00	
Interval End MD/TVD		m	159.0 / 159.0	Total Cementing Cost		\$A 0.00	
Footage		m	59.0	Fluid Cost Per Vol Unit		\$A/bbl 0.00	
Average ROP		ft/hr	129	Fluid Cost/Hole Drilled		\$A/m 0.00	
Max Hole Angle		degrees	0.00	Fluid Cost/Vol Drilled		\$A/bbl 0.00	
Casing Size		in	0.000	Fluid Built		bbl 2,232.8	
Casing Shoe MD		m	0.0	Total Additions/Vol Drilled		bbl/bbl 4.17	
Casing Length		m	0.0	Total Additions/Hole Drilled		bbl/m 17.22	
Bottom Hole Temp				Fluid Loss/Vol Drilled		bbl/bbl 0.00	
Max Fluid Density		ppg	8.70	Fluid Loss/Hole Drilled		bbl/m 0.00	

Interval Product and Base Fluids Usage and Cost

Product Function / Name	Drilling Fluid	Packaging	Quantity Used	Product Cost
Weighting Material				
barite	No Fluid	1 tons bulk	28.000	12,653.76
			Total	\$A 12,653.76

Interval Summary

Interval #	2	Max Bit Size: 17.500 in	Hole Size Avg/Max	17.500 in
Interval Start Date	25/12/2010	Planned Cost	\$A	36,349.00
Interval End Date	27/12/2010	Total Interval Cost	\$A	36,760.47
Interval TD Date	25/12/2010	Program Variance	\$A	411.47
Drilling Days	1.00	Other material charges	\$A	168.24
Rotating/Hours	20.00 / 18.00	Total Fluids Cost	\$A	27,352.23
Interval Top MD/TVD	m 159.0 / 159.0	Total Charges Cost	\$A	9,240.00
Interval End MD/TVD	m 745.0 / 745.0	Total Cementing Cost	\$A	42.42
Footage	m 586.0	Fluid Cost Per Vol Unit	\$A/bbl	6.17
Average ROP	ft/hr 107	Fluid Cost/Hole Drilled	\$A/m	46.68
Max Hole Angle	degrees 0.40	Fluid Cost/Vol Drilled	\$A/bbl	47.82
Casing Size	in 13.625	Fluid Built	bbl	3,311.2
Casing Shoe MD	m 735.0	Total Additions/Vol Drilled	bbl/bbl	7.75
Casing Length	m 637.0	Total Additions/Hole Drilled	bbl/m	7.56
Bottom Hole Temp		Fluid Loss/Vol Drilled	bbl/bbl	5.96
Max Fluid Density	ppg 9.80	Fluid Loss/Hole Drilled	bbl/m	5.81

Interval Product and Base Fluids Usage and Cost

Product Function / Name	Drilling Fluid	Packaging	Quantity Used	Product Cost
Defoamer				
BARA-DEFOAM W300	No Fluid	25 l can	1.000	125.82
			Total	\$A 125.82
Weighting Material				
barite	Water	1 tons bulk	6.000	2,711.52
			Total	\$A 2,711.52
Viscosifier/Suspension Agent				
BARAZAN D PLUS	Water	25 kg bag	14.000	3,014.76
bentonite	Water		31.000	13,569.94
guar gum	Seawater	25 kg bag	80.000	7,100.00
			Total	\$A 23,684.70
Alkalinity Control				
caustic soda	Water	25 kg can	9.000	488.52
soda ash	Water	25 kg bag	6.000	182.52
			Total	\$A 671.04
Shale Control				
EZ-MUD	Water	25 kg pail	3.000	284.97
			Total	\$A 284.97
Lost Circulation/Bridging Agent				
mica	No Fluid	25 kg bag	1.000	42.42
			Total	\$A 42.42

Interval Summary

Interval #	3	Max Bit Size: 12.25 in	Hole Size Avg/Max	12.250 in
Interval Start Date	28/12/2010	Planned Cost	\$A	293,015.00
Interval End Date	04/01/2011	Total Interval Cost	\$A	275,876.85
Interval TD Date	31/12/2010	Program Variance	\$A	-17,138.15
Drilling Days	3.00	Other material charges	\$A	43,437.50
Rotating/Hours	36.50 / 36.50	Total Fluids Cost	\$A	209,339.35
Interval Top MD/TVD	m 745.0 / 745.0	Total Charges Cost	\$A	23,100.00
Interval End MD/TVD	m 1,800.0 / 1,800.0	Total Cementing Cost	\$A	0.00
Footage	m 1,055.0	Fluid Cost Per Vol Unit	\$A/bbl	66.52
Average ROP	ft/hr 95	Fluid Cost/Hole Drilled	\$A/m	198.43
Max Hole Angle	degrees 1.20	Fluid Cost/Vol Drilled	\$A/bbl	414.88
Casing Size	in 0.000	Fluid Built	bbl	927.4
Casing Shoe MD	m 130.0	Total Additions/Vol Drilled	bbl/bbl	6.24
Casing Length	m 32.0	Total Additions/Hole Drilled	bbl/m	2.98
Bottom Hole Temp		Fluid Loss/Vol Drilled	bbl/bbl	5.53
Max Fluid Density	ppg 10.20	Fluid Loss/Hole Drilled	bbl/m	2.65

Interval Product and Base Fluids Usage and Cost

Product Function / Name	Drilling Fluid	Packaging	Quantity Used	Product Cost
Bactericides				
ALDACIDE G	CLAYSEAL	25 kg can	9.000	1,557.81
			Total	\$A 1,557.81
Defoamer				
BARA-DEFOAM W300	CLAYSEAL	25 l can	5.000	629.10
			Total	\$A 629.10
Weighting Material				
barite	CLAYSEAL	1 tons bulk	66.000	29,826.72
barite	No Fluid	1 tons bulk	66.000	29,826.72
			Total	\$A 59,653.44
Viscosifier/Suspension Agent				
BARAZAN D PLUS	CLAYSEAL	25 kg bag	58.000	12,489.72
bentonite	No Fluid	1000 kg bulk	25.000	10,943.50
Kelzan XCD	CLAYSEAL	25 kg bag	11.000	2,368.74
			Total	\$A 25,801.96
Alkalinity Control				
caustic soda	No Fluid	25 kg can	6.000	325.68
citric acid	CLAYSEAL	25 kg bag	10.000	762.00
potassium hydroxide	CLAYSEAL	20 kg pail	9.000	1,188.99
soda ash	CLAYSEAL	25 kg bag	15.000	456.30
sodium bicarbonate	CLAYSEAL	25 kg bag	8.000	226.00
			Total	\$A 2,958.97
Corrosion Inhibitor				
OXYGON	CLAYSEAL	50 lb can	7.000	4,004.21
			Total	\$A 4,004.21
Shale Control				
EZ-MUD	CLAYSEAL	25 kg pail	56.000	5,319.44
X FLOW (API 120)	No Fluid	1 each box	4.000	2,341.60

Interval Summary

CLAYSEAL PLUS	CLAYSEAL	55 gal drum	40.000	60,382.80
			Total	\$A 68,043.84
Lost Circulation/Bridging Agent				
BARACARB 25	CLAYSEAL	25 kg sack	384.000	5,967.36
STEELSEAL 400	CLAYSEAL	50 lb sack	22.000	3,360.50
			Total	\$A 9,327.86
Filtration Control				
DEXTRID LTE	CLAYSEAL	25 kg sack	138.000	7,311.24
PAC-L	CLAYSEAL	25 kg bag	69.000	11,062.08
			Total	\$A 18,373.32
Scale Inhibitor				
Brine 21% KCL	CLAYSEAL	1 each bbl	942.000	62,426.34
			Total	\$A 62,426.34

Well Name

Craigow-1

Operator

TAP Shelfal Pty Ltd.

Contractor

Maersk Drilling

Rig No

Kan Tan IV

Unit System

ADA Drilling

Interval Cost Breakdown

Interval # 01		From Date	22/12/2010	Top of Interval	100.0 m
Max. Hole Size / Bit Size	36.000 / 36.000 in	To Date	24/12/2010	Bottom of Interval	159.0 m
Material	Unit Size	Quantity	Total Cost		
Engineering/Services					
Drilling Fluids Engineer	day(s)	3.00	3850.00		
Drilling Fluids Engineer 2	day(s)	3.00	3850.00		
		SubTotal	\$A	7,700.00	
Fluids/Products: Drilling Cost					
barite	1 tons bulk	28.000	12653.76		
bentonite	1000 kg bulk	31.000	13569.94		
caustic soda	25 kg can	6.00	325.68		
soda ash	25 kg bag	6.00	182.52		
		SubTotal	\$A	26,731.90	
		Interval Total Cost	\$A	34,431.90	
Charged To/From Other Interval			\$A	-14,078.14	
Net Description Total Cost			\$A	20,353.76	
Programmed Cost			\$A	36,050.00	
Program Variance			\$A	-15,696.24	

Interval Cost Breakdown

Interval # 02		From Date	25/12/2010	Top of Interval	159.0 m
Max. Hole Size / Bit Size 17.500 / 17.500 in		To Date	27/12/2010	Bottom of Interval	745.0 m
Material	Unit Size	Quantity	Total Cost		
Engineering/Services					
Drilling Fluids Engineer	day(s)	3.00	4620.00		
Drilling Fluids Engineer 2	day(s)	3.00	4620.00		
		SubTotal	\$A	9,240.00	
Fluids/Products: Cementing Cost					
mica	25 kg bag	1.00	42.42		
		SubTotal	\$A	42.42	
Fluids/Products: Drilling Cost					
ALDACIDE G	25 kg can	4.00	692.36		
BARACARB 25	25 kg sack	306.00	4755.24		
BARA-DEFOAM W300	25 l can	1.00	125.82		
BARAZAN D PLUS	25 kg bag	51.00	10982.34		
barite	1 tons bulk	6.000	2711.52		
Brine 21% KCL	1 each bbl	525.00	34791.75		
caustic soda	25 kg can	3.00	162.84		
DEXTRID LTE	25 kg sack	110.00	5827.80		
EZ-MUD	25 kg pail	3.00	284.97		
guar gum	25 kg bag	80.00	7100.00		
OXYGON	50 lb can	4.00	2288.12		
PAC-L	25 kg bag	37.00	5931.84		
potassium hydroxide	20 kg pail	9.00	1188.99		
soda ash	25 kg bag	13.00	395.46		
sodium bicarbonate	25 kg bag	8.00	226.00		
		SubTotal	\$A	77,465.05	
		Interval Total Cost	\$A	86,747.47	
Charged To/From Other Interval			\$A	-49,987.00	
Net Description Total Cost			\$A	36,760.47	
Programmed Cost			\$A	36,349.00	
Program Variance			\$A	411.47	

Interval Cost Breakdown

Interval # 03	From Date	28/12/2010	Top of Interval	745.0 m
Max. Hole Size / Bit Size 12.25 / 12.25 in	To Date	04/01/2011	Bottom of Interval	1,800.0 m

Material	Unit Size	Quantity	Total Cost
Engineering/Services			
Drilling Fluids Engineer	day(s)	8.00	12320.00
Drilling Fluids Engineer 2	day(s)	7.00	10780.00
		SubTotal	\$A 23,100.00
Fluid/Product: Lost Damage			
barite	1 tons bulk	5.000	2259.60
		SubTotal	\$A 2,259.60
Other			
barite	1 tons bulk	61.000	27567.12
bentonite	1000 kg bulk	25.000	10943.50
caustic soda	25 kg can	6.00	325.68
		SubTotal	\$A 38,836.30
Solids Control/Waste Management Cost			
X FLOW (API 120)	1 each box	4.00	2341.60
		SubTotal	\$A 2,341.60
Fluids/Products: Drilling Cost			
ALDACIDE G	25 kg can	5.00	865.45
BARACARB 25	25 kg sack	78.00	1212.12
BARA-DEFOAM W300	25 l can	5.00	629.10
BARAZAN D PLUS	25 kg bag	21.00	4522.14
barite	1 tons bulk	66.000	29826.72
Brine 21% KCL	1 each bbl	417.00	27634.59
citric acid	25 kg bag	10.00	762.00
CLAYSEAL PLUS	55 gal drum	40.00	60382.80
DEXTRID LTE	25 kg sack	28.00	1483.44
EZ-MUD	25 kg pail	56.00	5319.44
Kelzan XCD	25 kg bag	11.00	2368.74
OXYGON	50 lb can	3.00	1716.09
PAC-L	25 kg bag	32.00	5130.24
soda ash	25 kg bag	2.00	60.84
STEELSEAL 400	50 lb sack	22.00	3360.50
		SubTotal	\$A 145,274.21
		Interval Total Cost	\$A 211,811.71
Charged To/From Other Interval			\$A 64,065.14
Net Description Total Cost			\$A 275,876.85
Programmed Cost			\$A 293,015.00
Program Variance			\$A -17,138.15

Interval Inventory Report

Interval # 01		From Date 22/12/2010		Top of Interval		100.0 m	
Max. Hole Size / Bit Size 36.000 / 36.000 in		To Date 24/12/2010		Bottom of Interval		159.0 m	
Product Name	Units	Starting	Received	Used	Returned	Ending	Weight lb
ALDACIDE G	25 kg can		24.0			24.0	1,322.77
Amodrill 1235	1 bbl bulk		2.000			2.000	548.54
BARA-DEFOAM W300	25 l can		10.0			10.0	483.60
BARAZAN D PLUS	25 kg bag		36.0			36.0	1,984.16
barite	1 tons bulk		112.000	28.000		84.000	185,188.29
BARO-SEAL FINE	40 lb bag		32.0			32.0	1,280.00
bentonite	1000 kg bulk		56.000	31.000		25.000	55,115.56
Brine 21% KCL	1 each bbl		942.0			942.0	
calcium chloride	25 kg bag		32.0			32.0	1,763.70
caustic soda	25 kg can		79.0	6.0		73.0	4,023.44
citric acid	25 kg bag		52.0			52.0	2,866.01
CON DET	5 gal can		32.0			32.0	1,367.76
DEXTRID LTE	25 kg sack		102.0			102.0	5,621.79
EZ SPOT	55 gal drum		4.0			4.0	4,220.04
EZ-MUD	25 kg pail		91.0			91.0	5,015.52
guar gum	25 kg bag		122.0			122.0	6,724.10
lime	25 kg bag		35.0			35.0	1,929.04
mica	25 kg bag		27.0			27.0	1,488.12
OXYGON	50 lb can		24.0			24.0	1,200.00
PAC-L	25 kg bag		184.0			184.0	10,141.26
potassium hydroxide	20 kg pail		19.0			19.0	837.76
soda ash	25 kg bag		69.0	6.0		63.0	3,472.28
sodium bicarbonate	25 kg bag		24.0			24.0	1,322.77
STEELSEAL 400	50 lb sack		80.0			80.0	4,000.00
X FLOW (API 100)	1 each box		30.0			30.0	
X FLOW (API 120)	1 each box		4.0			4.0	
X FLOW (API 40)	1 each box		12.0			12.0	
Total Weight of Products in Stock lb							301,916.51
Total Weight of Products in Stock, Metric Tons							136.95

Interval Inventory Report

Interval # 02		From Date 25/12/2010		Top of Interval		159.0 m	
Max. Hole Size / Bit Size 17.50 / 17.50 in		To Date 27/12/2010		Bottom of Interval		745.0 m	
Product Name	Units	Starting	Received	Used	Returned	Ending	Weight lb
ALDACIDE G	25 kg can	24.0		4.0		20.0	1,102.31
Amodrill 1235	1 bbl bulk	2.000				2.000	548.54
BARACARB 25	25 kg sack		480.0	306.0		174.0	9,590.11
BARA-DEFOAM W300	25 l can	10.0		1.0		9.0	435.24
BARAZAN D PLUS	25 kg bag	36.0	36.0	51.0		21.0	1,157.43
barite	1 tons bulk	84.000		6.000		78.000	171,960.56
BARO-SEAL FINE	40 lb bag	32.0				32.0	1,280.00
bentonite	1000 kg bulk	25.000				25.000	55,115.56
Brine 21% KCL	1 each bbl	942.0		525.0		417.0	
calcium chloride	25 kg bag	32.0				32.0	1,763.70
caustic soda	25 kg can	73.0		3.0		70.0	3,858.09
citric acid	25 kg bag	52.0				52.0	2,866.01
CLAYSEAL PLUS	55 gal drum		40.0			40.0	19,081.92
CON DET	5 gal can	32.0				32.0	1,367.76
DEXTRID LTE	25 kg sack	102.0	180.0	110.0		172.0	9,479.88
EZ SPOT	55 gal drum	4.0				4.0	4,220.04
EZ-MUD	25 kg pail	91.0	64.0	3.0		152.0	8,377.57
guar gum	25 kg bag	122.0		80.0		42.0	2,314.85
lime	25 kg bag	35.0				35.0	1,929.04
mica	25 kg bag	27.0		1.0		26.0	1,433.00
OXYGON	50 lb can	24.0		4.0		20.0	1,000.00
PAC-L	25 kg bag	184.0	200.0	37.0		347.0	19,125.10
potassium hydroxide	20 kg pail	19.0		9.0		10.0	440.92
Radiagreen EME-Salt	175 kg drum		8.0			8.0	3,086.47
soda ash	25 kg bag	63.0		13.0		50.0	2,755.78
sodium bicarbonate	25 kg bag	24.0		8.0		16.0	881.85
STEELSEAL 400	50 lb sack	80.0				80.0	4,000.00
X FLOW (API 100)	1 each box	30.0				30.0	
X FLOW (API 120)	1 each box	4.0	20.0			24.0	
X FLOW (API 40)	1 each box	12.0				12.0	
X FLOW (API 50)	1 each box		16.0			16.0	
Total Weight of Products in Stock lb							329,171.73
Total Weight of Products in Stock, Metric Tons							149.31

Interval Inventory Report

Interval # 03		From Date 28/12/2010		Top of Interval 745.0 m			
Max. Hole Size / Bit Size 12.250 / 12.250 in		To Date 04/01/2011		Bottom of Interval 1,800.0 m			
Product Name	Units	Starting	Received	Used	Returned	Ending	Weight lb
ALDACIDE G	25 kg can	20.0		5.0	15.0		
Amodrill 1235	1 bbl bulk	2.000			2.000		
BARACARB 25	25 kg sack	174.0		78.0	96.0		
BARA-DEFOAM W300	25 l can	9.0		5.0	4.0		
BARAZAN D PLUS	25 kg bag	21.0		21.0			
barite	1 tons bulk	78.000	54.000	132.000			
BARO-SEAL FINE	40 lb bag	32.0	40.0		72.0		
bentonite	1000 kg bulk	25.000		25.000			
Brine 21% KCL	1 each bbl	417.0		417.0			
calcium chloride	25 kg bag	32.0			32.0		
caustic soda	25 kg can	70.0		6.0	64.0		
citric acid	25 kg bag	52.0		10.0	42.0		
CLAYSEAL PLUS	55 gal drum	40.0		40.0			
CON DET	5 gal can	32.0			32.0		
DEXTRID LTE	25 kg sack	172.0		28.0	144.0		
EZ SPOT	55 gal drum	4.0			4.0		
EZ-MUD	25 kg pail	152.0		56.0	96.0		
guar gum	25 kg bag	42.0			42.0		
Kelzan XCD	25 kg bag		40.0	11.0	29.0		
lime	25 kg bag	35.0			35.0		
mica	25 kg bag	26.0			26.0		
OXYGON	50 lb can	20.0		3.0	17.0		
PAC-L	25 kg bag	347.0		32.0	315.0		
potassium hydroxide	20 kg pail	10.0			10.0		
Radiagreen EME-Salt	175 kg drum	8.0			8.0		
soda ash	25 kg bag	50.0		2.0	48.0		
sodium bicarbonate	25 kg bag	16.0			16.0		
STEELSEAL 400	50 lb sack	80.0		22.0	58.0		
X FLOW (API 100)	1 each box	30.0			30.0		
X FLOW (API 120)	1 each box	24.0		4.0	20.0		
X FLOW (API 40)	1 each box	12.0			12.0		
X FLOW (API 50)	1 each box	16.0			16.0		

Fluid Volume Record Report

			Additions								Losses						Volumes			
Report No	Date	Initial Volume	Received	Mixed	Base	Water	Barite	Chemicals	Other	Daily Total	SCE	Downhole	Misc	Mixed	Returned	Daily Total	Hole Volume	Active Pit Volume	Reserve Volume	Final Volume
		bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl

Interval # 01

Fluid Name: Seawater

003	24/12/2010		101.3			368.6				469.9							235.0		235.0	470.0
Cumulative Volume			101.3			368.6				469.9										

Fluid Name: PHG

002	23/12/2010					1,284.8		33.2		1,318.0									1,318.0	1,318.0
003	24/12/2010	1,318.0				500.5		45.5		546.0	546.0					546.0			1,318.0	1,318.0
Cumulative Volume						1,785.3		78.7		1,864.0	546.0					546.0				

Fluid Volume Record Report

			Additions								Losses						Volumes			
Report No	Date	Initial Volume	Received	Mixed	Base	Water	Barite	Chemicals	Other	Daily Total	SCE	Downhole	Misc	Mixed	Returned	Daily Total	Hole Volume	Active Pit Volume	Reserve Volume	Final Volume
		bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl
Interval # 02																				
Fluid Name: Seawater																				
004	25/12/2010	470.0									309.3		105.7			415.0			55.0	55.0
Cumulative Volume											309.3		105.7			415.0				
Fluid Name: PHG																				
004	25/12/2010	1,318.0				1,171.0	9.0	2.0		1,182.0	1,356.0					1,356.0			1,144.0	1,144.0
005	26/12/2010	1,144.0				56.7				56.7				1,200.7		1,200.7				
Cumulative Volume						1,227.7	9.0	2.0		1,238.7	1,356.0			1,200.7		2,556.7				
Fluid Name: Guar Gum																				
004	25/12/2010					1,180.0		7.4		1,187.4	1,007.4					1,007.4			180.0	180.0
005	26/12/2010	180.0									180.0					180.0				
Cumulative Volume						1,180.0		7.4		1,187.4	1,187.4					1,187.4				
Fluid Name: 9ppg PAD MUD																				
005	26/12/2010		379.1	1,200.7						1,579.8	863.7					863.7	716.1			716.1
006	27/12/2010	716.1											393.4			393.4	-1,494.3			-1,494.3
Cumulative Volume			379.1	1,200.7						1,579.8	863.7		393.4			1,257.1				
Fluid Name: KCL/PHPA/CLAYSEAL																				
005	26/12/2010					302.0				302.0									302.0	302.0
006	27/12/2010	302.0				543.2		39.8	525.0	1,108.0									1,410.0	1,410.0
Cumulative Volume						845.2		39.8	525.0	1,410.0										

Fluid Volume Record Report

			Additions								Losses						Volumes			
Report No	Date	Initial Volume	Received	Mixed	Base	Water	Barite	Chemicals	Other	Daily Total	SCE	Downhole	Misc	Mixed	Returned	Daily Total	Hole Volume	Active Pit Volume	Reserve Volume	Final Volume
		bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl	bbl

Interval # 03

Fluid Name: Seawater

008	29/12/2010	55.0											55.0			55.0				
Cumulative Volume													55.0			55.0				

Fluid Name: 9ppg PAD MUD

007	28/12/2010	-1,494.3	1,831.2							1,831.2			337.0			337.0				
Cumulative Volume			1,831.2							1,831.2			337.0			337.0				

Fluid Name: KCL/PHPA/CLAYSEAL

007	28/12/2010	1,410.0					33.0			33.0									1,443.0	1,443.0
008	29/12/2010	1,443.0				262.0	19.5	56.5	330.0	668.0	70.3	9.0	494.5			573.8	654.2	8.0	875.0	1,537.2
009	30/12/2010	1,537.2				174.9		10.1	87.0	272.0	93.0	12.0	14.0			119.0	730.5	8.0	964.0	1,702.5
010	31/12/2010	1,702.5				312.2	22.5	11.8		346.5	85.3	12.0	18.5			115.8	959.5	8.0	978.0	1,945.5
011	1/01/2011	1,945.5					24.0	1.1		25.1	147.3		497.2			644.5	609.9	8.0	720.0	1,337.9
012	2/01/2011	1,337.9									0.7		718.5			719.2	140.7	328.0	150.0	618.7
013	3/01/2011	618.7	0.5							0.5			619.2			619.2				
Cumulative Volume			0.5			749.1	99.0	79.5	417.0	1,345.1	396.6	33.0	2,361.9			2,791.5				

Baroid Fluid Services

Well Name
Operator
Contractor
Rig No
Unit System

Craigow-1
TAP Shelfal Pty Ltd.
Maersk Drilling
Kan Tan IV
ADA Drilling

Interval Chemical Concentration

Interval # 01	From Report Date	22/12/2010	Top of Interval	100.0 m
Max. Hole Size / Bit Size 36.000 / 36.000 in	To Report Date	24/12/2010	Bottom of Interval	159.0 m

Fluid Name: PHG			
Material	Average ppb	Minimum ppb	Maximum ppb
bentonite	29.21	21.75	36.66
caustic soda	0.17	0.17	0.18
soda ash	0.17	0.17	0.18

Australia

T 47P
Tasmania

Baroid Fluid Services

Baroid Fluid Services

Well Name
Operator
Contractor
Rig No
Unit System

Craigow-1
TAP Shelfal Pty Ltd.
Maersk Drilling
Kan Tan IV
ADA Drilling

Interval Chemical Concentration

Interval # 02	From Report Date	25/12/2010	Top of Interval	159.0 m
Max. Hole Size / Bit Size 17.50 / 17.50 in	To Report Date	27/12/2010	Bottom of Interval	745.0 m

Fluid Name: PHG			
Material	Average ppb	Minimum ppb	Maximum ppb
BARAZAN D PLUS	0.30	0.29	0.31
barite	5.17	5.04	5.29
bentonite	18.87	18.42	19.33
caustic soda	0.16	0.15	0.16
EZ-MUD	0.06	0.06	0.07
soda ash	0.09	0.09	0.09

Fluid Name: Guar Gum			
Material	Average ppb	Minimum ppb	Maximum ppb
guar gum	3.71	3.71	3.71

Fluid Name: 9ppg PAD MUD			
Material	Average ppb	Minimum ppb	Maximum ppb
BARAZAN D PLUS	0.26	0.22	0.29
barite	4.44	3.83	5.04
bentonite	16.21	14.00	18.42
caustic soda	0.13	0.12	0.15
EZ-MUD	0.06	0.05	0.06
soda ash	0.08	0.07	0.09

Fluid Name: KCL/PHPA/CLAYSEAL			
Material	Average ppb	Minimum ppb	Maximum ppb
ALDACIDE G	0.16	0.16	0.16
BARACARB 25	11.96	11.96	11.96
BARAZAN D PLUS	1.45	1.45	1.45
Brine 21% KCL	0.00	0.00	0.00
DEXTRID LTE	4.30	4.30	4.30
OXYGON	0.14	0.14	0.14
PAC-L	1.45	1.45	1.45
potassium hydroxide	0.28	0.28	0.28
soda ash	0.51	0.51	0.51
sodium bicarbonate	0.31	0.31	0.31

Australia

T 47P
Tasmania

Baroid Fluid Services

Baroid Fluid Services

Well Name
Operator
Contractor
Rig No
Unit System

Craigow-1
TAP Shelfal Pty Ltd.
Maersk Drilling
Kan Tan IV
ADA Drilling

Interval Chemical Concentration

Interval # 03	From Report Date 28/12/2010	Top of Interval 745.0 m
Max. Hole Size / Bit Size 12.250 / 12.250 in	To Report Date 04/01/2011	Bottom of Interval 1,800.0 m

Fluid Name: 9ppg PAD MUD			
Material	Average ppb	Minimum ppb	Maximum ppb
BARAZAN D PLUS	0.29	0.29	0.29
barite	5.04	5.04	5.04
bentonite	18.42	18.42	18.42
caustic soda	0.15	0.15	0.15
EZ-MUD	0.06	0.06	0.06
soda ash	0.09	0.09	0.09

Fluid Name: KCL/PHPA/CLAYSEAL			
Material	Average ppb	Minimum ppb	Maximum ppb
ALDACIDE G	0.22	0.13	0.26
BARACARB 25	10.70	8.88	11.69
BARA-DEFOAM W300	0.11	0.07	0.12
BARAZAN D PLUS	1.57	1.36	1.68
barite	55.32	33.61	73.73
Brine 21% KCL	0.00		
citric acid	0.28	0.26	0.29
CLAYSEAL PLUS	9.24	7.46	9.95
DEXTRID LTE	3.88	3.34	4.20
EZ-MUD	1.45	0.86	1.64
Kelzan XCD	0.31	0.31	0.31
OXYGON	0.15	0.09	0.18
PAC-L	1.74	1.31	1.98
potassium hydroxide	0.21	0.19	0.28
soda ash	0.42	0.37	0.50
sodium bicarbonate	0.24	0.21	0.31
STEELSEAL 400	0.62	0.61	0.62

Australia

T 47P
Tasmania

Baroid Fluid Services

Fluid Property Recap : Water-Based Fluid

Date	Depth	FL Temp	Density	Funn Visc	Rheology 49 Deg C				Filtration					Filtrate Analysis						MBT	Sand	Retort Analysis				Rheometer Dial Readings							
					PV	lbs/100 ft2				API	HTHP	Cake API	Cake HTHP	Temp	pH	Pm	Pf	Mf	Cl			Total Hardness	% by vol				600	300	200	100	6	3	
						YP	10S	10M	30M														ml/30 min	ml/30 min	32nd in	Deg C							ml
		m	Deg C	ppg	sec/qt	cP															ppb Eq.	% by vol											
Interval # 01										From Date					22/12/2010					Top of Interval					100.0 m								
Max. Hole Size / Bit Size			36.000 / 36.000 in							To Date					24/12/2010					Bottom of Interval					159.0 m								
24/12/2010	159		8.70	188	6	59	61	62	63						9.00												99	71.0	65.0	60.0	59.0	58.0	57.0
Interval # 02										From Date					25/12/2010					Top of Interval					159.0 m								
Max. Hole Size / Bit Size			17.50 / 17.50 in							To Date					27/12/2010					Bottom of Interval					745.0 m								
27/12/2010	745	28	9.80	52	13	29	10	12	13	5.0	10.0	1	2	149	9.00		0.05	0.30	50,000	40			3.93	0.753		92	55.0	42.0	36.0	28.0	11.0	10.0	
Interval # 03										From Date					28/12/2010					Top of Interval					745.0 m								
Max. Hole Size / Bit Size			12.250 / 12.250 in							To Date					04/01/2011					Bottom of Interval					1,800.0 m								
29/12/2010	900	29	9.80	60	13	29	10	13	14	4.6	9.6	1	2	149	9.50	0.90	0.80	2.40	49,000	40	5.0		4.02	0.847		92	55.0	42.0	36.0	28.0	11.0	10.0	
29/12/2010	1,150	37	10.00	54	18	24	10	12	14	4.6	9.0	1	2	149	9.00	0.50	0.80	2.20	48,000	80	5.0		6.19	3.532		90	60.0	42.0	34.0	25.0	9.0	8.0	
29/12/2010	1,258	50	10.00	57	20	23	9	11	13	4.8	9.1	1	2	149	9.30	0.60	0.70	2.30	49,000	80	7.5		6.1	3.441		90	63.0	43.0	35.0	24.0	9.0	8.0	
30/12/2010	1,310		10.10	50	17	22	8	10	11	4.3	9.3	1	2	149	9.30	0.45	0.60	2.10	60,000	100	7.5		7.28	5.776		88	56.0	39.0	32.0	22.0	7.0	6.0	
30/12/2010	1,310		10.15	50	18	22	8	10	11	4.3	9.4			149	9.30	0.50	0.60	2.20	58,000	100	7.5		7.44	5.589		88	58.0	40.0	33.0	22.0	8.0	7.0	
30/12/2010	1,385	52	10.20	50	18	22	7	9	10	4.5	9.4	1	2	149	9.00	0.30	0.40	2.00	53,000	100	7.5		5.77	1.574		90	58.0	40.0	32.0	23.0	8.0	7.0	
31/12/2010	1,565	52	10.10	51	17	23	8	10	11	4.3	9.3	1	2	149	9.30	0.35	0.30	2.00	51,000	100	7.5		5.94	2.509		90	57.0	40.0	33.0	23.0	8.0	7.0	
31/12/2010	1,780	52	10.15	50	16	24	8	10	11	4.4	9.3	1	2	149	9.10	0.30	0.25	1.90	50,000	100	7.5		6.02	2.226		90	56.0	40.0	32.0	23.0	8.0	7.0	
31/12/2010	1,800		10.10	50	17	21	8	10	11	4.5	9.3	1	2	149	8.90		0.20	1.80	49,000	100	7.5		6.1	2.692		90	55.0	38.0	30.0	22.0	7.0	6.0	
01/01/2011	1,800		10.10	48	17	23	8	10	11	4.4	9.5	1	2	149	9.00	0.25	0.20	1.80	48,000	80	7.5		6.19	2.783		90	57.0	40.0	33.0	23.0	7.0	6.0	

Fluid Program Exception Report

Report No	Date	Time	Depth m	Property Name	Unit System	Actual Value	Exception	Program Min	Program Max
004	25/12/2010	18:00	600	Density	ppg	9.00	High	8.50	8.70
006	27/12/2010	17:00	745	Density	ppg	9.80	High	8.50	8.70
007	28/12/2010	20:30	745	Density	ppg	9.80	High	8.50	8.70
008	29/12/2010	16:00	1,150	Yield Point	lbs/100 ft2	24	Low	25	30
008	29/12/2010	20:30	1,258	Yield Point	lbs/100 ft2	23	Low	25	30
009	30/12/2010	13:30	1,310	Density	ppg	10.15	High	9.80	10.00
009	30/12/2010	13:30	1,310	Yield Point	lbs/100 ft2	22	Low	25	30
009	30/12/2010	3:30	1,310	Density	ppg	10.10	High	9.80	10.00
009	30/12/2010	3:30	1,310	Yield Point	lbs/100 ft2	22	Low	25	30
009	30/12/2010	22:00	1,385	Density	ppg	10.20	High	9.80	10.00
009	30/12/2010	22:00	1,385	Yield Point	lbs/100 ft2	22	Low	25	30
010	31/12/2010	3:30	1,565	Density	ppg	10.10	High	9.80	10.00
010	31/12/2010	3:30	1,565	Yield Point	lbs/100 ft2	23	Low	25	30
010	31/12/2010	10:30	1,780	Density	ppg	10.15	High	9.80	10.00
010	31/12/2010	10:30	1,780	Yield Point	lbs/100 ft2	24	Low	25	30
010	31/12/2010	19:30	1,800	Density	ppg	10.10	High	9.80	10.00
010	31/12/2010	19:30	1,800	Yield Point	lbs/100 ft2	21	Low	25	30
011	01/01/2011	3:30	1,800	Density	ppg	10.10	High	9.80	10.00
011	01/01/2011	3:30	1,800	Yield Point	lbs/100 ft2	23	Low	25	30

Australia

T 47P
Tasmania

Baroid Fluid Services

Operations Log Recap

Interval	01	From Date	001	Top of Interval	100.0 m
For Report	# 001	On	22/12/2010	Operation at Depth	.0 m
For Report	# 007	On	28/12/2010	Operation at Depth	745.0 m
Rig Activity	Continue P/Up slip & landing joint. Connect choke & kill hose and pressure test the same. Install MRT wires & pod line saddles. Check equipment, adjust BOP alignment, land & latch BOP's. P/Up & Install diverter. L/Out excess 17.5" BHA Service TD. P/Up and M/Up 12.25" BHA. P/Up 5" DP. RIH w/12.25" BHA.				
Activity	RIH w/12.25" BHA				
Fluid Treatment	Continue mixing the 8% KCL / Polymer / CLAYSEAL PLUS mud. Dressed shakers with used 12 x API 20 - top scalper screens and 16 x API 80 - bottom screens.				
For Report	# 008	On	29/12/2010	Operation at Depth	1,304.0 m
Rig Activity	Drill out cement to 735m. Displace well to 9.8 ppg mud whilst drilling shoe track, shoe and drill new formation to 748m. Circulate & condition mud. Pull into shoe and perform LOT, EMW 14.9 ppg (640 psi). Take SCR's & friction losses on choke & kill lines. Drill 12.25" hole fr/748m - 1304m.				
Activity	Drilling Ahead				
Fluid Treatment	Continue mixing the 8% KCL / Polymer / CLAYSEAL PLUS mud. Used Citric Acid to lower the pH after drilling cement and displacing the well. Built another 350 bbls of 8% KCL / Polymer / CLAYSEAL PLUS mud to keep up with volume of hole drilled. Continuously adding drill water at 4 bbls / hour and KCL Brine at 20 bbls / hour. Increased the concentration of CLAYSEAL PLUS to 3% and the EZ-MUD to 1.5 ppb. Raised the mud weight up from 9.8 ppg to 10 ppg. Increased the viscosity in the new mud for a Hi-Vis Sweep with the use of BARAZAN-D PLUS. This will be pumped once we get to the short trip MD.				
For Report	# 009	On	30/12/2010	Operation at Depth	1,445.0 m
Rig Activity	Continue drill 12.25" hole to 1311m. Pump Hi-Vis pill & circulate well clean. Flow check - Static and POOH. Rack back MWD, break off bit. Grease TD. M/Up new bit, download MWD data. RIH w/12.25" BHA & shallow test MWD tools. Continue RIH to 698m. Slip & cut drill line. Continue RIH to 1277m and break circulation & washdown to 1311m. Take SCR's and drill 12.25" hole to 1445m.				
Activity	Drilling 12.25" hole				
Fluid Treatment	Continue maintaining the concentration of CLAYSEAL PLUS to 3% and the EZ-MUD to 1.5 ppb. Mixed & pumped LCM pill with STEELSEAL at 20 ppb as asked by company man. Treated system with BARAZAN D+ for viscosity. Changed shaker #1, 4 to API 100 and #2,3 to API 120 screens. Maintaining the system with small additions of DEXTRID-LTE, PAC-L. Continue adding KCL Brine at 15 bbl / hour and added 150 bbl drill water over 3 hours as mud weight creeping up in the active system.				
For Report	# 010	On	31/12/2010	Operation at Depth	1,800.0 m
Rig Activity	Continue drilling 12.25" to 1800m - TD. Circulate hole clean, pump Hi-Vis. POOH to 1655m. Pump out of hole to 1300m due to excessive drag. POOH to surface. Turn off MWD, break off bit and L/Out BHA. R/Up wireline equipment.				
Activity	R/Up wireline equipment				
Fluid Treatment	Continue maintaining the concentration of CLAYSEAL PLUS to 3% and the EZ-MUD to 1.5 ppb. Treated system with BARAZAN D+ for viscosity. Maintaining the system with small additions of DEXTRID-LTE, PAC-L. Continue adding KCL Brine at 15 bbl / hour and drill water in the active system. Cleaning pill pit and pit#1 in preparation of cement job.				
For Report	# 011	On	01/01/2011	Operation at Depth	1,070.0 m

Operations Log Recap

Interval	01	From Date	001	Top of Interval	100.0 m
For Report	# 001	On	22/12/2010	Operation at Depth	.0 m
Rig Activity	Continue wireline logs. R/Down wireline equipment. Service TDS. P/Up 2 7/8" cement stinger and RIH w/same. Circulate \$ condition mud, pump Hi-Vis pill & displace into annulus at 4 bpm. POOH to 1220m and P/Up cement stand. Set cement plug#1 (94 bbl 15.5ppg). Circulate bottoms up while diverting 95 bbl cement contaminated mud overboard. POOH to 1000m and spot Hi_Vis pill. POOH to 770m. Set cement plug#2 around shoe as per program.				
Activity	Set cement plug#2				
Fluid Treatment	Continue cleaning pill pit and pit#1 in preparation of cement job. Mixed Hi-Vis pill in pit#3 and weigh it. Hi Vis pill : FV - 240 PV - 30 YP - 108 Backloading chemicals.				
For Report	# 012	On	02/01/2011	Operation at Depth	130.0 m
Rig Activity	Circulate bottoms up. L/Out 32 stands of DP and 8 1/4" DC. RIH and tagged cement @ 576m. Pressure test cement plug to 1000 psi for 10 min - OK. L/Out excess DP fr/hole to 179m. RIH to 380m and pressure test casing to 1000 psi. Pump 82 bbl Hi-Vis pill & Circulate bottoms up. Perform cement plug#3 @ 230m. L/Out excess tubing, DP, HWDP and collars fr/hole & derrick. Retieve WB & L/Out same. R/Up to pull riser & BOP's. Unseat diverter & L/Out same. P/Up landing joint.				
Activity	P/Up landing joint				
Fluid Treatment	Backloading chemicals and mud lab equipment.				
For Report	# 013	On	03/01/2011	Operation at Depth	130.0 m
Rig Activity	Continue pulling out riser and BOP's to surface and L/Out same. R/Down riser handling equipment. RIH and cut 20" x 30" w/cutter & spear assembly, retrieve to surface and L/Out same. L/Down remaining tubing. Prepare for rig release.				
Activity	Prepare for rig release				
Fluid Treatment	None.				
For Report	# 014	On	04/01/2011	Operation at Depth	130.0 m
Rig Activity	Prepare for rig release.				
Activity	Prepare for rig release				
Fluid Treatment	<<< Last report for Craigow-1 well >>> Baroid engineer off the rig today.				
For Report	# 004	On	25/12/2010	Operation at Depth	745.0 m
Rig Activity	Cont. to make up BHA. RIH and enter well with ROV assistance to 138m. Wash down from 138m to 150m. Tag top of cement. Drilled out cement and shoe from 150m to 157m with seawater and PHG sweeps. Cleaned out rat hole to 159m. Reamed rat hole, shoe and drilled out section of shoe track several times to clean.. Drilling ahead with a 17.5" bit from 159m to 745m.				
Activity	Drilling Ahead				

Operations Log Recap

Fluid Treatment	Continuously building PHG while drilling ahead. Pumping 70 bbls HiVIS Guar Gum every 1/2 stand and 70 bbls of PHG at the end of every stand drilled. Prepare 9ppg PAD mud for displacing hole				
For Report	# 005	On	26/12/2010	Operation at Depth	745.0 m
Rig Activity	Pumped 100bbl 8.6ppg PHG pill and displaced from well. Pumped 100bbl Guar Gum Hi Vis pill and displaced from well. Displaced well with 1.5 times open hole volume 9.0ppg PHG PAD mud. POOH on elevators. Max overpull on trip 50klbs. Wiped tight sections clean. Pumped out of wellhead and jetted to clear PGB of cuttings. POOH and racked back BHA. Rig up to run 13 3/8" casing. Run casing and cement as per program.				
Activity	Run casing and cement				
Fluid Treatment	Swept hole with 100bbl of PHG at TD and 100bbl guar gum. Displaced well with 9ppg PAD mud. Prepare pits for mixing 12.25" section mud. Received mud chemicals for the next interval.				
For Report	# 006	On	27/12/2010	Operation at Depth	745.0 m
Rig Activity	Continue cement job, displace casing with rig pumps. Release DRILL QUIP RT from well head and L/Down weatherford cement head. POOH 3 stands 5" DP. R/Up riser & BOP's running equipment. M/Up slick double riser for BOP run. Test ROV, clean bulls eyes, skid rig to well centre. Wait on weather. Install guide wire & pod clamps on BOP's. Run BOP's & P/Up slip joint.				
Activity	Run BOP's & P/Up slip joint				
Fluid Treatment	Mixing the 8% KCL / Polymer / CLAYSEAL PLUS mud.				
Interval	03	From Date	007	Top of Interval	745.0 m
Max. Hole Size / Bit Size	17.500 / 17.500	in	To Date	014	Bottom of Interval 1,800.0 m
Rig Activity	Rig on tow to location				
Activity	Rig up and rig down				
Fluid Treatment	NOTE: Split the Daily Engineering cost.				
For Report	# 002	On	23/12/2010	Operation at Depth	100.0 m
Rig Activity	Run anchors. Rig at drilling draft of 65ft. Commence re-tensioning. Pick up 5" DP and rack back in derrick. Pick up 30" running tool and rack back. Cont. to pick up and rack back HWDP, DC and DP.				
Activity	Pick up DP				
Fluid Treatment	Begin mixing PHG for Hi-Vis sweeps in preparation for drilling 36" hole.				
For Report	# 003	On	24/12/2010	Operation at Depth	159.0 m
Rig Activity	Cont. to rack DP back in derrick. Make up 26x36" hole opener BHA and RIH to tag seabed at 100m. Drill from 100m to 159m. Pumped 100bbl of hi-vis sweep and circ. out. Surveyed hole. Displaced hole with 360bbl of hi-vis PHB. POOH to surface, slick. Rack back and rig up to run 30" casing. Run 30" casing to 58m. Rig up for 5" DP. RIH to perform cement job as per program. Wait on cement. Release running tool and POOH. Make up 18 3/4" running tool. Cont. to pick up jars, MWD, float sub, bit.				
Activity	Tripping				
Fluid Treatment	Continue mixing PHG as required for Hi-Vis sweeps while drilling 36" hole. Pumped ~ 50 bbl Hi-Vis sweeps into the annulus every half stand and around the BHA on connections. Spotted 360 bbl of mud in open hole.				

Operations Log Recap

Interval	02		From Date	004	Top of Interval	159.0	m
Max. Hole Size / Bit Size	36.000 / 36.000	in	To Date	006	Bottom of Interval	745.0	m
Max. Hole Size / Bit Size	36.000 / 36.000	in	To Date	003	Bottom of Interval	159.0	m

Deviation Actual

Survey Date	MD m	TVD m	Angle	Direction	Horiz Displ. m
25/12/2010	297	297	0.40	91.9	
25/12/2010	613	613	0.10	187.0	
25/12/2010	724	724	0.07	20.3	
30/12/2010	1,401	1,401	1.20	284.2	

DAILY MUD REPORTS

Date	22/12/2010	Depth	0.0 m
Spud Date	24/12/2010	Rig Activity	Rig up and rig down

HALLIBURTON | **Fluid Systems**

Date	23/12/2010	Depth	100.0 m
Spud Date	24/12/2010	Rig Activity	Pick up DP

HALLIBURTON | **Fluid Systems**

Date	24/12/2010	Depth	159.0 m
Spud Date	24/12/2010	Rig Activity	Tripping

HALLIBURTON | **Fluid Systems**

Daily Drilling Fluid Report

Daily Drilling Fluid Report										Date	25/12/2010	Depth	745.0 m
										Spud Date	24/12/2010	Rig Activity	Drilling Ahead
Operator					Report For					Well Name			
TAP Shelfal Pty Ltd.					Paul Jenkins / Kevin Monkhouse					Craigow-1			
Contractor					Report For					Rig Name		Unit System	
Maersk Drilling					Brian Meechan/ Rob Smillie					Kan Tan IV		ADA Drilling	
Country			State/Province/Region			Geographic Area/County				Field or Block			
Australia			Tasmania			Bass Basin				T 47P			
Bit Information			Drill String (in) / (m)			in Casing m			Circulation/Hydraulics Data				
Bit Size	17.500 in		OD	ID	Length	OD	Set	MD	Model	Emsco FB 1600	Emsco FB 1600	Emsco FB 1600	
Make/Type	SMITH/XR+VEJ3PS		Drill Pipe	5.000	4.276	484.0	30.000	@	157.0	Bore in	6.500	6.500	6.500
Jets	3x16		Drill Pipe	5.000	3.063	143.0				Strokes in	12.000	12.000	12.000
TFA	0.589 sq-in		Drill Collar	8.250	2.810	77.0				Eff(%)	97	97	97
Jets Velocity	635 ft/sec		Drill Collar	9.500	3.000	21.0				bbl/stk	0.119	0.119	0.119
Jet Impact Force	3457.4 lbf		Other	9.500	0.000	20.0				SPM	81	86	66
Bit HHSI	9.19 hhp/in2									gpm bbl/min	406 9.67	431 10.27	331 7.88
Press Drop @ Bit	3240 psi									Total GPM	1,169	AV, Riser	Circ Press psi
Bit Depth	745.0 m		Open Hole	17.500		588.0				Total Circ Time	24	AV min DP	Tot Pres Loss
ECD @ Csg Shoe	9.03 ppg									BU Time , min	23	AV max DC	Press Drop DP
ECD @ Bit	9.14 ppg									Total Strokes	5,684	BU Strokes	Press Drop An
													17
Properties		Hyd 1	2	3	4	Targets			Program		Fluid Treatments		
Source		Pit#1									Fluid Type		
Time		18:00									Continuously building PHG while drilling ahead.		
Depth	m	600									Pumping 70 bbls HiVIS Guar Gum every 1/2		
FL Temp	Deg C										stand and 70 bbls of PHG at the end of every		
Density @ Deg C	ppq	9.00 @ 20					X		9.80	10.00	stand drilled. Prepare 9ppg PAD mud for		
FV @ Deg C	sec/qt	180 @ 20									displacing hole		
PV @ Deg C	cP	16 @ 49											
YP	lbs/100 ft2	36					X		25	30			
GELS	lbs/100 ft2	22/26/-											
600/300		68.0/52.0											
200/100		47.0/39.0											
6/3		22.0/20.0											
API Filt	ml/30 min												
HTHP @ Deg C	ml/30 min												
Cake API/HTHP	32nd in												
Corr Solid	% by Vol	2.4											
NAP/Water	% by Vol	-96.0											
Sand	% by vol												
MBT	ppb Eq.	20.0											
pH @ Deg C		9.00 @ 20							8.50	9.50	Rig Activity		
ALK Mud	Pm	0.50									Cont. to make up BHA. RIH and enter well with		
ALK Filt	Pf/Mf	0.05/0.10									ROV assistance to 138m. Wash down from		
Chlorides	mg/l	18,500									138m to 150m. Tag top of cement. Drilled out		
Tot. Hardness	mg/l	600									cement and shoe from 150m to 157m with		
LGS/HGS	% by Vol	1.4/1.1									seawater and PHG sweeps. Cleaned out rat hole		
LGS/HGS	ppb	12.41/15.67									to 159m. Reamed rat hole, shoe and drilled out		
ASG	SG	3.302									section of shoe track several times to clean..		
											Drilling ahead with a 17.5" bit from 159m to		
											745m.		
					</								

Daily Drilling Fluid Report

Daily Drilling Fluid Report										Date	26/12/2010	Depth	745.0 m			
										Spud Date	24/12/2010	Rig Activity		Run casing and cement		
Operator					Report For					Well Name						
TAP Shelfal Pty Ltd.					Paul Jenkins / Kevin Monkhouse					Craigow-1						
Contractor					Report For					Rig Name		Unit System				
Maersk Drilling					Brian Meechan/ Rob Smillie					Kan Tan IV		ADA Drilling				
Country			State/Province/Region			Geographic Area/County				Field or Block						
Australia			Tasmania			Bass Basin				T 47P						
Bit Information			Drill String (in) / (m)			in Casing m			Circulation/Hydraulics Data							
Bit Size	in		OD	ID	Length	OD	Set	MD	Model	Emsco FB 1600	Emsco FB 1600	Emsco FB 1600				
Make/Type						30.000	@	157.0	Bore in	6.500	6.500	6.500				
Jets									Strokes in	12.000	12.000	12.000				
TFA	sq-in								Eff(%)	97	97	97				
Jets Velocity	ft/sec								bbl/strk	0.119	0.119	0.119				
Jet Impact Force	lbf								SPM	0	0	0				
Bit HHSI	hhp/in2								gpm bbl/min							
Press Drop @ Bit	psi								Total GPM	AV, Riser		Circ Press psi				
Bit Depth	m		Open Hole	17.500	588.0				Total Circ Time	AV min DP		Tot Pres Loss				
ECD @ Csg Shoe	ppg								BU Time , min	AV max DC		Press Drop DP				
ECD @ Bit	ppg								Total Strokes	BU Strokes		Press Drop An				
Properties			1		2		3		4		Targets		Program		Fluid Treatments	
Source															Fluid Type 9ppg PAD MUD	
Time															Swept hole with 100bbl of PHG at TD and 100bbl guar gum. Displaced well with 9ppg PAD mud.	
Depth m															Prepare pits for mixing 12.25" section mud.	
FL Temp Deg C															Received mud chemicals for the next interval.	
Density @ Deg C ppq																
FV @ Deg C sec/qt																
PV @ Deg C cP																
YP lbs/100 ft2																
GELS lbs/100 ft2																
600/300																
200/100																
6/3																
API Filt ml/30 min																
HTHP @ Deg C ml/30 min																
Cake API/HTHP 32nd in																
Corr Solid % by Vol																
NAP/Water % by Vol																
Sand % by vol																
MBT ppb Eq.																
pH @ Deg C																
ALK Mud Pm																
ALK Filt Pt/Mf																
Chlorides mg/l																
Tot. Hardness mg/l																
LGS/HGS % by Vol																
LGS/HGS ppb																
ASG SG																
Additional Properties																
Product Name			Units		Start	Rec	Used	End	Cost		Solids Control Equipment				Time	
Drilling Fluids Engineer 2			day(s)				1		\$A1,540.00		Shaker		Screens	Hrs	Drilling	
Drilling Fluids Engineer			day(s)				1		\$A1,540.00		VSM-300				Circulating	3.5
ALDACIDE G			25 kg can		24			24			VSM-300				Trips	4.5
Amodrill 1235			1 bbl bulk		2.000			2.000			VSM-300				Rig	
BARACARB 25			25 kg sack			480		480			VSM-300				Surveys	
BARA-DEFOAM W300			25 l can		9			9							Fishing	
BARAZAN D PLUS			25 kg bag		22	36		58							Run Casing	15.0
barite			1 tons bulk		78.000			78.000							Coring	
BARO-SEAL FINE			40 lb bag		32			32							Reaming	
bentonite			1000 kg bulk		25.000			25.000			Hydrocyclone		Cones	Screens	Hrs	Testing
Brine 21% KCL			1 each bbl		942			942							Logging	
calcium chloride			25 kg bag		32			32							Dir Work	
caustic soda			25 kg can		70			70							Repair	
citric acid			25 kg bag		52			52							Other	1.0
CLAYSEAL PLUS			55 gal drum			40		40			Centrifuge		Speed	Feed Rate	Hrs	Total
CON DET			5 gal can		32			32			HS 2000		3,500	300.00		24.0
DEXTRID LTE			25 kg sack		102	180		282			HS 2000		3,500	300.00		Rotating
EZ SPOT			55 gal drum		4			4			518		4,000	80.00		ROP
EZ-MUD			25 kg pail		88	64		152			Fluid Volume Breakdown				9ppg PAD MUD	
quar gum			25 kg bag		42			42			Active		bbl	Additions	bbl	Losses
lime			25 kg bag		35			35								bbl
mica			25 kg bag		26			26			Annulus			Base		Fluid Dumped
OXYGON			50 lb can		24			24			Pipe Cap			Drill Water		Transferred
PAC-L			25 kg bag		184	200		384			Active Pits			Dewatering		SCE
potassium hydroxide			20 kg pail		19			19			Total Hole		716.1	Sea Water		Evaporation
Radiagreen EME-Salt			175 kg drum			8		8			Total Circ			Whole Mud	1579.8	Trips
soda ash			25 kg bag		63			63			Reserve			Barite		Other
sodium bicarbonate			25 kg bag		24			24			Prev Vol		1379.0	Chemicals		Total Surface
STEELSEAL 400			50 lb sack		80			80			Net Change		716.1	Other		Downhole
											Total Vol		716.1	Total	1579.8	Total Losses
																-863.7
Fluid Types			Vol		bbl		Deviation Information									
Daily Products Cost			\$A0.00		Total Daily Cost				\$A3,080.00		KCL/PHPA/CLAYSEAL		302.0		Survey MD	
Cumulative Products Cost			\$A40,174.23		Total Cumulative Cost				\$A54,034.23		Seawater		55.0		Survey TVD	
Baroid Representatives			James Munford		Stephen Welch										Angle	
Office			90 Talinga Rd Melbourne		Telephone		61-03-9581-7555								Direction	
Warehouse			c/o of Esso Australia Ltd		Telephone		61-3-56-881-445								Horiz Displ.	
															m	

Date	27/12/2010	Depth	745.0 m
Spud Date	24/12/2010	Rig Activity	Run BOP's & P/Up slip joint

HALLIBURTON | **Fluid Systems**

Date	28/12/2010	Depth	745.0 m
Spud Date	24/12/2010	Rig Activity	RIH w/12.25" BHA

HALLIBURTON | **Fluid Systems**

Daily Drilling Fluid Report

Daily Drilling Fluid Report										Date	29/12/2010	Depth	1,304.0 m			
										Spud Date	24/12/2010	Rig Activity	Drilling Ahead			
Operator TAP Shelfal Pty Ltd.					Report For Paul Jenkins / Kevin Monkhouse					Well Name Craigow-1						
Contractor Maersk Drilling					Report For Brian Meechan/ Rob Smillie					Rig Name Kan Tan IV		Unit System ADA Drilling				
Country Australia			State/Province/Region Tasmania			Geographic Area/County Bass Basin					Field or Block T 47P					
Bit Information			Drill String (in) / (m)			in Casing m			Circulation/Hydraulics Data							
Bit Size	12.250 in		OD	ID	Length	OD	Set	MD	Model	Emsco FB 1600	Emsco FB 1600	Emsco FB 1600				
Make/Type	CHINA/PDC		Drill Pipe	5.000	4.276	1,041.8	30.000	@ 157.0	Bore in	6.500	6.500	6.500				
Jets	8x13		Drill Pipe	5.000	3.125	139.5	13.625	@ 735.0	Strokes in	12.000	12.000	12.000				
TFA	1.037 sq-in		Drill Collar	8.000	2.875	111.0			Eff(%)	97	97	97				
Jets Velocity	308 ft/sec		Motor	9.625	0.000	11.7			bbl/strk	0.119	0.119	0.119				
Jet Impact Force	1591.6 lbf								SPM	100	99	0				
Bit HHSI	4.19 hhp/in2								gpm bbl/min	502 11.94	497 11.82					
Press Drop @ Bit	847 psi								Total GPM	998	AV, Riser	65.2				
Bit Depth	1,304.0 m		Riser	20.000		98.0			Total Circ Time	28	AV min DP	189.5				
ECD @ Csg Shoe	10.15 ppg		Open Hole	12.250		569.0			BU Time , min	25	AV max DC	284.3				
ECD @ Bit	10.19 ppg								Total Strokes	5,544	BU Strokes	4,905				
											Press Drop An	43				
Properties		1		2		Hyd 3		4		Targets		Program		Fluid Treatments		
Source		Pit#2		Pit#2		Pit#2								Fluid Type KCL/PHPA/CLAYSEAL		
Time		9:00		16:00		20:30								Continue mixing the 8% KCL / Polymer /		
Depth	m	900		1,150		1,258								CLAYSEAL PLUS mud. Used Citric Acid to lower		
FL Temp	Deg C	29		37		50								the pH after drilling cement and displacing the		
Density @ Deg C	ppq	9.80 @ 29		10.00 @ 36		10.00 @ 46				9.80		10.00		well. Built another 350 bbls of 8% KCL / Polymer		
FV @ Deg C	sec/qt	60 @ 29		54 @ 36		57 @ 46								/ CLAYSEAL PLUS mud to keep up with volume		
PV @ Deg C	cP	13 @ 49		18 @ 49		20 @ 49								of hole drilled. Continuously adding drill water at		
YP	lbs/100 ft2	29		24		23		X X				25		4 bbls / hour and KCL Brine at 20 bbls / hour.		
GELS	lbs/100 ft2	10/13/14		10/12/14		9/11/13								Increased the concentration of CLAYSEAL PLUS		
600/300		55.0/42.0		60.0/42.0		63.0/43.0								to 3% and the EZ-MUD to 1.5 ppb. Raised the		
200/100		36.0/28.0		34.0/25.0		35.0/24.0								mud weight up from 9.8 ppg to 10 ppg.		
6/3		11.0/10.0		9.0/8.0		9.0/8.0								This will be pumped once we get to the short trip		
API Filt	ml/30 min	4.6		4.6		4.8						6.0		Rig Activity		
HTHP @ Deg C	ml/30 min	9.6 @ 149		9.0 @ 149		9.1 @ 149						12.0		Drill out cement to 735m. Displace well to 9.8		
Cake API/HTHP	32nd in	1/2		1/2		1/2								ppg mud whilst drilling shoe track, shoe and drill		
Corr Solid	% by Vol	4.0		6.2		6.1								new formation to 748m. Circulate & condition		
NAP/Water	% by Vol	-/92.0		-/90.0		-/90.0								mud. Pull into shoe and perform LOT, EMW 14.9		
Sand	% by vol													ppg (640 psi). Take SCR's & friction losses on		
MBT	ppb Eq.	5.0		5.0		7.5								choke & kill lines. Drill 12.25" hole fr/748m -		
pH @ Deg C		9.50 @ 28		9.00 @ 36		9.30 @ 40						8.50		1304m.		
ALK Mud	Pm	0.90		0.50		0.60										
ALK Filt	Pf/Mf	0.80/2.40		0.80/2.20		0.70/2.30										
Chlorides	mg/l	49,000		48,000		49,000										
Tot. Hardness	mg/l	40		80		80										
LGS/HGS	% by Vol	0.8/3.2		3.5/2.7		3.4/2.7										
LGS/HGS	ppb	7.72/46.69		32.19/39.10		31.36/39.21										
ASG	SG	3.863		3.287		3.298										
Additional Properties																
Tau 0	lbs/100 ft2	3.77		5.30		5.84										
KCL %	% by vol	8.5		8.0		8.0										
Product Name		Units		Start	Rec	Used	End	Cost		Solids Control Equipment				Time		
Drilling Fluids Engineer 2		day(s)				1		\$A1,540.00		Shaker		Screens		Hrs	Drilling	
Drilling Fluids Engineer		day(s)				1		\$A1,540.00		VSM-300		20 20 20 80 80 80 80		21.0	Circulating	
CLAYSEAL PLUS		55 gal drum		40		33	7	\$A49,815.81		VSM-300		20 20 20 80 80 80 80		21.0	Trips	
Brine 21% KCL		1 each bbl		417		330	87	\$A21,869.10		VSM-300		20 20 20 80 80 80 80		21.0	Rig	
barite		1 tons bulk		105.000		13.000	92.000	\$A5,874.96		VSM-300		20 20 20 80 80 80 80		21.0	Surveys	
BARAZAN D PLUS		25 kg bag		21		15	6	\$A3,230.10							Fishing	
EZ-MUD		25 kg pail		152		33	119	\$A3,134.67							Run Casing	
PAC-L		25 kg bag		347		13	334	\$A2,084.16							Coring	
DEXTRID LTE		25 kg sack		172		18	154	\$A953.64							Reaming	
citric acid		25 kg bag		52		10	42	\$A762.00		Hydrocyclone		Cones		Screens	Testing	
BARACARB 25		25 kg sack		174		34	140	\$A528.36							Logging	
BARA-DEFOAM W300		25 l can		9		3	6	\$A377.46							Dir Work	
ALDACIDE G		25 kg can		20		1	19	\$A173.09							Repair	
soda ash		25 kg bag		50		1	49	\$A30.42							Other	
Amodrill 1235		1 bbl bulk		2.000			2.000			Centrifuge		Speed		Feed Rate	Hrs	
BARO-SEAL FINE		40 lb bag		32			32			HS 2000		3,500		300.00	Total	
bentonite		1000 kg bulk		25.000			25.000			HS 2000		3,500		300.00	Rotating	
calcium chloride		25 kg bag		32			32			518		4,000		80.00	ROP	
caustic soda		25 kg can		70			70								Dil Rate	
CON DET		5 gal can		32			32			Fluid Volume Breakdown				KCL/PHPA/CLAYSEAL		
EZ SPOT		55 gal drum		4			4			Active		bbl		Additions	bbl	
guar gum		25 kg bag		42			42			Annulus		585.8		Base	Fluid Dumped	
lime		25 kg bag		35			35			Pipe Cap		68.4		Drill Water	262.0	
mica		25 kg bag		26			26			Active Pits		8.0		Dewatering	SCE	
OXYGON		50 lb can		20			20			Total Hole		654.2		Sea Water	Evaporation	
potassium hydroxide		20 kg pail		10			10			Total Circ		662.2		Whole Mud	Trips	
Radiagreen EME-Salt		175 kg drum		8			8			Reserve		875.0		Barite	Other	
sodium bicarbonate		25 kg bag		16			16			Prev Vol		1498.0		Chemicals	Total Surface	
STEELSEAL 400		50 lb sack		80			80			Net Change		94.2		Other	Downhole	
										Total Vol		1537.2		Total	Total Losses	
										Fluid Types		Vol bbl		Deviation Information		
Daily Products Cost		\$A88,833.77		Total Daily Cost				\$A91,913.77						Survey MD		723.9 m
Cumulative Products Cost		\$A205,274.98		Total Cumulative Cost				\$A228,374.98						Survey TVD		723.9 m
Baroid Representatives		Amit Godara		Stephen Welch										Angle		0.07 Deg
Office		90 Talinga Rd Melbourne				Telephone		61-03-9581-7555						Direction		20
Warehouse		c/o of Esso Australia Ltd				Telephone		61-3-56-881-445						Horiz Displ.		m

Daily Drilling Fluid Report

Daily Drilling Fluid Report										Date		30/12/2010		Depth		1,445.0 m																																					
										Spud Date		24/12/2010		Rig Activity				Drilling 12.25" hole																																			
Operator					Report For					Well Name																																											
TAP Shelfal Pty Ltd.					Paul Jenkins / Kevin Monkhouse					Craigow-1																																											
Contractor					Report For					Rig Name			Unit System																																								
Maersk Drilling					Brian Meechan/ Ole Andreasen					Kan Tan IV			ADA Drilling																																								
Country			State/Province/Region			Geographic Area/County				Field or Block																																											
Australia			Tasmania			Bass Basin				T 47P																																											
Bit Information			Drill String (in) / (m)			in Casing m			Circulation/Hydraulics Data																																												
Bit Size			12.250 in			OD			Set			MD			Model			Emsco FB 1600			Emsco FB 1600			Emsco FB 1600																													
Make/Type			CHINA/PDC			Drill Pipe			5.000			4.276			1,182.8			30.000			@			157.0			Bore in			6.500			6.500			6.500																	
Jets			8x13			Drill Pipe			5.000			3.125			139.5			13.625			@			735.0			Strokes in			12.000			12.000			12.000																	
TFA			1.037 sq-in			Drill Collar			8.000			2.875			111.0												Eff(%)			97			97			97																	
Jets Velocity			308 ft/sec			Motor			9.625			0.000			11.7												bbl/strk			0.119			0.119			0.119																	
Jet Impact Force			1623.5 lbf																								SPM			62			62			75																	
Bit HHSI			4.27 hhp/in2																								gpm bbl/min			311 7.41			311 7.41			376 8.96																	
Press Drop @ Bit			864 psi																								Total GPM			998			AV, Riser			65.2			Circ Press psi			2982											
Bit Depth			1,445.0 m			Riser			20.000			98.0																		Total Circ Time			31			AV min DP			189.5			Tot Pres Loss			3003								
ECD @ Csg Shoe			10.34 ppg			Open Hole			12.250			710.0																		BU Time , min			27			AV max DC			284.3			Press Drop DP			1545								
ECD @ Bit			10.38 ppg																											Leak Off ppg			14.90			Total Strokes			6,080			BU Strokes			5,371			Press Drop An			44		
Properties			1		2		Hyd 3		4		Targets			Program			Fluid Treatments																																				
Source			Pit#2		Pit#2		Pit#2										Fluid Type						KCL/PHPA/CLAYSEAL																														
Time			3:30		13:30		22:00										Continue maintaining the concentration of																																				
Depth			1,310		1,310		1,385										CLAYSEAL PLUS to 3% and the EZ-MUD to 1.5																																				
FL Temp			Deg C				52										ppb. Mixed & pumped LCM pill with STEELSEAL																																				
Density @			ppq		10.10 @ 46		10.15 @ 40		10.20 @ 47		X			X			X			9.80			10.00			at 20 ppb as asked by company man. Treated																											
FV @ Deg C			sec/qt		50 @ 46		50 @ 40		50 @ 47																	system with BARAZAN D+ for viscosity.																											
PV @ Deg C			cP		17 @ 49		18 @ 49		18 @ 49																	Changed shaker #1, 4 to API 100 and #2,3 to																											
YP			lbs/100 ft2		22		22		22		X			X			X			25			30			API 120 screens. Maintaining the system with																											
GELS			lbs/100 ft2		8/10/11		8/10/11		7/9/10																	small additions of DEXTRID-LTE, PAC-L.																											
600/300					56.0/39.0		58.0/40.0		58.0/40.0																	Continue adding KCL Brine at 15 bbl / hour and																											
200/100					32.0/22.0		33.0/22.0		32.0/23.0																	added 150 bbl drill water over 3 hours as mud																											
6/3					7.0/6.0		8.0/7.0		8.0/7.0																	weight creeping up in the active system.																											
API Filt			ml/30 min		4.3		4.3		4.5																																												
HTHP @ Deg C			ml/30 min		9.3 @ 149		9.4 @ 149		9.4 @ 149																	6.0						12.0																					
Cake API/HTHP			32nd in		1/2		1/2		1/2																																												
Corr Solid			% by Vol		7.3		7.4		5.8																																												
NAP/Water			% by Vol		-98.0		-98.0		-90.0																																												
Sand			% by vol																																																		
MBT			ppb Eq.		7.5		7.5		7.5																																												
pH @ Deg C					9.30 @ 40		9.30 @ 35		9.00 @ 35																	8.50						9.50																					
ALK Mud			Pm		0.45		0.50		0.30																																												
ALK Filt			Ptf/Mf		0.60/2.10		0.60/2.20		0.40/2.00																																												
Chlorides			mg/l		60,000		58,000		53,000																																												
Tot. Hardness			mg/l		100		100		100																																												
LGS/HGS			% by Vol		5.8/1.5		5.6/1.9		1.6/4.2																																												
LGS/HGS			ppb		52.64/22.07		50.93/27.31		14.35/61.73																																												
ASG			SG		2.930		2.999		3.763																																												
																										</																											

Daily Drilling Fluid Report

Daily Drilling Fluid Report										Date		31/12/2010		Depth		1,800.0 m																									
										Spud Date		24/12/2010		Rig Activity				R/Up wireline equipment																							
Operator					Report For					Well Name																															
TAP Shelfal Pty Ltd.					Paul Jenkins / Kevin Monkhouse					Craigow-1																															
Contractor					Report For					Rig Name			Unit System																												
Maersk Drilling					Brian Meechan/ Ole Andreasen					Kan Tan IV			ADA Drilling																												
Country			State/Province/Region			Geographic Area/County					Field or Block																														
Australia			Tasmania			Bass Basin					T 47P																														
Bit Information			Drill String (in) / (m)			in Casing m			Circulation/Hydraulics Data																																
Bit Size			in			OD			Set			MD			Model			Emsco FB 1600			Emsco FB 1600			Emsco FB 1600																	
Make/Type															Bore in			6.500			6.500			6.500																	
Jets															Strokes in			12.000			12.000			12.000																	
TFA			sq-in												Eff(%)			97			97			97																	
Jets Velocity			ft/sec												bbl/strk			0.119			0.119			0.119																	
Jet Impact Force			lbf												SPM			0			0			0																	
Bit HHSI			hhp/in2												gpm bbl/min																										
Press Drop @ Bit			psi												Total GPM			AV, Riser			Circ Press psi																				
Bit Depth			m			Riser			20.000			98.0			Total Circ Time			AV min DP			Tot Pres Loss																				
ECD @ Csg Shoe			10.10 ppg			Open Hole			12.250			1,065.0			BU Time , min			AV max DC			Press Drop DP																				
ECD @ Bit			ppg						Leak Off ppg			14.90			Total Strokes			BU Strokes			Press Drop An																				
Properties			1			2			Hyd 3			4			Targets			Program			Fluid Treatments																				
Source			Pit#2			Pit#2			Pit#2												Fluid Type						KCL/PHPA/CLAYSEAL														
Time			3:30			10:30			19:30												Continue maintaining the concentration of																				
Depth			m			1,565			1,780			1,800												CLAYSEAL PLUS to 3% and the EZ-MUD to 1.5																	
FL Temp			Deg C			52			52												ppb. Treated system with BARAZAN D+ for																				
Density @			ppg			10.10 @ 48			10.15 @ 50			10.10 @ 45			X			X			X			9.80			10.00			viscosity. Maintaining the system with small											
FV @ Deg C			sec/qt			51 @ 48			50 @ 50			50 @ 45																		additions of DEXTRID-LTE, PAC-L. Continue											
PV @ Deg C			cP			17 @ 49			16 @ 49			17 @ 49																		adding KCL Brine at 15 bbl / hour and drill water											
YP			lbs/100 ft2			23			24			21			X			X			X			25			30			in the active system. Cleaning pill pit and pit#1 in											
GELS			lbs/100 ft2			8/10/11			8/10/11			8/10/11																		preparation of cement job.											
600/300						57.0/40.0			56.0/40.0			55.0/38.0																													
200/100						33.0/23.0			32.0/23.0			30.0/22.0																													
6/3						8.0/7.0			8.0/7.0			7.0/6.0																													
API Filt			ml/30 min			4.3			4.4			4.5												6.0																	
HTHP @ Deg C			ml/30 min			9.3 @ 149			9.3 @ 149			9.3 @ 149												12.0																	
Cake API/HTHP			32nd in			1/2			1/2			1/2																													
Corr Solid			% by Vol			5.9			6.0			6.1																													
NAP/Water			% by Vol			-90.0			-90.0			-90.0																													
Sand			% by vol																																						
MBT			ppb Eq.			7.5			7.5			7.5																													
pH @ Deg C						9.30 @ 35			9.10 @ 35			8.90 @ 35												8.50			9.50														
ALK Mud			Pm			0.35			0.30																																
ALK Filt			P/Mf			0.30/2.00			0.25/1.90			0.20/1.80																													
Chlorides			mg/l			51,000			50,000			49,000																													
Tot. Hardness			mg/l			100			100			100																													
LGS/HGS			% by Vol			2.5/3.4			2.2/3.8			2.7/3.4																													
LGS/HGS			ppb			22.86/50.46			20.29/55.86			24.54/50.23																													
ASG			SG			3.524			3.608			3.494																													
Additional Properties																																									
Tau 0			lbs/100 ft2			4.12			4.00			3.68																													
KCL %			% by vol			8.0			8.0			8.0																													

Daily Drilling Fluid Report

Operator TAP Shelfal Pty Ltd.		Report For Paul Jenkins / Kevin Monkhouse		Well Name Craigow-1	
Contractor Maersk Drilling		Report For Brian Meechan/ Ole Andreasen		Rig Name Kan Tan IV	
Country Australia		State/Province/Region Tasmania		Field or Block T 47P	
Bit Information		Drill String (in) / (m)		in Casing m	
Bit Size in		OD ID Length		OD Set MD	
Make/Type				30.000 @ 157.0	
Jets				13.625 @ 735.0	
TFA sq-in				Model	
Jets Velocity ft/sec				Bore in	
Jet Impact Force lbf				Strokes in	
Bit HHSI hhp/in2				Eff(%)	
Press Drop @ Bit psi				bbl/stk	
Bit Depth 1,800.0 m				SPM	
ECD @ Csg Shoe ppg				gpm bbl/min	
ECD @ Bit ppg				Total GPM	
				Total Circ Time	
				BU Time , min	
				Total Strokes	
				Leak Off ppg 14.90	
Properties		1	2	3	4
Source		Pit#2			
Time		3:30			
Depth m		1,800			
FL Temp Deg C					
Density @ Deg C ppq		10.10 @ 42			
FV @ Deg C sec/qt		48 @ 42			
PV @ Deg C cP		17 @ 49			
YP lbs/100 ft2		23			
GELS lbs/100 ft2		8/10/11			
600/300		57.0/40.0			
200/100		33.0/23.0			
6/3		7.0/6.0			
API Filt ml/30 min		4.4			
HTHP @ Deg C ml/30 min		9.5 @ 149			
Cake API/HTHP 32nd in		1/2			
Corr Solid % by Vol		6.2			
NAP/Water % by Vol		-90.0			
Sand % by vol					
MBT ppb Eq.		7.5			
pH @ Deg C		9.00 @ 35			
ALK Mud Pm		0.25			
ALK Filt P/Mf		0.20/1.80			
Chlorides mg/l		48,000			
Tot. Hardness mg/l		80			
LGS/HGS % by Vol		2.8/3.4			
LGS/HGS ppb		25.37/50.12			
ASG SG		3.480			
Additional Properties					
Tau 0 lbs/100 ft2		2.60			
KCL % % by vol		8.0			
Product Name		Units	Start	Rec	Used
Drilling Fluids Engineer 2		day(s)			1
Drilling Fluids Engineer		day(s)			1
barite		1 tons bulk	77.000		16.000
Kelzan XCD		25 kg bag		40	11
ALDACIDE G		25 kg can	15		15
Amodrill 1235		1 bbl bulk	2.000		2.000
BARACARB 25		25 kg sack	96		96
BARA-DEFOAM W300		25 l can	4		4
BARO-SEAL FINE		40 lb bag	72		72
bentonite		1000 kg bulk	25.000		25.000
calcium chloride		25 kg bag	32		32
caustic soda		25 kg can	68		68
citric acid		25 kg bag	42		42
CON DET		5 gal can	32		32
DEXTRID LTE		25 kg sack	144		144
EZ SPOT		55 gal drum	4		4
EZ-MUD		25 kg pail	96		96
quar gum		25 kg bag	42		42
lime		25 kg bag	35		35
mica		25 kg bag	26		26
OXYGON		50 lb can	17		17
PAC-L		25 kg bag	315		315
potassium hydroxide		20 kg pail	10		10
Radiagreen EME-Salt		175 kg drum	8		8
soda ash		25 kg bag	48		48
sodium bicarbonate		25 kg bag	16		16
STEELSEAL 400		50 lb sack	58		58
X FLOW (API 100)		1 each box	30		30
X FLOW (API 120)		1 each box	20		20
Daily Products Cost		\$A9,599.46	Total Daily Cost		\$A12,679.46
Cumulative Products Cost		\$A254,223.34	Total Cumulative Cost		\$A286,563.34
Baroid Representatives		Amit Godara	Stephen Welch		
Office		90 Talinga Rd Melbourne	Telephone		61-03-9581-7555
Warehouse		c/o of Esso Australia Ltd	Telephone		61-3-56-881-445
Solids Control Equipment		Shaker		Screens	
Drilling		Hrs		Time	
Circulating		8.0		3.0	
Trips		8.0		3.0	
Rig		8.0			
Surveys		8.0			
Fishing					
Run Casing					
Coring					
Reaming					
Testing					
Logging					
Dir Work					
Repair					
Other					
Total					
Rotating					
ROP					
Dil Rate					
Fluid Volume Breakdown		KCL/PHPA/CLAYSEAL			
Active		bbl	Additions	bbl	Losses
Annulus			Base		Fluid Dumped
Pipe Cap			Drill Water		Transferred
Active Pits		8.0	Dewatering		SCE
Total Hole		598.1	Sea Water		Evaporation
Total Circ		8.0	Whole Mud		Trips
Reserve		720.0	Barite	24.0	Other
Prev Vol		1933.2	Chemicals	1.1	Total Surface
Net Change		-619.4	Other		Downhole
Total Vol		1326.1	Total	25.1	Total Losses
Fluid Types		Vol bbl	Deviation Information		
Survey MD			723.9 m		
Survey TVD			723.9 m		
Angle			0.07 Deg		
Direction			20		
Horiz Displ.			m		

Daily Drilling Fluid Report

Daily Drilling Fluid Report										Date		02/01/2011		Depth		130.0 m	
										Spud Date		24/12/2010		Rig Activity		P/Up landing joint	
Operator					Report For					Well Name							
TAP Shelfal Pty Ltd.					Paul Jenkins / Kevin Monkhouse					Craigow-1							
Contractor					Report For					Rig Name		Unit System					
Maersk Drilling					Brian Meechan/ Ole Andreasen					Kan Tan IV		ADA Drilling					
Country			State/Province/Region			Geographic Area/County			Field or Block								
Australia			Tasmania			Bass Basin			T 47P								
Bit Information			Drill String (in) / (m)			in Casing m			Circulation/Hydraulics Data								
Bit Size in			OD ID Length			OD Set MD			Model								
Make/Type						30.000 @ 130.0			Bore in								
Jets						13.625 @ 130.0			Strokes in								
TFA									Emsco FB 1600								
Jets Velocity sq-in									Emsco FB 1600								
Jet Impact Force lbf									Emsco FB 1600								
Bit HHSI hhp/in2									Emsco FB 1600								
Press Drop @ Bit psi									Emsco FB 1600								
Bit Depth 1,070.0 m			Riser 20.000 98.0						Emsco FB 1600								
ECD @ Csg Shoe ppg									Emsco FB 1600								
ECD @ Bit ppg						Leak Off ppg 14.90			Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								
									Emsco FB 1600								

Date	03/01/2011	Depth	130.0 m
Spud Date	24/12/2010	Rig Activity	Prepare for rig release

HALLIBURTON | Fluid Systems

This report, the software, any data contained in this report and any interpretations based on this report are offered "AS-IS" and "WHERE-IS." THERE ARE NO REPRESENTATIONS OR WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS AND/OR FITNESS FOR A PARTICULAR PURPOSE AND/OR NON-INFRINGEMENT. IN NO EVENT WILL HALLIBURTON OR ITS AFFILIATES OR SUPPLIERS BE LIABLE FOR ANY DAMAGES, WHATSOEVER, INCLUDING, BUT NOT LIMITED TO DIRECT, INDIRECT, CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR EXEMPLARY DAMAGES (INCLUDING, WITHOUT LIMITATION, LOSS OF DATA, PROFITS OR USE OF HARDWARE OR SOFTWARE). Customer uses at their own risk.

Date	04/01/2011	Depth	130.0 m
Spud Date	24/12/2010	Rig Activity	Prepare for rig release

HALLIBURTON | **Fluid Systems**

CRAIGOW
30" x 20" Conductor



PGB
P/N 6-400181-09R
S/N 00255798-01



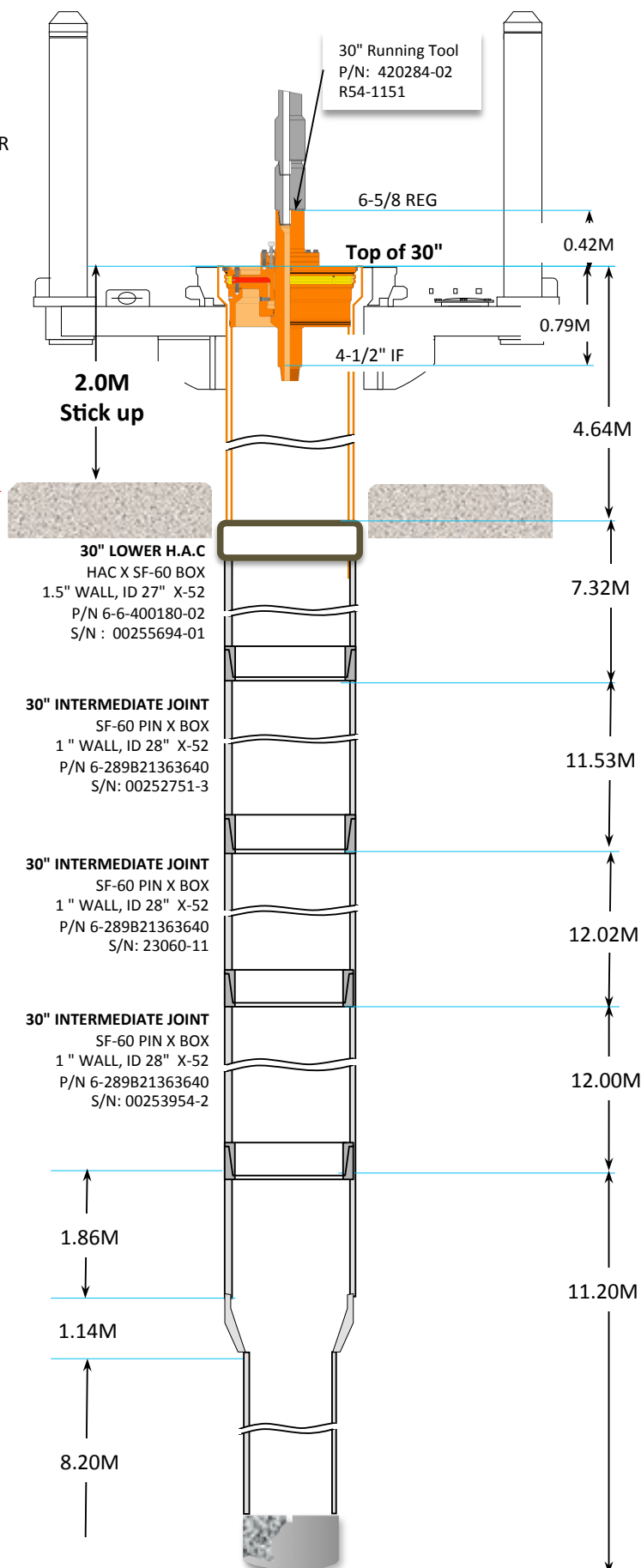
SEABED: 100.0m

CONDUCTOR O.A.L
58.71m

30" Shoe: 148.8m

20" Shoe: 157m

36" TD: 159m



Prepared by: Ryan Olsen

13-3/8 INCH CASING TALLY

7 November 2010



COMPANY **TAP**
WELL **Craigow-1**
RIG **KT4**

Australian Drilling Associates Pty Ltd



CASING TYPE **#68K-55 R3 BTC**
SHOE DEPTH: **735.2**

CSG OD: **13 3/8**
CSG ID: **12.4375**

HOOK WEIGHT **160,000 lbs**
MUD WEIGHT **8.6 lbs/gal**

CSG WEIGHT PPF: **68**
STEEL VOLUME: **0.079bbl/m**

Make up Loss **0.122 m**

BOUYANCY FACTOR **0.87**

	Jnt No.	Length	Cummulative Length	Top Depth (Metres)	Bottom Depth	MD Weight (lbs)	Remarks
1	Shoe A	12.81	12.81	722.34	735.15	162,483	2 x Slider Cent
2	Float A	12.55	25.36	709.79	722.34	164,915	1 x Slider Cent
3	60	12.27	37.63	697.52	709.79	167,292	1 x Slider Cent
4	59	12.26	49.89	685.26	697.52	169,669	1 x Slider Cent
5	58	12.27	62.16	672.99	685.26	172,046	1 x Slider Cent
6	57	12.27	74.43	660.72	672.99	174,423	1 x Slider Cent
7	56	12.19	86.62	648.53	660.72	176,785	1 x Slider Cent
8	55	12.19	98.81	636.34	648.53	179,147	
9	54	12.27	111.07	624.08	636.34	181,525	
10	53	12.27	123.34	611.81	624.08	183,902	
11	52	12.27	135.61	599.54	611.81	186,279	
12	51	12.27	147.88	587.27	599.54	188,657	
13	50	12.27	160.15	575.00	587.27	191,034	
14	49	12.26	172.41	562.74	575.00	193,411	
15	48	12.26	184.67	550.48	562.74	195,787	
16	47	12.26	196.94	538.21	550.48	198,164	
17	46	12.27	209.20	525.95	538.21	200,541	
18	45	12.27	221.47	513.68	525.95	202,918	
19	44	12.27	233.74	501.41	513.68	205,295	
20	43	12.27	246.01	489.14	501.41	207,673	
21	42	12.27	258.27	476.88	489.14	210,050	
22	41	12.23	270.51	464.64	476.88	212,421	
23	40	12.27	282.77	452.38	464.64	214,798	
24	39	12.27	295.04	440.11	452.38	217,175	
25	38	12.27	307.31	427.84	440.11	219,553	
26	37	12.26	319.57	415.58	427.84	221,929	
27	36	12.27	331.84	403.31	415.58	224,306	
28	35	12.26	344.10	391.05	403.31	226,683	
29	34	12.27	356.37	378.78	391.05	229,060	
30	33	12.18	368.55	366.60	378.78	231,420	
31	32	12.27	380.81	354.34	366.60	233,797	
32	31	12.26	393.08	342.07	354.34	236,174	
33	30	12.19	405.27	329.88	342.07	238,535	
34	29	12.27	417.53	317.62	329.88	240,913	
35	28	12.26	429.80	305.35	317.62	243,289	
36	27	12.26	442.06	293.09	305.35	245,665	
37	26	12.27	454.33	280.82	293.09	248,043	
38	25	12.27	466.59	268.56	280.82	250,420	
39	24	12.26	478.86	256.29	268.56	252,797	
40	23	12.26	491.12	244.03	256.29	255,173	
41	22	12.26	503.38	231.77	244.03	257,550	
42	21	12.26	515.65	219.50	231.77	259,926	
43	20	12.26	527.91	207.24	219.50	262,303	
44	19	12.18	540.10	195.05	207.24	264,664	
45	18	12.27	552.36	182.79	195.05	267,041	
46	17	12.26	564.63	170.52	182.79	269,418	
47	16	12.26	576.89	158.26	170.52	271,795	
48	15	12.07	588.96	146.19	158.26	274,133	
49	14	12.07	601.03	134.12	146.19	276,472	
50	13	12.27	613.30	121.85	134.12	278,849	
51	NC Jt	12.24	625.54	109.61	121.85	281,222	

7 November 2010

COMPANY TAP

WELL Craigow-1

RIG KT4

CASING TYPE #68K-55 R3 BTC

SHOE DEPTH: 735.2

CSG OD: 13 3/8

CSG ID: 12.4375

CSG WEIGHT PPF: 68

STEEL VOLUME: 0.079bbl/m

BOUYANCY FACTOR **0.87**

HOOK WEIGHT **160,000** lbs

MUD WEIGHT **8.6 lbs/gal**

Make up Loss	0.122 m

[illegible]

**Australian Drilling Associates Pty Ltd
Level 5 / Rialto North Tower
525 Collins St
Melbourne, VIC, 3000**

Craigow #1 Post Job Report

Prepared for Manelle Moussa
February 15, 2011
Rev.2

Submitted by Joon Yeoh
Halliburton Australia Ltd
Lvl 23 HWT Towers 40 City Rd. Southgate 3006
Ph: +03 5142 1165

HALLIBURTON



TABLE OF CONTENTS

TABLE OF CONTENTS	2
1.1 SUMMARY OF OPERATIONS	3
1.2 CEMENTING EVENTS	4
2.0 PROGRAM SUMMARY	5
2.1 WELL SCOPE	5
2.2 WELL SCHEMATIC AS CEMENTED	6
2.3 APPROXIMATE WELL COST	7
2.4 WELL CHEMICAL AND CEMENT USAGE	8
2.5 IMPORTANT NOTES	8
3.0 CEMENT JOB SLURRY DESIGNS	9
3.1 30" X 20IN CONDUCTOR CASING	9
3.2 30IN CONDUCTOR JOB LOG	11
3.3 CRAIGOW #1 30IN CONDUCTOR JOB PLOT	12
3.4 30IN CONDUCTOR LAB SLURRY REPORT	13
3.5 13-3/8" INTERMEDIATE CASING	14
3.6 13 3/8" JOB LOG	17
3.7 CRAIGOW #1 13 3/8" CASING JOB PLOT	18
3.8 13 3/8IN CASING LEAD LAB REPORT	19
3.9 13 3/8IN CASING TAIL SLURRY LAB REPORT	20
3.10 PLUG #1 – 12 ¼" HOLE	21
3.11 SHOE PLUG (PLUG 2) DETAILS - 13 3/8IN CASING X 12.25IN HOLE	23
3.12 SURFACE PLUG DETAILS - 13 3/8IN CASING	25
3.13 CRAIGOW #1 PLUG 1, 2 (SHOE PLUG) & 3 (SURFACE PLUG) JOB LOG	27
3.14 CRAIGOW #1 P&A PLUG #1 JOB PLOT	28
3.15 CRAIGOW#1 P&A PLUG #2 (SHOE PLUG) JOB PLOT	29
3.16 CRAIGOW #1 PLUG #3 (SURFACE PLUG) JOB PLOT	30
3.17 P&A PLUG 1 SLURRY LAB REPORT	31
3.18 P&A PLUG #2 (SHOE PLUG)	32
3.19 P&A PLUG 3 (SURFACE PLUG) SLURRY LAB REPORT	33
4.0 PRIMARY CEMENTING BEST PRACTICES	34

1.1 Summary of operations

The Craigow #1 well was drilled as part of exploration program for Tap Oil who was part of a consortium that ADA managed. The well was drilled with Kan Tan IV semi-submersible MODU and was constructed of a 30" x 20" Conductor casing and a 13 3/8" casing finished off with three P&A cement plugs.

The 36" section was drilled to 159mMD with 30" x 20" Conductor casing set at 157mMD. As a pre-flush to cementing, 5 bbl of sea water ahead with 20 bbl of sea water with mica was pumped at 6bpm. Cement consisted of 264 bbls of 15.8ppg Halcem slurry. Using the Halliburton pump unit, the cement was displaced with 39.0bbls of sea water.

The 17 1/2" section was drilled to 735mMD and the 13 3/8" casing was set and cemented at 735mMD. As a pre-flush to cementing, 20 bbls of seawater was initially pumped, however the job was stopped when the cementer encountered some issue with the CMS unit. There was leak in one of the hoses. Once the leak have been temporary fixed, the job was restarted again with pumping of 15 bbls of spacer ahead. Cement consisted of 380 bbls of 12.5ppg EconoCem lead slurry and 104 bbls of 15.8ppg Halcem slurry. 20 bbls of spacer was pumped behind using the Halliburton pump unit, and the rest of the 289.0 bbls of displacement was handed over to the rig to be displaced. The plug did not bump. Floats were holding.

The 12 1/4" Open Hole section was drilled to 1800mMD. The well was subsequently abandoned with three (3) cement plugs as follows.

Plug #1

#1: 1070MD - 1220mMD – 94 bbls of 15.8ppg PlugCem

Plug #2 (Shoe Plug)

#2: 620mMD – 800mMD – 100 bbls of 15.8ppg PlugCem. TOC for Plug #2 actual tagged at 576m

Plug #3 (Surface Plug)

#3: 130mMD – 230mMD – 50 bbls of 15.8ppg PlugCem

Lesson Learnt:

No Lesson Learnt for this well.

1.2 Cementing Events

Date	Event
24/12/10	Cement 30in Conductor to +/- 157mMD - Mix and pump 264 bbl of 15.8ppg HalCem Slurry
26/12/10	Cement 13 3/8in intermediate casing to +/- 735mMD - Mix and pump 380 bbls of 12.5ppg EconoCem and 104 bbls of 15.8ppg HalCem Slurry
1/01/11	Set Plug 1 - Mix and pump 94 bbls of 15.8ppg PlugCem
1/01/11	Set Plug 2 (Shoe Plug) - Mix and pump 100 bbls of 15.8ppg PlugCem
2/01/11	Surface Plug - Mix and pump 50 bbls of 15.8ppg PlugCem

2.0 PROGRAM SUMMARY

Craigow 1 will be drilled in the Bass Basin from the semi submersible rig the Kan Tan IV. The following program outlines the cementation of the 30" conductor casing, 13-3/8" casing string and number of cement plugs to abandon the well.

Revision History

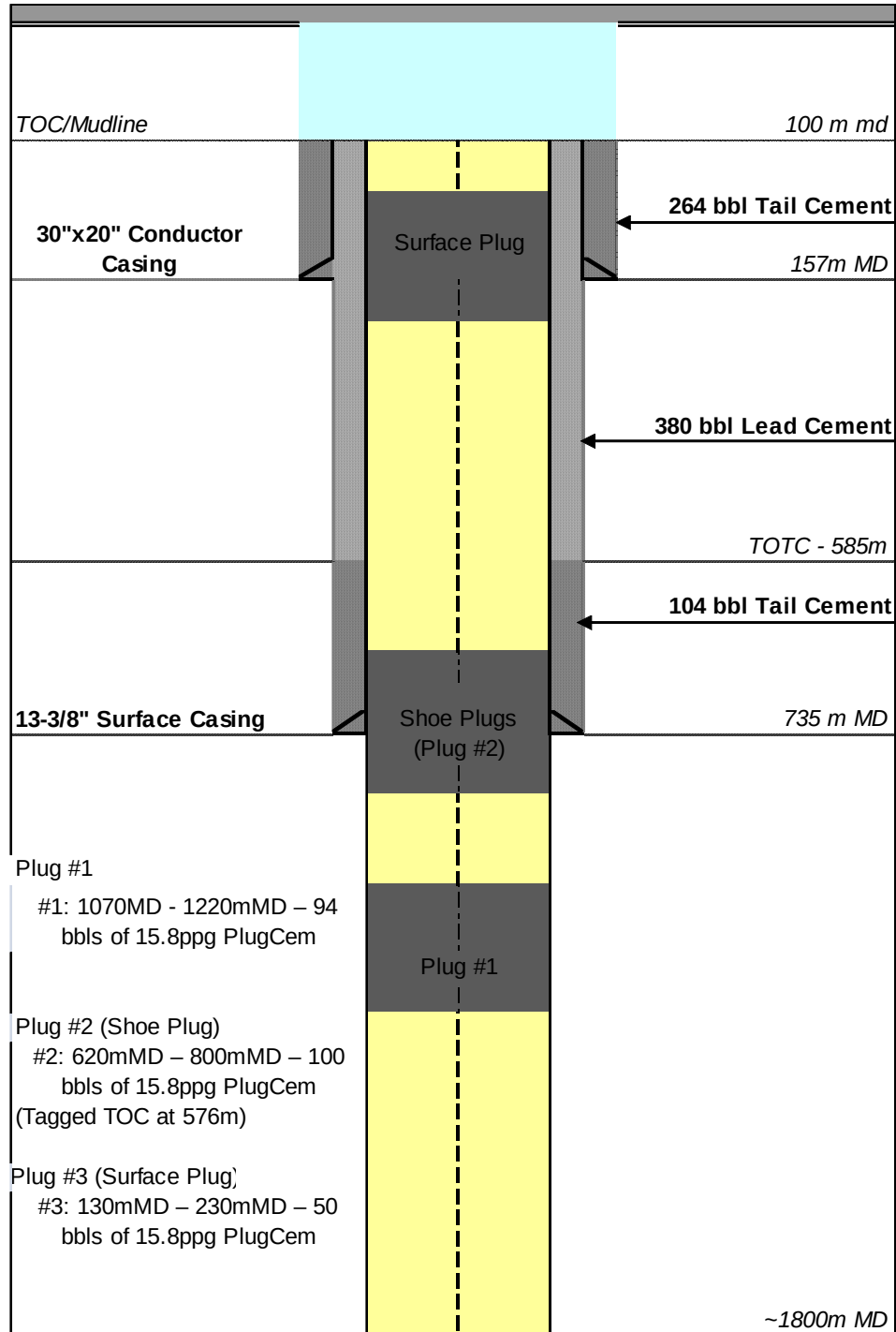
Draft 1.0	4 th August 2010
Rev 1.0	12 th November 2010
Rev 2.0	15 th November 2010
Rev 3.0	16 th Updated cementing program after DWOP
Rev 4.0	updated shoe plug
Rev 5.0	updated shoe plug
Rev 6.0	updated shoe plug
Rev 7.0	Corrected 30in conductor cmt volume

2.1 Well Scope

The following cement Jobs are detailed in Section 3:

Section	Hole Depth		Casing/Hole Size	Slurry Info
36" Hole	160 mMD	160 mTVD	30" Conductor casing	15.8ppg Class G Single Slurry
17 1/2" Hole	750 mMD	750 mTVD	13-3/8" Intermediate Casing	12.5ppg EconoCem Lead / 15.8ppg HalCem Tail
	Base	Top		
Plug @ 1826m – 1526m	1826 mMD	1526 mMD	12-1/4" Open Hole	15.8ppg PlugCem
Plug @ 1526m - 1226m	1526mMD	1226mMD	12-1/4" Open Hole	15.8ppg PlugCem
Shoe Plug	800 mMD	800 mMD	12-1/4" Open Hole / 13-3/8" Casing	15.8ppg PlugCem
Surface Plug	160 mMD	160 mMD	13-3/8" Casing	15.8ppg PlugCem
Contingent				
Squeeze Plug @ 750mMD Shoe	750mMD	750mMD	13 3/8" Intermediate / 12 1/4" Open Hole	15.8ppg HalCem
16.5ppg KOP	1200mMD	1200mMD	12 1/4" Open Hole	16.5ppg KOP
16.5ppg KOP	1450mMD	1450mMD	12 1/4" Open Hole	16.5ppg KOP

2.2 Well Schematic as Cemented



2.3 Approximate Well Cost

Sales Order No.	Desc	USD	AUD
7560266	FLOAT EQUIP	\$23,818.00	
7839832	SERVICES - People + Equipment		\$16,091.60
7839837	Class G Cmt 171.7MT		\$69,830.39
7841461	CHEMICALS - Econolite,Halad 413, SCR-100I, CFR-3I	\$23,818.00	
7839835	Grub Screws		\$145.02
7888540	Special Tools	\$3,624.23	
Total		51,260.23	86,067.01

2.4 Well Chemical and Cement usage

CEMENT SLURRY	30" Conductor	13 3/8" Lead	13 3/8" Tail	Plug 1826 - 1526m	Plug 1526 - 1226m	Shoe Plug	Surface Plug	KOP	Squeeze Plug for X- LOT
Total bbls	239.8	383.6	103.1	165	165	79	73.7	165	50
Gal mix fluid per sk	5.34	13.02	5.16	5.16	5.16	5.16	5.34	4.38	5.16
Yield cuft/sk	1.19	2.21	1.16	1.16	1.16	1.16	1.16	1.06	1.16
DESCRIPTION									
Class G cement (sks)	1132	975	499	798	798	411	348	874	242
ABC Class G cement (MT)	48	42	21	34	34	18	15	37	10
DESCRIPTION									
Tuned Spacer E+				1314	1314				
Econolite Liquid (gal)		454							
HALAD 413L (gal)			184	294	294	151			90
SCR-100L (gal)		91	12	24	30	10		11	6
NF-6 (gal)	2	8	2	4	4	2	2	2	1
CaCl ₂ (lb)	1064						327		
CFR-3L (gal)								14	

2.5 Important Notes

1. Performing hydrostatic calculation for 30in Conductor casing for inner string job
2. Check SSR plugs once they arrive on location and go through SSR procedures manual. Check that the bottom plug has been removed onshore. (The bottom plug will not be run on this well).
3. All cement slurries proposed in the program are subject to change based on the lab testing up on customer approval.

3.0 CEMENT JOB SLURRY DESIGNS

3.1 30" x 20in Conductor Casing

JOB PARAMETERS

Casing measured depth:	160m	BHST temperature:	12°C
True vertical depth:	160m	BHCT temperature:	12°C
Depth to top cement:	100m	Drilling mud type:	Seawater/Bentonite Sweeps
		Drilling mud density:	8.55ppg

WELLBORE

Casing/Tubing

0-110m	5in 19.5ppf Tubing
110-152m	30in 309.7ppf Casing (X52)
152-160m	20in 94ppf Casing

Annulus

0-100m	RKB-ML
100-160m	36in open hole (200% excess)

SPACERS

Spacer #1 - 100.0bbl Seawater at 8.54ppg

Seawater	42.00 gal/bbl	(12m OH annular fill / 17min contact time)

Spacer #2 - 25.0bbl Seawater + Mica Coarse at 8.60ppg

Seawater	42.00 gal/bbl	(3m OH annular fill / 4min contact time)

Contact times are based on the displacement rate.

CEMENT

Composition

ABC Class G	
Calcium Chloride	1.00 %BWOC
Seawater	5.28 gal/sk
NF-6	0.125 gal/10bblMF

Properties

Surface density:	15.80 ppg
Surface yield:	1.19 ft³/sk
Total mixing fluid:	5.34 gal/sk
Thickening time (70 Bc):	3:30
Comp strength at 12°C	1,100 psi in 24 hrs

Note that %BWOC are based on a 94 lb sack

VOLUME CALCULATIONS

Cement

30in Casing / 36in hole volume	42 m x 1.2620 bbl/m	52.4 bbl
30in Casing / 36in hole excess	2.00 x 52.4 bbl	104.7 bbl
20in Casing / 36in hole volume	9 m x 2.8555 bbl/m	24.3 bbl
20in Casing / 36in hole excess	2.00 x 24.3 bbl	48.5 bbl
Shoe track volume	9 m x 1.1656 bbl/m	9.9 bbl

Total slurry volume = 239.8 bbl

Total Volume Pumped = 264.0 bbl

Quantity of cement	239.8 bbl x 5.6146 / 1.19 ft³/sk	1132 sacks
Quantity of mix fluid	1132 sacks x 5.34 gal/sk	143.9 bbl

Displacement

5in Tubing volume	110 m x 0.0583 bbl/m	6.4 bbl

30in Casing volume	42 m x 2.4986 bbl/m	103.7 bbl
Total displacement volume =110.1 bbl		
Total Volume Pumped = 33.0 bbl		

The final job calculations are to be completed on location by cementer, based on actual well parameters. All calculations from slurry volumes to additive dosages & requirements must be verified by the independent calculations of the drilling rep.

PUMPING SCHEDULE & TIMES

	Volume (bbl)	Rate (bbl/min)	Time (min)
Make up lines & pressure test:	N/A	N/A	30
Circulate 2 x Casing volume:	240.0	8.0	30
Pump spacers:	125.0	6.0	21
Release ball/bottom plug:	N/A	N/A	5
Mix & pump cement:	239.8	4.0	60
Release dart/top plug:	N/A	N/A	5
Pump displacement:	110.1	6.0	18
Total job time (including circulation):			169 min 2hr 49min
Minimum cement thickening time (with 1hr safety factor):			143 min 2hr 23min

MINIMUM MATERIAL REQUIREMENTS

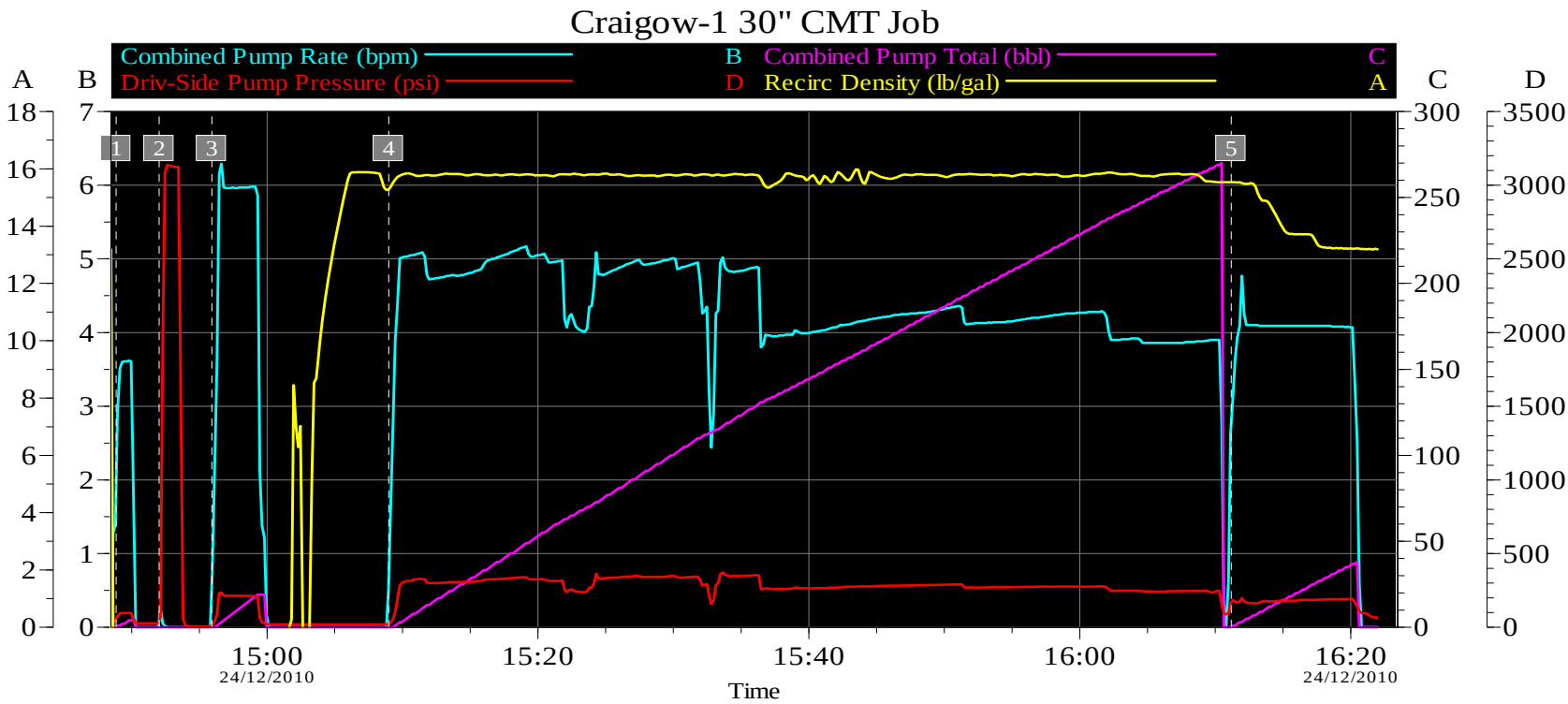
Spacer #1 - Seawater		Total Volume
Seawater	100 bbl	5
Spacer #2 - Seawater + Mica Coarse		
Seawater	25 bbl	20
Cement		
ABC Class G	1,132 sacks	1253 sacks
Calcium Chloride	1,064 lbs	1,155 lbs
Seawater	142.3 bbl	
NF-6	2 gals	5 gals

These are estimates calculated on the information given. Calculations should be confirmed on the job site well in advance.

3.2 30in Conductor Job Log

PERSONELL											
PERSONNEL / EXPOSURE		hrs	PERSONNEL / EXPOSURE		hrs	PERSONNEL / EXPOSURE		hrs			
# N/A	Daniel West	12	# N/A	Gavin Hick	12						
EQUIPMENT											
SAP#		PUMPING / MIXING		HOURS	SAP#		BULK SUPPLY / TANKS		HOURS		
# N/A	MIXING EQUIPMENT		4		SAP	BULK EQUIPMENT		4			
WELL PROFILE											
NEW CASING			OPEN HOLE + EXCESS OR CALIPER DATA			PREVIOUS CASINGS					
Non Tapered , , m shoe track											
30in 310ppf X-52 : 98m to 147.37m MD, 147.37m TVD			36in, 200 percent excess, 100m to 159m								
20in 202.85ppf X-52 : 147.37m to 156.71m MD, 156.71m TVD											
FOR PLUG AND LINER JOBS PLEASE INDICATE WORKSTRIN (5in 19.5ppf Drill Pipe with m of in ppf Stinger											
CEMENT DESIGNS											
Tail			0			0					
DENSITY	15.8ppg	WATER	5.18gal/sk	DENSITY	0.0ppg	WATER	0.00gal/sk	DENSITY	0.0ppg	WATER	0.00gal/sk
YIELD	1.18cuft/ft	MIX FLUID	5.18gal/sk	YIELD	0.00cuft/ft	MIX FLUID	0.00gal/sk	YIELD	0.00cuft/ft	MIX FLUID	0.00gal/sk
WATER SOURCE			WATER SOURCE			WATER SOURCE					
CEMENT TYPE ABC Class 'G' at 94lb/sk			CEMENT TYPE at lb/sk			CEMENT TYPE at lb/sk					
Total Cement Used 1253sks			Total Cement Used sks			Total Cement Used MT					
Estimated TOC 100m			Estimated TOC m			Estimated TOC m					
Additive	Concentration	Total Used		Additive	Concentration	Total Used		Additive	Concentration	Total Used	
Calcium Chloride	1%BWOC	1155									
NF-6	0.003 gal/sk	5									
JOB LOGS											
DATE	TIME	VOLUME	PRESSURE (psi)		RATE	JOB DESCRIPTION					
DAY-MTH-YR	HRS:MIN	BBLS	HIGH	LOW	BPM	REMARKS/DETAILS					
24/12/2010	14:20					Hold JSA					
	14:48					Pump 5bbl spacer ahead					
	14:52					Test surface lines to 3000psi					
	14:55					Pump 20bbls of Sea water sapce with Mica					
	15:08					Mix & Pump 264bbls of 15.8ppg slurry					
	16:11					Displace with 39bbls of Sea Water					
						End Job					

3.3 Craigow #1 30in Conductor Job Plot



Global Event Log					
1	Pump 5bbl spacer ahead	14:48:51	2	Line test to 3000psi	14:52:02
3	Pump 20bbl spacer ahead with mica	14:55:55	4	Mix & Pump 264bbls of CMT	15:08:59
5	Displace with 39bbls of S.W	16:11:11			

Customer: ADA / Origin	Job Date: 24-Dec-2010	Sales Order #:
Well Description: Craigow-1	UWI:	

OptiCem v6.4.6
25-Dec-10 07:30

3.4 30in Conductor Lab Slurry Report

Cement Laboratory Report			HALLIBURTON MANAGEMENT SYSTEM Australasia				
DOCUMENT NO:	PREPARED BY Megan Beale	APPROVED BY	REVISION NO: 12	DATE 25-Jun-07			
HALLIBURTON CEMENT SLURRY LABORATORY REPORT							
Customer Information							
Customer	: ADA	Date	: 14-Dec-10				
Rig Name	: Kan Tan IV	Lab Reference	: 116560 / 1				
Well Name	: Craigow #1		:				
Pipe Size / Casing Size	: 30" Conductor Casing	Lab	: Sale				
Well Information							
	BHST	: 25	°C				
	BHCT	: 25	°C				
	Measured Depth	: 160	m				
	Total Vertical depth	: 160	m				
HalCem™ cement Casing Slurry Design							
<u>MATERIAL</u>	<u>Conc.</u>	<u>Unit</u>	<u>Conc.</u>	<u>Unit</u>	<u>Date</u>	<u>Source</u>	<u>Batch #</u>
ABC Class G	94.00	lbs			9/12/10	Rig	SC00064
Calcium Chloride	1.000	BWOC	1.00	BWOC			
NF-6	0.003	gal/sk	0.25	gal/10bbl			
Seawater	5.18	gal/sk					
Total Mixing Fluid	: 5.18	gal/sk					
Slurry Density	: 15.8	lb/gal					
Slurry Yield	: 1.18	ft³/sk					
Laboratory Test Results							
Thickening Time		Initial BC	30	50	70		
		25	1:42	2:09	2:25		
Pumping time at 25 °C & 455 psi is 2:25 hrs:mins							
Slurry thickening time test is performed with slurry in motion, not in static condition							
Slurry Rheology		Fann Readings (RPM)					
		300	200	100	6	3	PV (cP)
Mix Temp		185	171	160	64	46	37.5
							YP (lb _r /100ft²)
							148
Compressive Strength							
Non Destructive (UCA)	Temp	Pressure	50psi	500psi	24 hours		
	21 °C	3000 psi	3:24	7:23	1813 psi		
Notes:							
ABC G class ex Kan Tan IV 09/12/2010 (SC00064), Sea water ex Kan Tan IV 10/12/2010 (SW00050)							
Actual well condition might varies.							
Lab Technician:		Dave Collins					
Approved:		Joon Yeoh					
*The above pilot report is based on sound engineering practices, but because of variable well conditions and other information which must be relied upon, Halliburton makes no warranty, express or implied, as to the accuracy of the data or any of the calculations or opinions expressed herein. You agree that Halliburton shall not be liable for any loss or damage whether due to negligence or otherwise arising out of or in connection with such data, calculations or opinions.							

3.5 13-3/8" Intermediate Casing**JOB PARAMETERS**

Casing measured depth:	750m	BHST temperature:	45°C
True vertical depth:	750m	BHCT temperature:	34°C
Depth to top lead:	100m	Drilling mud type:	Water/Bentonite
Depth to top tail:	600m	Drilling mud density:	Sweeps 8.60ppg

WELLBORE**Casing/Tubing**

0-100m	5in 19.5ppf Tubing
100-750m	13 3/8in 68ppf Casing

Annulus

0-100m	RKB-ML
100-160m	30in 309.7ppf casing (28in ID)
160-750m	17.5in open hole (50% excess)

SPACERS**Spacer - 80.0bbl Drill Water at 8.33ppg**

Seawater	42.00 gal/bbl	(131m OH annular fill / 13min contact time)

Contact times are based on the displacement rate.

LEAD CEMENT - EconoCem™**Composition**

ABC Class G	
Econolite Liquid	15.00 gal/10bblMF
SCR-100L	3.00 gal/10bblMF
Seawater	12.47 gal/sk
NF-6	0.25 gal/10bblMF

Properties

Surface density:	12.50 ppg
Surface yield:	2.21 ft³/sk
Total mixing fluid:	13.03 gal/sk
Thickening time (70 Bc):	5:30

TAIL CEMENT - HalCem™**Composition**

ABC Class G	
Halad 413L	30.00 gal/10bblMF
SCR-100L	2.00 gal/10bblMF
Freshwater	4.77 gal/sk
NF-6	0.25 gal/10bblMF

Properties

Surface density:	15.80 ppg
Surface yield:	1.16 ft³/sk
Total mixing fluid:	5.16 gal/sk
Thickening time (70 Bc):	4:00

VOLUME CALCULATIONS

Lead Cement

13 3/8in Casing / 30in casing volume	60 m x 1.9285 bbl/m	115.7 bbl
13 3/8in Casing / 17.5in hole volume	440 m x 0.4059 bbl/m	178.6 bbl
13 3/8in Casing / 17.5in hole excess	0.50 x 178.6 bbl	89.3 bbl

Total lead slurry volume = 383.6 bbl

Total Volume pumped = 380.0 bbl

Quantity of lead cement	383.6 bbl x 5.6146 / 2.21 ft ³ /sk	975 sacks
Quantity of lead mix fluid	975 sacks x 13.03 gal/sk	302.5 bbl

Tail Cement

13 3/8in Casing / 17.5in hole volume	150 m x 0.4059 bbl/m	60.9 bbl
13 3/8in Casing / 17.5in hole excess	0.50 x 60.9 bbl	30.4 bbl
Shoe track volume	24 m x 0.4912 bbl/m	11.8 bbl

Total tail slurry volume = 103.1 bbl

Total Volume Pumped = 104.0 bbl

Quantity of tail cement	103.1 bbl x 5.6146 / 1.16 ft ³ /sk	499 sacks
Quantity of tail mix fluid	499 sacks x 5.16 gal/sk	61.3 bbl

Displacement

5in Tubing volume	100 m x 0.0583 bbl/m	5.8 bbl
13 3/8in Casing volume	626 m x 0.4912 bbl/m	307.5 bbl

Total displacement volume = 313.3 bbl

Total Volume pumped = 309.0 bbl

The final job calculations are to be completed on location by cementer, based on actual well parameters. All calculations from slurry volumes to additive dosages & requirements must be verified by the independent calculations of the drilling rep.

PUMPING SCHEDULE & TIMES

	Volume (bbl)	Rate (bbl/min)	Time (min)
Make up lines & pressure test:	N/A	N/A	30
Circulate 2 x Casing volume:	650.2	8.0	81
Pump spacers:	80.0	6.0	13
Release ball/bottom plug:	N/A	N/A	5
Mix & pump lead cement:	383.6	5.0	77
Mix & pump tail cement:	103.1	4.0	26
Release dart/top plug:	N/A	N/A	5
Pump displacement:	313.3	6.0	52

Total job time (including circulation): 289 min 4hr 49min

Minimum lead cement thickening time (with 2hr safety factor): 280 min 4hr 40min

Minimum tail cement thickening time (with 2hr safety factor): 203 min 3hr 23min

MINIMUM MATERIAL REQUIREMENTS

Spacer - Drill Water

Seawater	80 bbl	Total Volume 45 bbl

Lead Cement

ABC Class G	975 sacks	970 sks
Econolite Liquid	454 gals	451 gals
SCR-100L	91 gals	45 gals
Seawater	289.4 bbl	
NF-6	8 gals	8 gals

Tail Cement

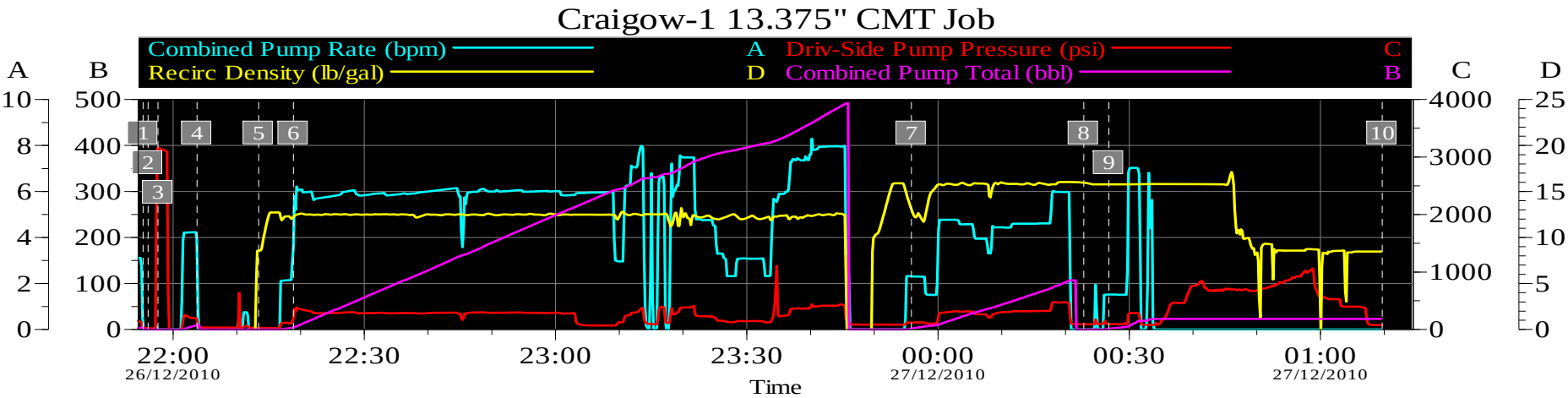
ABC Class G	499 sacks	502 sks
Halad 413L	184 gals	171 gals
SCR-100L	12 gals	12 gals
Freshwater	56.6 bbl	
NF-6	2 gals	1.5 gals

These are estimates calculated on the information given. Calculations should be confirmed on the job site well in advance.

3.6 13 3/8" Job Log

PERSONELL								
PERSONNEL / EXPOSURE		hrs	PERSONNEL / EXPOSURE		hrs	PERSONNEL / EXPOSURE		hrs
# N/A	Daniel West	12	# N/A	Gavin Hick	12			
EQUIPMENT								
SAP# PUMPING / MIXING		HOURS	SAP# BULK SUPPLY / TANKS		HOURS			
# N/A	MIXING EQUIPMENT	4	SAP	BULK EQUIPMENT	4			
WELL PROFILE								
NEW CASING			OPEN HOLE + EXCESS OR CALIPER DATA			PREVIOUS CASINGS		
Non Tapered , , m shoe track								
13.375in 68ppf BTC : 98m to 735.2m MD, 735.2m TVD			17.5in, 50 percent excess, 156.7m to 745m			30in, 310ppf, 98m to 147.37m 20in, 202.85ppf, 147.37m to 156.71m		
FOR PLUG AND LINER JOBS PLEASE INDICATE WORKSTRING (5in 19.5ppf Drill Pipe with m of in ppf Stinger)								
CEMENT DESIGNS								
Lead		Tail		0				
DENSITY	12.5ppg	WATER	12.50gal/sk	DENSITY	15.8ppg	WATER	4.77gal/sk	
YIELD	2.21cuft/ft	MIX FLUID	13.01gal/sk	YIELD	1.16cuft/ft	MIX FLUID	5.17gal/sk	
WATER SOURCE		Seawater		WATER SOURCE		Drillwater		
CEMENT TYPE		ABC Class 'G' at 94lb/sk		CEMENT TYPE		ABC Class 'G' at 94lb/sk		
Total Cement Used		970sks		Total Cement Used		502sks		
Estimated TOC		98m		Estimated TOC		585.2m		
Additive	Concentration	Total Used	Additive	Concentration	Total Used	Additive	Concentration	
Econolite Liquid	15 gal/10bbl	451	Halad-413L	30 gal/10bbl	171			
SCR-100L	15 gal/10bbl	45	SCR-100L	2 gal/10bbl	12			
NF-6	0.008 gal/sk	8	NF-6	0.003 gal/sk	15			
JOB LOGS								
DATE	TIME	VOLUME	PRESSURE (psi)		RATE	JOB DESCRIPTION		
DAY-MTH-YR	HRS:MIN	BBLs	HIGH	LOW	BPM	REMARKS/DETAILS		
26/12/2010	20:00					Hold JSA		
	20:35	5	180	155	3.5	Pump 5bbls ahead		
	20:45	0.33	3080	3035	0.251	Line Test to 3000psi		
	20:55	15	225	210	5	Pump 15bbl of sea water ahead		
	20:59					Attempt to start up CMS and one of the chemical injection hoses run temporary repair on the hose to see it last the rest of the Job		
	21:55					Start Job again		
	21:55	5	170	160	3.5	Pump 5bbls of sea water ahead		
	21:57	0.35	3180	3150	0.251	Line test to 3000psi		
	22:13	10	235	215	5	Pump 10bbls of sea water ahead		
	22:18	380	440	260	6	Mix & Pump 380bbls of 12.5ppg lead cement		
	22:55	104	500	320	5	Mix & Pump 104bbls of 15.8ppg tail cement		
						Tail cement was not mixing on auto so switch to semi automatic CMS pumps also not mixing on automatic so switch to manual		
27/12/2010	12:22					Drop top dart		
	12:26	20	150	140	1.5	Displace with 20bbls of sea water		
	12:30	289				Hand over to rip pumps and monitor pressures		
	1:09					Plug didn't bump so bleed back and check floats are holding		
						END JOB		

3.7 Craigow #1 13 3/8" Casing Job Plot



Global Event Log		
1	Start Job Again	26/12/2010 21:55:18
2	Pump 5bbls of Sea Water Ahead	26/12/2010 21:56:05
3	Line Test to 3000psi	26/12/2010 21:57:39
4	Pump 10bbls of Spacer Ahead	26/12/2010 22:03:45
5	Drop bottom ball	26/12/2010 22:13:25
6	Mix & pump 380bbls of lead CMT	26/12/2010 22:18:52
7	Mix & Pump 104bbls of lead CMT	26/12/2010 23:55:49
8	Drop Top Dart	27/12/2010 00:22:51
9	Displace with 20bbls of S.W then hand over to rig pumps	27/12/2010 00:26:48
10	Plug didn't bump so bleed back floats	27/12/2010 01:09:41

Customer:	Job Date: 27-Dec-2010	Sales Order #:
Well Description:	UWI:	

OptiCem v6.4.6
27-Dec-10 08:37

3.8 13 3/8in Casing Lead Lab Report

Cement Laboratory Report			HALLIBURTON MANAGEMENT SYSTEM				
DOCUMENT NO:		PREPARED BY	APPROVED BY	REVISION NO:	DATE		
		Megan Beale		12	25-Jun-07		
HALLIBURTON CEMENT SLURRY LABORATORY REPORT							
Customer Information							
Customer	: ADA	Date	: 20-Dec-10				
Rig Name	: Kan Tan IV	Lab Reference	: 117082 - 3				
Well Name	: Craigow #1						
Pipe Size / Casing Size	: 13 3/8 casing	Lab	: Sale				
Well Information							
	BHST	: 45	°C				
	BHCT	: 34	°C				
	Measured Depth	: 750	m				
	Total Vertical depth	: 750	m				
EconoCem™ cement Casing Slurry Design							
<u>MATERIAL</u>	<u>Conc.</u>	<u>Unit</u>	<u>Conc.</u>	<u>Unit</u>	<u>Date</u>	<u>Source</u>	<u>Batch #</u>
ABC Class G	94.00	lbs			9/12/10	From Rig	
Econolite Liquid	0.465	gal/sk	15.00	gal/10bbl			
SCR-100L	0.046	gal/sk	1.50	gal/10bbl			
NF-6	0.008	gal/sk	0.25	gal/10bbl			
Seawater	12.50	gal/sk					
Total Mixing Fluid	: 13.01	gal/sk					
Slurry Density	: 12.5	lb/gal					
Slurry Yield	: 2.21	ft³/sk					
Laboratory Test Results							
Thickening Time	Initial BC	30	50	70			
		4:04	4:43	5:15			
	Pumping time at 34 °C & 455 psi is	5:15 hrs:mins					
	Slurry thickening time test is performed with slurry in motion, not in static condition						
Free Fluid	1.5	%	Vertical	at 27 °C			
Slurry Rheology	Fann Readings (RPM)						
	300	200	100	6	3	PV (cP)	YP (lb/100ft²)
Mix Temp	15	12	9	6	6	9	6
Raised Temp 34 °C	15	12	10	6	6	7.5	8
Compressive Strength							
Non Destructive (UCA)	Temp	Pressure	50psi	12 hours	24 hours		
	42 °C	3000 psi	5:14	423psi	723psi		
Notes:							
ABC G class ex Kan Tan IV 09/12/2010, Sea water ex Kan Tan IV 10/12/2010 (SW00050)							
Lab Technician:		David Collins					
Approved:		Joon Yeoh					
The above pilot report is based on sound engineering practices, but because of variable well conditions and other information which must be relied upon, Halliburton makes no warranty, express or implied, as to the accuracy of the data or any of the calculations or opinions expressed herein. You agree that Halliburton shall not be liable for any loss or damage whether due to negligence or otherwise arising out of or in connection with such data, calculations or opinions.							

3.9 13 3/8in Casing Tail Slurry Lab Report

Cement Laboratory Report				HALLIBURTON MANAGEMENT SYSTEM Australasia			
DOCUMENT NO:	PREPARED BY Megan Beale	APPROVED BY	REVISION NO: 12	DATE 25-Jun-07			
HALLIBURTON CEMENT SLURRY LABORATORY REPORT							
Customer Information							
Customer	: ADA	Date	: 17-Dec-10				
Rig Name	: Kan Tan IV	Lab Reference	: 117084 / 1				
Well Name	: Craigow #1						
Pipe Size / Casing Size	: 13 3/8 casing	Lab	: Sale				
Well Information							
	BHST	: 45 °C					
	BHCT	: 34 °C					
	Measured Depth	: 750 m					
	Total Vertical depth	: 750 m					
HalCem™ cement Casing Slurry Design							
<u>MATERIAL</u>	<u>Conc.</u>	<u>Unit</u>	<u>Conc.</u>	<u>Unit</u>	<u>Date</u>	<u>Source</u>	<u>Batch #</u>
ABC Class G	94.00	lbs			9/12/10	From Rig	SC00064
Halad-413L	0.369	gal/sk	30.00	gal/10bbl			
SCR-100L	0.025	gal/sk	2.00	gal/10bbl			
NF-6	0.003	gal/sk	0.25	gal/10bbl			
Freshwater	4.77	gal/sk					
Total Mixing Fluid	: 5.17	gal/sk					
Slurry Density	: 15.8	lb/gal					
Slurry Yield	: 1.16	ft³/sk					
Laboratory Test Results							
Thickening Time	Initial BC	30	50	70			
	19	4:40	4:56	5:08			
	Pumping time at 34 °C & 455 psi is 5:08 hrs:mins						
	Slurry thickening time test is performed with slurry in motion, not in static condition						
Free Fluid	Traces	Vertical	at 27 °C				
API Fluid Loss	28	cc/30 mins.	at 34 °C and 1,000 psi				
Slurry Rheology	Fann Readings (RPM)						
	300	200	100	6	3	PV (cP)	YP (lb/100ft²)
Mix Temp	200	144	84	9	5	174	26
Raised Temp 34 °C	168	119	68	8	4	150	18
Compressive Strength							
Non Destructive (UCA)	Temp	Pressure	50psi	500psi	24 hours		
	42 °C	3000 psi	4:58	6:33	3351psi		
Notes:							
ABC G class ex Kan Tan IV 09/12/2010 (SC00064), Drill water ex Kan Tan IV 10/12/2010 (SC00049)							
Lab Technician:				David Collins			
Approved:				Joon Yeoh			
The above pilot report is based on sound engineering practices, but because of variable well conditions and other information which must be relied upon, Halliburton makes no warranty, express or implied, as to the accuracy of the data or any of the calculations or opinions expressed herein. You agree that Halliburton shall not be liable for any loss or damage whether due to negligence or otherwise arising out of or in connection with such data, calculations or opinions.							

3.10 Plug #1 – 12 ¼” hole**JOB PARAMETERS**

Plug bottom MD:	1,376m	BHST temperature:	59°C
Plug bottom TVD:	1,376m	BHCT temperature:	48°C
Plug top MD:	1,226m	Drilling mud type:	KCl Polymer
Plug length:	150m	Drilling mud density:	9.80ppg
Plug length with DP in:	155m		

WELLBORE**Workstring**

0-1,194m	5in 19.5ppf tubing
1,194-1,376m	3 1/2in 15.5ppf tubing (cmt stinger)

Annulus

0-1,376m	12.25in open hole (15% excess)

SPACERS**Spacer #1 - Drill Water at 8.33ppg**

Freshwater	42.00 gal/bbl	20.0bbl ahead and 2.5bbl behind to balance (34m annular fill / 3min contact time)

Spacer #2 - Tuned Spacer E+ at 12.00ppg

Freshwater	35.78 gal/bbl	40.0bbl ahead and 3.8bbl behind to balance
Barite	191.10 lb/bbl	(68m annular fill / 5min contact time)
Tuned Spacer E+	15.00 lb/bbl	

Contact times are based on the displacement rate.

CEMENT SLURRY - PlugCem™**Composition**

ABC Class G	
Halad 413L	30.00 gal/10bblMF
SCR-100L	3.00 gal/10bblMF
Freshwater	4.76 gal/sk
NF-6	0.25 gal/10bblMF

Properties

Surface density:	15.80 ppg
Surface yield:	1.16 ft³/sk
Total mixing fluid:	5.17 gal/sk
Thickening time (70 Bc):	4:00

VOLUME CALCULATIONS**Cement**

12.25in hole volume	150 m x 0.4782 bbl/m	71.7 bbl
12.25in hole excess	0.15 x 71.7 bbl	10.8 bbl

Slurry volume =82.5 bbl

Total Volume Pumped =94.0 bbl

Quantity of cement	82.5 bbl x 5.6146 / 1.16 ft³/sk	399 sacks
Quantity of mix fluid	399 sacks x 5.17 gal/sk	49.1 bbl

Displacement

5in tubing volume	1,096 m x 0.0583 bbl/m	63.9 bbl

Total displacement volume =63.9 bbl

Total Volume Pumped = 53.0 bbl

The final job calculations are to be completed on location by cementer, based on actual well parameters. All calculations from slurry volumes to additive dosages & requirements must be verified by the independent calculations of the drilling rep.

PUMPING SCHEDULE & TIMES

	Volume (bbl)	Rate (bbl/min)	Time (min)
Make up lines & pressure test:	N/A	N/A	30
Circulate 2 x bottoms up:	1,309.1	8.0	164
Pump spacers ahead:	60.0	5.0	12
Mix & pump cement:	82.5	5.0	17
Pump spacers behind:	6.3	4.0	2
Pump displacement:	63.9	8.0	8
Pull workstring 152 m above TOC:	302m	9.1m/min	33
Drop wiper ball:	N/A	N/A	5
Circulate workstring clean:	56.0	4.0	14
Total job time (including circulation):			285 min 4hr 45min
Minimum cement thickening time (with 1hr safety factor):			139 min 2hr 19min

MINIMUM MATERIAL REQUIREMENTS

Spacer #1 - Drill Water

Freshwater	22.5 bbl	Total Volume

Spacer #2 - Tuned Spacer E+

Freshwater	37.3 bbl	0
Barite	8,376 lb	0
Tuned Spacer E+	657 lb	0

Cement

ABC Class G	399 sacks	455 sks
Halad 413L	147 gals	180 gals
SCR-100L	15 gals	12 gals
Freshwater	45.2 bbl	1.5 gals
NF-6	2 gals	

These are estimates calculated on the information given. Calculations should be confirmed on the job site well in advance.

3.11 Shoe Plug (Plug 2) Details - 13 3/8in casing x 12.25in hole

JOB PARAMETERS

Plug bottom MD:	800m	BHST temperature:	46°C
Plug bottom TVD:	800m	BHCT temperature:	37°C
Plug top MD:	650m	Drilling mud type:	KCl Polymer
Plug length:	150m	Drilling mud density:	9.80ppg
Plug length with DP in:	155m		

WELLBORE

Workstring

0-618m	5in 19.5ppf tubing
618-800m	3 1/2in 15.5ppf tubing (cmt stinger)

Annulus

0-750m	13 3/8in 68ppf casing (12.415in ID)
750-760m	17.5in open hole (10% excess)
760-800m	12.25in open hole (30% excess)

SPACERS

Spacer - Drill Water at 8.33ppg

Freshwater	42.00 gal/bbl	40.0bbl ahead and 4.5bbl behind to balance (35m annular fill / 5min contact time)

Contact times are based on the displacement rate.

CEMENT SLURRY - PlugCem™

Composition

ABC Class G	
Halad 413L	30.00 gal/10bblMF
SCR-100L	2.00 gal/10bblMF
Freshwater	4.77 gal/sk
NF-6	0.25 gal/10bblMF

Properties

Surface density:	15.80 ppg
Surface yield:	1.16 ft³/sk
Total mixing fluid:	5.16 gal/sk
Thickening time (70 Bc):	4:00

VOLUME CALCULATIONS

Cement

13 3/8in casing volume	100 m x 0.4912 bbl/m	49.1 bbl
17.5in hole volume	10 m x 0.9760 bbl/m	9.8 bbl
17.5in hole excess	0.10 x 9.8 bbl	1.0 bbl
12.25in hole volume	40 m x 0.4782 bbl/m	19.1 bbl
12.25in hole excess	0.30 x 19.1 bbl	5.7 bbl

Slurry volume = 84.7 bbl

Total Volume Pumped = 100.0bbl

Quantity of cement	84.7 bbl x 5.6146 / 1.16 ft³/sk	410 sacks
Quantity of mix fluid	410 sacks x 5.16 gal/sk	50.4 bbl

Displacement

5in tubing volume	550 m x 0.0583 bbl/m	32.0 bbl

Total displacement volume = 32.0 bbl

Total Volume Pumped = 29.0 bbl

The final job calculations are to be completed on location by cementer, based on actual well parameters. All calculations from slurry volumes to additive dosages & requirements must be verified by the independent calculations of the drilling rep.

PUMPING SCHEDULE & TIMES

	Volume (bbl)	Rate (bbl/min)	Time (min)
Make up lines & pressure test:	N/A	N/A	30
Circulate 2 x bottoms up:	695.3	8.0	87
Pump spacers ahead:	40.0	5.0	8
Mix & pump cement:	32.0	5.0	17
Mix & pump cement	52.7	2.0	26
Pump spacers behind:	4.5	2.0	3
Pump displacement:	32.0	2.0	16
Pull workstring 152 m above TOC:	302m	9.1m/min	33
Drop wiper ball:	N/A	N/A	5
Circulate workstring clean:	22.0	4.0	6
Total job time (including circulation):			231 min 3hr 51min
Minimum cement thickening time (with 1hr safety factor):			166 min 2hr 46min

MINIMUM MATERIAL REQUIREMENTS

Spacer - Drill Water

Freshwater	44.5 bbl	Total Volume

Cement

ABC Class G	410 sacks	460 sks
Halad 413L	151 gals	180 gals
SCR-100L	10 gals	0 gals
Freshwater	46.5 bbl	
NF-6	2 gals	1.5 gals

These are estimates calculated on the information given. Calculations should be confirmed on the job site well in advance.

3.12 Surface Plug Details - 13 3/8in casing

JOB PARAMETERS

Plug bottom MD:	160m	BHST temperature:	20°C
Plug bottom TVD:	160m	BHCT temperature:	16°C
Plug top MD:	10m	Drilling mud type:	KCl Polymer
Plug length:	150m	Drilling mud density:	9.80ppg
Plug length with DP in:	157m		

WELLBORE

Workstring

0-160m 5in 19.5ppf tubing

Annulus

0-160m 13 3/8in 68ppf casing (12.415in ID)

SPACERS

Spacer - Drill Water at 8.33ppg

Freshwater 42.00 gal/bbl 40.0bbl ahead and 0.2bbl behind to balance
 (97m annular fill / 5min contact time)

Contact times are based on the displacement rate.

CEMENT SLURRY - PlugCem™

Composition

ABC Class G	
Calcium Chloride	1.00 %BWOC
Seawater	5.27 gal/sk
NF-6	0.25 gal/10bbIMF

Note that %BWOC are based on a 94 lb sack

Properties

Surface density:	15.80 ppg
Surface yield:	1.19 ft³/sk
Total mixing fluid:	5.34 gal/sk
Thickening time (70 Bc):	4:00

VOLUME CALCULATIONS**Cement**

13 3/8in casing volume	150 m x 0.4912 bbl/m	73.7 bbl
	Slurry volume =73.7 bbl	
	Total Volume Pumped =50.0 bbl	

Quantity of cement	73.7 bbl x 5.6146 / 1.19 ft ³ /sk	348 sacks
Quantity of mix fluid	348 sacks x 5.34 gal/sk	44.3 bbl

Displacement

Total displacement volume =0.0 bbl
Total Volume Pumped = 2 bbl

The final job calculations are to be completed on location by cementer, based on actual well parameters. All calculations from slurry volumes to additive dosages & requirements must be verified by the independent calculations of the drilling rep.

PUMPING SCHEDULE & TIMES

	Volume (bbl)	Rate (bbl/min)	Time (min)
Make up lines & pressure test:	N/A	N/A	30
Circulate 2 x bottoms up:	131.7	8.0	16
Pump spacers ahead:	40.0	5.0	8
Mix & pump cement:	73.7	5.0	15
Pump spacers behind:	0.2	4.0	0
Pump displacement:	0.0	8.0	0
Drop wiper ball:	N/A	N/A	5
Circulate workstring clean:	9.0	4.0	2
Total job time (including circulation):		76 min	1hr 16min
Minimum cement thickening time (with 1hr safety factor):		82 min	1hr 22min

MINIMUM MATERIAL REQUIREMENTS

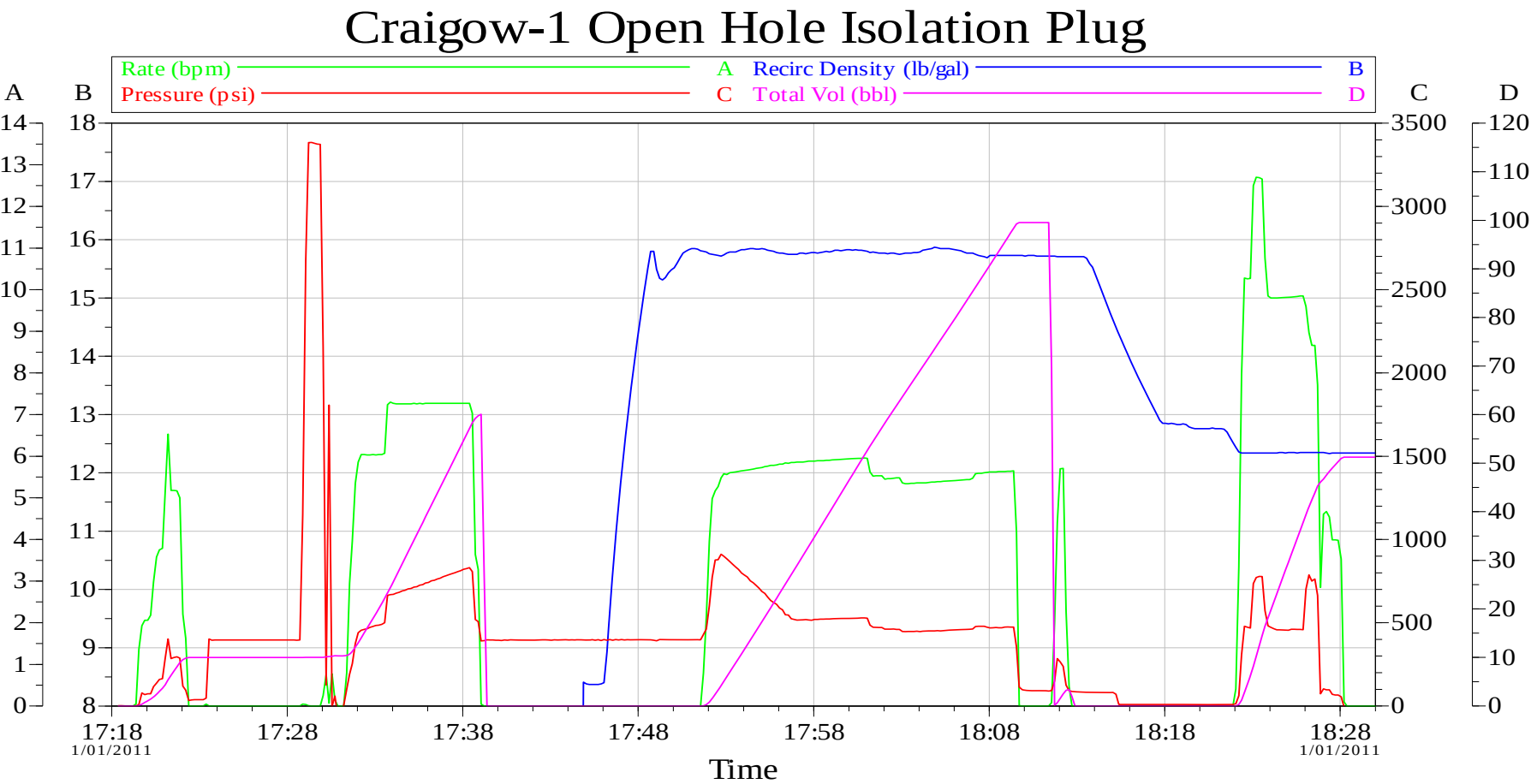
		Total Volume
Spacer - Drill Water		
Freshwater	40.2 bbl	
Cement		
ABC Class G	348 sacks	238 sks
Calcium Chloride	327 lbs	220 lbs
Seawater	43.7 bbl	
NF-6	2 gals	0.75 gals

These are estimates calculated on the information given. Calculations should be confirmed on the job site well in advance.

3.13 Craigow #1 Plug 1, 2 (Shoe Plug) & 3 (Surface Plug) Job Log

PERSONELL											
PERSONNEL / EXPOSURE			hrs	PERSONNEL / EXPOSURE			hrs	PERSONNEL / EXPOSURE			hrs
00127035 Mark Knibbs			12	468747 Nick Petrovic			12				
EQUIPMENT											
SAP#		PUMPING / MIXING		HOURS		SAP#		BULK SUPPLY / TANKS		HOURS	
#N/A		MIXING EQUIPMENT		3							
WELL PROFILE											
NEW CASING				OPEN HOLE + EXCESS OR CALIPER DATA				PREVIOUS CASINGS			
Non Tapered , , m shoe track											
13.375in 68ppf : 98m to 735m MD, 735m TVD				17.5in, 30 percent excess, 735m to 750m							
in ppf : mto mMD, mTVD				12.25in, 30 percent excess, 750m to 1826m							
FOR PLUG AND LINER JOBS PLEASE INDICATE WORKSTRING 5in 19.5ppf Drill Pipe with 179m of 2.375in 6ppf Stinger											
CEMENT DESIGNS											
Plug			Plug			Plug			Plug		
DENSITY	15.8ppg	WATER	4.76gal/sk	DENSITY	15.8ppg	WATER	4.79gal/sk	DENSITY	15.8ppg	WATER	5.18gal/sk
YIELD	1.16cuft/ft	MIX FLUID	5.17gal/sk	YIELD	1.16cuft/ft	MIX FLUID	5.17gal/sk	YIELD	1.18cuft/ft	MIX FLUID	5.18gal/sk
WATER SOURCE			Drillwater	WATER SOURCE			Drillwater	WATER SOURCE			Seawater
CEMENT TYPE			ABC Class 'G' at 94lb/sk	CEMENT TYPE			ABC Class 'G' at 94lb/sk	CEMENT TYPE			ABC Class 'G' at 94lb/sk
Total Cement Used			455sks	Total Cement Used			460sks	Total Cement Used			238MT
Estimated TOC			1070m	Estimated TOC			620m	Estimated TOC			130m
Additive	Concentration	Total Used		Additive	Concentration	Total Used		Additive	Concentration	Total Used	
Halad-413L	30 gal/10bbl	180gals		Halad-413L	30 gal/10bbl	180gals		Calcium Chloride	1%BWOC	220lbs	
SCR-100L	2 gal/10bbl	12gals		NF-6	0.25 gal/10bbl	15gals		NF-6	0.25 gal/10bbl	0.75gals	
NF-6	0.25 gal/10bbl	15gals									
JOB LOGS											
DATE	TIME	VOLUME	PRESSURE (psi)		RATE	JOB DESCRIPTION					
DAY-MTH-YR	HRS:MIN	BBLs	HIGH	LOW	BPM	REMARKS/DETAILS					
1/01/2011	17:00					JSA					
	17:19	10	400	100	5	Pump F/W Spacer					
	17:23	0.1	3300	400	0.3	Test Lines					
	17:30	50	800	500	7.2	Pump F/W Spacer					
	17:43	94	900	500	5.6	Mix & Pump Cement @ 15.8ppg (Open Hole Isolation Plug)					
	18:12	3	300		5.5	Pump F/W Spacer					
	18:14					Drop Foam Wiper Ball					
	18:22	50	800	450	10	Pump Mud Displacement					
	18:28		0			Bleed off, no returns					
	18:30					End Job					
1/01/2011	21:30					JSA					
	21:52	10	450		8	Pump F/W Spacer					
	22:02	0.1	3000	300	0.3	Test Lines					
	22:10	50	650	450	8	Pump F/W Spacer					
	22:20					Drop Foam Wiper Ball					
	22:36	100	900	400	6	Mix & Pump Cement @ 15.8ppg (Casing Shoe Isolation Plug)					
	23:01	8	250		6.2	Pump F/W Spacer					
	23:03					Drop Foam Wiper Ball					
	23:10	21	1000	500	10	Pump Mud Displacement					
	23:14		0			Bleed off, no returns					
2/01/2011	23:16					End Job					
	14:15					JSA					
	14:37	10	400		7.8	Pump F/W Spacer					
	14:39	0.1	3000	300	0.3	Test Lines					
	14:44	50	700	450	10	Pump F/W Spacer					
	14:55	50	400	300	6	Mix & Pump Cement @ 15.8ppg (Surface Plug)					
	15:11	2	200		5.3	Pump F/W Displacement					
	15:12		0			Bleed off, no returns					
15:13					End Job						

3.14 Craigow #1 P&A Plug #1 Job Plot

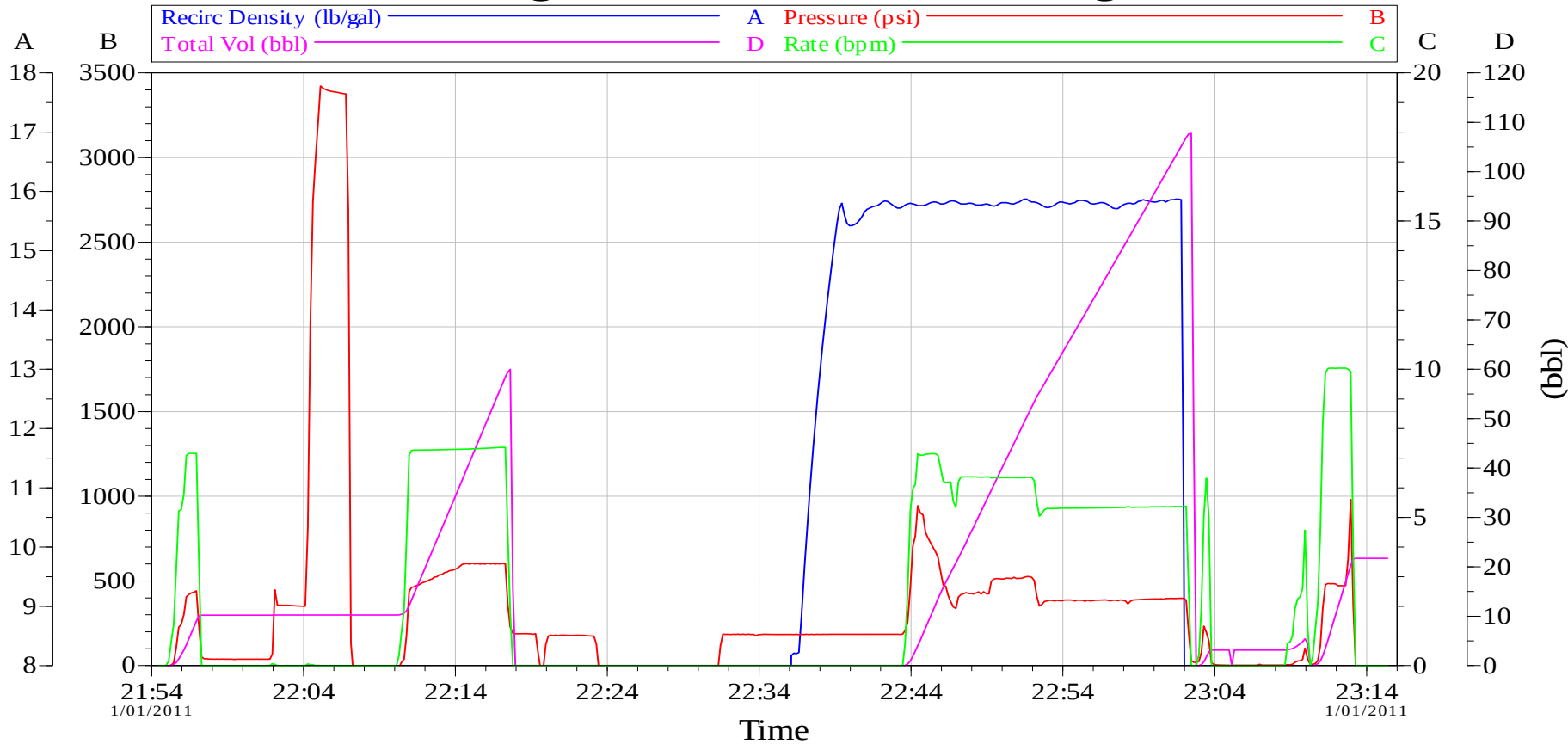


Customer: TAP	Job Date: 1-1-2011	TAP Rep: Paul Jenkins
Well: Craigow-1	Job Type: P&A Open Hole Plug	Halliburton Rep: Mark Knibbs

CemWin v1.7.2
03-Jan-11 08:46

3.15 Craigow#1 P&A Plug #2 (shoe plug) Job Plot

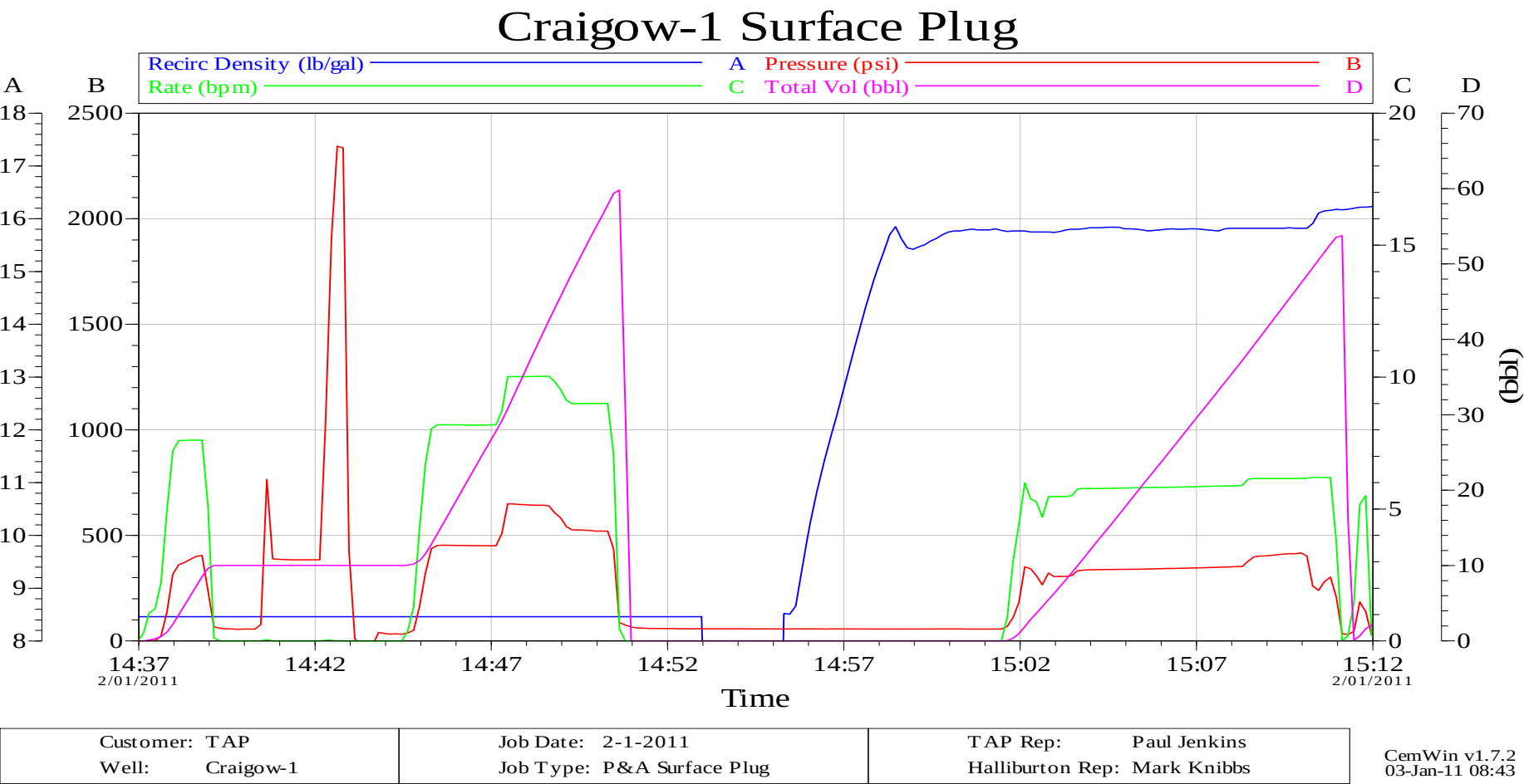
Craigow-1 Shoe Isolation Plug



Customer: TAP	Job Date: 1-1-2011	TAP Rep: Kevin Monkhouse
Well: Craigow-1	Job Type: P&A Shoe Plug	Halliburton Rep: Mark Knibbs

CemWin v1.7.2
03-Jan-11 08:45

3.16 Craigow #1 Plug #3 (Surface Plug) Job Plot



3.17 P&A Plug 1 Slurry Lab Report

Cement Laboratory Report			HALLIBURTON MANAGEMENT SYSTEM				
DOCUMENT NO:	PREPARED BY Megan Beale	APPROVED BY	REVISION NO: 12	DATE 25-Jun-07			
HALLIBURTON CEMENT SLURRY LABORATORY REPORT							
Customer Information							
Customer	: ADA	Date	: 24-Dec-10				
Rig Name	: Kan Tan IV	Lab Reference	: 117687 / 2				
Well Name	: Craigow #1						
Pipe Size / Casing Size	: Plug 1526m - 1226m	Lab	: Sale				
Well Information							
	BHST	: 65	°C				
	BHCT	: 53	°C				
	Measured Depth	: 1526	m				
	Total Vertical depth	: 1526	m				
PlugCem™ cement Plug Slurry Design							
<u>MATERIAL</u>	<u>Conc.</u>	<u>Unit</u>	<u>Conc.</u>	<u>Unit</u>	<u>Date</u>	<u>Source</u>	<u>Batch #</u>
ABC Class G	94.00	lbs			21/12/10	From Rig	SC00065
Halad-413L	0.369	gal/sk	30.00	gal/10bbl			
SCR-100L	0.025	gal/sk	2.00	gal/10bbl			
NF-6	0.003	gal/sk	0.25	gal/10bbl			
Freshwater	4.76	gal/sk					
Total Mixing Fluid	: 5.17	gal/sk					
Slurry Density	: 15.8	lb/gal					
Slurry Yield	: 1.16	ft³/sk					
Laboratory Test Results							
Thickening Time	Initial BC	30	50	70			
		7	3:25	3:33	3:38		
	Pumping time at 53 °C & 455 psi is 3:38 hrs:mins						
	Slurry thickening time test is performed with slurry in motion, not in static condition						
Free Fluid	Traces	Vertical	at 27 °C				
API Fluid Loss	30	cc/30 mins.	at 53 °C	and	1,000 psi		
Slurry Rheology	Fann Readings (RPM)						
	300	200	100	6	3	PV (cP)	YP (lb _f /100ft²)
Mix Temp	181	132	73	7	3	162	19
Raised Temp 53 °C	109	83	44	3	2	97.5	12
Compressive Strength							
Non Destructive (UCA)	Temp	Pressure	50psi	500psi	24 hours		
	59 °C	3000 psi	3:58	4:57	2867psi		
Notes:							
ABC G class ex Kan Tan IV 21/12/2010 (SC00065), Drill water ex Kan Tan IV 21/12/2010 (SW00052)							
Lab Technician: David Collins							
Approved: Joon Yeoh							
The above pilot report is based on sound engineering practices, but because of variable well conditions and other information which must be relied upon, Halliburton makes no warranty, express or implied, as to the accuracy of the data or any of the calculations or opinions expressed herein. You agree that Halliburton shall not be liable for any loss or damage whether due to negligence or otherwise arising out of or in connection with such data, calculations or opinions.							

3.18 P&A Plug #2 (Shoe Plug)

Cement Laboratory Report				HALLIBURTON MANAGEMENT SYSTEM			
DOCUMENT NO:		PREPARED BY		APPROVED BY		REVISION NO:	
		Megan Beale				12	
				DATE			
				25-Jun-07			
HALLIBURTON				CEMENT SLURRY LABORATORY REPORT			
Customer Information							
Customer : ADA				Date : 23-Dec-10			
Rig Name : Kan Tan IV				Lab Reference : 117688 / 2			
Well Name : Craigow #1							
Pipe Size / Casing Size : Shoe Plug				Lab : Sale			
Well Information							
BHST : 46 °C							
BHCT : 37 °C							
Measured Depth : 800 m							
Total Vertical depth : 800 m							
PlugCem™ cement Plug Slurry Design							
MATERIAL	Conc.	Unit	Conc.	Unit	Date	Source	Batch #
La Farge Class G	94.00	lbs			21/12/10	From Rig	SC00065
Halad-413L	0.369	gal/sk	30.00	gal/10bbl			
NF-6	0.003	gal/sk	0.25	gal/10bbl			
Freshwater	4.79	gal/sk					
Total Mixing Fluid	5.16	gal/sk					
Slurry Density	15.8	lb/gal					
Slurry Yield	1.16	ft³/sk					
Laboratory Test Results							
Thickening Time	Initial BC	30	50	70			
	12	3:23	3:36	3:41			
	Pumping time at 37 °C & 455 psi is 3:41 hrs:mins						
	Slurry thickening time test is performed with slurry in motion, not in static condition						
Free Fluid	Traces	Vertical	at 27 °C				
API Fluid Loss	30	cc/30 mins.	at 37 °C	and	1,000 psi		
Slurry Rheology	Fann Readings (RPM)						
	300	200	100	6	3	PV (cP)	YP (lb/100ft²)
Mix Temp	183	133	76	10	5	160.5	23
Raised Temp 37 °C	151	107	58	6	3	139.5	12
Compressive Strength							
Non Destructive (UCA)	Temp	Pressure	50psi	500psi	24 hours		
	43 °C	3000 psi	4:27	6:14	2970 psi		
Notes:							
ABC G class ex Kan Tan IV 21/12/2010 (SC00065), drill water ex Kan Tan IV 21/12/2010 (SW00052)							
Lab Technician:				David Collins			
Approved:				Joon Yeoh			
The above pilot report is based on sound engineering practices, but because of variable well conditions and other information which must be relied upon, Halliburton makes no warranty, express or implied, as to the accuracy of the data or any of the calculations or opinions expressed herein. You agree that Halliburton shall not be liable for any loss or damage whether due to negligence or otherwise arising out of or in connection with such data, calculations or opinions.							

3.19 P&A Plug 3 (Surface Plug) Slurry Lab Report

Cement Laboratory Report			HALLIBURTON MANAGEMENT SYSTEM				
DOCUMENT NO:		PREPARED BY	APPROVED BY	REVISION NO:	DATE		
		Megan Beale		12	25-Jun-07		
HALLIBURTON CEMENT SLURRY LABORATORY REPORT							
Customer Information							
Customer	: ADA	Date	: 14-Dec-10				
Rig Name	: Kan Tan IV	Lab Reference	: 116560 / 1				
Well Name	: Craigow #1						
Pipe Size / Casing Size	: Surface Plug	Lab	: Sale				
Well Information							
	BHST	: 25	°C				
	BHCT	: 25	°C				
	Measured Depth	: 160	m				
	Total Vertical depth	: 160	m				
HalCem™ cement Casing Slurry Design							
<u>MATERIAL</u>	<u>Conc.</u>	<u>Unit</u>	<u>Conc.</u>	<u>Unit</u>	<u>Date</u>	<u>Source</u>	<u>Batch #</u>
ABC Class G	94.00	lbs			9/12/10	Rig	SC00064
Calcium Chloride	1.000	BWOC	1.00	BWOC			
NF-6	0.003	gal/sk	0.25	gal/10bbl			
Seawater	5.18	gal/sk					
Total Mixing Fluid	: 5.18	gal/sk					
Slurry Density	: 15.8	lb/gal					
Slurry Yield	: 1.18	ft³/sk					
Laboratory Test Results							
Thickening Time		Initial BC	30	50	70		
		25	1:42	2:09	2:25		
Pumping time at 25 °C & 455 psi is 2:25 hrs:mins							
Slurry thickening time test is performed with slurry in motion, not in static condition							
Slurry Rheology		Fann Readings (RPM)					
	300	200	100	6	3	PV (cP)	YP (lb _r /100ft²)
Mix Temp	185	171	160	64	46	37.5	148
Compressive Strength							
Non Destructive (UCA)		Temp	Pressure	50psi	500psi	24 hours	
		21 °C	3000 psi	3:24	7:23	1813 psi	
Notes:							
ABC G class ex Kan Tan IV 09/12/2010 (SC00064), Sea water ex Kan Tan IV 10/12/2010 (SW00050)							
Actual well condition might varies.							
Lab Technician:		Dave Collins					
Approved:		Joon Yeoh					
The above pilot report is based on sound engineering practices, but because of variable well conditions and other information which must be relied upon, Halliburton makes no warranty, express or implied, as to the accuracy of the data or any of the calculations or opinions expressed herein. You agree that Halliburton shall not be liable for any loss or damage whether due to negligence or otherwise arising out of or in connection with such data, calculations or opinions.							

4.0 PRIMARY CEMENTING BEST PRACTICES

The considerations reviewed in this summary are based on sound Cementing Best Practices that are known to enhance the probability of success when they are followed. Primary cement job failures are predominately due to a breakdown in the "displacement process." This typically results in poor zonal isolation manifested by channeling or nonuniform displacement of the annular fluids (by the cementing fluids). These guidelines, when applied in conjunction with the Halliburton OptiCem job design program to optimize displacement parameters, will enhance the displacement process and improve the probability of successful primary cementing.

1) Flow Rate:

Three flow regimes that a non-Newtonian fluid (such as cement) may exist as are Turbulent, Laminar, and Plug Flow. When reduced to its simplest terms, maximum displacement efficiency is achieved when the maximum available energy is transferred to the annulus and applied to the fluids to be mobilized. Therefore, regardless of the flow regime, high-energy displacement rates are most effective for ensuring good displacement. Turbulent flow conditions are usually more desirable, but frequently cannot be achieved or are not always required. When turbulent flow is not a viable option for a situation, use the highest pump rate that is feasible for the wellbore conditions. The best results are obtained when (1) the spacer and/or cement is pumped in such a way as to deliver maximum energy to the annulus, (2) the spacer or flush is appropriately designed to remove the drilling fluid, (3) and a competent cement is used. The OptiCem job design program can be used to determine the optimum pump rates under the given conditions of geometry, fluid properties, and eccentricity to obtain the best displacement and while maintaining safe ECD's.

2) Conditioning the Drilling Fluid:

The condition of the drilling fluid is one of the most important variables in achieving good displacement during a cement job. A fluid that has excellent properties for drilling may be inappropriate for cementing purposes. Regaining and maintaining good mobility is the key. An easily displaced drilling fluid will have low, nonprogressive gel strengths and low fluid loss. Pockets of gelled fluid, which commonly exist following the drilling of a wellbore, make displacement difficult. These volumes of gelled fluid must be broken up and mobilized.

To condition the drilling fluid in preparation for a cement job, perform the following:

- a Determine the volume of the circulatable hole and evaluate the percentage of the hole that is being circulated. Good fluid returns at the surface do not reliably indicate the mobility of fluid in the annular space. For best results, use a fluid caliper to determine downhole fluid mobility.
- b When making the last bit trip, and especially when the casing is on bottom, the mud must be prepared for the cement job. Circulate, treat, and condition the drilling fluid to help break its gel structure, remove gas, and lower the low-gravity solids content. This will decrease the viscosity and increase the mobility of the mud. Continue until equilibrium is achieved.
- c NEVER allow the drilling fluid to set static for extended periods, especially at elevated temperatures. Even when the drilling fluid is well conditioned (mud properties in equals mud properties at the outlet), continue circulating the drilling fluid until the cementing program begins.
- d Modify the flow properties of the drilling fluid to optimize drilling fluid mobility and removal of drill cuttings. Yield Point (YP) and Gel Strengths should be maintained as low as possible without causing settling and barite sag downhole. Mud weight and temperature dictate allowable plastic viscosity (PV) and yield point (YP) values. As such, these variables must be evaluated on a case-by-case basis given prevailing circumstances.
- e Measure gel strengths at 10 seconds, 10 minutes, 30 minutes, and 4 hours to examine the gel strength profile of the drilling fluid. In addition, an HTHP gel strength test should be run at some point in the design and planning stages. When conditioning just prior to the job, verification readings taken at 10 seconds, 10 minutes, and 30 minutes are typically sufficient. An optimum drilling fluid will have flat, non-progressive gel strengths such that the 10 minute is less than twice the 10 second (Example: gel strength values of 8, 12 and 14).
- f Decreasing the filtrate loss into a permeable zone enhances the creation of a thin filter cake. A high fluid loss creates a thick, highly gelled mud layer immediately adjacent to the formation wall that is difficult to mobilize without mechanical or chemical intervention. The fluid loss of the mud should be minimized prior to running casing and cementing.

In deviated wellbores, a higher-viscosity drilling fluid may be required to help prevent solids from settling on the low side of the wellbore. The presence of large drill cuttings may also necessitate higher viscosity fluids. The higher-viscosity fluid needs to be optimized based on wellbore conditions and inclination. Regardless of the final fluid properties, it is critical to communicate this information to the cementing engineer so that any necessary adjustments to the cementing program can be made.

3) Spacers and Flushes:

Spacers and flushes are effective displacement aids because they separate unlike fluids such as cement and drilling fluid, and enhance the removal of gelled mud allowing a better cement bond. Spacers can be designed to serve various needs. For example, weighted spacers can help with well control, and reactive spacers can provide increased mud-removal benefits. Compatibility of the drilling fluid/spacer interface as well as the compatibility of the spacer/cement slurry is of prime importance. Application of the compatibility procedures as outlined in the API SPEC RP10B, 22nd Edition, December 1997 is highly recommended.

Parameters governing the effectiveness of a spacer include flow rate, volume, contact time, and fluid properties. To achieve maximum mud displacement, adhere to the following guidelines:

- a Pump the spacer fluid at an optimized rate based on OptiCem.
- b Provide a contact time and volume of spacer that will provide optimum amount of mud removal. Typically 8 to 10 minutes contact time or 1000 feet of annular space are adequate.
- c Make sure that the viscosity, yield point, and density of the spacer and the following cement slurry provide for adequate solids support and has the required rheological profiles as recommended by the errodibility calculations in OptiCem.
- d When an oil-based or synthetic-based drilling fluid is used, ensure that the spacer package is formulated to thoroughly water-wet the surface of the pipe and the formation, ensuring a strong bond between the cement, the pipe, and the formation. The use of Halliburton's newly developed apparent wettability testing technique that has been endorsed by the API is highly recommended for customizing the spacer/surfactant package to ensure water wetting.

Flushes are used for thinning and dispersing drilling fluid particles. They go into turbulence at low rates, helping to clean drilling fluid surfactants from the annulus. However, flushes generally have a density that is less than the drilling fluid and may not provide proper well control. Running the spacer or the cement slurry at a higher density can compensate for the lack of density. While jobs are frequently pumped with only a flush ahead of the cement, spacers are usually recommended to ensure greatest displacement efficiency. The chemistry of specific reactive flushes are also intended to react with and mobilize muds with certain chemical components.

While water-based muds composed primarily of bentonite and associated dispersants are best attacked with MudFlush or SuperFlush, muds containing PHPA or other polymers are best attacked with PHPA PreFlush. When used, preflushes for nonaqueous muds are usually composed of a volume of base oil that may or may not contain solvents or

4. Pipe Centralization:

Centralizing the casing with mechanical centralizers across the intervals to be isolated helps optimize drilling fluid displacement. In poorly centralized casing, cement will bypass the drilling fluid by following the path of least resistance; as a result, the cement travels down the wide side of the annulus, leaving drilling fluid in the narrow side. Good pipe standoff insures a uniform flow pattern around the casing and helps equalize the force that the flowing cement exerts around the casing, increasing drilling fluid removal. In a deviated wellbore, standoff is even more critical to prevent a solids bed from accumulating on the low-side of the annulus. Generally the industry strives for about 70% standoff. However, the preferred standoff should be developed from computer modeling and will vary with well conditions. When adequate centralization cannot be achieved, use the eccentricity option in OptiCem to help compensate as much as possible with other parameters such as rate and fluid rheologies.

Centralizers and other mechanical cementing aids as are commonly used in the industry may also provide inline flow disturbances, changing the flow pattern of the fluids. This can promote better mud removal for short distances in the annulus.

5) Pipe Movement:

Pipe movement is one of the most effective methods of transferring energy downhole. Pipe rotation or reciprocation before and during cementing helps break up gelled, stationary pockets of drilling fluid and loosens cuttings trapped in the gelled drilling fluid. Pipe movement allows high displacement efficiency at lower pump rates because it helps to keep the drilling fluid flowing. If the pipe is poorly centralized, pipe movement can compensate by changing the flow path through the annulus and allowing the slurry to circulate completely around the casing. The industry does not specify a minimum requirement for pipe movement, however it is acknowledged the even a small amount of movement will enhance the displacement process.

In some instances, pipe movement is not recommended. For example, when equivalent circulating density and fracture pressure are very similar, or shallow gas or water influx is at a critical potential, moving the pipe can induce surge and swab pressures that could promote pipe sticking, and induce flows or formation failures. The use of mechanical devices, such as some types of liner hangers, may also prevent casing movement. All of these factors must be considered when designing the displacement program. Use of hydraulics simulators with surge and swab capability such as Baroid's DFG-Win is advised in these situations.

6) Hole Size:

Best mud displacement under optimum rates is achieved when annular tolerances are approximately 1.5 to 2 inches. Centralization of very small annuli is very difficult, and pipe movement and displacement rates may be severely restricted. Very large annuli may require extreme displacement rates to generate enough flow energy to remove the drilling fluid and cuttings. Combined small and large intervals resulting from the use of bi-centered bits below small casings can be very challenging. Very careful hydraulics modeling is required in such cases.

7) Gas Flow:

Although gas flow may not be apparent at surface, it may occur between zones, damaging the cement job and eventually lead to casing pressure at the surface. The OptiCem program can be utilized as a tool to determine the gas flow potential (GFP) on any primary cement job. The Halliburton GFP calculation, when combined with local engineering experience, is the premier industry solution to gas flow problems through unset cement.

8) Wiper Plugs:

Top & bottom wiper plugs are recommended on every primary cementing job unless prohibited by mechanical or other special restrictions. The bottom plug serves to minimize contamination of the cement as it is pumped, in some cases it may be prudent to use multiple bottom plugs to separate mud/spacer and spacer/cement interfaces. The top plug is used to prevent any contamination of the cement slurry by the displacement fluid and minimize the chances of leaving a cement sheath inside the casing. The top plug also gives a positive indication that the cement has been displaced.

9) Rat Hole:

When applicable, a weighted, viscous pill in the rat hole prevents cement from swapping with lighter weight mud during the cement job or when displacement stops.

10) Shoe Joint:

A shoe joint is recommended on all primary casing/liner jobs. The length of the shoe joint will vary. The absolute minimum length is one joint of pipe. If conditions exist, such as not running a bottom plug, two joints of pipe is a minimum requirement.

FORMATION LEAK-OFF TEST

[illegible]

Tap Oil

Craigow-1

Permit: T/47P

Craigow-1

Craigow-1

Design: Craigow-1 Definitive Survey

Sperry Drilling Services Combo Report

31 January, 2011

Well Coordinates: 5,616,630.65 N, 383,473.49 E (39° 35' 31.69" S, 145° 38' 34.59" E)

Water Depth: 74.00 m

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well Craigow-1

DFE @ 26.00m (Above MSL)

N

Grid

Modified SI

Version: 2003.21 Build: 46

HALLIBURTON

Design Report for Craigow-1 - Craigow-1 Definitive Survey

Measured Depth (m)	Inclination (°)	Azimuth (°)	TVD below System (m)	Vertical Depth (m)	Local Coordinates		Map Coordinates		Dogleg Rate (°/30m)	Vertical Section (m)	Comments
					Northing (m)	Easting (m)	Northing (m)	Easting (m)			
0.00	0.00	0.00	26.00	0.00	0.00 N	0.00 E	5,616,630.65	383,473.49	0.000	0.00	
100.00	0.00	0.00	-74.00	100.00	0.00 N	0.00 E	5,616,630.65	383,473.49	0.000	0.00	
157.00	0.11	218.73	-131.00	157.00	0.04 S	0.03 W	5,616,630.60	383,473.45	0.059	0.03	30" Conductor
176.22	0.15	218.73	-150.22	176.22	0.08 S	0.06 W	5,616,630.57	383,473.42	0.059	0.05	First 17½" MWD Survey
204.25	0.32	233.37	-178.25	204.25	0.15 S	0.15 W	5,616,630.49	383,473.34	0.192	0.13	
235.96	0.33	219.33	-209.96	235.96	0.28 S	0.28 W	5,616,630.37	383,473.21	0.076	0.24	
297.00	0.40	91.96	-271.00	297.00	0.42 S	0.18 W	5,616,630.23	383,473.31	0.322	0.13	
323.33	0.18	99.51	-297.33	323.33	0.43 S	0.04 W	5,616,630.22	383,473.44	0.254	-0.01	
351.47	0.49	238.19	-325.47	351.47	0.50 S	0.10 W	5,616,630.15	383,473.38	0.678	0.04	
379.67	0.50	200.42	-353.67	379.67	0.68 S	0.25 W	5,616,629.97	383,473.24	0.341	0.17	
437.63	0.22	246.22	-411.63	437.63	0.96 S	0.44 W	5,616,629.68	383,473.05	0.197	0.33	
466.66	0.20	245.13	-440.66	466.66	1.01 S	0.53 W	5,616,629.64	383,472.95	0.021	0.42	
494.84	0.09	24.79	-468.84	494.84	1.01 S	0.57 W	5,616,629.64	383,472.92	0.293	0.45	
523.84	0.09	12.10	-497.84	523.84	0.96 S	0.56 W	5,616,629.68	383,472.93	0.021	0.44	
553.90	0.22	159.47	-527.90	553.90	0.99 S	0.53 W	5,616,629.65	383,472.96	0.299	0.41	
583.40	0.25	220.99	-557.40	583.40	1.10 S	0.55 W	5,616,629.55	383,472.93	0.246	0.42	
613.00	0.13	187.03	-587.00	613.00	1.18 S	0.60 W	5,616,629.47	383,472.89	0.162	0.46	
642.75	0.24	156.95	-616.74	642.74	1.27 S	0.58 W	5,616,629.38	383,472.91	0.144	0.43	
670.88	0.11	195.47	-644.87	670.87	1.35 S	0.56 W	5,616,629.30	383,472.92	0.180	0.41	
700.02	0.09	260.83	-674.01	700.01	1.38 S	0.59 W	5,616,629.27	383,472.89	0.113	0.43	
723.95	0.07	20.35	-697.94	723.94	1.37 S	0.61 W	5,616,629.28	383,472.88	0.174	0.45	Last 17½" MWD Survey
735.00	0.06	299.20	-708.99	734.99	1.36 S	0.61 W	5,616,629.29	383,472.88	0.225	0.45	13 3/8" Casing
763.59	0.25	253.49	-737.58	763.58	1.37 S	0.68 W	5,616,629.28	383,472.81	0.225	0.52	First 12¼" MWD Survey
792.60	0.26	270.64	-766.59	792.59	1.39 S	0.81 W	5,616,629.26	383,472.68	0.079	0.64	
821.35	0.25	230.08	-795.34	821.34	1.43 S	0.92 W	5,616,629.22	383,472.57	0.185	0.75	
850.44	0.38	252.66	-824.43	850.43	1.50 S	1.06 W	5,616,629.15	383,472.42	0.183	0.88	
879.88	0.57	252.68	-853.87	879.87	1.57 S	1.29 W	5,616,629.08	383,472.19	0.194	1.11	
909.23	0.65	254.81	-883.22	909.22	1.66 S	1.59 W	5,616,628.99	383,471.89	0.085	1.40	
938.41	0.83	249.82	-912.40	938.40	1.77 S	1.95 W	5,616,628.87	383,471.53	0.196	1.74	
967.74	0.89	247.97	-941.73	967.73	1.93 S	2.36 W	5,616,628.71	383,471.12	0.068	2.13	
996.77	0.79	253.44	-970.75	996.75	2.07 S	2.76 W	5,616,628.57	383,470.72	0.132	2.51	
1,025.87	0.94	263.63	-999.85	1,025.85	2.16 S	3.19 W	5,616,628.49	383,470.29	0.221	2.93	
1,054.70	0.88	263.07	-1,028.68	1,054.68	2.21 S	3.65 W	5,616,628.44	383,469.84	0.063	3.37	
1,083.47	0.88	259.60	-1,057.44	1,083.44	2.28 S	4.08 W	5,616,628.37	383,469.40	0.056	3.80	
1,111.87	0.91	254.98	-1,085.84	1,111.84	2.37 S	4.52 W	5,616,628.27	383,468.97	0.083	4.22	
1,140.07	0.94	262.34	-1,114.03	1,140.03	2.46 S	4.96 W	5,616,628.18	383,468.52	0.130	4.65	
1,197.98	1.20	275.42	-1,171.93	1,197.93	2.47 S	6.04 W	5,616,628.18	383,467.45	0.184	5.72	
1,226.83	1.18	286.27	-1,200.78	1,226.78	2.36 S	6.62 W	5,616,628.29	383,466.86	0.235	6.31	
1,255.82	1.22	283.77	-1,229.76	1,255.76	2.20 S	7.21 W	5,616,628.45	383,466.28	0.068	6.91	

Design Report for Craigow-1 - Craigow-1 Definitive Survey

Measured Depth (m)	Inclination (°)	Azimuth (°)	TVD below System (m)	Vertical Depth (m)	Local Coordinates		Map Coordinates		Dogleg Rate (°/30m)	Vertical Section (m)	Comments
					Northing (m)	Easting (m)	Northing (m)	Easting (m)			
1,287.02	1.11	285.68	-1,260.96	1,286.96	2.04 S	7.82 W	5,616,628.61	383,465.66	0.112	7.54	
1,313.56	1.27	284.73	-1,287.49	1,313.49	1.90 S	8.35 W	5,616,628.75	383,465.13	0.182	8.09	
1,342.87	1.22	279.60	-1,316.79	1,342.79	1.76 S	8.98 W	5,616,628.89	383,464.51	0.125	8.72	
1,371.53	1.08	282.39	-1,345.45	1,371.45	1.65 S	9.54 W	5,616,628.99	383,463.94	0.158	9.29	
1,401.26	1.20	284.21	-1,375.17	1,401.17	1.52 S	10.12 W	5,616,629.13	383,463.37	0.126	9.88	
1,430.65	1.15	282.94	-1,404.56	1,430.56	1.37 S	10.70 W	5,616,629.27	383,462.78	0.058	10.48	
1,489.20	1.05	289.05	-1,463.09	1,489.09	1.07 S	11.78 W	5,616,629.58	383,461.70	0.079	11.59	
1,517.01	1.18	285.80	-1,490.90	1,516.90	0.91 S	12.30 W	5,616,629.74	383,461.19	0.156	12.12	
1,547.04	1.29	286.90	-1,520.92	1,546.92	0.72 S	12.92 W	5,616,629.92	383,460.57	0.112	12.75	
1,603.82	1.27	287.88	-1,577.69	1,603.69	0.34 S	14.13 W	5,616,630.30	383,459.36	0.016	14.00	
1,632.10	1.33	283.81	-1,605.96	1,631.96	0.17 S	14.75 W	5,616,630.48	383,458.74	0.117	14.63	
1,661.12	1.22	294.79	-1,634.97	1,660.97	0.04 N	15.35 W	5,616,630.69	383,458.13	0.276	15.26	
1,690.11	1.35	286.89	-1,663.96	1,689.96	0.27 N	15.96 W	5,616,630.91	383,457.52	0.227	15.89	
1,773.44	1.48	292.66	-1,747.26	1,773.26	0.97 N	17.89 W	5,616,631.61	383,455.59	0.069	17.89	Last 12¼" MWD Survey
1,800.00	1.54	292.16	-1,773.81	1,799.81	1.24 N	18.54 W	5,616,631.88	383,454.95	0.069	18.56	Projected to TD

Design Annotations

Measured Depth (m)	Vertical Depth (m)	Local Coordinates		Comment
		+N/-S (m)	+E/-W (m)	
176.22	176.22	-0.08	-0.06	First 17½" MWD Survey
723.95	723.94	-1.37	-0.61	Last 17½" MWD Survey
763.59	763.58	-1.37	-0.68	First 12¼" MWD Survey
1,773.44	1,773.26	0.97	-17.89	Last 12¼" MWD Survey
1,800.00	1,799.81	1.24	-18.54	Projected to TD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (m)
				+N/-S (m)	+E/-W (m)	
User	No Target (Freehand)	276.50	Slot	0.00	0.00	0.00

Survey tool program

From (m)	To (m)	Survey/Plan	Survey Tool
100.00	100.00	Craigow-1 - 30" Survey	INC
176.22	723.95	Craigow-1 - 17½" MWD Survey	MWD+SAG+SC

Design Report for Craigow-1 - Craigow-1 Definitive Survey

Survey tool program

From (m)	To (m)	Survey/Plan	Survey Tool
763.59	1,800.00	Craigow-1 - 12¼" MWD Survey	MWD+SAG+SC

Casing Details

Measured Depth (m)	Vertical Depth (m)	Name	Casing Diameter (in)	Hole Diameter (in)
157.00	157.00	30" Conductor	30.000	36.000
735.00	734.99	13 3/8" Casing	13.375	17.500

North Reference Sheet for Permit: T/47P - Craigow-1 - Craigow-1

All data is in Meters unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to DFE @ 26.00m (Above MSL). Northing and Easting are relative to Craigow-1

Coordinate System is Universal Transverse Mercator, Zone 55S (144 E to 150 E) using datum GDA94, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is 147° 0' 0.0000 E°, Longitude Origin:0° 0' 0.0000 E°, Latitude Origin:0° 0' 0.0000 N°

False Easting: 500,000.00m, False Northing: 10,000,000.00m, Scale Reduction: 0.99976720

Grid Coordinates of Well: 5,616,630.65 m N, 383,473.49 m E

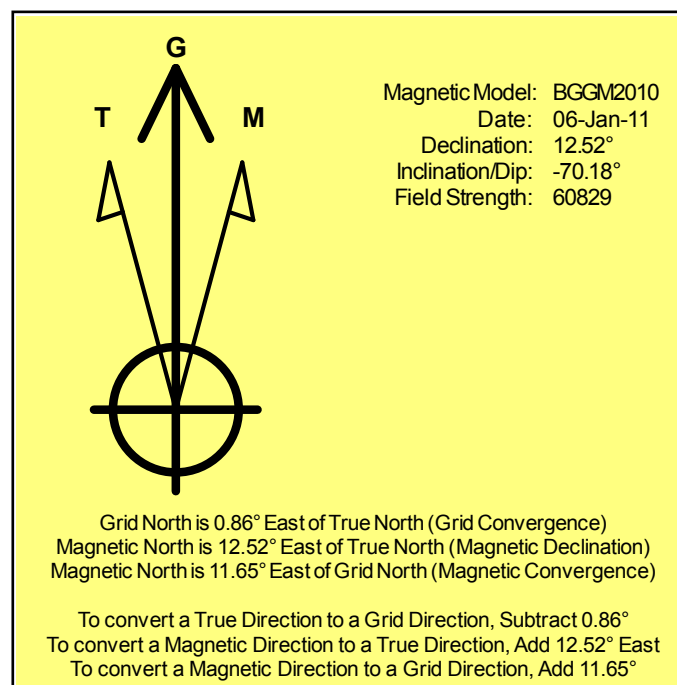
Geographical Coordinates of Well: 39° 35' 31.69" S, 145° 38' 34.59" E

Grid Convergence at Surface is: 0.86°

Based upon Minimum Curvature type calculations, at a Measured Depth of 1,800.00m

the Bottom Hole Displacement is 18.58m in the Direction of 273.81° (Grid).

Magnetic Convergence at surface is: -11.65° (6 January 2011, , BGGM2010)



**End of Well Report
for
TAP Oil Ltd**

Rig : Kan Tan IV
Well : Craigow-1
Field : Craigow
Country : Australia
Job Number : AU-FE-0007779925
Date : 25-Dec-10
API Number :

Table of Contents

1. General Information
2. Operational Overview
3. Summary of MWD Runs
4. Bitrun Summary
5. Directional Survey Data

General Information

Company:	TAP Oil Ltd
Rig:	Kan Tan IV
Well:	Craigow-1
Field:	Craigow
Lease Name:	
State:	Victoria
County:	
Country:	Australia
API Number:	
Sperry Job Number:	AU-FE-0007779925
Job start date:	25-Dec-10
Job end date:	31-Dec-10
North reference:	Grid
Declination:	12.519 deg
Dip angle:	-70.179 deg
Total magnetic field:	60830 nT
Date of magnetic data:	24 December, 2010
Wellhead coordinates N:	39 deg. 35 min 31.69 sec South
Wellhead coordinates E:	145 deg. 38 min 34.59 sec East
Vertical section direction:	0.00 deg
Unit Number:	SSH-40
MWD Engineers:	A. Ingram, S. Allan
Company Representatives:	P. Jenkins
Company Geologist:	A. Hodgson,

Operational Overview

Sperry Drilling was contracted by Tap Oil Ltd to provide Logging While Drilling (LWD) services for the drilling of Craigow-1. The well was drilled by Maersk operators using the Kan Tan IV rig.

17 ½" Hole Section:

This section was drilled in one bit run using a conventional rotary assembly.

A Pressure Case Directional (PCDC) was run for well bore surveying and a Pressure Case Gamma (PCGR) utilized for gamma data.

The section was drilled from 157mMDRT to section TD at 745mMDRT. Pulled out of hole to run 13.375" casing.

12 ¼" Hole Section:

This section was drilled in two bit runs (MWD Run 200, 300) using Sperry Drilling Logging While Drilling tool suite which comprised of the following:

Dual Gamma Ray (DGR) and Electromagnetic Wave Resistivity (EWR P-4) for formation evaluation. The Drilling String Dynamics (DDSR-DGR) and Pressure while Drilling (PWD) tools were used for drilling optimization. Well bore surveying was done with a Pressure Case Directional (PCDC) sonde. This section was drilled using Sperry Drilling performance motor.

12 ¼" hole was drilled from 745.0mMDRT to well TD of 1800.0mMDRT

Summary of MWD runs

[illegible]

Bitrun Summary

RUN TIME DATA

MWD Run	: 100	Run Start	: 24-Dec-10 23:59	BRT Hrs	: 29.02 hr	Circ. Hrs	: 19.38 hr
Rig Bit No	: 2	Run End	: 26-Dec-10 05:00	Hole Size	: 17.500 in	Oper. Hrs	: 19.38 hr

DRILLING DATA

Start Depth	: 157.00 m	Footage	: 588.00 m	Avg WOB	: 10.0 klb	Avg ROP	: 58.00 m/hr
End Depth	: 745.00 m	Avg Flow Rate	: 1150.00 gpm	Avg TOB	: 1.4000 f-kp	Avg SPP	: 2300 psig
Drilling Hours	: 12.530 hr	Avg RPM	: 80 rpm	Avg Bend	: 0.00 f-p		

MUD DATA

Mud Type	: Sea Water						
Weight	: 8.70 ppg	Viscosity	: 188.00 spqt	PV	: 6 cP	YP	: 59.00 lhf2
Chlorides	: 36000.00 ppm	Max Temp.	: 25.00 degC	% Solids	: 0.00 %	% Sand	: 0.00 %
pH	: 9.00 pH	Fluid Loss	: 0 mptm	% Oil	: 0.00 %	O:W	: 0:99

MWD PERFORMANCE

Tool OD	: 9.50 in	Type	: D/GWD	Min. Inc.	: 0.00 deg	Min. Inc. Depth	: 100.000 m
Final Az.	: 20.35 deg	Max Op. Press.	: 1105 psig	Max Inc.	: 0.50 deg	Max Inc. Depth	: 379.670 m
MWD Real-time %		: 100 %		MWD Recorded %		: 100 %	

	Length (m)	Dist From Bit (m)		Length (m)	Dist From Bit (m)
5" X 3" HWDP #49.3 - NC50(IF) 5.00 in OD / 3.00 in ID	141.14	251.10			
X-Over Sub 8.00 in OD / 2.88 in ID	1.22	109.96	HOC 9.50 in OD / 4.13 in ID	9.90	8.59
8 1/4" X 2.8125" - 160.6# Drill Collar 8.25 in OD / 2.81 in ID	18.89	108.74	* Positive Pulser - SN : 10482110		
		89.85	* PCG Sonde - SN : 11061956		
Jar 8.00 in OD / 2.88 in ID	9.16		* PCDC Sonde		
		80.69			
8 1/4" X 2.8125" - 160.6# Drill Collar 8.25 in OD / 2.81 in ID	46.84				
X-Over Sub 9.50 in OD / 2.81 in ID	1.13	33.85			
Spiral Drill Collar 9.50 in OD / 3.00 in ID	9.41	32.72			
Stabilizer 9.50 in OD / 3.00 in ID	2.16	23.31			
Spiral Drill Collar 9.50 in OD / 3.00 in ID	9.45	21.15			
		11.70			
MWD	9.90				
Bit Sub 9.50 in OD / 3.00 in ID	1.15	1.80			
Tricone 9.50 in OD / 3.00 in ID	0.65	0.65			

COMMENTS

Drill 17 1/2" hole to section TD at 745mMDRT using our Directional Gamma tools.

Bitrun Summary

RUN TIME DATA

MWD Run	: 200	Run Start	: 28-Dec-10 00:00	BRT Hrs	: 57.00 hr	Circ. Hrs	: 23.25 hr
Rig Bit No	: 3	Run End	: 30-Dec-10 09:00	Hole Size	: 12.250 in	Oper. Hrs	: 57.00 hr

DRILLING DATA

Start Depth	: 745.00 m	Footage	: 566.00 m	Avg WOB	: 15.0 klb	Avg ROP	: 67.00 m/hr
End Depth	: 1311.00 m	Avg Flow Rate	: 990.00 gpm	Avg TOB	: 1.4000 f-kp	Avg SPP	: 2465 psig
Drilling Hours	: 15.068 hr	Avg RPM	: 74 rpm	Avg Bend	: 0.00 f-p		

MUD DATA

Mud Type	: Polymer						
Weight	: 9.90 ppg	Viscosity	: 57.00 spqt	PV	: 20 cP	YP	: 23.00 lbf/ft ²
Chlorides	: 49000.00 ppm	Max Temp.	: 52.94 degC	% Solids	: 6.10 %	% Sand	: 0.00 %
pH	: 9.30 pH	Fluid Loss	: 5 mptm	% Oil	: 0.00 %	O:W	: 0:90

MWD PERFORMANCE

Tool OD	: 8.00 in	Type	: PFE	Min. Inc.	: 0.25 deg	Min. Inc. Depth	: 763.590 m
Final Az.	: 285.68 deg	Max Op. Press.	: 29986 psig	Max Inc.	: 1.22 deg	Max Inc. Depth	: 1168.430 m
MWD Real-time %		: 99 %		MWD Recorded %		: 100 %	

	Length (m)	Dist From Bit (m)		Length (m)	Dist From Bit (m)
15 x 5" X 3" HWDP #49.3 - NC50(IF) 5.00 in OD / 3.00 in ID	141.14	264.74	HOC 8.00 in OD / 4.02 in ID * Positive Pulser - SN : 10450060 * PCM Sonde - SN : 11055350	3.10	25.00
X-Over Sub 8.25 in OD / 2.75 in ID	1.22	123.60			23.58
2 X 8 1/4" X 2.8125" - 160.6# Drill Collar 8.25 in OD / 2.81 in ID	18.89	122.38	8" HCIM Collar 8.00 in OD / 1.92 in ID * HCIM Insert - SN : 11071380	1.51	
8" Sledgehammer Jar 7.94 in OD / 2.75 in ID	9.16	103.49	8" PWD 8.00 in OD / 1.92 in ID	1.35	22.07
7 x 8 1/4" X 2.8125" - 160.6# Drill Collar 8.25 in OD / 2.81 in ID	65.52	94.33			
Integral Blade 8.00 in OD / 2.75 in ID	2.13	28.81	8" EWR-P4 Collar 8.00 in OD / 1.98 in ID * EWR-P4 Insert - SN : 10486171	3.72	18.51
MWD	14.43	26.68			
Stabilizer 8.13 in OD / 2.88 in ID	1.99	12.25	8" DGR Collar 8.00 in OD / 1.92 in ID * DDS Insert * DGR Insert - SN : 10907802	1.97	16.16
Float Sub 7.94 in OD / 2.88 in ID	0.71	10.26			
9 5/8" SperryDrill Lobe 6/7 - 5.0 stg 9.62 in OD / 6.14 in ID	9.25	9.55	Non Mag Flex Collar 8.00 in OD / 3.50 in ID * PCDC Sonde - SN : 11297502	2.78	13.20
PDC 12.25 in OD / 3.00 in ID	0.30	0.30			

COMMENTS

Drill out cement and shoetrack, 3m of new formation then carry out LOT. Drill ahead to 1311mMDRT where decision was made to POOH due to low ROPs.

Bitrun Summary

RUN TIME DATA

MWD Run	: 300	Run Start	: 30-Dec-10 11:14	BRT Hrs	: 32.78 hr	Circ. Hrs	: 18.69 hr
Rig Bit No	: 4	Run End	: 31-Dec-10 20:01	Hole Size	: 12.250 in	Oper. Hrs	: 32.78 hr

DRILLING DATA

Start Depth	: 1311.00 m	Footage	: 489.00 m	Avg WOB	: 9.3 klb	Avg ROP	: 38.14 m/hr
End Depth	: 1800.00 m	Avg Flow Rate	: 993.00 gpm	Avg TOB	: 1.5000 f-kp	Avg SPP	: 3042 psig
Drilling Hours	: 12.814 hr	Avg RPM	: 75 rpm	Avg Bend	: 0.00 f-p		

MUD DATA

Mud Type	: Polymer						
Weight	: 10.00 ppg	Viscosity	: 50.00 spqt	PV	: 18 cP	YP	: 22.00 lbf/2
Chlorides	: 53000.00 ppm	Max Temp.	: 60.78 degC	% Solids	: 5.80 %	% Sand	: 0.00 %
pH	: 9.00 pH	Fluid Loss	: 4 mptm	% Oil	: 0.00 %	O:W	: 0:90

MWD PERFORMANCE

Tool OD	: 8.00 in	Type	: PFE	Min. Inc.	: 1.05 deg	Min. Inc. Depth	: 1489.200 m
Final Az.	: 292.66 deg	Max Op. Press.	: 4862 psig	Max Inc.	: 1.48 deg	Max Inc. Depth	: 1773.440 m
MWD Real-time %		: 98 %		MWD Recorded %		: 100 %	

	Length (m)	Dist From Bit (m)		Length (m)	Dist From Bit (m)
5" X 3" HWDP #49.3 - NC50(IF) 5.00 in OD / 3.00 in ID	9.60	65.17	HOC 8.00 in OD / 4.15 in ID * Positive Pulser - SN : 11228089 * PCM Sonde - SN : 11227428	3.10	25.00
X-Over Sub 8.00 in OD / 2.79 in ID	1.22	55.57			24.05
8 1/4" X 2.8125" - 160.6# Drill Collar 8.25 in OD / 2.81 in ID	9.14	54.35	8" HCIM Collar 8.00 in OD / 1.92 in ID * HCIM Insert - SN : 11071380	1.51	
8" Sledgehammer Jar 8.12 in OD / 2.75 in ID	6.78	45.20	8" PWD 8.00 in OD / 1.92 in ID	1.35	22.53
8 1/4" X 2.8125" - 160.6# Drill Collar 8.25 in OD / 2.81 in ID	9.14	38.42			
Integral Blade 8.00 in OD / 2.79 in ID	2.13	29.28	8" EWR-P4 Collar 8.00 in OD / 1.98 in ID * EWR-P4 Insert - SN : 10486171	3.71	18.51
MWD	13.85	27.15			
Stabilizer 8.00 in OD / 2.88 in ID	1.99	13.30	8" DGR Collar 8.00 in OD / 1.92 in ID * DDS Insert * DGR Insert - SN : 10907802	1.39	16.16
Float Sub 7.94 in OD / 2.88 in ID	0.71	11.31			
9 5/8" SperryDrill Lobe 6/7 - 5.0 stg 9.62 in OD / 6.14 in ID	10.30	10.60	Non Mag Flex Collar 8.00 in OD / 3.50 in ID * PCDC Sonde - SN : 11297502	2.78	13.20
PDC 12.25 in OD / 3.00 in ID	0.30	0.30			

COMMENTS

Run in hole with new bit and drill to well TD of 1800mMDRT.

Directional Survey Data

Tie-in

0.000	0.00	0.00	0.000	0.000 N	0.000 E	***

Measured Depth (m)	Inclination (deg)	Direction (deg)	Vertical Depth (m)	Latitude (m)	Departure (m)	Vertical Section (m)	Dogleg (°/30m)
100.000	0.00	0.00	100.000	0.000 N	0.000 E	0.000	0.00
176.220	0.15	218.73	176.220	0.080 S	0.060 W	0.050	0.06
204.250	0.32	233.37	204.250	0.150 S	0.150 W	0.130	0.19
235.960	0.33	219.33	235.960	0.280 S	0.280 W	0.240	0.08
297.000	0.40	91.96	297.000	0.420 S	0.180 W	0.130	0.32
323.330	0.18	99.51	323.330	0.430 S	0.040 W	-0.010	0.25
351.470	0.49	238.19	351.470	0.500 S	0.100 W	0.040	0.68
379.670	0.50	200.42	379.670	0.680 S	0.250 W	0.170	0.34
437.630	0.22	246.22	437.630	0.960 S	0.440 W	0.330	0.20
466.660	0.20	245.13	466.660	1.010 S	0.530 W	0.420	0.02
494.840	0.09	24.79	494.840	1.010 S	0.570 W	0.450	0.29
523.840	0.09	12.10	523.840	0.960 S	0.560 W	0.440	0.02
553.900	0.22	159.47	553.900	0.990 S	0.530 W	0.410	0.30
583.400	0.25	220.99	583.400	1.100 S	0.550 W	0.420	0.25
613.000	0.13	187.03	613.000	1.180 S	0.600 W	0.460	0.16
642.750	0.24	156.95	642.740	1.270 S	0.580 W	0.430	0.14
670.880	0.11	195.47	670.870	1.350 S	0.560 W	0.410	0.18
700.020	0.09	260.83	700.010	1.380 S	0.590 W	0.430	0.11
723.950	0.07	20.35	723.940	1.370 S	0.610 W	0.450	0.17
763.590	0.25	253.49	763.580	1.370 S	0.680 W	0.520	0.23
792.600	0.26	270.64	792.590	1.390 S	0.810 W	0.640	0.08
821.350	0.25	230.08	821.340	1.430 S	0.920 W	0.750	0.18
850.440	0.38	252.66	850.430	1.500 S	1.060 W	0.880	0.18
879.880	0.57	252.68	879.870	1.570 S	1.290 W	1.110	0.19
909.230	0.65	254.81	909.220	1.660 S	1.590 W	1.400	0.08
938.410	0.83	249.82	938.400	1.770 S	1.950 W	1.740	0.20
967.740	0.89	247.97	967.730	1.930 S	2.360 W	2.130	0.07
996.770	0.79	253.44	996.750	2.070 S	2.760 W	2.510	0.13
1025.870	0.94	263.63	1025.850	2.160 S	3.190 W	2.930	0.22
1054.700	0.88	263.07	1054.680	2.210 S	3.650 W	3.370	0.06
1083.470	0.88	259.60	1083.440	2.280 S	4.080 W	3.800	0.06
1111.870	0.91	254.98	1111.840	2.370 S	4.520 W	4.220	0.08
1140.070	0.94	262.34	1140.030	2.460 S	4.960 W	4.650	0.13
1197.980	1.20	275.42	1197.930	2.470 S	6.040 W	5.720	0.18
1226.830	1.18	286.27	1226.780	2.360 S	6.620 W	6.310	0.23
1255.820	1.22	283.77	1255.760	2.200 S	7.210 W	6.910	0.07
1287.020	1.11	285.68	1286.960	2.040 S	7.820 W	7.540	0.11
1313.560	1.27	284.73	1313.490	1.900 S	8.350 W	8.090	0.18
1342.870	1.22	279.60	1342.790	1.760 S	8.980 W	8.720	0.12
1371.530	1.08	282.39	1371.450	1.650 S	9.540 W	9.290	0.16
1401.260	1.20	284.21	1401.170	1.520 S	10.120 W	9.880	0.13
1430.650	1.15	282.94	1430.560	1.370 S	10.700 W	10.480	0.06
1489.200	1.05	289.05	1489.090	1.070 S	11.780 W	11.590	0.08
1517.010	1.18	285.80	1516.900	0.910 S	12.300 W	12.120	0.16
1547.040	1.29	286.90	1546.920	0.720 S	12.920 W	12.750	0.11

Directional Survey Data

Measured Depth (m)	Inclination (deg)	Direction (deg)	Vertical Depth (m)	Latitude (m)	Departure (m)	Vertical Section (m)	Dogleg (°/30m)
1603.820	1.27	287.88	1603.690	0.340 S	14.130 W	14.000	0.02
1632.100	1.33	283.81	1631.960	0.170 S	14.750 W	14.630	0.12
1661.120	1.22	294.79	1660.970	0.040 N	15.350 W	15.260	0.28
1690.110	1.35	286.89	1689.960	0.270 N	15.960 W	15.890	0.23
1773.440	1.48	292.66	1773.260	0.970 N	17.890 W	17.890	0.07
1800.000	1.54	292.16	1799.810	1.240 N	18.540 W	18.560	0.07

CALCULATION BASED ON MINIMUM CURVATURE METHOD

**SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT**

VERTICAL SECTION RELATIVE TO WELL HEAD

VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 0.00 DEGREES(GRID)

A TOTAL CORRECTION OF 11.65 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD

HORIZONTAL DISPLACEMENT(CLOSURE) AT 1800.00 METRES

IS 18.58 METRES ALONG 273.83 DEGREES (GRID)

Wellname: Craigow-1	Operator: Tap Oil	Rig: Kan Tan IV

Activity Record

Day #1 (22 Dec 2010)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P1	P	M2		14:00	22:00	8.00		***START of Craigow-1 @14:00 hrs, 22nd December 2010*** Under tight tow to Craigow-1 location. 16:00 Pos: 39° 49' 22"S - 145° 11' 42"E - Av Speed 3.9knts - Dist run 4.9NM - DTG 24.9NM. 20:00 Pos: 39° 38' 55"S - 145° 33' 00"E - Av Speed 4.8knts - Dist run 24.8NM - DTG 5.2NM. 22:00 Pos: 39° 34' 25"S - 145° 39' 13"E. Tight tow completed.
P1	P	M4		22:00	24:00	2.00		22:00:- Commenced run in to location 22:43:- #7 PCP passed to Far Fosna 23:08:- #6 Anchor on bottom. Anchor dropped on location as rig passed over anchor position.

Day #2 (23 Dec 2010)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P1	P	M4		00:00	08:00	8.00		Deployed anchors. 00:07:- #7 Anchor on bottom 00:30:- #7 PCP passed back to rig 00:52:- #3 PCP passed to Far Fosna 01:36:- #3 Anchor on bottom 01:56:- #3 PCP passed back to rig 02:17:- #2 PCP passed to Far Fosna 03:01:- #2 Anchor on bottom 03:26:- #2 PCP passed back to rig 03:27:- Far Scimitar released from tow bridle. 03:40:- #1 PCP passed to Far Fosna 04:18:- #5 PCP passed to Far Scimitar 04:22:- #1 Anchor on bottom 04:44:- #1 PCP passed back to rig 05:12:- #8 PCP passed to Far Fosna 05:47:- #8 Anchor on bottom 05:51:- #5 Anchor on bottom 06:13:- #8 PCP passed back to rig 06:22:- #5 PCP passed back to rig 06:40:- #4 PCP passed to Far Scimitar 06:55:- Commenced ballasting rig down to drilling draft. 07:21:- #4 Anchor on bottom 07:48:- #4 PCP passed back to rig.
P1	P	M3		08:00	11:30	3.50		Completed ballasting rig down to drilling draft of 65ft.
P1	P	M4		11:30	14:30	3.00		Cross tensioned anchors. 11:42:- Pre-tensioned #4 & #8 anchors and held for 15mins. OK. 12:14:- Pre-tensioned #3 & #7 anchors and held for 15mins. OK. 12:38:- Pre-tensioned #1 & #5 anchors and held for 15mins. OK. 13:18:- Pre-tensioned #2 & #6 anchors and held for 15mins. OK. 14:12:- Cross tensioning completed.
P1	P	M4		14:30	15:30	1.00		Skidded rig over location. 15:15:- Rig on location. Heading 248.1°, 2.48m from location.
P2	P	G2		15:30	19:30	4.00		Picked up 78 joints of 5in DP and racked back in derrick.

Wellname: Craigow-1	Operator: Tap Oil	Rig: Kan Tan IV

P2	P	G15		19:30	20:00	0.50		Made up 30in running tool to stand of DP and racked back in derrick.
P2	P	G2		20:00	21:30	1.50		Picked up 48 joints of DP and racked back in derrck. (Total of 42 stands of 5in DP made up). (ROV conducted seabed survey)
P2	P	G2		21:30	22:00	0.50		Picked up 6 joints of 5in HWDP and racked back in derrick.
P2	P	G2		22:00	23:00	1.00		Made up cement stand with hose and stood back in derrick.
P2	P	G2		23:00	24:00	1.00		Picked up 6 joints of 8.25in DCs.

Day #3 (24 Dec 2010)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P2	P	G2		00:00	00:30	0.50		Racked 2 stands 8.25in DCs in derrick.
P2	P	G6		00:30	02:00	1.50		Picked up and made up 26in x 36in hole opener assembly and Anderdrift tool.
P2	P	G6		02:00	03:00	1.00		Continued to make up BHA and RIH from 7m to 93m. Held prespud and shallow gas meeting on drill floor.
P2	P	D2		03:00	04:30	1.50	159.0	Tagged seabed at 100m RKB LAT. Performed prespud Anderdrift survey. 0° (11 pulses counted). Spudded Craigow-1. Drilled 26in x 36in hole from 100m to 159m. First 10m drilled with PHG mud 300gpm building to 500gpm, 340psi. 40rpm building to 60rpm, 0-5klbs wob. Drilled from 110m with seawater. 800gpm, 580psi, 60rpm, 0-5klbs wob. Pumped 50bbl PHG pills every 15m and spotted PHG around BHA on connections.
P2	P	F4		04:30	05:30	1.00	159.0	Pumped 100bbl hi vis pill and displaced from well with seawater. Performed Anderdrift survey. 0.5° (10 pulses counted) Displaced well with 360bbl 8.6ppg PHG mud.
P2	P	G8		05:30	06:30	1.00	159.0	POOH from 159m and racked back BHA. No overpull observed. ROV spotted sonar reflective bouys to mark well.
P3	P	G1		06:30	08:00	1.50	159.0	Rigged up to run 30" conductor. Moved PGB to well centre in moonpool.
P3	P	G9		08:00	09:00	1.00	159.0	Made up 30" shoe jt and checked float valve passing ok. Made up 1st intermediate jt of 30" to shoe jt.
P3	TP	G9	WO	09:00	09:30	0.50	159.0	Cranes down due to helicopter operations.
P3	P	G9		09:30	11:00	1.50	159.0	Ran 30" conductor pipe in to 58m. Total 5 jts.
P3	P	G1		11:00	11:30	0.50	159.0	Rigged down casing handling equipment.
P3	P	G9		11:30	12:00	0.50	159.0	Ran std of 5" DP into conductor and made up 30" RT with DP single below to std and then to 30" LP housing.
P3	P	G9		12:00	13:00	1.00	159.0	Ran 30" LP housing into moonpool and made up to PGB. Connected and checked HAC system hoses.
P3	P	G9		13:00	14:00	1.00	159.0	Ran conductor and PGB assembly in hole on landing string to 157m. ROV checked bullseyes. Port Bulleyes: 0.75° Port, slightly forward Aft Bullseye: 0.75° Fwd, slightly aft.
P3	P	F4		14:00	14:30	0.50	159.0	Established circulation. Pumped 100bbl of SW.
P3	P	CMT		14:30	16:00	1.50	159.0	Cement unit pumped 5bbl DW and pressuretested surface lines to 3000psi. Cement unit pumped 20bbl DW mica spacer.

Wellname: Craigow-1	Operator: Tap Oil	Rig: Kan Tan IV

								Cement unit mixed and pumped 264bbl 15.8ppg G cement slurry Cement unit displaced cement with 39bbl of seawater. No mica or obvious cement returns at seabed.
P3	P	CMT		16:00	20:00	4.00	159.0	Waited on cement samples to harden. Offline: Organised and backloaded spud in material and tools. ROV checked bullseyes. Port Bulleyes: 0.75° Port, slightly forward Aft Bullseye: 0.75° Fwd, slightly aft.
P3	P	G8		20:00	21:00	1.00	159.0	Released 30" RT with 5 turns to the right. POOH with 30" LP housing RT and laid out same. ROV checked Bullseyes.: No change.
P4	P	G15		21:00	22:00	1.00	159.0	Made up handling pup jt and space out pup jts to 18 3/8" WHRT and laid out same.
P4	P	G6		22:00	23:00	1.00	159.0	Picked up 8" drilling jar and made up to 8¼" DC double. Racked back in derrick.
P4	P	G6		23:00	23:30	0.50	159.0	Laid out Anderdrift and 26" x 36" hole opener assembly.
P4	P	G6		23:30	24:00	0.50	159.0	Picked up MWD tool, made up float sub and 17½" bit to same.

Day #4 (25 Dec 2010)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P4	P	G6		00:00	02:30	2.50	159.0	Continued to make up 17½" drilling BHA to 90m
P4	P	G6		02:30	03:00	0.50	159.0	Entered well with ROV assistance and continued to make up BHA to 119m
P4	P	G2		03:00	04:00	1.00	159.0	Shallow tested MWD at 119m, 1000gpm, 1500psi. Good test. Picked up 11jts of HWDP and racked 3 stds back in derrick working string between 119m and 138m.
P4	P	F1		04:00	04:30	0.50	159.0	Washed in hole, 600gpm, 500psi, from 138m and tagged TOC at 150m with 15klbs wob
P4	P	D1		04:30	06:00	1.50	159.0	Drilled out cement and shoe from 150m to 157m with seawater and PHG sweeps. Cleaned out rat hole to 159m. Reamed rat hole, shoe and drilled out section of shoe track several times to clean. 60rpm, 500ftlbs torq, commenced with 5klbs wob increasing to 20klbs
P4	P	D2		06:00	12:00	6.00	368.0	Drilled 17½" hole from 159m to 368m 1150gpm, 2250psi, 80rpm, 1-2kftlbs torq, 10klbs wob.
P4	P	D2		12:00	18:00	6.00	547.0	Drilled 17½" hole from 368m to 547m 1150gpm, 2400psi, 80rpm, 1-3kftlbs torq, 10-20klbs wob.
P4	P	D2		18:00	24:00	6.00	745.0	Drilled 17½" hole from 547m to 745m. 1150gpm, 2550psi, 80rpm, 2-4kftlbs torq, 15/20klbs wob.

Day #5 (26 Dec 2010)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P4	P	F4		00:00	01:30	1.50	745.0	Pumped 100bbl 8.6ppg PHG pill and displaced from well. Pumped 100bbl Guar Gum Hi Vis pill and displaced from well. Displaced well with 1.5 times open hole volume 9.0ppg PHG PAD mud.
P4	P	G8		01:30	03:30	2.00	745.0	POOH on elevators. Max overpull on trip 50klbs. Wiped tight sections clean. Tight spots; 660m to 656m, 640m, 503m, 492m to 482m
P4	P	G16		03:30	04:00	0.50	745.0	Pumped out of wellhead and jetted to clear PGB of cuttings. 1150gpm, 2000psi for 15mins.

Wellname: Craigow-1	Operator: Tap Oil	Rig: Kan Tan IV

P4	P	G6		04:00	05:30	1.50	745.0	POOH and racked back BHA. Sperry removed probe from MWD. Laid out bit.
P5	P	G15		05:30	09:00	3.50	745.0	Picked up 18-3/4" WHRT assembly and torqued connections. Laid out same. Picked up 18-3/4" HP housing 20" x 13 3/8" jt and set in rotary. Picked up 18-3/4" wellhead RT assembly. Installed equaliser sub and 13-3/8" cement plugs on bottom. Ran RT assembly into WH joint and made up to 18-3/4" WH. Laid out made up assembly.
P5	P	G1		09:00	09:30	0.50	745.0	Rigged up to run 13-3/8" casing.
P5	P	G9		09:30	11:00	1.50	745.0	Made up shoe track. Bakerlocked connection and function tested shoe/float valves. Secured shoe to guide lines with rope.
P5	TP	G1	WO	11:00	11:30	0.50	745.0	Cranes down due to helicopter operations.
P5	P	G9		11:30	18:00	6.50	745.0	Made up and ran 13-3/8" casing from 75m to 624m. Entered well blind due to ROV being out of action.
P5	P	G9		18:00	19:00	1.00	745.0	Rigged down casing handling equipment. Picked up 18-3/4" WH jt and made up to casing. Ran WH below rotary to 641m.
P5	P	G9		19:00	19:30	0.50	745.0	RIH 13-3/8" casing from 641m to 729m on landing string.
P5	P	G9		19:30	20:00	0.50	745.0	Made up space out pup jt and connected cement head assembly to landing string.
P5	P	G9		20:00	21:00	1.00	745.0	String took 30klbs weight at 642m. Established circulation and pumped down to land off 18-3/4" WH in 30" LP housing with 50klbs down. Confirmed latch of WH with 50klbs overpull. Reduced weight to 40klbs down on 30" wellhead. Continued to circulate 9.0ppg PHG mud. Total 330bbl pumped
P5	TP	F4	TP	21:00	21:30	0.50	745.0	Cmt unit pumped 5bbl SW and pressure tested surface lines to 3000psi. Cmt unit hose failed on additive system. Made temporary repair to hose. Pumped 80 bbl seawater spacer using rig pumps.
P5	P	CMT		21:30	22:00	0.50	745.0	Cmt unit pumped 5bbl SW and retested surface lines to 3000psi. Cmt unit pumped 10bbl SW. Weatherford Eng dropped ball and cmt unit sheared bottom plug with 1500psi.
P5	P	CMT		22:00	24:00	2.00	745.0	Cmt unit mixed and pumped 380bbl 12.5ppg lead cmt slurry. Cmt unit mixed and pumped 104bbl 15.8ppg tail cmt slurry.

Day #6 (27 Dec 2010)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P5	P	CMT		00:00	01:00	1.00	745.0	Weatherford Eng released dart. Flag indicated dart launched. Cmt unit chased dart with SW at 1.5bblm/min and sheared top plug with 500psi after 5.8bbl. Cmt unit pumped a further 14.2bbl of SW and handed over to rig pumps. Displaced cement with rig pumps at 12bbl/min, 900psi, slowing to 4bbl/min, 500psi for final 10bbls. Observed pressure build up as tail slurry was pumped through shoe and up the annulus from 950psi to 1200psi at 12bbl/min. FCP at 4bbl/min 365psi Pumped calculated displacement volume of 289.5bbls plus another 3bbls (50% shoe track volume) with rig pumps. No bump. Checked for back flow at cement unit. 3/4bbl returned. No back flow.
P5	P	G15		01:00	02:00	1.00	745.0	Reduced string weight to landing string weight of 170klbs

Wellname: Craigow-1	Operator: Tap Oil	Rig: Kan Tan IV

								MD. Released 18-3/4" WHRT with 4 turns to right and laid out cement head.
P5	P	G8		02:00	03:30	1.50	745.0	POOH and laid out Dril-quip 18-3/4" WHRT and Halliburton equalising sub and swivel.
P6A	P	G1		03:30	04:30	1.00	745.0	Rigged up drill floor to run Riser and BOPs Moved rig off location 40ft aft.
P6A	P	G1		04:30	06:00	1.50	745.0	Made up riser double on drill floor.
P6A	P	G1		06:00	10:00	4.00	745.0	Skidded BOP onto transporter and moved BOP to well centre. Offline: ROV installed VX ring gasket on wellhead.
P6A	TP	G1	WOW	10:00	19:00	9.00	745.0	Waited on weather. Wind speed exceeded Rig manriding limit. 10:00 Wind 33knts - Heave 1.8m - Pitch 1.5° - Roll 0.9° 11:00 Wind 33knts - Heave 1.6m - Pitch 0.8° - Roll 0.9° 12:00 Wind 35knts - Heave 1.8m - Pitch 0.8° - Roll 0.9° 13:00 Wind 35knts - Heave 2.2m - Pitch 0.9° - Roll 0.9° 14:00 Wind 33knts - Heave 2.4m - Pitch 0.9° - Roll 0.9° 15:00 Wind 35knts - Heave 2.2m - Pitch 0.9° - Roll 0.9° 16:00 Wind 30knts - Heave 2.4m - Pitch 0.8° - Roll 0.8° 17:00 Wind 30knts - Heave 1.6m - Pitch 0.6° - Roll 0.8° 18:00 Wind 31knts - Heave 1.8m - Pitch 0.7° - Roll 0.8°
P6A	P	G1		19:00	21:00	2.00	745.0	Prepared BOP for running. Made up riser double to BOP.
P6A	P	G1		21:00	21:30	0.50	745.0	Picked up BOP clear of transporter and removed transporter from well centre. Ran BOP through splash zone.
P6A	P	G8		21:30	23:30	2.00	745.0	Continued to run BOPs. Made up riser jt and 2 pups jts
P6A	P	G8		23:30	24:00	0.50	745.0	Picked up slip jt

Day #7 (28 Dec 2010)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P6A	P	G8		00:00	01:30	1.50	745.0	Made up slip joint. Picked up and made up landing joint. Ran slip joint into moonpool.
P6A	P	G1		01:30	03:00	1.50	745.0	Installed Choke and Kill hoses to slip joint.
P6A	P	P1		03:00	04:00	1.00	745.0	Pressure tested Choke and Kill lines to 250psi/5min - 5000psi/10min (Moved rig back over well centre)
P6A	P	G1		04:00	06:30	2.50	745.0	Installed MRT lines to slip joint. Installed Umbilical storm saddles in moonpool.
P6A	P	G8		06:30	08:00	1.50	745.0	Aligned BOP to guide posts and landed off BOP on 18-3/4" HP wellhead. Locked wellhead connector and tested with 50klbs overpull.
P6A	P	P1		08:00	08:30	0.50	745.0	Pressure tested connector and 13-3/8" casing to 2500psi/10mins.
P6A	P	G1		08:30	09:00	0.50	745.0	Stroked open slip joint and laid out landing joint.
P6A	P	G1		09:00	10:00	1.00	745.0	Installed diverter into housing.
P6A	P	G1		10:00	11:00	1.00	745.0	Rigged down riser handling equipment.
P11	P	G6		11:00	12:30	1.50	745.0	Laid out excess 17½" BHA.
P11	P	G11		12:30	13:30	1.00	745.0	Serviced Top Drive.
P11	P	G7		13:30	17:00	3.50	745.0	Made up Drilling stand of 12¼" BHA. Set Sperry mud motor at 0.78° bend.
P11	P	G7		17:00	17:30	0.50	745.0	Downloaded data to Sperry MWD/LWD tools.
P11	P	G6		17:30	20:00	2.50	745.0	Continued to make up 12¼" BHA from 18m to 264m.

Wellname: Craigow-1	Operator: Tap Oil	Rig: Kan Tan IV

P11	P	G15		20:00	20:30	0.50	745.0	Shallow tested Sperry MWD/LWD. 850gpm, 1300psi.
P11	P	G6		20:30	21:00	0.50	745.0	Confirmed mousehole empty prior to picking up pipe from deck. Installed diverter element.
P11	P	G6		21:00	22:30	1.50	745.0	RIH from 264m to 685m picking up 45 joints DP from deck.
P11	P	P3		22:30	23:00	0.50	745.0	Held well control drill. Closed in well, checked tool joint space out. Conducted choke circulation exercise with Drill Crew.
P11	P	G13		23:00	24:00	1.00	745.0	Function tested BOPs. Functioned on Yellow Pod from drillfloor. Functioned on Blue Pod from koomey unit.

Day #8 (29 Dec 2010)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P11	P	F1		00:00	00:30	0.50	745.0	Washed in hole from 685m and tagged top of cement at 696m. Confirmed with 20klbs tag with out pumps.
P11	P	D1		00:30	01:00	0.50	745.0	Drilled out light cement from 696m to 718m. 700gpm, 1100psi, 30rpm, 0klbs wob.
P11	P	D1		01:00	03:00	2.00	745.0	Drilled out cement plugs, float and shoe track from 718m to 732m with seawater and Guar Gum hi vis sweeps. Broke through float at 723m.
P11	P	D2		03:00	03:30	0.50	748.0	Displaced well to 9.8ppg KCL PHPA mud while continued to drill out shoe track (Shoe drilled out at 735m). Cleaned out rat hole to 745m. Reamed shoe and rat hole to clean and drilled 3m of 12¼" hole from 745m to 748m.
P11	P	F4		03:30	04:30	1.00	748.0	Circulated and conditioned mud.
P11	P	E1		04:30	05:30	1.00	748.0	Pulled into shoe and performed LOT. Flushed lines and pressure tested surface lines to 250psi/1500psi. Perform LOT. Shoe at 735m, MW 9.8ppg, breakover pressure 640psi. 4.61bbl pumped, 4.3bbl returned. EMW: 14.9PPG.
P11	P	P3		05:30	06:00	0.50	748.0	Recorded SCRs and choke line friction losses.
P11	P	D2		06:00	12:00	6.00	1,013.0	Drilled 12¼" hole from 748m to 1013m. 10klbs wob, 80rpm, 988gpm, 2310psi 2kftlbs torq.
P11	P	D2		12:00	18:00	6.00	1,185.0	Drilled 12¼" hole from 1013m to 1185m. 10/25klbs wob, 80rpm, 1000gpm, 2720psi 2kftlbs torq.
P11	P	D2		18:00	24:00	6.00	1,304.0	Drilled 12¼" hole from 1185m to 1304m. 25/30klbs wob, 80rpm, 1000gpm, 2890psi 3.5kftlbs torq. Drilled Dolomite stringer at 1266m. ROP dropped to 10-15m/hr and did not increase again once the bit was back in the shale.

Day #9 (30 Dec 2010)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P11	P	D2		00:00	01:00	1.00	1,311.0	Drilled 12¼" hole from 1304m to 1311m. 25/30klbs wob, 80rpm, 1000gpm, 2890psi 3.5kftlbs torq. Varied parameters in an attempt to improve ROP. Pumped 45bbl Steelseal 20lb/bbl pill in attempt to clear possible bit balling. No effect on low ROP.
P11	P	F4		01:00	02:00	1.00	1,311.0	Pumped 40bbl Hi Vis pill and circulated clean.
P11	P	G8		02:00	02:30	0.50	1,311.0	Flow checked well. POOH from 1311m to 1243m on elevators. Took overpulls of 55klbs and noted well swabbing.

Wellname: Craigow-1	Operator: Tap Oil	Rig: Kan Tan IV

P11	P	D7		02:30	05:00	2.50	1,311.0	Pumped out of hole (no rotation) from 1243m to shoe at 735m. 900gpm, 2400psi. Attempted unsuccessfully to pull without pumps at 1161m and 1016m. Both attempts recorded high overpulls and well swabbing. (Max overpull 70klbs). Heavy returns at shakers of fines and mushy regrounds.
P11	P	F4		05:00	05:30	0.50	1,311.0	Circulated bottoms up. 800gpm, 1550psi
P11	P	G8		05:30	07:00	1.50	1,311.0	Flow checked well. Pumped slug and POOH to 264m
P11	P	G6		07:00	09:30	2.50	1,311.0	Racked back BHA and broke off bit.
P11	P	G11		09:30	10:00	0.50	1,311.0	Serviced Rig. Greased Top Drive
P11	P	G7		10:00	11:30	1.50	1,311.0	Made up new 12¼" bit. Downloaded and reprogrammed LWD tools.
P11	P	G6		11:30	13:00	1.50	1,311.0	Continued to make up BHA to 264m. Shallow tested MWD/LWD at 122m
P11	P	G6		13:00	14:00	1.00	1,311.0	RIH with 12¼" drilling assembly from 264m to shoe.
P11	P	G11		14:00	16:00	2.00	1,311.0	Slipped and cut drilling line.
P11	P	G8		16:00	17:30	1.50	1,311.0	RIH from shoe to 1277m. Washed past tight spot from 756m to 784m
P11	TP	G8	TP	17:30	19:00	1.50	1,311.0	Circulated while Geoservices repaired and reinstated well monitoring and logging system.
P11	P	D2		19:00	24:00	5.00	1,445.0	Drilled 12¼" hole from 1311m to 1445m. 0-5klbs wob, 80rpm, 2-5klbs torq, 1000gpm, 3000psi

Day #10 (31 Dec 2010)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P11	P	D2		00:00	06:00	6.00	1,640.0	Drilled 12¼" hole from 1445m to 1640m. 0-5klbs wob, 80rpm, 2-5klbs torq, 1000gpm, 3000psi
P11	P	D2		06:00	12:00	6.00	1,780.0	Drilled 12¼" hole from 1640m to 1780m. 20klbs wob, 80rpm, 2-6klbs torq, 1000gpm, 3410psi
P11	P	D2		12:00	12:30	0.50	1,800.0	Drilled 12¼" hole from 1780m to 1800m. 20klbs wob, 80rpm, 2-6klbs torq, 1000gpm, 3410psi
P11	P	F4		12:30	13:30	1.00	1,800.0	Pumped Hi Vis pill and circulated well clean
P11	P	G8		13:30	14:00	0.50	1,800.0	Flow checked well. POOH from 1800m to 1655m.
P11	P	D7		14:00	16:00	2.00	1,800.0	Pumped out of hole from 1655m to 1300m due to excessive drag in hole.
P11	P	G8		16:00	18:00	2.00	1,800.0	POOH from 1300m to BHA at 264m. (Pulled 10stds without hole drag then pumped slug)
P11	P	G6		18:00	20:00	2.00	1,800.0	Racked back BHA.
P11	P	G7		20:00	22:00	2.00	1,800.0	Laid out Sperry tools to deck. Sperry download tools on deck.
LOG1	P	C1		22:00	23:00	1.00	1,800.0	Rigged up Schl wireline on drill floor.
LOG1	P	C1		23:00	24:00	1.00	1,800.0	Schl made up PPC-MSIP-HRLA-SP-PEX toolstring

Day #11 (01 Jan 2011)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
LOG1	P	C2		00:00	00:30	0.50	1,800.0	Schl commenced to RIH with PPC-MSIP-HRLA-SP-PEX toolstring.
LOG1	P	C2		00:30	01:00	0.50	1,800.0	Tied back TDS service hoses in derrick

Wellname: Craigow-1	Operator: Tap Oil	Rig: Kan Tan IV

LOG1	P	C2		01:00	02:30	1.50	1,800.0	Schlumberger continued to RIH to HUD at 1762m.
LOG1	P	C2		02:30	08:00	5.50	1,800.0	Schl logged out of hole from 1762m to wellhead. POOH to surface.
LOG1	P	C1		08:00	09:00	1.00	1,800.0	Schl rigged down toolstring. Rigged down sheaves and wireline equipment.
P21	P	G11		09:00	09:30	0.50	1,800.0	Serviced Top Drive.
P21	P	G2		09:30	11:00	1.50	1,800.0	Made up 19jts with mule shoe of 2-7/8" cmt stinger from deck.
P21	P	G8		11:00	14:30	3.50	1,800.0	RIH with cmt stinger from 179.5m to 1370m.
P21	P	F4		14:30	16:00	1.50	1,800.0	Circulated and conditioned mud. Pumped and displaced to spot on bottom 94bbl 11ppg Hi Vis pill at 4bbl/min
P21	P	G8		16:00	16:30	0.50	1,800.0	POOH from 1370m to 1220m and rigged up cement stand.
P21	P	F4		16:30	17:00	0.50	1,800.0	Circulated bottoms up. Hi vis pill returns observed at shakers.
P21	P	CMT		17:00	18:30	1.50	1,800.0	Plug #1: 1070 - 1220m (open hole plug). Cmt unit pumped 10bbl DW and pressure tested surface lines to 300/3000psi. Cmt unit pumped 50bbl DW spacer. Cmt unit mixed and pumped 94bbl 15.8ppg G cement slurry. Cmt unit pumped 3bbl DW behind cement. Drill floor installed foam ball in drill pipe. Cmt unit continued to displace cmt slurry with 52bbl of 10ppg mud.
P21	P	G8		18:30	19:00	0.50	1,800.0	Racked back cmt std and POOH slowly from 1220m to 1000m.
P21	P	F4		19:00	20:00	1.00	1,800.0	Circulated bottoms up. Diverted cement contaminated mud at shakers.
P21	P	F4		20:00	20:30	0.50	1,800.0	POOH from 1000m to 920m and spotted 94bbl 11ppg Hi Vis pill at 920m at 4bbl/min.
P21	P	F4		20:30	21:00	0.50	1,800.0	POOH from 920m to 770m and circulated bottoms up. Hi vis pill observed at shakers on bottoms up.
P21	P	G1		21:00	22:00	1.00	1,800.0	Reconfigured cement std and loaded foam ball above side entry sub. Rigged up cement std and spaced out at 770m
P21	P	CMT		22:00	23:00	1.00	1,800.0	Plug #2: 620 - 770m (shoe plug). Cmt unit pumped 10bbl DW and pressure tested surface lines to 300/3000psi. Cmt unit pumped 50bbl DW spacer. Installed foam ball in drill pipe on drill floor. Cmt unit mixed and pumped 100bbl 15.8ppg G cement slurry. Cmt unit pumped 3bbl DW behind cement. Drill floor released foam ball in drill pipe and chased with 2bbl to place it below side entry sub. Cmt unit continued to displace cmt slurry with 3bbl DW followed by 21bbl of 10ppg mud.
P21	P	G8		23:00	24:00	1.00	1,800.0	Racked back cement stand and POOH slowly from 770m to 540m

Day #12 (02 Jan 2011)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P21	P	F4		00:00	00:30	0.50	1,800.0	Circulated bottoms up with 10ppg inhibited KCL PHPA mud. Diverted cement contaminated mud returns at shakers.
P21	P	G2		00:30	08:30	8.00	1,800.0	Laid out DP and DCs from derrick while waiting of

Wellname: Craigow-1	Operator: Tap Oil	Rig: Kan Tan IV

								cement samples to set. 96jts DP and 6x8¾" DCs laid out
P21	P	G8		08:30	09:00	0.50	1,800.0	RIH and tagged top of cement at 576m with 10klbs weight.
P21	P	P1		09:00	09:30	0.50	1,800.0	Closed upper annular and pressure tested against the cement plug with rig pump. 1000psi for 10 mins. Good test.
P21	P	G2		09:30	12:00	2.50	1,800.0	POOH laying out excess DP to 179m.
P21	P	G8		12:00	12:30	0.50	1,800.0	RIH to 380m.
P21	P	P1		12:30	13:00	0.50	1,800.0	Retested cement plug with cement unit to 1000psi/10min.
P21	P	F3		13:00	13:30	0.50	1,800.0	Spotted 82bbl 11ppg Hi Vis pill at 380m.
P21	P	G8		13:30	14:00	0.50	1,800.0	POOH from 380m to 217m. Made up cement std and spaced out to 230m.
P21	P	F4		14:00	14:30	0.50	1,800.0	Circulated bottoms up.
P21	P	CMT		14:30	15:00	0.50	1,800.0	Cmt unit pumped 10bbl DW spacer and pressure tested surface lines to 3000psi. Cmt unit pumped 50bbl DW spacer. Cmt unit mixed and pumped 50bbl 15.8ppg G cmt slurry #3 and displaced with 3bbl of DW.
P21	P	CMT		15:00	16:00	1.00	1,800.0	Racked back 2 stds 5" DP and laid out 2-7/8" cmt stinger to 106m.
P21	P	F4		16:00	16:30	0.50	1,800.0	Made up std of 5" DP and RIH to 130m. Circulated seawater to clean cmt top. Displaced BOPs and riser to seawater.
P21	P	G2		16:30	17:00	0.50	1,800.0	POOH. Laid out remaining 13jts of 2-7/8" cement stinger
P21	P	G16		17:00	17:30	0.50	1,800.0	RIH and flushed BOPs.
P21	P	G2		17:30	20:30	3.00	1,800.0	Laid out excess DP, HWDP and DCs to deck.
P21	P	G12		20:30	22:00	1.50	1,800.0	Made up WBRT. RIH, engaged wear bushing and sheared free with 80klbs overpull. POOH and laid out wear bushing and WBRT.
P6B	P	G1		22:00	23:00	1.00	1,800.0	Rigged up on drill floor to pull BOPs.
P6B	P	G2		23:00	23:30	0.50	1,800.0	Laid out diverter assembly to deck.
P6B	P	G2		23:30	24:00	0.50	1,800.0	Picked up landing jt to drill floor.

Day #13 (03 Jan 2011)								
PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P6B	P	G2		00:00	01:30	1.50	1,800.0	Made up landing joint to slip joint. Collapsed and locked slip joint. Unlocked wellhead connector and lifted BOP clear of wellhead.
P6B	P	G1		01:30	03:30	2.00	1,800.0	Removed umbilical hose storm saddles, removed choke and kill hoses, removed MRT lines from slip joint.
P6B	P	G8		03:30	04:30	1.00	1,800.0	Laid out landing joint and slip joint.
P6B	P	G8		04:30	06:30	2.00	1,800.0	Laid out riser pup joints and flotation joint.
P6B	P	G8		06:30	07:00	0.50	1,800.0	Pulled BOP out of water and landed on moonpool transporter.
P6B	P	G13		07:00	10:00	3.00	1,800.0	Disconnected riser double. Removed guidelines from BOP and skidded BOPs to aft moonpool on transporter. Laid out riser double.
P6B	P	G1		10:00	12:00	2.00	1,800.0	Rigged down riser handling equipment from DF. (HAC connector released offline with ROV)

Wellname: Craigow-1	Operator: Tap Oil	Rig: Kan Tan IV

P21	P	G7		12:00	13:00	1.00	1,800.0	Made up Smith 13-3/8" cutting / 18-3/4" WH retrieval assembly.
P21	P	G17		13:00	13:30	0.50	1,800.0	RIH and stabbed into well. Landed out on 18-3/4" wellhead. Confirmed latch engaged with overpull. Cut 13-3/8" casing at 111.43m.
P21	P	G17		13:30	16:00	2.50	1,800.0	POOH with 18-3/4" WH, 30" LP Housing, PGB and casing cut to moonpool. Installed skid beams to BOP setback and moved BOPs to same. Installed moonpool cart in moonpool. Landed and secured PGB on cart.
P21	P	G6		16:00	16:30	0.50	1,800.0	Released latch spear from 18-3/4" housing. Racked back DC stand and laid out casing cutting and fishing assembly.
P21	P	G7		16:30	18:00	1.50	1,800.0	Made up Dril-Quip 18-3/4" RT. Ran in and engaged WH. Released 30" LP Housing from PGB and laid out assembly to deck.
P21	P	G2		18:00	19:30	1.50	1,800.0	Laid out std of 8 1/4" DCs and excess HWDP from derrick. ***From 19:30hr onwards; Consortium Demob operations***

Day #14 (05 Jan 2011)

PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P32	P	M3		04:00	13:00	9.00		***Rig Offhire from KT4 Consortium and Onhire to Craigow-1 at 04:00hrs for deballasting*** Deballasting rig from drilling draft to transit draft. ***Rig Offhire from Craigow-1 and Onhire to KT4 Consortium at 13:00hrs***

Day #15 (07 Jan 2011)

PHSE	CLS	OP	RC	From	To	Hrs	Depth (m)	Activity Description
P32	P	M4		00:00	14:30	14.50		***Rig Offhire from KT4 Consortium and Onhire to Craigow-1 at 00:00hrs for pulling anchors*** Pulled Secondary Anchors. Pulled Primary Anchors. ***End of Craigow-1 at 14:30hrs, 7th January 2011 with rig on tight tow*** Rig Onhire to KT4 Consortium for demob.

Wellname: Craigow-1	Operator: Tap Oil	Rig: Kan Tan IV

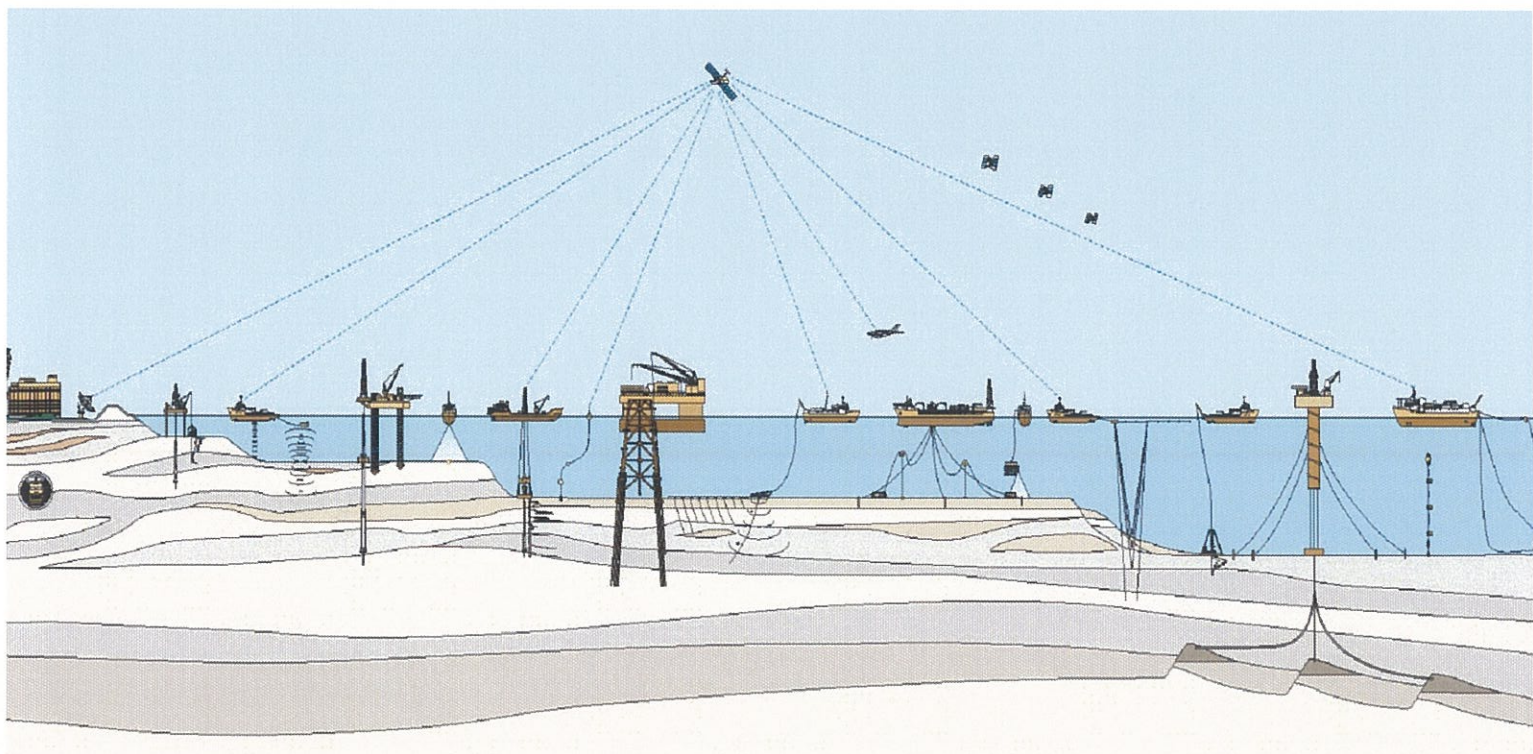
Time Analysis (Data)

Date	Phase	Operation	NPT (h)	Depth (m)	Description of Programmed Trouble Time
24 Dec 2010	P3	Run/Pull Casing (G9)	0.50	159.0	Cranes down due to helicopter operations.
26 Dec 2010	P5	Rig Up / Down (G1)	0.50	745.0	Cranes down due to helicopter operations.
26 Dec 2010	P5	Circulate / Condition Fluids (F4)	0.50	745.0	Cmt unit pumped 5bbl SW and pressure tested surface lines to 3000psi. Cmt unit hose failed on additive system. Made temporary repair to hose. Pumped 80 bbl seawater spacer using rig pumps.
27 Dec 2010	P6A	Rig Up / Down (G1)	9.00	745.0	Waited on weather. Wind speed exceeded Rig manriding limit. 10:00 Wind 33knts - Heave 1.8m - Pitch 1.5° - Roll 0.9° 11:00 Wind 33knts - Heave 1.6m - Pitch 0.8° - Roll 0.9° 12:00 Wind 35knts - Heave 1.8m - Pitch 0.8° - Roll 0.9° 13:00 Wind 35knts - Heave 2.2m - Pitch 0.9° - Roll 0.9° 14:00 Wind 33knts - Heave 2.4m - Pitch 0.9° - Roll 0.9° 15:00 Wind 35knts - Heave 2.2m - Pitch 0.9° - Roll 0.9° 16:00 Wind 30knts - Heave 2.4m - Pitch 0.8° - Roll 0.8° 17:00 Wind 30knts - Heave 1.6m - Pitch 0.6° - Roll 0.8° 18:00 Wind 31knts - Heave 1.8m - Pitch 0.7° - Roll 0.8°
30 Dec 2010	P11	Trip In / Out (G8)	1.50	1,311.0	Circulated while Geoservices repaired and reinstated well monitoring and logging system.



ADA / TAP OIL
CRAIGOW - 1
PROJECT NO. 10-1065

END OF WELL REPORT
R-10-1065 RPT- 001
REV - 0





FUGRO SUBSEA SERVICES (AUSTRALIA) PTY LTD

DOCUMENT REVISIONS

REV NO.	CHANGE EFFECTED	PREPARED	REVIEWED	APPROVED	DATE
A	Issued for checking	S.Maclean			4 Jan 2011
			M.Fife		11 Jan 2011
				C.Wilson	11 Jan 2011

DISTRIBUTION LIST

COPY HOLDER	FORMAT	HARD COPY	SOFT COPY
Fugro	Project Folder on server	☐	☒
Fugro	Project File	☒	☐
Valentin Tyulyakov	Transmittal No:	☐	☒
Client Name	Transmittal No:	☐	☐
		☐	☐
		☐	☐



TABLE OF CONTENTS

1. INTRODUCTION 4

2. LIST OF ABBREVIATIONS 4

3. HSE SUMMARY 4

4. OPERATIONAL OVERVIEW 4

4.1 HIGHLIGHTS 5

4.2 LOWLIGHTS 5

5. DVD CONTENTS LISTING 5



1. INTRODUCTION

This report covers the FSSAPTY ROV services for the well Craigow 1 from the 1400hrs 22nd November 2010 to 4th January 2011.

FSSAPTY were contracted by ADA/ TAP for Drill support operations on board the MODU Kan Tan IV.

2. LIST OF ABBREVIATIONS

ADA	Australian Drilling Associates Pty Ltd
MODU	Mobile Offshore Drilling Unit
FSSAPTY	Fugro Subsea Service (Australia) Pty Ltd
JHA	Job Hazard Analysis
ROV	Remote Operated Vehicle
TAP	Tap Oil Limited

3. HSE SUMMARY

Accidents or Incidents	1
Safety meetings and drills	3 attended
JHAs	21 JHAs
Hazard Observation Cards	38 cards
Environment	No environmental issues to report
Other	
Other	

4. OPERATIONAL OVERVIEW

The Craigow 1 well was spudded on the 23rd December 2010, drilled and abandoned on 4th January 2011.

During the well the ROV performed 10 dives at a total of 71 hours 26 minutes.

The Fugro ROV onboard for the campaign was FLV1020 with the following ancillary equipment:

- Schilling Orion 7 Function Manipulator
- Schilling Rigmaster 5 function manipulator
- Kongsberg Zoom and focus camera
- Kongsberg Low light camera
- VX gasket tool
- 38mm wire rope cutter
- Soft line cutter
- Abrasive rotary cutter
- Neron water pump to activate rig supplied Hot Stab and water jetting
- Mini Dredger
- Dredger
- Regan latch tool



- Imagenex 881A Sonar
- Drill cutting sampler mk 2

4.1 HIGHLIGHTS

The ROV was successfully utilised to perform the following tasks during the well:

- Pre spud seabed visual sonar clearance
- Assist with spudding in operations
- Subsea 'downhole camera' rigged and used to stab casing,
- Land out PGB
- Install wellhead gasket.
- Land out BOP
- Monitor slope indicators.
- Monitor for shallow gas release
- Pull BOP
- Pull casing and PGB back to surface
- Post abandonment seabed visual and sonar clearance survey

4.2 LOWLIGHTS

The ROV was non operational for several hours on 26th December 2010 attributed to loss of telemetry between the top side and subsea computers. No rig operations time was lost during this period.

5. DVD CONTENTS LISTING

VIDEO LOG 10-1065/1		
ROV Dive # 1 - 10		
Chapter	Length	Comments
1	0:00:38	Header and introduction
2	0:08:31	Pre drilling Seabed survey
3	0:04:00	Tag seabed, Spud well
4	0:00:08	POOH
5	0:01:28	Land PGB/ View slope indicators
6	0:00:53	Slope indicators
7	0:09:49	POOH cement stinger
8	0:04:20	BHA enters well



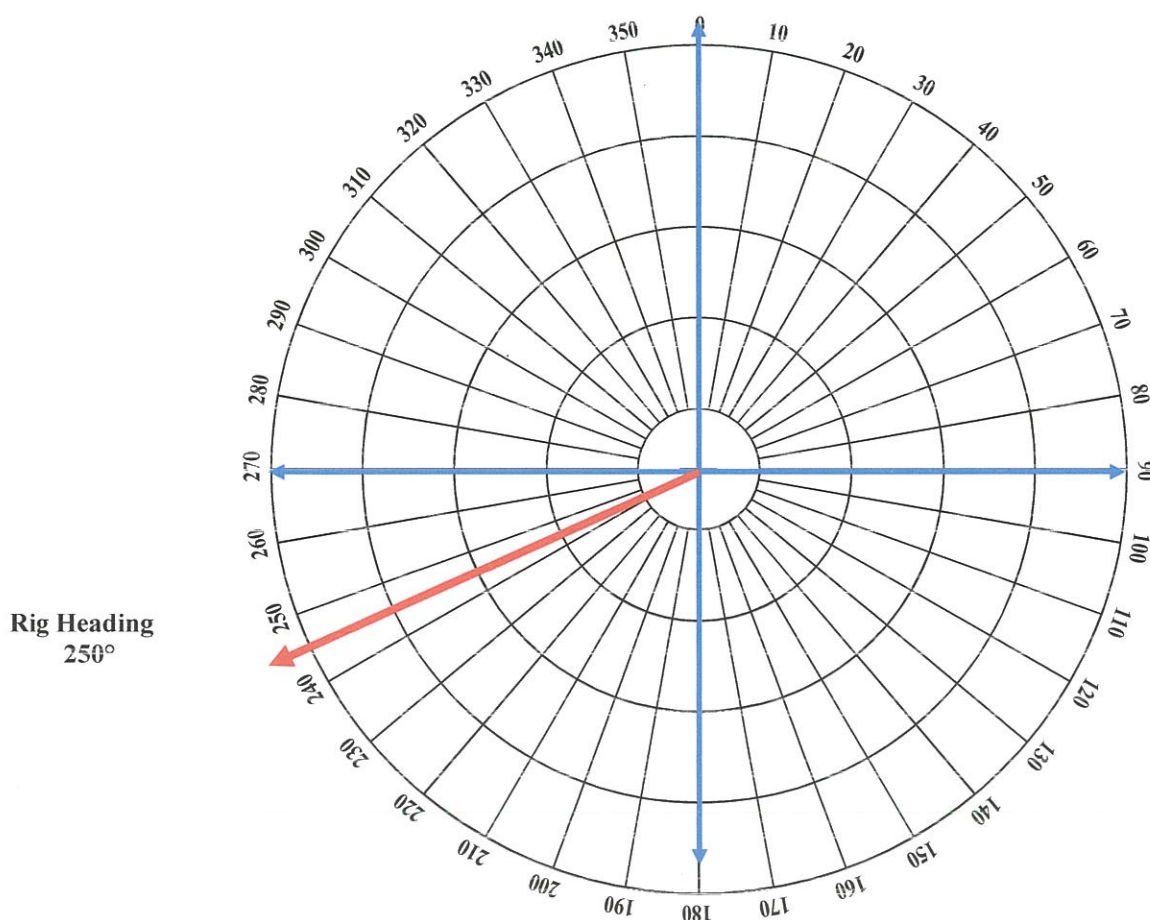
FUGRO SUBSEA SERVICES (AUSTRALIA) PTY LTD

9	0:03:06	Land wellhead
10	0:00:49	POOH running tool
11	0:00:50	Fit wellhead gasket
12	0:00:42	Slope indicators
13	0:03:20	Slope indicators-BOP hanging
14	0:02:02	Land BOP
15	0:00:24	Latch BOP
16	0:02:23	Slope indicators
17	0:00:24	Slope indicators
18	0:02:27	Slope indicators
19	0:02:20	Slope indicators
20	0:03:15	Unlatch and lift BOP
21	0:00:43	Remove wellhead gasket
22	0:01:27	Activate HAC on PGB
23	0:00:26	View HAC gauge on PGB
24	0:02:36	Stab Cutting Tool
25	0:00:20	Commence cut of casing
26	0:00:34	Retreive PGB and Wellhead
27	0:10:26	Post hole Seabed Survey
ROV Supervisor S Maclean		



FUGRO SUBSEA SERVICES (AUSTRALIA) PTY LTD **Seabed Clearance Certificate**

VESSEL/RIG:	KAN TAN IV	PROJECT:	Craigow - 1 (Post Hole)
LOCATION:	BASS STRAIT	DATE:	03 January 2011
Co-ordinates:			
Method of Survey: Sonar and video			
Type of Equipment Used: Imaginex 881A sonar		Contractor: ADA/TAP	
Range of Coverage: Sonar range 80m Video of sample seabed and sonar target to approx. 25m from origin		No. of scans: 10 overlapping scans on cardinal headings shown by blue arrows on diagram	
Rig Heading (Indicate on Diagram):		250°	
Positions of Rig Relative to Well During Scans: Directly over on same heading			
Height Above Seabed: 0m		Height of Scanning Unit During Scan: ≤ 2m	
Nature of Seabed: Fine sediment with coarse grit		Type of Wellhead: Drilquip	
Type of Records Made: DVD 1, video log, duplicated as required			



FUGRO SUBSEA SERVICES (AUSTRALIA) PTY LTD
Seabed Clearance Certificate



LIST OF TARGETS					
	Position (Range & Bearing)	Approx. Dimensions (M)	Description	Means of Identification	Recovered
1	NIL				
2					
3					
4					
5					
6					
7					
8					
9					
10					
Means of Identification			Reasons for not removing remaining debris:		
A - Sonar Scan					
B - Diving Inspection					
C - R.O.V.					
D - Rig Records					

Signatories:

Name Paul Jenkins.

Name S Maclean / B Griffiths

Position Client Representative
ADA / TAP

Position ROV Supervisor

Signature

Signature

03/01/2010

Guidance Notes

- Survey should extend to at least 70 metres from the well head.
- The first signatory should be the person responsible for the rig, either the OIM or Client representative.

**REPORT FOR THE
KAN TAN IV RIG MOVE TO
CRAIGOW-1**

FUGRO BTW JOB NO. 09011

Client : AUSTRALIAN DRILLING ASSOCIATES LTD

Date of Survey : 17– 27 December 2010

0	Final	S. Armstrong	13 Jan 2011
Rev	Description	Checked and Approved	Date

This document is confidential. The copyright © therein is vested in Fugro BTW Ltd. All rights reserved. Neither the whole, nor any part of this document may be disclosed to any third party nor reproduced, stored in any retrieval system or transmitted in any form nor by any means (electronic, mechanical, reprographic, recording nor otherwise) without the prior written consent of the copyright owner.

CONTENTS

		Page No.
	<i>ABSTRACT</i>	<i>i</i>
1.0	INTRODUCTION	1
1.1	Scope of Work	1
1.2	Sequence of Events	1
2.0	RESULTS	3
2.1	Final Position	3
2.2	Rig Heading	3
2.3	Anchor Positions	4
3.0	SAFETY	4
4.0	SURVEY OPERATIONS	5
4.1	Mobilisation	5
4.2	General Survey Procedures	5
4.3	Demobilisation	5
5.0	EQUIPMENT CALIBRATION	6
5.1	DGPS Navigation Integrity Check	6
5.2	Gyro Compass Calibration	6
6.0	SURVEY PARAMETERS	7
6.1	Geodetic Parameters	7
6.2	Differential GPS Reference Stations	8
6.3	Project Coordinates and Tolerances	8
7.0	SURVEY EQUIPMENT, VESSEL AND PERSONNEL	9
7.1	Equipment	9
7.2	Vessels	9
7.3	Personnel	9
8.0	CONCLUSIONS AND RECOMMENDATIONS	13
9.0	DISTRIBUTION	13

FIGURES

FIGURE 1-1 : GENERAL LOCATION DIAGRAM	2
FIGURE 7-1 : EQUIPMENT FLOW DIAGRAM – MODU <i>KAN TAN IV</i>	10
FIGURE 7-2 : EQUIPMENT FLOW DIAGRAM – AHVS	11
FIGURE 7-3 : RIG OFFSET DIAGRAM – MODU <i>KAN TAN IV</i>	12

TABLES

TABLE 2-1 : GEOGRAPHICAL POSITIONS FOR CRAIGOW-1	3
TABLE 2-2 : GRID COORDINATES FOR CRAIGOW-1	3
TABLE 2-3 : RIG HEADING FOR CRAIGOW-1	3
TABLE 2-4 : ANCHOR POSITIONS FOR CRAIGOW-1	4
TABLE 5-1 : DGPS NAVIGATION INTEGRITY CHECK	6
TABLE 6-1 : TRANSFORMATION PARAMETERS	7
TABLE 6-2 : DGPS REFERENCE STATIONS	8
TABLE 6-3 : PROJECT DESIGN COORDINATES	8
TABLE 7-1 : EQUIPMENT LIST	9

APPENDICES

APPENDIX A : DAILY OPERATIONS REPORTS
APPENDIX B : FINAL POSITIONING DATA
APPENDIX C : RIG MOVE POSITIONING SYSTEM SETUP, CHECKS AND CALIBRATIONS
APPENDIX D : CLIENT SUPPLIED INFORMATION

ABSTRACT

Between 17 December and 27 December 2010, Fugro BTW provided equipment and personnel for the semi-submersible Mobile Offshore Drilling Unit Kan Tan IV rig move to the Craigow-1 location in T/44P in the Bass Basin, Australia.

Surface positioning was provided by Fugro's Starfix Total Position System (Starfix TOPS) and Starfix.Seis Navigation Software.

The final position for the drill stem derived from HP GPS observations at Craigow-1 is:

Location Name:	Craigow-1
MGA94 (UTM Zone 55 south)	
Easting (m):	383473.486
Northing (m):	5616630.646
GDA94	
Latitude:	39° 35' 31.6857" S
Longitude:	145° 38' 34.5855" E
WGS84	
Latitude:	39° 35' 31.6562" S
Longitude:	145° 38' 34.5990" E
Rig Heading:	248.11° (True)

This position is 2.22m at a bearing of 42.93° (True) from the proposed Craigow-1 location.

All coordinates in this report are referenced to the Geocentric Datum of Australia 1994 (GDA94) and projected onto the Map Grid of Australia 1994 (MGA94) Zone 55 (CM 147°E), unless otherwise stated.

All times in this report are quoted in Australian Eastern Daylight Time (AEDT) unless otherwise stated.

1.0 INTRODUCTION

Fugro-BTW Ltd (Fugro) was contracted by ADA Ltd to provide navigation and positioning survey services onboard the semi-submersible Mobile Offshore Drilling Unit (MODU) *Kan Tan IV*, during the rig move from Silvereye-1 to Craigow-1 in T/44P in the Bass Basin, Australia.

A general location diagram is shown in Figure 1-1.

This report details the equipment used, survey parameters adopted, procedures employed and the results achieved. A section on safety is included in Section 3.0 of this report.

1.1 Scope of Work

Personnel and equipment were provided on a 24 hour per day basis for:

- Calibration and function testing of the survey equipment onboard the rig and the two Anchor Handling Vessels (AHVs).
- Surface navigation for the *Kan Tan IV* using Fugro's Starfix HP (High Performance) DGPS services.
- Surface navigation for AHVs during anchoring operations, using Starfix HP DGPS.
- Final rig surface positioning using DGPS observations.
- Final reporting of the positioning results.

1.2 Sequence of Events

On 17 December 2010 C Simonson and B Healy departed New Plymouth airport for Melbourne. On 18 December 2010 Fugro personnel departed Essendon airport for *Kan Tan IV* situated at the Silvereye-1 location.

The *Kan Tan IV* was positioned on location at Craigow-1 with all cross tensioning complete at 1515 on 23 December 2010.

At 0909 on 25 December 2010 the Final Fix for the *Kan Tan IV* position at Craigow-1 was completed.

C. Simonson departed the *Kan Tan IV* at 0900 on 24 December 2010.
B. Healy departed the *Kan Tan IV* at 1030 on 26 December 2010.

C. Simonson arrived back in NZ on 24 December 2010.
B. Healy arrived back in NZ on 27 December 2010.

Further details of Fugro's involvement in the rig move are presented in the Daily Operations Reports included in Appendix A.

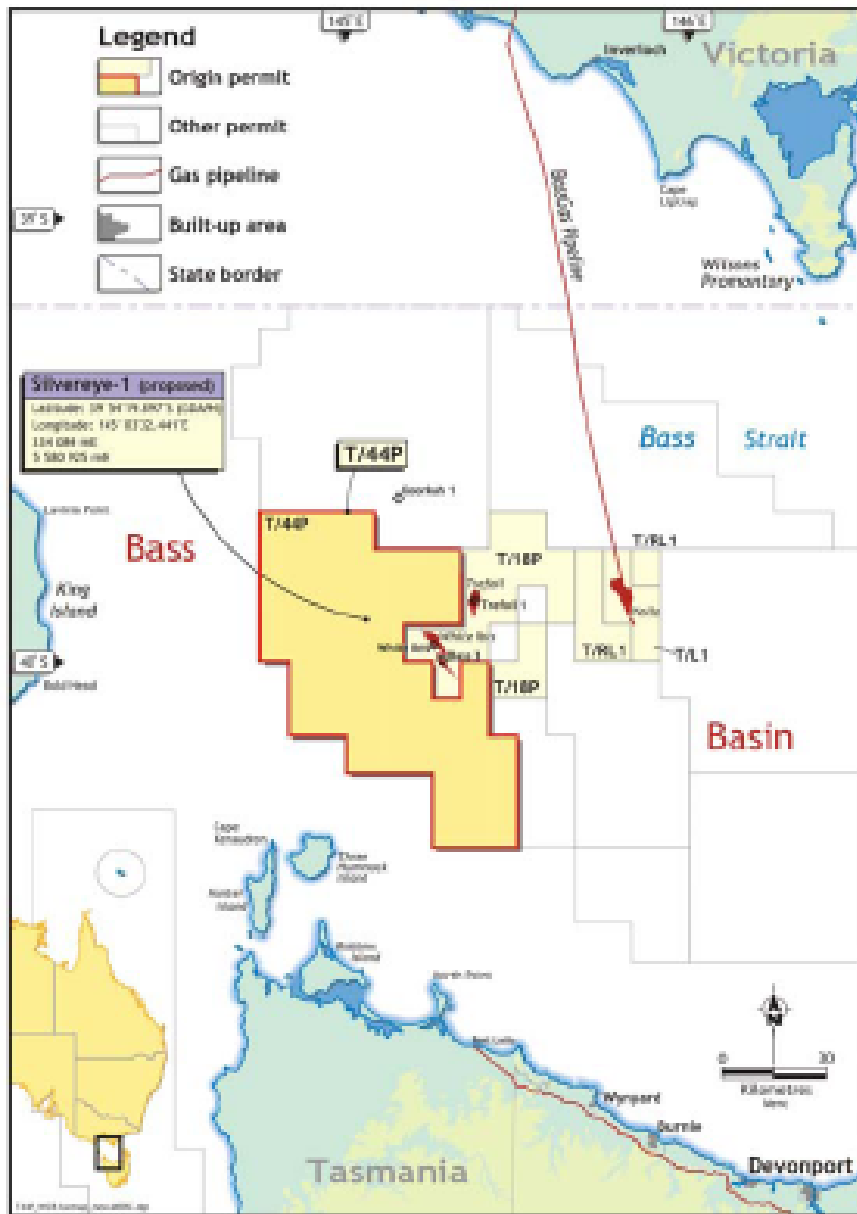


FIGURE 1-1 : GENERAL LOCATION DIAGRAM

2.0 RESULTS

2.1 Final Position

The final position of the *Kan Tan IV* drill stem was established upon the installation of the conductor at Craigow-1 location. A mean position was calculated from two hours of HP data logged between 0709 and 0909 on 25 December 2010. During this period, calculated drill stem coordinates from the primary and secondary positioning systems were logged at five second intervals in Starfix.Seis. Data from the primary positioning system were used for the final position calculation.

GDA94 geographical positions for Craigow-1 are shown in Table 2-1.

GDA94			
Position	Method	Latitude	Longitude
Drill Stem at Surface	Starfix HP	39° 35' 31.6857" S	145° 38' 34.5855" E
Proposed Location	-	39° 35' 31.7384" S	145° 38' 34.5222" E

TABLE 2-1 : GEOGRAPHICAL POSITIONS FOR CRAIGOW-1

MGA94 grid coordinates for Craigow-1 are shown in Table 2-2.

GDA94, MGA, UTM Zone 55, CM 147°E			
Position	Method	Easting (m)	Northing (m)
Drill Stem at Surface	Starfix HP	383473.486	5616630.646
Proposed Location	-	383472.000	5616629.000

TABLE 2-2 : GRID COORDINATES FOR CRAIGOW-1

This position is 2.22m at a bearing of 42.93° True (42.06° Grid) from the design location.

A copy of the original rig position field report is contained in Appendix B.

2.2 Rig Heading

The heading of the *Kan Tan IV* was established by calculating the average heading during two hours of gyro data logged between 0709 and 0909 on 25 December 2010. During this period, gyro readings were logged at five second intervals in Starfix.Seis.

The *Kan Tan IV*'s heading is shown in Table 2-3.

Description	Method	True	Grid
Rig Heading	Starfix.TOPS	248.11°	247.24°
Proposed Heading	-	245.00°	244.14°

TABLE 2-3 : RIG HEADING FOR CRAIGOW-1

2.3 Anchor Positions

The approximate locations of the *Kan Tan IV*'s anchors are shown in Table 2-4.

GDA94, MGA, UTM Zone 55, CM 147°E			
Anchor	Easting (m)	Northing (m)	Deployed By
1	383508.9	5615700.9	<i>Far Fosna</i>
2	382880.6	5615932.3	<i>Far Fosna</i>
3	382532.0	5616589.7	<i>Far Fosna</i>
4	382745.9	5617275.9	<i>Far Scimitar</i>
5	383446.7	5617608.7	<i>Far Scimitar</i>
6	384216.9	5617455.9	<i>Far Fosna</i>
7	384420.7	5616662.5	<i>Far Fosna</i>
8	384174.8	5616029.3	<i>Far Fosna</i>

TABLE 2-4 : ANCHOR POSITIONS FOR CRAIGOW-1

The approximate coordinates of the *Kan Tan IV*'s anchors were calculated from:

- The azimuth from the fairlead position to the AHVs stern position at the time of anchor deployment
- The range from the fairlead position to the anchor, as obtained from a correction applied to the AHVs stern position at the time of anchor deployment based on workwire paid out and water depth.

3.0 SAFETY

All work undertaken by Fugro personnel during the project was performed within the guidelines of Fugro's Health Safety & Environmental Management System Manual (HSEMS).

Fugro personnel worked within all project safety guidelines and plans adopted by ADA Ltd and Maersk.

No safety incidents involving Fugro personnel were reported during the project.

Fugro personnel attended all relevant safety meetings onboard the rig as required.

4.0 SURVEY OPERATIONS

4.1 Mobilisation

The survey equipment onboard the *Kan Tan IV*, *Far Scimitar* and *Far Fosna* was mobilised between 24 July and 12 August 2009. Rig offsets were checked and a total station traverse was conducted to determine C-O values for the Gyro compass and Starfix.TOPS.

The equipment was confirmed as operational on the *Kan Tan IV* and AHVs after arrival at 1000 on 19 December 2010.

4.2 General Survey Procedures

Anchor recovery commenced at 0426 on 22 December 2010. During recovery of the anchors the AHVs were provided with anchor lines via the Wombat telemetry system. The AHVs stripped back along these anchors during recovery.

At 1400 on 22 December 2010 the tow to Craigow-1 began.

Anchor deployment operations commenced at 2245 on 22 December 2010. During the deployment of the anchors, the AHVs were provided with anchor lines via the Wombat telemetry system. The AHVs ran out the anchors along this line to the desired drop point.

The *Kan Tan IV* was positioned at Craigow-1 with all anchoring, cross-tensioning and ballasting complete at 1515 on 23 December 2010. A Pre Spud Fix report was logged between 1616 and 1631 on 23 December 2010 which was issued to the ADA Ltd Company Representative. On the completion of the conductor installation, final position data was logged between 0709 and 0909 on 25 December 2010 (see Appendix B).

4.3 Demobilisation

The survey equipment onboard the *Kan Tan IV* was demobilised on 25 December 2010 into the Fugro BTW container ready to be shipped to Melbourne.

C. Simonson departed the *Kan Tan IV* at 0900 on 24 December 2010.

B. Healy departed the *Kan Tan IV* at 1030 on 26 December 2010.

5.0 EQUIPMENT CALIBRATION

5.1 DGPS Navigation Integrity Check

In order to prove the correct operation of the navigation systems installed on board the *Kan Tan IV* DGPS data was logged for 15 minutes on 18 December 2010 whilst the rig was located at Silvereye-1, the results of the check against Silvereye-1 established coordinates is shown in Table 5-1.

GDA94, MGA, UTM Zone 55, CM 147°E		
	Easting (m)	Northing (m)
Established Well Coordinates	334088.708	5580927.328
Observed Coordinates	334088.723	5580927.158
Difference	0.015	-0.170

TABLE 5-1 : DGPS NAVIGATION INTEGRITY CHECK

Details of all positioning checks are provided in Appendix C.

5.2 Gyro Compass Calibration

The primary heading system Starfix.TOPS calculates a highly accurate real-time True heading using two GPS antennas set up at a known baseline and offset.

The calibration of the Starfix.TOPS heading system and survey gyro compasses comprised a total station traverse to determine the correction in heading from the GPS antenna baseline and the rig centreline.

These observations were carried out while the rig was alongside Lascelles Wharf in Geelong and stationary on 11 August 2009.

As the GPS baseline is a constant offset from the rig centreline and GPS is not affected by a slow 'drift' effect like conventional gyro compasses, therefore regular sun observations for a gyro compass correction are not required.

A C-O (Corrected-Observed) value of 99.98° was determined for the Starfix.TOPS baseline correction to align it to the rig centreline. This correction was applied in the navigation suite.

6.0 SURVEY PARAMETERS

6.1 Geodetic Parameters

All coordinates are referenced to the Geocentric Datum of Australia 1994 (GDA94) unless otherwise noted. The Global Positioning System (GPS) operates on the World Geodetic System 1984 (WGS84) datum. Fugro's Differential GPS Reference Stations are currently defined in the International Terrestrial Reference Frame 2000 (ITRF2000 Epoch 2009.5) datum. Due to the continual refinement of the WGS84 reference frame, for all cases, the transformation parameters indicate that the WGS84 and ITRF2000 reference frames are essentially identical.

Datum	:	World Geodetic System 1984 (WGS84)
Reference Spheroid	:	World Geodetic System 1984
Semi Major Axis	:	6378137.000m
Inverse flattening	:	298.257223563
Datum	:	Geocentric Datum of Australia 1994 (GDA94)
Reference Spheroid	:	Geodetic Reference System 1980 (GRS80)
Semi Major Axis	:	6378137.000m
Inverse flattening	:	298.257222101

The following seven parameter datum transformation (Table 6-1) was used in Fugro's software to transform WGS84 (ITRF2000 Epoch 2010.5) coordinates to GDA94 coordinates. These parameters are calculated from the 14 parameter transformation defined by Geoscience Australia. Fugro follows the coordinate Frame Rotation method (as defined by UKOOA convention) for datum transformations.

Transformation Parameters from WGS84 (ITRF2000 Epoch 2010.5) to GDA94			
dX	+0.0394m	rX	+0.019622"
dY	-0.0574m	rY	+0.016407"
dZ	-0.1383m	rZ	+0.020235"
dS	0.002286ppm		

TABLE 6-1 : TRANSFORMATION PARAMETERS

The proposed drilling location and all project coordinates are grid coordinates on the Map Grid of Australia.

Grid	:	Map Grid of Australia (MGA94)
Projection	:	Universal Transverse Mercator
Latitude of Origin	:	0°
Central Meridian	:	147° E (UTM Zone 55)
Central Scale Factor	:	0.9996
False Easting	:	500000m
False Northing	:	10000000m
Units	:	Metres

6.2 Differential GPS Reference Stations

Fugro's Differential GPS Reference Stations are currently defined in the ITRF2005 (Epoch 2010.5) datum and are shown in Table 6-2.

STARFIX DGPS REFERENCE STATIONS (DATUM ITRF2005 EPOCH 2010.5)					
Station	Id	Latitude	Longitude	Height (m)	Uplink
Melbourne	385	37° 47' 59.25910" S	144° 57' 39.31317" E	67.446	OCSat
Bathurst	336	33° 25' 46.87252" S	149° 34' 01.97224" E	756.594	OCSat
Brisbane	275	27° 28' 38.48179" S	153° 01' 37.35492" E	93.022	OCSat

TABLE 6-2 : DGPS REFERENCE STATIONS

6.3 Project Coordinates and Tolerances

Project target coordinates and surface tolerance for Craigow-1 were supplied by ADA Ltd and are shown in Table 6-3. Client supplied project information is provided in Appendix D.

GDA94, MGA, UTM Zone 55, CM 147°E			
Location	Easting (m)	Northing (m)	Tolerance
Craigow-1	383472.000	5616629.000	25m radius

TABLE 6-3 : PROJECT DESIGN COORDINATES

7.0 SURVEY EQUIPMENT, VESSEL AND PERSONNEL

7.1 Equipment

Survey equipment used for positioning the *Kan Tan IV* is shown in Table 7-1.

Equipment Listing	
<i>Kan Tan IV</i>	
3 x	Starfix 8200HP (1 APSat link, 1 spare)
2 x	Starfix.TOPS Total Positioning System (1 OCSat link, 1 spare)
2 x	Pentium 4 computers, running Fugro's Starfix.Seis navigation software suite (1 spare)
5 x	20" monitors (2 spare)
1 x	SG Brown gyro compass
2 x	Uninterruptible power supply units (UPS)
2 x	Teledesign radio/modem (1 spare)
2 x	Esteem Wireless WiFi radios
1 x	Theodolite, tripod and dark glass
1 x	Printer
<i>AHVs (complete system per vessel, plus one complete set of spares)</i>	
1 x	Pentium 4 computer, running Starfix Display/Wombat
1 x	Monitor
1 x	Starfix 8200HP unit
1 x	Fluxgate compass
1 x	Teledesign radio/modem

TABLE 7-1 : EQUIPMENT LIST

All systems were provided complete with all necessary cabling, connectors, power supplies, antennae, accessories, manuals and consumables.

Refer to Figure 7-1 for an equipment flow diagram for the *Kan Tan IV* and Figure 7-2 for the equipment flow diagram for the AHVs.

7.2 Vessels

The vessels used for anchor handling and towing the *Kan Tan IV* were the *Far Fosna* and the *Far Scimitar*.

Refer to Figure 7-3 for the rig offsets.

7.3 Personnel

Fugro personnel involved in the rig move and positioning operations were as follows:

Carey Simonson	Surveyor in Charge	17 Dec – 24 Dec 2010
Brett Healy	Surveyor	17 Dec – 27 Dec 2010

KAN TAN IV

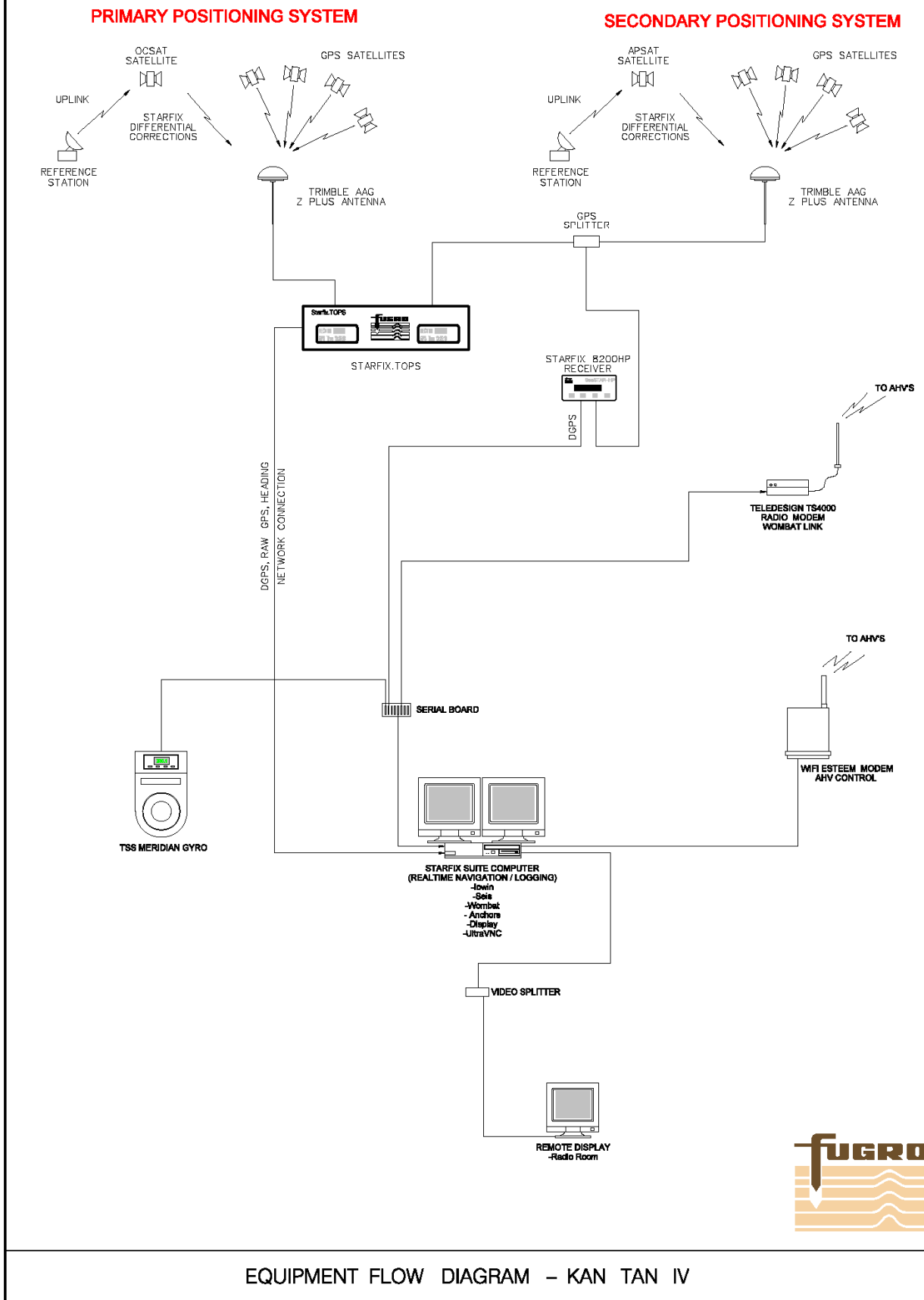
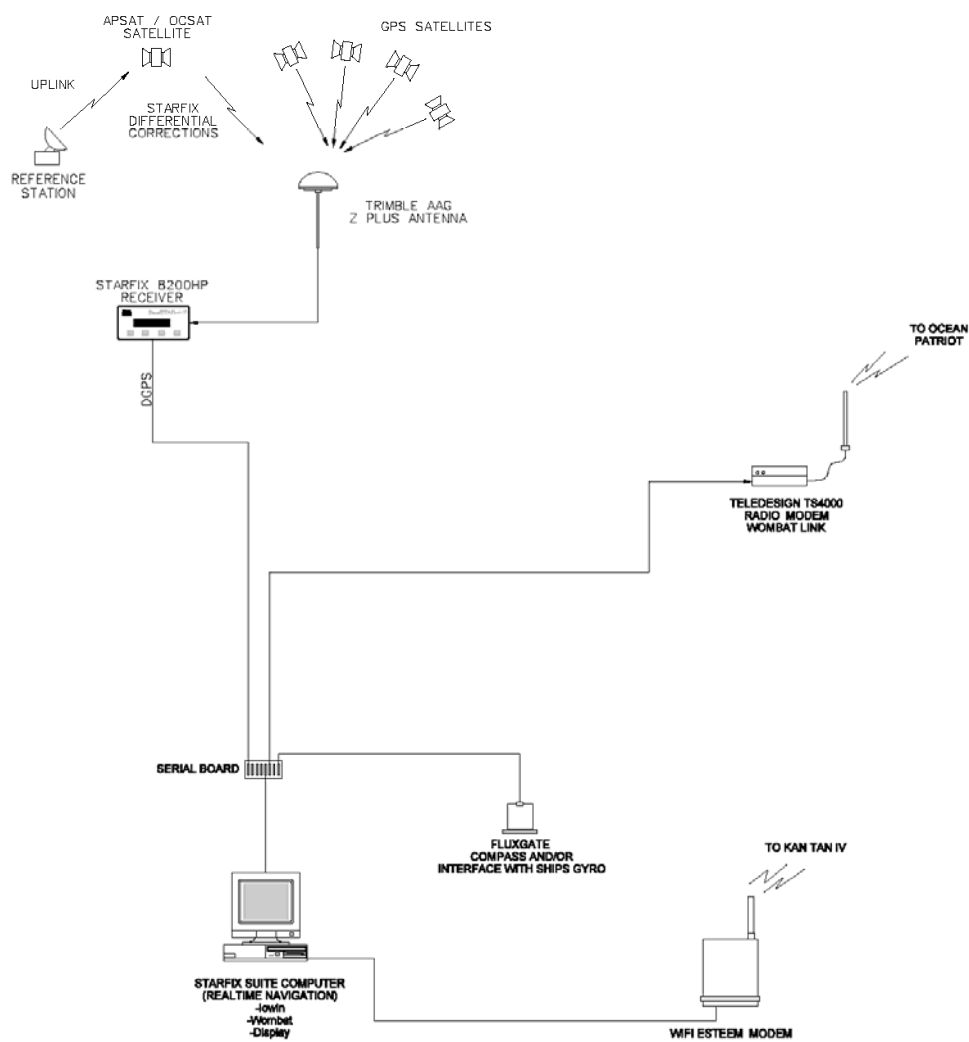


FIGURE 7-1 : EQUIPMENT FLOW DIAGRAM – MODU KAN TAN IV

ANCHOR HANDLING / SUPPORT VESSEL'S

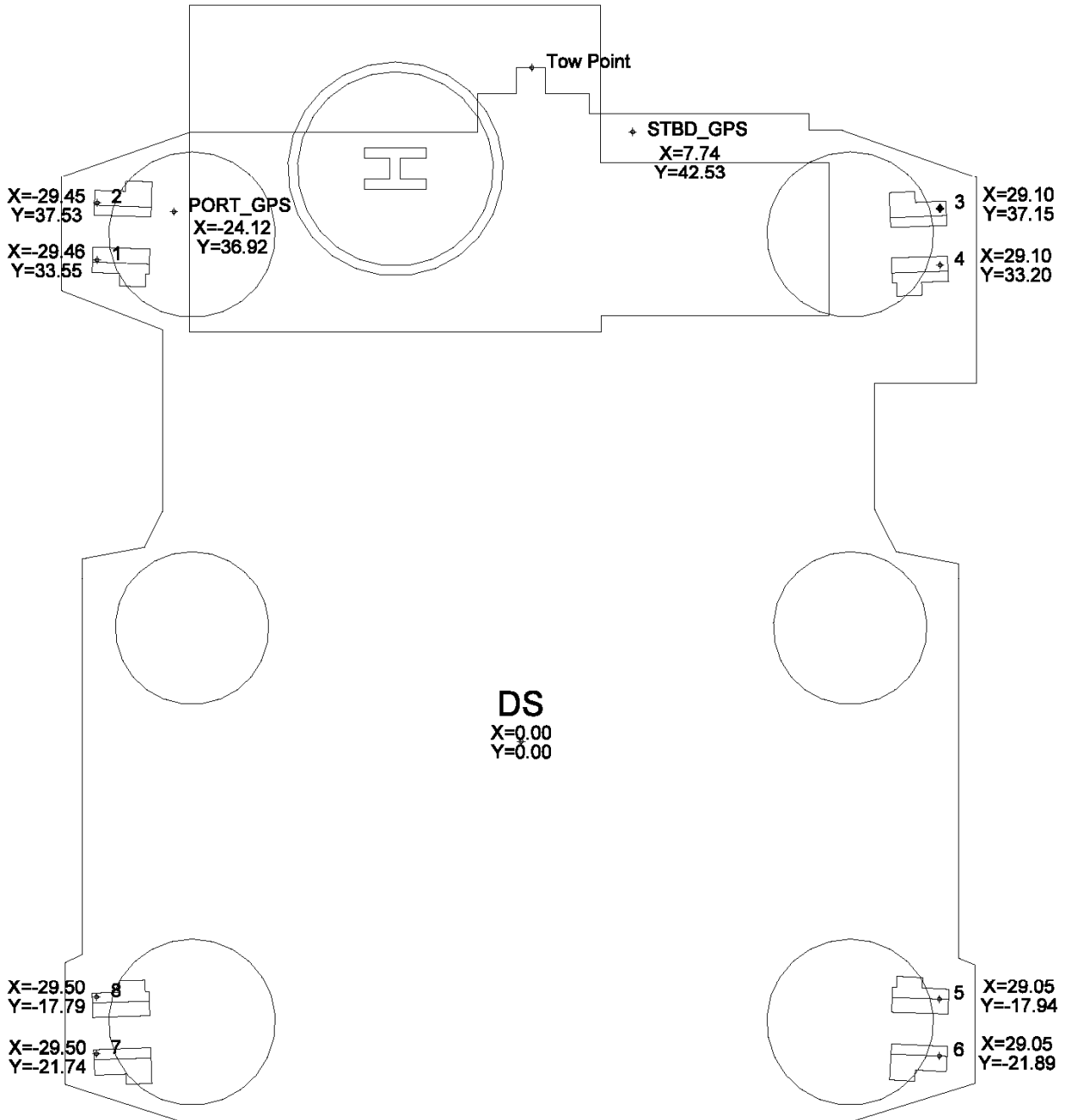
FAR SCIMITAR and FAR FOSNA



EQUIPMENT FLOW DIAGRAM – AHV'S

FIGURE 7-2 : EQUIPMENT FLOW DIAGRAM – AHVS

KAN TAN IV



KAN TAN IV OFFSETS

FIGURE 7-3 : RIG OFFSET DIAGRAM – MODU KAN TAN IV

8.0 CONCLUSIONS AND RECOMMENDATIONS

- The *Far Fosna* and *Far Scimitar* were successfully positioned during the towing and anchoring operations.
- The surface position of the Craigow-1 well was determined.
- Fugro personnel worked well together with the Tow-masters, Marine and AHV crews resulting in a safe, efficient and positive working environment.

9.0 DISTRIBUTION

Copies of this report have been distributed as follows:

ADA Ltd	: 2 hard copies
Attn: Mr Rajiv Tikkoo	: 1 electronic copy

**APPENDIX A :
DAILY OPERATIONS REPORTS**

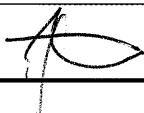
Fugro-BTW
PM-F50
DAILY OPERATIONS REPORT



CLIENT: ADA PTY LTD		LOCATION: MELBOURNE, AUS		DATE: 22/12/10	
PROJECT: KAN TAN IV RIG MOVE TO CRAIGOW-1		VESSEL: KAN TAN IV		JOB NO: 09011	
FROM	TO	SUMMARY OF OPERATIONS			
0001		Continued De-ballasting			
0420		PCP spares passed to Far Fosna			
0420		PCP spares passed to Far Scimitar			
0426		PCP # 4 passed to Far Fosna			
0430		Completed De-ballasting			
0444		PCP # 8 passed to Far Scimitar			
0504		Anchor # 4 off bottom			
0515		Anchor # 8 off bottom			
0604		Anchor # 8 Racked			
0615		Anchor # 4 Racked			
0625		PCP # 8 Passed back to Kan Tan IV			
0627		PCP # 4 Passed back to Kan Tan IV			
0631		PCP # 1 passed to Far Scimitar			
0636		PCP # 5 passed to Far Fosna			
0705		Anchor # 5 off bottom			
0706		Anchor # 1 off bottom			
0750		Anchor # 5 Racked			
0803		PCP # 5 Passed back to Kan Tan IV			
0810		PCP # 3 passed to Far Fosna			
0826		PCP # 1 Passed back to Kan Tan IV			
0936		Far Scimitar connected to Tow Bridle			
0948		Anchor # 3 Racked			
1019		PCP # 7 passed to Far Fosna			
1045		Anchor # 7 off bottom			
1129		Anchor # 7 Racked			
1145		PCP # 7 Passed back to Kan Tan IV			
1153		PCP # 2 passed to Far Fosna			
1212		Anchor # 2 off bottom			
1219		Commence Heaving in Anchor # 6			
1252		Anchor # 2 Racked			
1255		Far Fosna stopping operations for Helicopter			
1300		Helicopter on deck			
1312		Helicopter off deck			
1325		PCP # 2 Passed back to Kan Tan IV			
1326		Continue Heaving in Anchor # 6			
1343		Anchor # 6 off bottom			
1400		Under Tow to Craigow-1			
2145	2150	Toolbox Meeting for Anchor Lay			
2245		PCP # 7 passed to Far Fosna			
2308		Anchor # 6 on bottom			
2348		Far Fosna running out #7			
HSE DETAILS					
Emergency Muster	0	Toolbox Meetings	1	JHA's	0
Incidents	0	Hazard Cards Submitted	0	HSE / Project Meetings	0
Safety Drills Fire/Abandon	0	Safety Notices Received	0	Vessel inductions	0
Comments:					

Fugro-BTW
PM-F50
DAILY OPERATIONS REPORT



EQUIPMENT RIG	NO.	EQUIPMENT REMOTE	NO.	PERSONNEL	TITLE
Starfix Seis	2	Starfix Wombat (remote)	2	C. Simonson	Surveyor in Charge
Starfix HP DGPS	1	Fluxgate Compass	1	B. Healy	Surveyor
Radio Modem	2	Radio Modem	2		
UPS	2	Starfix HP DGPS	2		
Theodolite	1				
SG Brown Gyro	1				
Starfix.TOPS	2				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					
AUTHORISED CONTRACT CHANGES / COMMENTS:					
Party Chief Signature:		Client Representative Signature:		D O R Number	
		 P. Simonson		09011-06	

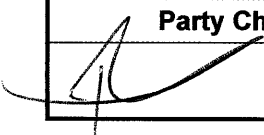
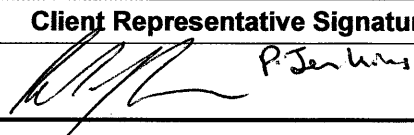
Fugro-BTW
PM-F50
DAILY OPERATIONS REPORT



CLIENT: ADA PTY LTD		LOCATION: MELBOURNE, AUS		DATE: 23/12/10	
PROJECT: KAN TAN IV RIG MOVE TO CRAIGOW-1		VESSEL: KAN TAN IV		JOB NO: 09011	
FROM	TO	SUMMARY OF OPERATIONS			
0007		Anchor # 7 on bottom			
0033		PCP # 7 passed back to KT			
0052		PCP # 3 passed to Far Fosna			
0115		Far Fosna running out Anchor # 3			
0118		Halt to running out, winch # 3 over temp			
0122		Cont'd running out			
0136		Anchor # 3 on bottom			
0156		PCP # 3 passed back to Kan Tan IV			
0217		PCP # 2 passed to Far Fosna			
0236		Far Fosna running out Anchor # 2			
0302		Anchor # 2 on bottom			
0305		Far Fosna chasing back on Anchor # 2			
0326		Far Scimitar unconnected from tow bridle			
0326		PCP # 2 passed back to Kan Tan IV			
0339		PCP # 1 passed to Far Fosna			
0400		Far Fosna running out Anchor # 1			
0419		PCP # 5 passed to Far Scimitar			
0422		Anchor # 1 on bottom			
0424		Far Fosna chasing back on Anchor # 1			
0448		Far Scimitar running out Anchor # 5			
0509		PCP # 8 passed to Far Fosna			
0527		Far Fosna running out Anchor # 8			
0547		Anchor # 8 on bottom			
0549		Anchor # 5 on bottom			
0550		Far Scimitar and Far Fosna chasing back			
0611		PCP # 8 passed back to Kan Tan IV			
0622		PCP # 5 passed back to Kan Tan IV			
0640		PCP # 4 passed to Far Scimitar			
0655		Commence Ballasting			
0700		Far Scimitar running out Anchor # 4			
0721		Anchor # 4 on bottom			
0723		Far Scimitar chasing back on Anchor # 4			
0745		PCP # 4 passed back to Kan Tan IV			
0730		All Stop to Ballasting. Waiting on Cranes			
0800		Recommence Ballasting to Drilling Depth			
1135		Ballasting Complete. Rig at Drilling Draft			
1140		Commence Pretension			
1411		Pretension completed			
1515		Rig in Position			
1616	1631	Pre Spud Fix			
1631		C Simonson waiting to depart Kan Tan IV, B Healy waiting to complete final fix			
HSE DETAILS					
Emergency Muster	0	Toolbox Meetings	1	JHA's	0
Incidents	0	Hazard Cards Submitted	0	HSE / Project Meetings	0
Safety Drills Fire/Abandon	0	Safety Notices Received	0	Vessel inductions	0
Comments:					

Fugro-BTW
PM-F50
DAILY OPERATIONS REPORT



EQUIPMENT RIG	NO.	EQUIPMENT REMOTE	NO.	PERSONNEL	TITLE
Starfix Seis	2	Starfix Wombat (remote)	2	C. Simonson	Surveyor in Charge
Starfix HP DGPS	1	Fluxgate Compass	1	B. Healy	Surveyor
Radio Modem	2	Radio Modem	2		
UPS	2	Starfix HP DGPS	2		
Theodolite	1				
SG Brown Gyro	1				
Starfix.TOPS	2				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					
AUTHORISED CONTRACT CHANGES / COMMENTS:					
Party Chief Signature:		Client Representative Signature:		D O R Number	
				09011-07	

**APPENDIX B :
FINAL POSITIONING DATA**



Starfix Final Fix Report



Fugro Job Number 09011
Job Name Rig Move to Craigow-1
Fugro Personnel C. Simonson, B. Healy
Client Name Australian Drilling Associates Pty Ltd
Client Representative P. Jenkins
Sampling Started 25 Dec 2010 7:09:45 a.m. (local)
Sampling Ended 25 Dec 2010 9:09:49 a.m. (local)
Comment Final Fix at Craigow-1

Intended Offset / Well Location

Geodetic Datum GDA94
Latitude 39°35'31.7384"S
Longitude 145°38'34.5222"E
Projection Universal Transverse Mercator Zone: 55
Easting 383472.000 m
Northing 5616629.000 m
Intended Rig Heading 245.00 °T

Final DGPS Position Fix Summary for Kan Tan IV At Craigow-1, AUS

DS computed from MultiFix.GGA (Primary)

DS Offset From CRP

Starboard 0.000 m
Forward 0.000 m
Up 0.000 m

Geodetic Datum GDA94 WGS84
Latitude 39°35'31.6857"S 39°35'31.6562"S
Longitude 145°38'34.5855"E 145°38'34.5990"E

Projection Universal Transverse Mercator Zone: 55

Easting 383473.486 m
Northing 5616630.646 m
Height 21.788 m (ellipsoidal)

Final Rig Heading 248.11 °T
247.24 °G (Convergence -0.86° Australia/New Zealand)

Gyro C-O 99.98 °

Position is 2.22 m @ 42.93 °T (42.06 °G) FROM intended location

DS computed from 8200HP_APSAT.GGA (Secondary)

Geodetic Datum GDA94
Latitude 39°35'31.6847"S
Longitude 145°38'34.5843"E

Projection Universal Transverse Mercator Zone: 55

Easting 383473.457 m
Northing 5616630.677 m
Height 21.879 m (ellipsoidal)

Position is 2.22 m @ 40.98 °T (40.11 °G) FROM intended location

Positioning System Comparison (System 2 minus System 1)

Delta Easting -0.029 m
Delta Northing 0.030 m
Delta Height 0.091 m

Party Chief: 

Client Representative: 

P. Jenkins
25-Dec-2010



Starfix Final Fix Report



Geodetic Parameters

Geodetic Datum	GDA94		
Ellipsoid	GRS80		
Semi-Major Axis	6378137.000 m		
Inverse Flattening	298.2572221010		
Eccentricity^2	0.006694380022901		
DX	0.0394 m	RX	0.0196 arc seconds
DY	-0.0574 m	RY	0.0164 arc seconds
DZ	-0.1383 m	RZ	0.0202 arc seconds
D Scale	0.0023 ppm		
Rotation Convention	+RZ=-RLongitude		
Projection	Universal Transverse Mercator Zone: 55		
Latitude of Origin	0°00'00.0000"N		
Longitude of Origin	147°00'00.0000"E		
False Easting	500000.000 m		
False Northing	10000000.000 m		
Scale Factor	0.9996		



Starfix Final Fix Report



Final Primary Antenna Position (MultiFix.GGA)

1260 observations used out of a total of 1260

Primary Antenna Offset from CRP

Starboard	7.740 m
Forward	42.530 m
Up	0.000 m

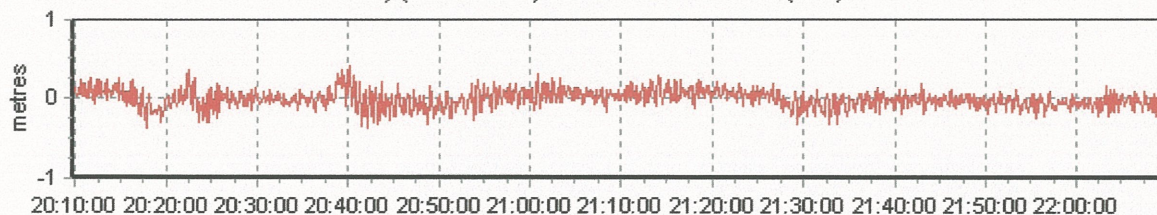
Mean

Geodetic Datum	WGS84
Latitude	39°35'31.9376"S
Longitude	145°38'32.8237"E
Ellipsoidal Ht	21.73 m
Geodetic Datum	GDA94
Latitude	39°35'31.9671"S
Longitude	145°38'32.8102"E
Ellipsoidal Ht	21.79 m
Projection	Universal Transverse Mercator Zone: 55
Easting	383431.272 m
Northing	5616621.333 m
HDOP	0.83
Heading	248.11 °T
Age Of Corrections	17.6 s
Satellites	14

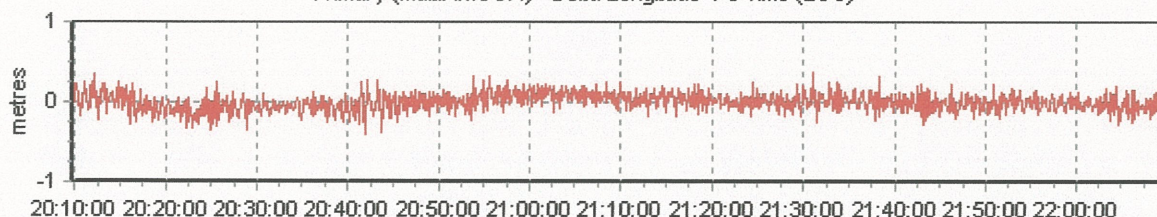
Standard Deviation

Latitude or Northing	0.11 m
Longitude or Easting	0.11 m
Ellipsoidal Height	0.31 m
HDOP	0.12
Heading	0.10 °T

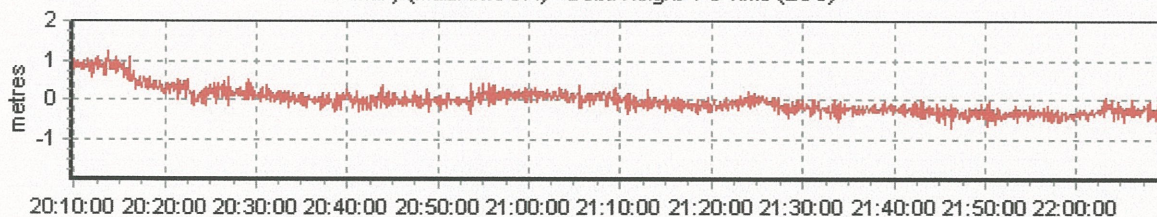
Primary (MultiFix.GGA) - Delta Latitude V's Time (LOC)



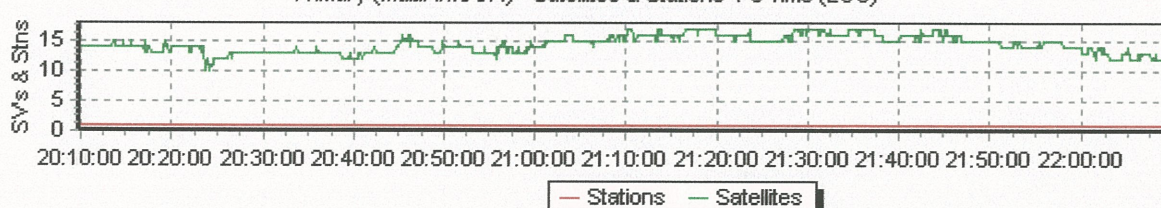
Primary (MultiFix.GGA) - Delta Longitude V's Time (LOC)



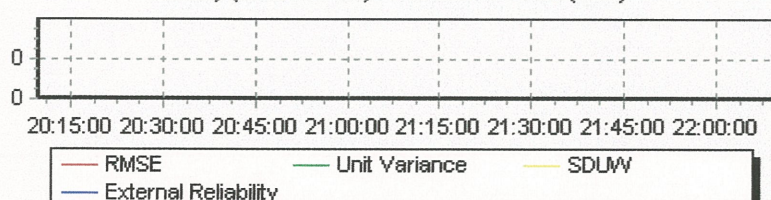
Primary (MultiFix.GGA) - Delta Height V's Time (LOC)



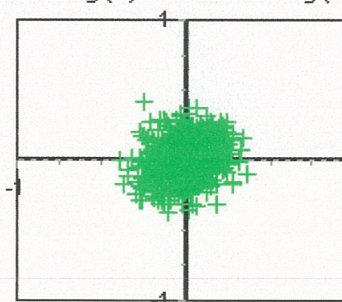
Primary (MultiFix.GGA) - Satellites & Stations V's Time (LOC)



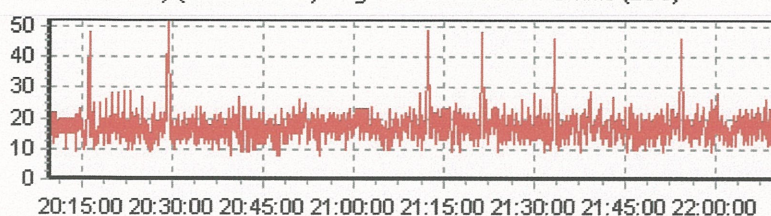
Primary (MultiFix.GGA) - Qualities V's Time (LOC)



Delta Easting (m) V's Delta Northing (m)



Primary (MultiFix.GGA) - Age Of Corrections V's Time (LOC)



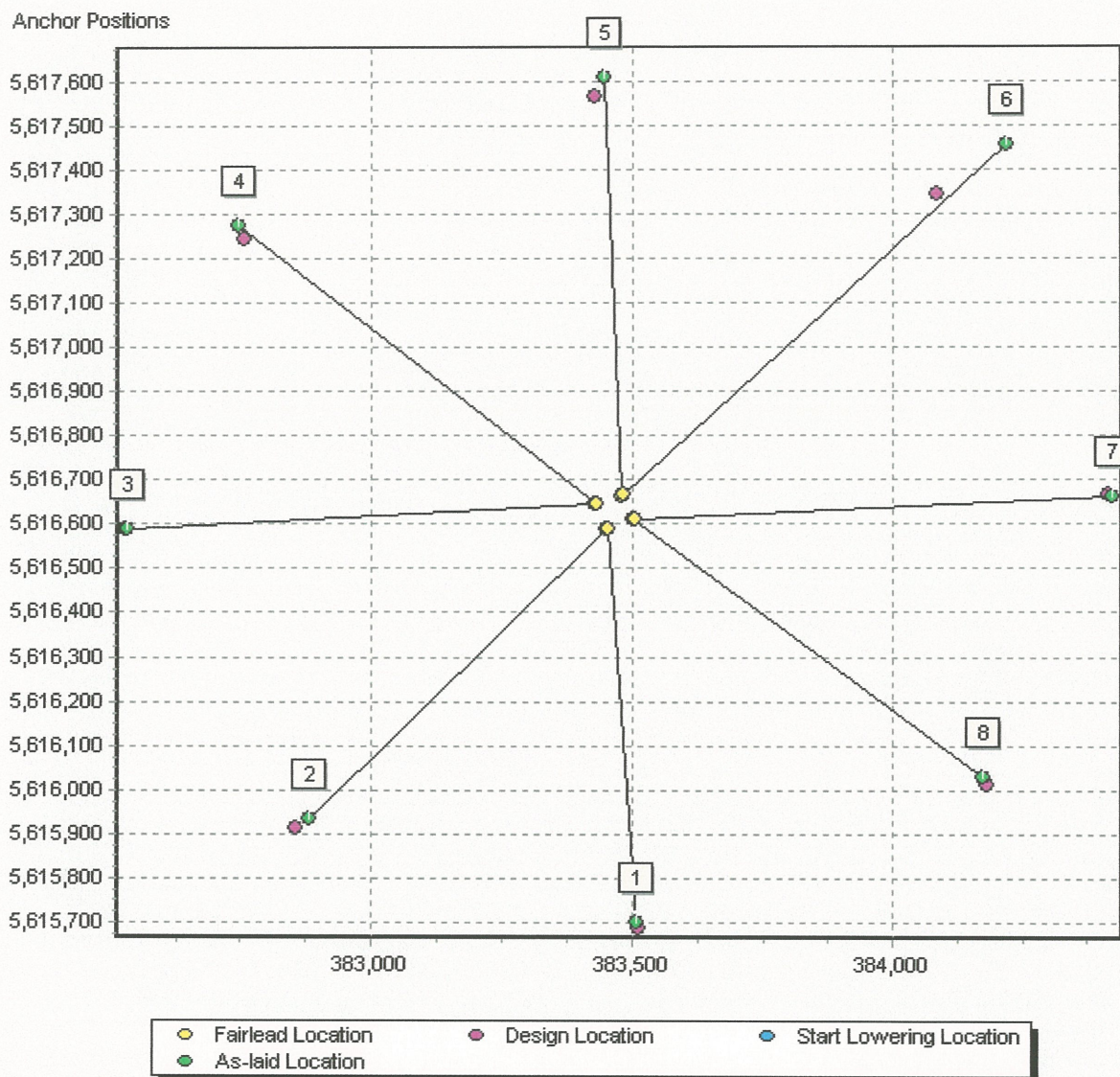


Starfix Final Fix Report



Anchors of Kan Tan IV

Fairlead	Status	Universal Transverse Mercator Zone: 55		
1	Laid	39°36'02.3384"S	145°38'35.6440"E	(Design)
		383513.000 m	5615686.000 m	
		39°36'01.8527"S	145°38'35.4808"E	(As-Laid)
		383508.882 m	5615700.916 m	
		15.474 m @	164°33'59.3213"	(TO design:Grid)
		891.281 m @	176°27'57.6091"	(FL TO A-L:Grid)
2	Laid	39°35'54.6861"S	145°38'08.1630"E	(Design)
		382854.000 m	5615912.000 m	
		39°35'54.0409"S	145°38'09.2916"E	(As-Laid)
		382880.617 m	5615932.300 m	
		33.475 m @	232°40'05.6143"	(TO design:Grid)
		869.322 m @	220°56'27.9290"	(FL TO A-L:Grid)
3	Laid	39°35'32.6034"S	145°37'54.8871"E	(Design)
		382527.000 m	5616588.000 m	
		39°35'32.5492"S	145°37'55.0958"E	(As-Laid)
		382531.953 m	5616589.744 m	
		5.251 m @	250°36'02.7951"	(TO design:Grid)
		897.606 m @	266°35'29.3753"	(FL TO A-L:Grid)
4	Laid	39°35'11.4113"S	145°38'04.9457"E	(Design)
		382757.000 m	5617245.000 m	
		39°35'10.4053"S	145°38'04.5002"E	(As-Laid)
		382745.902 m	5617275.856 m	
		32.791 m @	160°13'02.8757"	(TO design:Grid)
		932.006 m @	312°37'49.5414"	(FL TO A-L:Grid)
5	Laid	39°35'01.2984"S	145°38'33.2297"E	(Design)
		383427.000 m	5617567.000 m	
		39°34'59.9554"S	145°38'34.0810"E	(As-Laid)
		383446.682 m	5617608.710 m	
		46.121 m @	205°15'40.2154"	(TO design:Grid)
		944.881 m @	358°03'09.0252"	(FL TO A-L:Grid)
6	Laid	39°35'08.8513"S	145°39'00.6657"E	(Design)
		384085.000 m	5617344.000 m	
		39°35'05.2872"S	145°39'06.2628"E	(As-Laid)
		384216.871 m	5617455.885 m	
		172.940 m @	229°41'14.0282"	(TO design:Grid)
		1078.642 m @	42°54'47.4639"	(FL TO A-L:Grid)
7	Laid	39°35'30.9649"S	145°39'13.9875"E	(Design)
		384413.000 m	5616667.000 m	
		39°35'31.1154"S	145°39'14.3086"E	(As-Laid)
		384420.727 m	5616662.474 m	
		8.955 m @	300°21'26.2295"	(TO design:Grid)
		917.181 m @	86°50'09.8030"	(FL TO A-L:Grid)
8	Laid	39°35'52.1258"S	145°39'03.8926"E	(Design)
		384182.000 m	5616011.000 m	
		39°35'51.5288"S	145°39'03.6037"E	(As-Laid)
		384174.833 m	5616029.300 m	
		19.653 m @	158°36'43.0909"	(TO design:Grid)
		889.513 m @	130°46'58.2512"	(FL TO A-L:Grid)





Starfix Pre Spud Fix Report



Fugro Job Number 09011
Job Name Rig Move to Craigow-1
Fugro Personnel C. Simonson, B. Healy
Client Name Australian Drilling Associates Pty Ltd
Client Representative P. Jenkins
Sampling Started 23 Dec 2010 4:16:49 p.m. (local)
Sampling Ended 23 Dec 2010 4:31:53 p.m. (local)
Comment Pre Spud Fix at Craigow-1

Intended Offset / Well Location

Geodetic Datum GDA94
Latitude 39°35'31.7384"S
Longitude 145°38'34.5222"E
Projection Universal Transverse Mercator Zone: 55
Easting 383472.000 m
Northing 5616629.000 m
Intended Rig Heading 245.00 °T

Final DGPS Position Fix Summary for Kan Tan IV At Craigow-1, AUS

DS computed from MultiFix.GGA (Primary)

DS Offset From CRP

Starboard 0.000 m
Forward 0.000 m
Up 0.000 m

Geodetic Datum GDA94 WGS84
Latitude 39°35'31.6742"S 39°35'31.6447"S
Longitude 145°38'34.5767"E 145°38'34.5901"E

Projection Universal Transverse Mercator Zone: 55
Easting 383473.270 m
Northing 5616630.999 m
Height 22.110 m (ellipsoidal)

Final Rig Heading 248.15 °T
247.28 °G (Convergence -0.86° Australia/New Zealand)
Gyro C-O 99.98 °

Position is 2.37 m @ 33.30 °T (32.43 °G) FROM intended location

The approximate as-dropped positions of the rig anchors are:

Anchor	Easting (m)	Northing (m)	Range (m)	Bearing (°T)
1	383508.9	5615700.9	891.7	176.5
2	382880.6	5615932.3	869.4	220.9
3	382532.0	5616589.7	897.4	266.6
4	382745.9	5617275.9	931.6	312.6
5	383446.7	5617608.7	944.5	358.1
6	384216.9	5617455.9	1078.5	42.9
7	384420.7	5616662.5	917.4	86.9
8	384174.8	5616029.3	889.9	130.8

Party Chief: 

Client Representative: 

P. Jenkins
23-Dec-2010

APPENDIX C :
RIG MOVE POSITIONING SYSTEM SETUP, CHECKS AND CALIBRATIONS



Starfix Pre Rig Move Fix Report



Fugro Job Number 09011
Job Name Rig Move to Craigow-1
Fugro Personnel C. Simonson, B. Healy
Client Name Australian Drilling Associates Pty Ltd
Client Representative P. Jenkins
Sampling Started 18 Dec 2010 11:26:50 a.m. (local)
Sampling Ended 18 Dec 2010 11:41:55 a.m. (local)
Comment Pre Rig Move Fix at Silvereye-1

Intended Offset / Well Location

Geodetic Datum GDA94
Latitude 39°54'19.8250"S
Longitude 145°03'32.6409"E
Projection Universal Transverse Mercator Zone: 55
Easting 334088.708 m
Northing 5580927.328 m
Intended Rig Heading 245.00 °T

Final DGPS Position Fix Summary for Kan Tan IV At Silvereye-1, AUS

DS computed from MultiFix.GGA (Primary)

DS Offset From CRP

Starboard 0.000 m
Forward 0.000 m
Up 0.000 m

Geodetic Datum GDA94 WGS84
Latitude 39°54'19.8305"S 39°54'19.8010"S
Longitude 145°03'32.6413"E 145°03'32.6550"E

Projection Universal Transverse Mercator Zone: 55
Easting 334088.723 m
Northing 5580927.158 m
Height 21.725 m (ellipsoidal)

Final Rig Heading 246.24 °T
244.99 °G (Convergence -1.25° Australia/New Zealand)

Gyro C-0 99.98 °

Position is 0.17 m @ 176.24 °T (175.00 °G) FROM intended location

Party Chief:_____ Client Representative:_____

Configuration Summary.txt

25/12/2010 00:00:00 LOC
*** FUGRO STARFIX.SEIS ***

```
Header : Project Name      : Rig Move to Craigow-1
        Project Number    : 09011
        Project Description :
        Project Location   : Craigow-1, AUS
        Client             : Australian Drilling Associates Pty
Ltd
        Client Representative : P. Jenkins
        Client Reference Number :
        Geophysical Contractor : Fugro
        Positioning Contractor : Fugro
        Positioning Processing Contractor : Fugro
        Fugro Personnel      : C. Simonson - Senior Surveyor
                             : B. Healy - Surveyor
        Configuration Created At : 24/12/2010 22:49:36 LOC
        Time Source           : MasterSource
        Time Offset           : 11:00 (Using LOC)
        Vessel                : Kan Tan IV
```

```
Files Runline :
C:\Fugro_Projects\09011\Settings\Data\Craigow-1_Runlines.srn
  FLF          : (None)
  Centreline   : (None)
  Database     : (None)
  Vector       : C:\Fugro_Projects\09011\Vector\GDA94_147_zone55.dgn
  Waypoint     :
C:\Fugro_Projects\09011\Settings\Data\Craigow-1_Waypoint.swy
  Client Logo  : C:\Fugro_Projects\09011\Settings\Data\ADA Logo.jpg
  Coverage     :
C:\Fugro_Projects\09011\RawData\NonSession\09011.Coverage
  Swath        :
C:\Fugro_Projects\09011\RawData\NonSession\09011.Swath
  SVP Well     : (None)
```

```
Logging: Directory : C:\Fugro_Projects\09011\RawData\NonSession\
```

```
Fixing : Mode      : Time
        Start Mode : Manual
        Stop Mode  : Manual
        Fix Devices :
          Auto-Fix  : SEIS
          Manual    : SEIS
          External  : (None)
          Offset    : (None)
          MOB       : (None)
        Fix Interval : 30.000s
        Reset at SOL : No
        Next Fix No. : 26783
        Fix Increment : 1
        Start FFID    : 26783
        Start Man. Fix : 2
        Early Start   : 5s
        Logging Start  : 5s
        Fix Position  : From Filter
```

```
Datum 1: Datum      : GDA94-ITRF2010.50
        Spheroid    : GRS80
        SemiMajor Axis : 6378137.000
        1/Flattening  : 298.2572221010
        Eccentricity^2 : 0.006694380022901
```

```
Projection : Universal Transverse Mercator
Grid Name  :
Lat. Origin : 0d00'00.0000"N
Lon. Origin : 147d00'00.0000"E
False East : 500000.000m
```

Configuration Summary.txt

False North : 10000000.000m
Scale Factor : 0.9996
Convergence : Australia/New Zealand

Datum 2: Datum : WGS84
Spheroid : WGS84
SemiMajor Axis: 6378137.000
1/Flattening : 298.2572235630
Eccentricity^2: 0.006694379990141

Datum2>1:Parameters : From WGS84 to GDA94-ITRF2010.50
DX : 0.0394m RX : 0.0196"
DY : -0.0574m RY : 0.0164"
DZ : -0.1383m RZ : 0.0202"
D Scale : 0.0023ppm Rot Convention: +RZ=-RLongitude

Sundry : Vertical Datum:
Ell. Sep. : 0.0000m
Distances : Grid
Bearings : Grid
Units : metres
Conversion : 1.0000000000

Main Vessel : Kan Tan IV
: Kan Tan IV

Nav. 1 : System : TOPS_OCSAT.GGA
Type : Lat - Long
Priority : 2
Time-out : 5.0s
Offset Name : PORT_GPS
X Offset : -24.12m
Y Offset : 36.92m
Ant. Height : 0.00m

Nav. 2 : System : 8200HP_APSAT.GGA
Type : Lat - Long
Priority : 3
Time-out : 5.0s
Offset Name : STBD_GPS
X Offset : 7.74m
Y Offset : 42.53m
Ant. Height : 0.00m

Nav. 3 : System : RAW_TOPS_HDG
Type : Lat - Long
Priority : 4
Time-out : 5.0s
Offset Name : STBD_GPS
X Offset : 7.74m
Y Offset : 42.53m
Ant. Height : 0.00m

Nav. 4 : System : MultiFix.GGA (In Use)
Type : Lat - Long
Priority : 1
Time-out : 5.0s
Offset Name : STBD_GPS
X Offset : 7.74m
Y Offset : 42.53m
Ant. Height : 0.00m

Dead Reckoning: No Timeout: 30.0s

Heading 1 : System : TOPS_HDG.HDT (In Use)
Priority : 1
Time-out : 3.0s
Offset Name : STBD_GPS
X Offset : 7.74m
Y Offset : 42.53m
Z Offset : 0.00m
Correction : 99.98 Degrees

Configuration Summary.txt

Heading 2 : System : SGBrown
 Priority : 2
 Time-out : 3.0s
 Offset Name : CRP
 X Offset : 0.00m
 Y Offset : 0.00m
 Z Offset : 0.00m
 Correction : 177.20 Degrees

Offsets:	Name		X	Y	Z
	CRP	0.00	0.00	0.00	
	PORT_GPS	-24.12	36.92	0.00	
	STBD_GPS	7.74	42.53	0.00	
	DS	0.00	0.00	0.00	
	Tow Point	0.75	47.00	0.00	

Fairlead:	Name		X	Y	Z
1	-29.46	33.55	0.00		
2	-29.45	37.53	0.00		
3	29.10	37.15	0.00		
4	29.10	33.20	0.00		
5	29.05	-17.94	0.00		
6	29.05	-21.89	0.00		
7	-29.50	-21.74	0.00		
8	-29.50	-17.79	0.00		

O/Ts : Steered Point: O/T 0
 Shot : O/T 0

O/T 0	PR Kan Tan IV/CRP	Flt:	Pos Sys: Datum In-Use
O/T 1	PR Kan Tan IV/6_1	Flt:	Frlead : 6
O/T 3	PR Kan Tan IV/Tow Point	Flt:	Fxd Off: Tow Point
O/T 4	PR Kan Tan IV/OCSAT.GGA DAT	Flt:	Pos Sys: TOPS_OCSAT.GGA
Datum			
O/T 5	PR Kan Tan IV/APSAT.GGA DAT	Flt:	Pos Sys: 8200HP_APSAT.GGA
Datum			

O/T Legend: PR=Print LG=Log SN=Snap to line

Waypoint : Craigow1
 Position : 39d35'31.7384"S 145d38'34.5222"E 0.0m
 383472.000mE 5616629.000mN 0.0m

Printing:
 Fix mark rate : 1
 Config Changes : No
 System Timeouts : No
 Concise Header : No

Software:Starfix Suite 9.1 (Service Pack 2)
 RC: Starfix Suite 9.1 COP RC3
 RC: Starfix Suite 9.1 FBFView RC5
 RC: Starfix Suite 9.1 GPS (Shared) RC2
 RC: Starfix Suite 9.1 RTCM3In RC2
 RC: Starfix Suite 9.1 TrimbleDCF RC2
 RC: Starfix Suite 9.1 FinalFix RC1
 RC: Starfix Suite 9.1 MeanPositionReport RC2
 RC: Starfix Suite 9.1 IOWIN RC12
 HF: Starfix Suite 9.1 ConfigIn HF1
 HF: Starfix Suite 9.1 FugroXpIn HF1
 HF: Starfix Suite 9.1 LeicaGSIIIn HF1
 HF: Starfix Suite 9.1 SeisEngine HF2
 HF: Starfix Suite 9.1 Time Multicast HF2
 Seis Ver 4.02.0015
 SeisEngine Ver 4.02.0018
 Display Ver 4.02.0016
 Anchors Ver 4.01.0026

Fugro Party Chief: _____ Client
Representative: _____

**APPENDIX D :
CLIENT SUPPLIED INFORMATION**

4.0 General Information

4.1 Well Data

4.1.1 General License and Field Data

Well Name	Craigow-1
Well Type	Exploration
Field Name	Craigow
License/Permit	T/47P
Field Operator	Tap (Shelfal) Pty Ltd
Participants	Tap (Shelfal) Pty Ltd (75%) Jubilant Energy Ltd (25%)
Expected Spud Date	December 2010
Total Depth	1800 mTVDSS / 1826 mTVDRT
Well Type	Vertical
Water Depth	74.0 m LAT
End of Well Status	Plugged and Abandoned

4.1.2 Surface Location

Datum	Geocentric Datum of Australia 1994 (GDA94)
Projection	Map Grid of Australia Zone 55 (MGA55)
Easting	383 472 m E
Northing	5 616 629 m N
Longitude	145° 38' 34.52" E
Latitude	39° 35' 31.74" S
Surface Tolerance	25m radius, centred on proposed well location
Rig Heading	245°

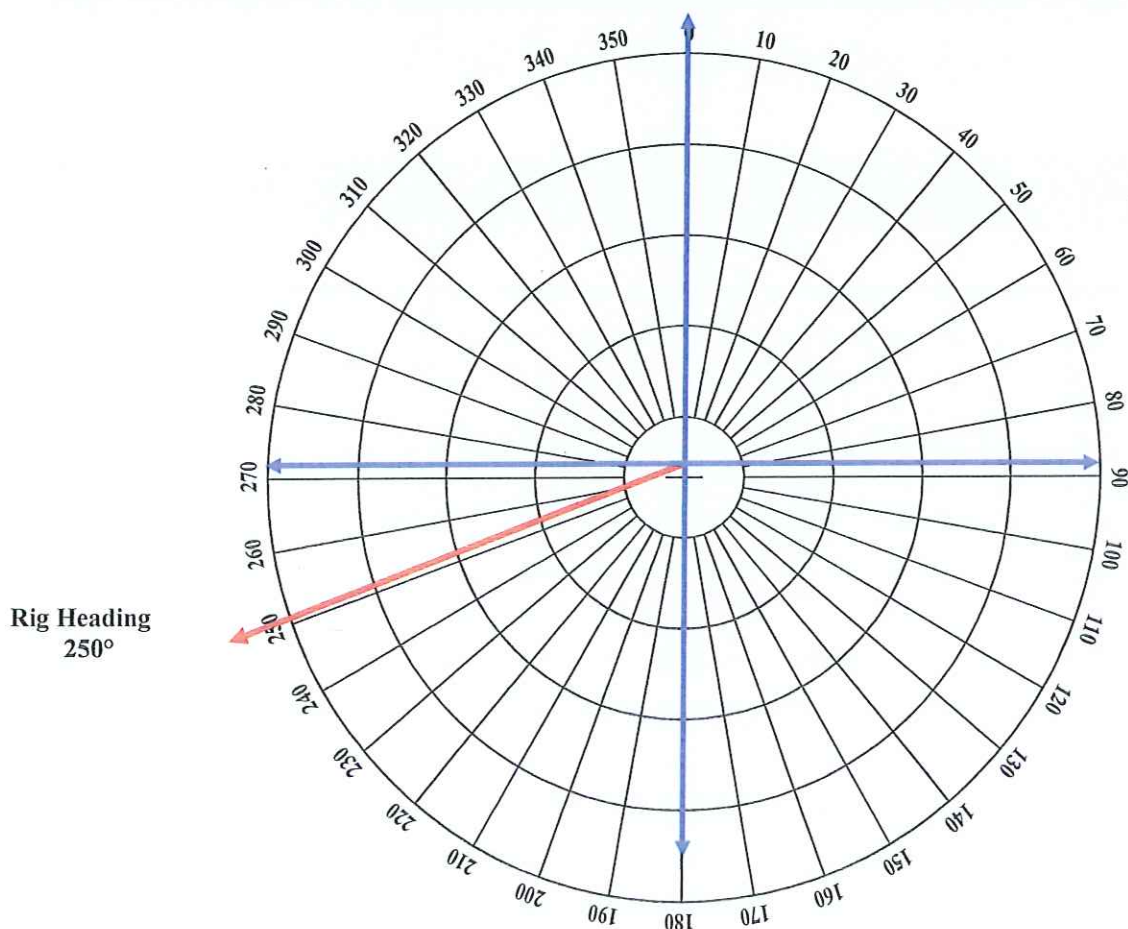
4.1.3 Total Depth Location

TD Location	Vertical Well: Same as surface location

FUGRO SUBSEA SERVICES (AUSTRALIA) PTY LTD
Seabed Clearance Certificate



VESSEL/RIG:	KAN TAN IV	PROJECT:	SILVEREYE - 1 (PRE-DRILL)
LOCATION:	BASS STRAIT	DATE:	21 DECEMBER 2010
Co-ordinates: 334 084.00mE 5 580 925mE			
Method of Survey: Sonar and video			
Type of Equipment Used: Imaginex 881A sonar		Contractor: ORGIN ENERGY	
Range of Coverage: Sonar range 20, 50, 80, 100m 360° visual around the well centre and out 25m on 4 cardinal directions		No. of scans: 20 overlapping scans on cardinal headings shown by blue arrows on diagram No significant hard targets sighted.	
Rig Heading (Indicate on Diagram): 250°			
Positions of Rig Relative to Well During Scans: Directly over on same heading			
Height Above Seabed: 0m		Height of Scanning Unit During Scan: ≤ 2m	
Nature of Seabed: Fine sediment with coarse grit		Type of Wellhead: Removed	
Type of Records Made: DVD 2, video log, duplicated as required			



FUGRO SUBSEA SERVICES (AUSTRALIA) PTY LTD
Seabed Clearance Certificate



LIST OF TARGETS					
	Position (Range & Bearing)	Approx. Dimensions (M)	Description	Means of Identification	Recovered
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
Means of Identification			Reasons for not removing remaining debris:		
A - Sonar Scan					
B - Diving Inspection					
C - R.O.V.					
D - Rig Records					

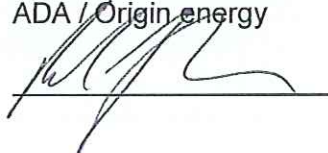
Signatories:

Name Paul Jenkins.

Name B Hutchinson

Position Client Representative
 ADA / Origin energy

Position ROV Supervisor

Signature 

Signature  21/12/2010

Guidance Notes

- Survey should extend to at least 70 metres from the well head.
- The first signatory should be the person responsible for the rig, either the OIM or Client representative.

Appendix 2: Daily Drilling Reports

22 Dec 2010

From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller

DRILLING MORNING REPORT # 1**Craigow-1**

Well Data							
Country	Australia	MDBRT	m	Cur. Hole Size	mm	AFE Cost	\$
Field	Craigow	TVDBRT	m	Last Casing OD	mm	AFE No.	
Drill Co.	Maersk Drilling	Progress		Shoe TVDBRT	m	Daily Cost	\$
Rig	Kan Tan IV (semi)	Days From Spud	0.00	Shoe MDBRT	m	Cum Cost	\$
Wtr Depth (MSL)	74.0 m	Days On Well	0.42	FIT/LOT	ppg / ppg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826.0 m			Days Since Last LTI	416
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826.0 m	Current Op @ 0600	Running anchors.		
		Last BOP Test		Planned Op	Complete running anchors and cross tension same. Ballast rig to drilling draft. Remove sea fastening and prepare to spud in.		

Summary of Period 0000 to 2400 Hrs

START of Craigow-1 @14:00 hrs, 22nd December 2010

Rig under tow from Silvereye-1. Arrived on Craigow-1 location and commenced deploying anchors.

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	15	0	Associated with permits and major tasks	
PTW issued	12	0	Permits Administered	
ToolBox Talk	16	0		
Number Observe Cards	19	0	No winning card today	
Safety Meeting	6	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: Hygiene practices – Encourage workers with colds/flu's to cover mouths when coughing/sneezing, ensure they understand correct hygiene practices to minimize the spread of any colds and flu's. Reiterate the importance of hand and finger safety. Remind personnel to carry/use tools and equipment correctly. Departments helping each other out, great team work. Evening pre-tour: Active cards – numbers are dropping. Keep them up – it's a tool used for their safety benefit. Be extra vigilant in terms of safety especially during the rig tow. Some TBT's are not being filled in correctly. Personnel responsibilities must be designated prior to the commencement of each job.

Operations For Period 0000 Hrs to 2400 Hrs On 22 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P1	P	M2	14:00	22:00	8.00	m	***START of Craigow-1 @14:00 hrs, 22nd December 2010*** Under tight tow to Craigow-1 location. 16:00 Pos: 39° 49' 22"S - 145° 11' 42"E - Av Speed 3.9knts - Dist run 4.9NM - DTG 24.9NM. 20:00 Pos: 39° 38' 55"S - 145° 33' 00"E - Av Speed 4.8knts - Dist run 24.8NM - DTG 5.2NM. 22:00 Pos: 39° 34' 25"S - 145° 39' 13"E. Tight tow completed.
P1	P	M4	22:00	24:00	2.00	m	22:00:- Commenced run in to location 22:43:- #7 PCP passed to Far Fosna 23:08:- #6 Anchor on bottom. Anchor dropped on location as rig passed over anchor position.

Operations For Period 0000 Hrs to 0600 Hrs On 23 Dec 2010

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
P1	P	M4	00:00	06:00	6.00	m	Deployed anchors. 00:07:- #7 Anchor on bottom 00:30:- #7 PCP passed back to rig 00:52:- #3 PCP passed to Far Fosna 01:36:- #3 Anchor on bottom 01:56:- #3 PCP passed back to rig 02:17:- #2 PCP passed to Far Fosna 03:01:- #2 Anchor on bottom 03:26:- #2 PCP passed back to rig 03:27:- Far Scimitar released from tow bridle. 03:40:- #1 PCP passed to Far Fosna 04:18:- #5 PCP passed to Far Scimitar 04:22:- #1 Anchor on bottom 04:44:- #1 PCP passed back to rig 05:12:- #8 PCP passed to Far Fosna 05:47:- #8 Anchor on bottom 05:49:- #5 Anchor on bottom

Phase Data to 2400hrs, 22 Dec 2010

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	10.00	22 Dec 2010	22 Dec 2010	10.00	0.417	

General Comments

00:00 TO 24:00 Hrs ON 22 Dec 2010

Operational Comments	Held pre-spud meeting 22nd December 2010.

Bulk Stocks

Name	Unit	In	Used	Adjust	Balance
Diesel	m3	0.0	5.0	0.0	441.00
Drill Water	m3	0.0	0.0	0.0	623.00
Potable Water	m3	16.0	28.0	0.0	211.00
Barite	MT	0.0	0.0	0.0	46.00
Bentonite	MT	0.0	0.0	0.0	55.00
CEMENT G	MT	0.0	0.0	0.0	60.00

Personnel On Board

Company	Pax
ADA Services	4
Go Offshore	1
Maersk	37
OMS	26
GRN	1
Maersk 3rd party	1
Fugro ROV	6
Halliburton - Cement	2
Geoservices	2
Baroid	2
Dril-Quip	1
Sinopec Star	1
Fugro Survey LTD	2
Noble Denton	1
Total	87

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	22 Dec 2010 14:00		Anchor Handling Craigow-1	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	5.0	0.00	0.0	537
				Potable Water (m3)	m3	0.0	2.0	0.00	0.0	378
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	412
				Barite (MT)	MT	0.0	0.0	0.00	0.0	52
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	84
				Brine (bbl)	bbl	0.0	0.0	0.00	0.0	930
0001-0425 Running Stand-by awaiting anchor handling 0425-1340 Anchor handling Silvereye-1 1340-2242 Steaming standby while Scimitar tows rig 2242-2359 Anchor Handling Craigow-1										
Far Scimitar	22 Dec 2010 14:00		Connected to tow wire	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	13.0	0.00	0.0	530
				Potable Water (m3)	m3	0.0	4.0	0.00	0.0	492
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	575
				Barite (MT)	MT	0.0	0.0	0.00	0.0	64
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	0
				14:00 - 24:00 Tow rig to Craigow -1						

23 Dec 2010
From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller
DRILLING MORNING REPORT # 2**Craigow-1**

Well Data							
Country	Australia	MDBRT	m	Cur. Hole Size	in	AFE Cost	AUD
Field	Craigow	TVDBRT	m	Last Casing OD	in	AFE No.	
Drill Co.	Maersk Drilling	Progress		Shoe TVDBRT	m	Daily Cost	AUD
Rig	Kan Tan IV (semi)	Days From Spud	0.00	Shoe MDBRT	m	Cum Cost	AUD
Wtr Depth (MSL)	74 m	Days On Well	1.42	FIT/LOT	sg / sg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI	417
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600	Spudded Craigow-1 @ 03:00 hrs. Drilled 26in x 36in hole from 100m to 159m.		
		Last BOP Test			Current operation: POOH with 26in x 36in BHA.		
				Planned Op	POOH and run 30in conductor pipe. Cement in 30in conductor pipe. WOC. POOH with 30in RT and lay out. Lay out 26in x 36in BHA. Make up 17.5in BHA.		

Summary of Period 0000 to 2400 Hrs

Ran anchors. Ballasted rig to drilling draft. Cross-tensioned anchors. Skidded rig over final location. Removed sea fastening. Picked up 42 stands of DP. Made up 30in RT and stood in derrick. Made up cement stand and stood in derrick. Made up 2 stands of HWDP. Made up cement stand. Made up 2 stands of 8.25in DCs.

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	29	0	Associated with permits and major tasks	
PTW issued	25	0	Permits Administered	
ToolBox Talk	25	0		
Number Observe Cards	23	0		
Safety Meeting	6	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: Active cards – numbers are dropping. Keep them up – it's a tool used for their safety benefit. Be extra vigilant in terms of safety especially during the rig tow. Some TBT's are not being filled in correctly. Personnel responsibilities must be designated prior to the commencement of each job. Evening pre-tour: Tap left running, tank over-flowed and began to flood part of the riser deck. Reminded to clean up after jobs, ensure all equipment/tools used are removed, stowed correctly, and all taps are turned off after use. Personnel are locking rooms or not vacating rooms at appropriate times. Personnel were reminded that doors are not to be locked and rooms should not be occupied whilst utility are in the process of attending to the rooms. Excellent team work by deck crew in anchor retrieval and bridal dispatch. Safe use of equipment throughout.

Operations For Period 0000 Hrs to 2400 Hrs On 23 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P1	P	M4	00:00	08:00	8.00	m	Deployed anchors. 00:07:- #7 Anchor on bottom 00:30:- #7 PCP passed back to rig 00:52:- #3 PCP passed to Far Fosna 01:36:- #3 Anchor on bottom 01:56:- #3 PCP passed back to rig 02:17:- #2 PCP passed to Far Fosna 03:01:- #2 Anchor on bottom 03:26:- #2 PCP passed back to rig 03:27:- Far Scimitar released from tow bridle. 03:40:- #1 PCP passed to Far Fosna 04:18:- #5 PCP passed to Far Scimitar 04:22:- #1 Anchor on bottom 04:44:- #1 PCP passed back to rig 05:12:- #8 PCP passed to Far Fosna 05:47:- #8 Anchor on bottom 05:51:- #5 Anchor on bottom 06:13:- #8 PCP passed back to rig 06:22:- #5 PCP passed back to rig 06:40:- #4 PCP passed to Far Scimitar 06:55:- Commenced ballasting rig down to drilling draft. 07:21:- #4 Anchor on bottom 07:48:- #4 PCP passed back to rig.
P1	P	M3	08:00	11:30	3.50	m	Completed ballasting rig down to drilling draft of 65ft.
P1	P	M4	11:30	14:30	3.00	m	Cross tensioned anchors. 11:42:- Pre-tensioned #4 & #8 anchors and held for 15mins. OK. 12:14:- Pre-tensioned #3 & #7 anchors and held for 15mins. OK. 12:38:- Pre-tensioned #1 & #5 anchors and held for 15mins. OK. 13:18:- Pre-tensioned #2 & #6 anchors and held for 15mins. OK. 14:12:- Cross tensioning completed.
P1	P	M4	14:30	15:30	1.00	m	Skidded rig over location. 15:15:- Rig on location. Heading 248.1°, 2.48m from location.
P4	P	G2	15:30	19:30	4.00	m	Picked up 78 joints of 5in DP and racked back in derrick.
P4	P	G15	19:30	20:00	0.50	m	Made up 30in running tool to stand of DP and racked back in derrick.
P4	P	G2	20:00	21:30	1.50	m	Picked up 48 joints of DP and racked back in derrick. (Total of 42 stands of 5in DP made up). (ROV conducted seabed survey)
P4	P	G2	21:30	22:00	0.50	m	Picked up 6 joints of 5in HWDP and racked back in derrick.
P4	P	G2	22:00	23:00	1.00	m	Made up cement stand with hose and stood back in derrick.
P4	P	G2	23:00	24:00	1.00	m	Picked up 6 joints of 8.25in DCs.

Operations For Period 0000 Hrs to 0600 Hrs On 24 Dec 2010

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
P4	P	G2	00:00	00:30	0.50	m	Racked 2 stands 8.25in DCs in derrick.
P4	P	G6	00:30	02:00	1.50	m	Picked up and made up 26in x 36in hole opener assembly and Anderdrift tool.
P4	P	G6	02:00	03:00	1.00	m	Continued to make up BHA and RIH from 7m to 93m. Held prespud and shallow gas meeting on drill floor.
P4	P	D2	03:00	04:30	1.50	159.0 m	Tagged seabed at 100m RKB LAT. Performed prespud Anderdrift survey. 0° (11 pulses counted). Spudded Craigow-1. Drilled 26in x 36in hole from 100m to 159m. First 10m drilled with PHG mud 300gpm building to 500gpm, 340psi. 40rpm building to 60rpm, 0-5klbs wob. Drilled from 110m with seawater. 800gpm, 580psi, 60rpm, 0-5klbs wob. Pumped 50bbl PHG pills every 15m and spotted PHG around BHA on connections.
P4	P	F4	04:30	05:30	1.00	159.0 m	Pumped 100bbl hi vis pill and displaced from well with seawater. Performed Anderdrift survey. 0.5° (10 pulses counted) Displaced well with 360bbl 8.6ppg PHG mud.

Operations For Period 0000 Hrs to 0600 Hrs On 24 Dec 2010

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
P4	P	G8	05:30	06:00	0.50	159.0 m	POOH from 159m to 55m. No overpull observed. ROV spotted sonar reflective bouys to mark well.

Phase Data to 2400hrs, 23 Dec 2010

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Surface Hole(P4)	8.50	23 Dec 2010	23 Dec 2010	34.00	1.417	

General Comments

00:00 TO 24:00 Hrs ON 23 Dec 2010

Operational Comments	Pre Spud Starfix - GDA94: Latitude: 39° 35' 31.6742"S Longitude: 145° 38' 34.5767"E Rig heading: 248.15° T 2.37m @ 33.30° T from intended location.
Operational Comments	Choke manifold pressure tested: 250psi/5min - 5000psi/10min Stand Pipe Manifold pressure tested: 250psi/5min - 3500psi/10min

WBM Data
Cost Today AUD9,109

Mud Type:	Water Based	API FL:	cm ³ /30min	Cl:	mg/L	Solids:	%	Viscosity	200 s/qt(UK)
Sample-From:	4	Filter-Cake:	/32nd"	K+C*1000:	%	Low-Gravity	%vol	PV	5 cP
Time:	20:00			Hard/Ca:	mg/L	Solids:		YP	65 lbf/100ft ²
Weight:	72.60 ppg	HTHP-FL:	cm ³ /30min	MBT:		H2O:	99 %	Gels 10s	65 lbf/100ft ²
Temp:	20 °C	HTHP-cake:	/32nd"	Pm:		Oil:	%	Gels 10m	70 lbf/100ft ²
				Pf:		Sand:		Fann 003	62
						pH:		Fann 006	63
						PHPA(Density):	kg/m ³	Fann 100	64
								Fann 200	65
								Fann 300	70
								Fann 600	75
Comment									Begin mixing PHG for Hivis sweeps Cost in AU\$

Bulk Stocks

Name	Unit	In	Used	Adjust	Balance
Diesel	m3	203.0	14.0	0.0	630.00
Drill Water	m3	539.0	49.0	0.0	1113.00
Potable Water	m3	45.0	24.0	0.0	232.00
Barite	MT	0.0	0.0	0.0	46.00
Bentonite	MT	0.0	0.0	0.0	55.00
CEMENT G	MT	0.0	0.0	0.0	60.00

Pumps

Pump Data - Last 24 Hrs									Slow Pump Data			
No.	Type	Liner (in)	MW (ppg)	Eff (%)	SPM	SPP (psi)	Flow (gpm)	Depth (m)	Check	SPM	Pressure ()	Flow ()
1	Continental Emsco	6.50	8.60	97								
2	Continental Emsco	6.50	8.60	97								
3	Continental Emsco	6.50	8.60	97								

Personnel On Board

Company	Pax
ADA Services	4
Go Offshore	1
Maersk	37
OMS	26
GRN	1
Maersk 3rd party	1
Fugro ROV	6
Halliburton - Cement	2
Geoservices	2
Baroid	2
Dril-Quip	1
Sinopec Star	1
Fugro Survey LTD	2
Noble Denton	1
Total	87

Mud Volumes, Mud Losses and Shale Shaker Data

Engineer :

Available	1,318.0	Losses	0.0	Equipment	Description	Mesh Size	Comments
Active		Downhole					
Mixing	1318.0 bbl	Surf+ Equip					
Hole		Dumped					
Slug		De-Gasser					
Reserve		De-Sander					
Kill		De-Silter					
		Centrifuge					

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	22 Dec 2010 14:00		Melbourne	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	0.0	0.00	0.0	537
				Potable Water (m3)	m3	0.0	0.0	0.00	0.0	378
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	412
				Barite (MT)	MT	0.0	0.0	0.00	0.0	52
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	84
				Brine (bbl)	bbl	0.0	0.0	0.00	0.0	930
Far Scimitar	22 Dec 2010 14:00		Discharge bulks	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	19.0	200.00	0.0	311
				Potable Water (m3)	m3	0.0	2.0	360.00	0.0	130
				Drill Water (m3)	m3	0.0	0.0	180.00	0.0	395
				Barite (MT)	MT	0.0	0.0	0.00	0.0	64
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	0

0000 - 0755 Rig shift 0755 - 1545 Running stby 1545 - 2400 Discharge bulks

DRILLING MORNING REPORT # 3
24 Dec 2010
From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller

Craigow-1

Well Data							
Country	Australia	MDBRT	159.0 m	Cur. Hole Size	36.000 in	AFE Cost	AUD 18,289,310
Field	Craigow	TVDBRT	159.0 m	Last Casing OD	30.000 in	AFE No.	
Drill Co.	Maersk Drilling	Progress	59.00 m	Shoe TVDBRT	157.0 m	Daily Cost	AUD 919,549
Rig	Kan Tan IV (semi)	Days From Spud	0.88	Shoe MDBRT	157.0 m	Cum Cost	AUD 2,187,869
Wtr Depth (MSL)	74 m	Days On Well	2.42	FIT/LOT	sg / sg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI	418
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600	Drilling 17½" hole		
		Last BOP Test		Planned Op	Drill ahead 17½"hole		

Summary of Period 0000 to 2400 Hrs

Made up 26" x 36" BHA and RIH to seabed. Tested Anderdrift and drilled 26" x 36" from 100m to 159m. Swept 100bbl his vis and displaced well to PHG mud. POOH and racked back BHA. Made up and ran 30" conductor pipe to 157m. Cemented in 30" conductor pipe. WOC. Released 30" LP Housing RT and POOH. Laid out same. Made up 18 3/4" WHRT assembly and laid out. Laid out 26" x 36" BHA. Commenced making up 17½" BHA

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	27	0	Associated with permits and major tasks	
PTW issued	18	0	Permits Administered	
ToolBox Talk	36	0		
Number Observe Cards	20	0		
Safety Meeting	8	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: Tap left running, tank over-flowed and began to flood part of the riser deck. Reminded to clean up after jobs, ensure all equipment/tools used are removed, stowed correctly, and all taps are turned off after use. Personnel are locking rooms or not vacating rooms at appropriate times. Personnel were reminded that doors are not to be locked and rooms should not be occupied whilst utility are in the process of attending to the rooms. Excellent team work by deck crew in anchor retrieval and bridal dispatch. Safe use of equipment throughout. Evening pre-tour: Encourage crew to include work site tidiness into TBT's and SJA's (if necessary). Do not want habits of untidiness and carelessness to form, increases worksite hazards and risks. Tool left inside casing, was about to be lifted, however personnel noticed the tool and quickly removed it prior to the lift. Could have been a potential dropped object/injury. When operating forklifts always make sure the surrounding area is clear of hazards and persons. Always look behind before reversing. Electrician repaired forward-reverse switch on top drive after months of being told it could not be fixed. This could have got us stuck in the hole, luckily it was repaired.

Operations For Period 0000 Hrs to 2400 Hrs On 24 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P2	P	G2	00:00	00:30	0.50	m	Racked 2 stands 8.25in DCs in derrick.
P2	P	G6	00:30	02:00	1.50	m	Picked up and made up 26in x 36in hole opener assembly and Anderdrift tool.
P2	P	G6	02:00	03:00	1.00	m	Continued to make up BHA and RIH from 7m to 93m. Held prespud and shallow gas meeting on drill floor.

Operations For Period 0000 Hrs to 2400 Hrs On 24 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P2	P	D2	03:00	04:30	1.50	159.0 m	Tagged seabed at 100m RKB LAT. Performed prespud Anderdrift survey. 0° (11 pulses counted). Spudded Craigow-1. Drilled 26in x 36in hole from 100m to 159m. First 10m drilled with PHG mud 300gpm building to 500gpm, 340psi. 40rpm building to 60rpm, 0-5klbs wob. Drilled from 110m with seawater. 800gpm, 580psi, 60rpm, 0-5klbs wob. Pumped 50bbl PHG pills every 15m and spotted PHG around BHA on connections.
P2	P	F4	04:30	05:30	1.00	159.0 m	Pumped 100bbl hi vis pill and displaced from well with seawater. Performed Anderdrift survey. 0.5° (10 pulses counted) Displaced well with 360bbl 8.6ppg PHG mud.
P2	P	G8	05:30	06:30	1.00	159.0 m	POOH from 159m and racked back BHA. No overpull observed. ROV spotted sonar reflective bouys to mark well.
P3	P	G1	06:30	08:00	1.50	159.0 m	Rigged up to run 30" conductor. Moved PGB to well centre in moonpool.
P3	P	G9	08:00	09:00	1.00	159.0 m	Made up 30" shoe jt and checked float valve passing ok. Made up 1st intermediate jt of 30" to shoe jt.
P3	TP (WO)	G9	09:00	09:30	0.50	159.0 m	Cranes down due to helicopter operations.
P3	P	G9	09:30	11:00	1.50	159.0 m	Ran 30" conductor pipe in to 58m. Total 5 jts.
P3	P	G1	11:00	11:30	0.50	159.0 m	Rigged down casing handling equipment.
P3	P	G9	11:30	12:00	0.50	159.0 m	Ran std of 5" DP into conductor and made up 30" RT with DP single below to std and then to 30" LP housing.
P3	P	G9	12:00	13:00	1.00	159.0 m	Ran 30" LP housing into moonpool and made up to PGB. Connected and checked HAC system hoses.
P3	P	G9	13:00	14:00	1.00	159.0 m	Ran conductor and PGB assembly in hole on landing string to 157m. ROV checked bullseyes. Port Bulleyes: 0.75° Port, slightly forward Aft Bullseye: 0.75° Fwd, slightly aft.
P3	P	F4	14:00	14:30	0.50	159.0 m	Established circulation. Pumped 100bbl of SW.
P3	P	CMT	14:30	16:00	1.50	159.0 m	Cement unit pumped 5bbl DW and pressuretested surface lines to 3000psi. Cement unit pumped 20bbl DW mica spacer. Cement unit mixed and pumped 264bbl 15.8ppg G cement slurry Cement unit displaced cement with 39bbl of seawater. No mica or obvious cement returns at seabed.
P3	P	CMT	16:00	20:00	4.00	159.0 m	Waited on cement samples to harden. Offline: Organised and backloaded spud in material and tools. ROV checked bullseyes. Port Bulleyes: 0.75° Port, slightly forward Aft Bullseye: 0.75° Fwd, slightly aft.
P3	P	G8	20:00	21:00	1.00	159.0 m	Released 30" RT with 5 turns to the right. POOH with 30" LP housing RT and laid out same. ROV checked Bullseyes.: No change.
P4	P	G15	21:00	22:00	1.00	159.0 m	Made up handling pup jt and space out pup jts to 18 3/8" WHRT and laid out same.
P4	P	G6	22:00	23:00	1.00	159.0 m	Picked up 8" drilling jar and made up to 8¾" DC double. Racked back in derrick.
P4	P	G6	23:00	23:30	0.50	159.0 m	Laid out Anderdrift and 26" x 36" hole opener assembly.
P4	P	G6	23:30	24:00	0.50	159.0 m	Picked up MWD tool, made up float sub and 17½" bit to same.

Operations For Period 0000 Hrs to 0600 Hrs On 25 Dec 2010

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
P4	P	G6	00:00	02:30	2.50	159.0 m	Continued to make up 17½" drilling BHA to 90m
P4	P	G6	02:30	03:00	0.50	159.0 m	Entered well with ROV assistance and continued to make up BHA to 119m
P4	P	G2	03:00	04:00	1.00	159.0 m	Shallow tested MWD at 119m, 1000gpm, 1500psi. Good test. Picked up 11jts of HWDP and racked 3 stds back in derrick working string between 119m and 138m.
P4	P	F1	04:00	04:30	0.50	159.0 m	Washed in hole, 600gpm, 500psi, from 138m and tagged TOC at 150m with 15klbs wob
P4	P	D1	04:30	06:00	1.50	159.0 m	Drilled out cement and shoe from 150m to 157m with seawater and PHG sweeps. Cleaned out rat hole to 159m. Reamed rat hole, shoe and drilled out section of shoe track several times to clean. 60rpm, 500ftlbs torq, commenced with 5klbs wob increasing to 20klbs

Phase Data to 2400hrs, 24 Dec 2010

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	3.00	24 Dec 2010	24 Dec 2010	58.00	2.417	159.0 m

General Comments

00:00 TO 24:00 Hrs ON 24 Dec 2010

Operational Comments	BOP pressure test 90% completed. Blue Pod kidney plate repaired and function tested.
Operational Comments	ROV confirmed hard cement at surface.

WBM Data

Cost Today AUD23,782

Mud Type: Water Based	API FL: cm ³ /30min	Cl: mg/L	Solids: %	Viscosity	188 s/qt(UK)
Sample-From: 1	Filter-Cake: /32nd"	K+C*1000: %	Low-Gravity %vol	PV	6 cP
Time: 20:00	HTHP-FL: cm ³ /30min	Hard/Ca: mg/L	Solids: %	YP	59 lbf/100ft ²
Weight: 8.70 ppg	HTHP-cake: /32nd"	MBT:	H2O: 99 %	Gels 10s	61 lbf/100ft ²
Temp: 20 °C		Pm:	Oil: %	Gels 10m	62 lbf/100ft ²
		Pf:	Sand:	Fann 003	57
			pH:	Fann 006	58
			PHPA(Density): kg/m ³	Fann 100	59
				Fann 200	60
				Fann 300	65
				Fann 600	71
Comment	Continue mixing PHG as required for Hi-Vis sweeps while drilling 36" hole. Pumped ~ 50 bbl Hi-Vis sweeps into the annulus every half stand and around the BHA on connections. Spotted 360 bbl of mud in open hole.				

Bit #1				Wear	I	O1	D	L	B	G	O2	R
					2	2	WT	A	2	I	NO	TD
Bit wear comment:												
Size ("):	660 mm (26")	IADC#	L111	Nozzles		Drilled over last 24 hrs		Calculated over Bit Run				
Mfr:	Smith Bits	WOB(avg)	2.00 klb	No.	Size	Progress	59.0 m	Cum. Progress	59.0 m			
Type:	Milled Tooth	RPM(avg)	60 rpm	2	18/32nd"	On Bottom Hrs	1.2 h	Cum. On Btm Hrs	1.2 h			
Serial No.:	TOT RR B26-C	F.Rate	803 gpm	2	20/32nd"	IADC Drill Hrs	1.5 h	Cum IADC Drill Hrs	1.5 h			
Bit Model		SPP	617 psi			Total Revs	9,000 revs	Cum Total Revs	9,000 revs			
Depth In	100.0 m	HSI	hp/in²			ROP(avg)	49.17 m/h	ROP(avg)	49.17 m/h			
Depth Out	159.0 m	TFA	0.001 m²									
Bit Comment												

BHA #1

Weight(Wet)	40.00 klb	Length	122.0 m	Torque(max)	1,500 ft.lbf	D.C. (1) Ann Velocity	32 ft/min
Wt Below Jar(Wet)	klb	String Weight	195.00 klb	Torque(Off.Btm)	500 ft.lbf	D.C. (2) Ann Velocity	0 ft/min
		Pick-Up Weight	195.00 klb	Torque(On.Btm)	800 ft.lbf	H.W.D.P. Ann Velocity	30 ft/min
		Slack-Off Weight	195.00 klb			D.P. Ann Velocity	30 ft/min

BHA Run Description Spud In 26" x 36"

BHA Run Comment

Equipment	Length	OD	ID	Serial #	Comment
26" Bit	0.65 m	26.00 in	in	TOT RR B26-C	
Hole Opener	2.80 m	36.00 in	in	203A3	
Bit Sub	0.89 m	9.50 in	in	207A39	
Anderdrift	2.85 m	9.44 in	in	ADB954	
X/Over	1.13 m	8.25 in	2.88 in	94	
8 1/4 drill collars	56.27 m	8.25 in	2.88 in		

Equipment	Length	OD	ID	Serial #	Comment
X/Over Sub	1.22 m	6.56 in	2.88 in	1171	
HWDP	56.19 m	5.00 in	3.00 in		

Bulk Stocks

Name	Unit	In	Used	Adjust	Balance
Diesel	m3	0.0	10.0	0.0	620.00
Drill Water	m3	0.0	148.0	0.0	965.00
Potable Water	m3	63.0	35.0	0.0	260.00
Barite	MT	66.0	41.0	0.0	71.00
Bentonite	MT	0.0	0.0	0.0	55.00
CEMENT G	MT	0.0	15.0	0.0	45.00

Pumps

Pump Data - Last 24 Hrs									Slow Pump Data			
No.	Type	Liner (in)	MW (ppg)	Eff (%)	SPM	SPP (psi)	Flow (gpm)	Depth (m)	Check	SPM	Pressure ()	Flow ()
1	Continental Emsco	6.50	8.60	97	53	620	266					
2	Continental Emsco	6.50	8.60	97	54	620	268					
3	Continental Emsco	6.50	8.60	97	53	620	266					

Casing

OD	LOT / FIT	Csg Shoe (MD/TVD)	Cementing
762 mm (30")	ppg/ ppg	157.00 m/ 157.00 m	270bbl of 15.8ppg G cmt slurry. Yield 1.19ft3/sk - Mix fluid 5.34gal/sk 53mt of G cmt used

Personnel On Board

Company	Pax
ADA Services	4
Maersk	35
OMS	23
GRN	1
PCS	5
Fugro ROV	6
Halliburton - Cement	2
Halliburton - Sperry	2
Baroid	2
Dril-Quip	1
Geoservices	6
Sinopec Star	1
Fugro Survey LTD	1
Total	89

Mud Volumes, Mud Losses and Shale Shaker Data

Engineer :

Available	1,318.0	Losses	546.0	Equipment	Description	Mesh Size	Comments
Active		Downhole					
Mixing		Surf+ Equip	546.0 bbl				
Hole		Dumped					
Slug		De-Gasser					
Reserve	1318.0 bbl	De-Sander					
Kill		De-Silter					
		Centrifuge					

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	22 Dec 2010 14:00	23 Dec 2010 06:40	Enroute KT IV	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	11.0	0.00	0.0	501
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	372
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	412
				Barite (MT)	MT	0.0	0.0	0.00	0.0	52
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	168
				Brine (bbl)	bbl	0.0	0.0	0.00	0.0	930
0000-1400 Alongside S28 load Cargo 1400-2359 Enroute KT IV										
Far Scimitar	22 Dec 2010 14:00		Std by KT IV	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	13.0	0.00	0.0	298
				Potable Water (m3)	m3	0.0	2.0	0.00	0.0	128
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	395
				Barite (MT)	MT	0.0	0.0	64.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	0
				0000 - 0310 Cargo ops 0310 - 0520 Close stby 0520 - 0730 Running stby 0730 - 0750 Close stby 0750 - 1215 Running stby 1215 - 1920 Close stby 1920 - 2400 Cargo ops						

Helicopter Movement

Flight #	Company	Arr/Dep. Time	Pax In/Out	Comment
1	Bristow Helicopters	08:50 / 09:10	10/ 11	
2	Bristow Helicopters	13:30 / 13:40	3/ 0	

25 Dec 2010

From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller

DRILLING MORNING REPORT # 4**Craigow-1**

Well Data							
Country	Australia	MDBRT	745.0 m	Cur. Hole Size	17.500 in	AFE Cost	AUD 18,289,310
Field	Craigow	TVDBRT	745.0 m	Last Casing OD	30.000 in	AFE No.	
Drill Co.	Maersk Drilling	Progress	586.00 m	Shoe TVDBRT	157.0 m	Daily Cost	AUD 720,038
Rig	Kan Tan IV (semi)	Days From Spud	1.88	Shoe MDBRT	157.0 m	Cum Cost	AUD 2,907,907
Wtr Depth (MSL)	74 m	Days On Well	3.42	FIT/LOT	sg / sg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI	419
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600	Making up 18 3/4" WH to RT and cmt plug set.		
		Last BOP Test	25 Dec 2010	Planned Op	Run and cement 13 3/8" casing. POOH and prepare to run BOPs.		

Summary of Period 0000 to 2400 Hrs

Made up 17½" BHA and RIH. Shallow tested MWD at 119m. Picked up extra HWDP required for BHA and racked in derrick. Washed in and tagged cement at 150m. Drilled out shoe track and cleaned out rat hole. Drilled 17½" hole from 159m to 745m.

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	15	0	Associated with permits and major tasks	
PTW issued	13	0	Permits Administered	
ToolBox Talk	16	0		
Number Observe Cards	28	0		
Safety Meeting	6	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: Encourage crew to include work site tidiness into TBT's and SJA's (if necessary). Do not want habits of untidiness and carelessness to form, increases worksite hazards and risks. Tool left inside casing, was about to be lifted, however personnel noticed the tool and quickly removed it prior to the lift. Could had been a potential dropped object/injury. When operating forklifts always make sure the surrounding area is clear of hazards and persons. Always look behind before reversing. Electrician repaired forward-reverse switch on top drive after months of being told it could not be fixed. This could have got us stuck in the hole, luckily it was repaired. Evening pre-tour: Reminded crew to think safety first, it may be Christmas, however, safety should always be at the forefront of every task. Rig is looking great, good housekeeping. Crew helping each other out to get jobs done or when they need a hand, and they do it safely.

Operations For Period 0000 Hrs to 2400 Hrs On 25 Dec 2010

Phse	Clis (RC)	Op	From	To	Hrs	Depth	Activity Description
P4	P	G6	00:00	02:30	2.50	159.0 m	Continued to make up 17½" drilling BHA to 90m
P4	P	G6	02:30	03:00	0.50	159.0 m	Entered well with ROV assistance and continued to make up BHA to 119m
P4	P	G2	03:00	04:00	1.00	159.0 m	Shallow tested MWD at 119m, 1000gpm, 1500psi. Good test. Picked up 11jts of HWDP and racked 3 stds back in derrick working string between 119m and 138m.
P4	P	F1	04:00	04:30	0.50	159.0 m	Washed in hole, 600gpm, 500psi, from 138m and tagged TOC at 150m with 15klbs wob

Operations For Period 0000 Hrs to 2400 Hrs On 25 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P4	P	D1	04:30	06:00	1.50	159.0 m	Drilled out cement and shoe from 150m to 157m with seawater and PHG sweeps. Cleaned out rat hole to 159m. Reamed rat hole, shoe and drilled out section of shoe track several times to clean. 60rpm, 500ftlbs torq, commenced with 5klbs wob increasing to 20klbs
P4	P	D2	06:00	12:00	6.00	368.0 m	Drilled 17½" hole from 159m to 368m 1150gpm, 2250psi, 80rpm, 1-2kftlbs torq, 10klbs wob.
P4	P	D2	12:00	18:00	6.00	547.0 m	Drilled 17½" hole from 368m to 547m 1150gpm, 2400psi, 80rpm, 1-3kftlbs torq, 10-20klbs wob.
P4	P	D2	18:00	24:00	6.00	745.0 m	Drilled 17½" hole from 547m to 745m. 1150gpm, 2550psi, 80rpm, 2-4kftlbs torq, 15/20klbs wob.

Operations For Period 0000 Hrs to 0600 Hrs On 26 Dec 2010

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
P4	P	F4	00:00	01:30	1.50	745.0 m	Pumped 100bbl 8.6ppg PHG pill and displaced from well. Pumped 100bbl Guar Gum Hi Vis pill and displaced from well. Displaced well with 1.5 times open hole volume 9.0ppg PHG PAD mud.
P4	P	G8	01:30	03:30	2.00	745.0 m	POOH on elevators. Max overpull on trip 50klbs. Wiped tight sections clean. Tight spots; 660m to 656m, 640m, 503m, 492m to 482m
P4	P	G16	03:30	04:00	0.50	745.0 m	Pumped out of wellhead and jetted to clear PGB of cuttings. 1150gpm, 2000psi for 15mins.
P4	P	G6	04:00	05:30	1.50	745.0 m	POOH and racked back BHA. Sperry removed probe from MWD. Laid out bit.
P5	P	G15	05:30	06:00	0.50	745.0 m	Picked up 18 3/4" WHRT assembly and torqued connections. Laid out same.

Phase Data to 2400hrs, 25 Dec 2010

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	27.00	24 Dec 2010	25 Dec 2010	82.00	3.417	745.0 m

General Comments

00:00 TO 24:00 Hrs ON 25 Dec 2010

Operational Comments	BOP pressure test 100% completed. FS valves, rams and Lower Annular tested to 250psi/5min - 5000psi/10mins. Upper annular pressure tested 250psi/5min - 3500psi/10min
Operational Comments	Conductor details: 20" x 30" Shoe: P/N 6-200200-02A / SN 00255692-01 30" Intermediate Jts: P/N 6-289B21363640 / SNs 00252751-3, 23060-11, 00253954-2 30" LP Housing and HAC jt: P/N 6-6-400180-02 / SN 00255694-01

WBM Data

Cost Today AUD16,480

Mud Type:	Water Based	API FL:	cm³/30min	Cl:	mg/L	Solids:	2 %	Viscosity	180 s/qt(UK)
Sample-From:	1	Filter-Cake:	/32nd"	K+C*1000:	%	Low-Gravity	1.4 %vol	PV	6 cP
Time:	18:00			Hard/Ca:	600 mg/L	Solids:		YP	59 lbf/100ft²
Weight:	9.00 ppg	HTHP-FL:	cm³/30min	MBT:	20.0	H2O:	96 %	Gels 10s	22 lbf/100ft²
Temp:	20 °C	HTHP-cake:	/32nd"	Pm:	0.5	Oil:	%	Gels 10m	26 lbf/100ft²
				Pf:	0.1	Sand:		Fann 003	68
						pH:	9.0	Fann 006	52
						PHPA(Density):	kg/m³	Fann 100	47
								Fann 200	39
								Fann 300	22
								Fann 600	20
Comment		Continuously building PHG while drilling ahead. Pumping 70 bbls HiVIS Guar Gum every 1/2 stand and 70 bbls of PHG at the end of every stand drilled. Prepare 9ppg PAD mud for displacing hole							

Bit #2				Wear	I	O1	D	L	B	G	O2	R
				Bit wear comment:								
Size ("):	444 mm (17 1/2")	IADC#	115	Nozzles		Drilled over last 24 hrs			Calculated over Bit Run			
Mfr:	Smith Bits	WOB(avg)	15.00 klb	No.	Size	Progress	586.0 m	Cum. Progress	586.0 m			
Type:	Milled Tooth	RPM(avg)	80 rpm	3	13/32nd"	On Bottom Hrs	11.1 h	Cum. On Btm Hrs	11.1 h			
Serial No.:	PR4804	F.Rate	1,134 gpm	3	16/32nd"	IADC Drill Hrs	18.0 h	Cum IADC Drill Hrs	18.0 h			
Bit Model	VR+VEJ3PS	SPP	2,304 psi			Total Revs	150,000 revs	Cum Total Revs	150,000 revs			
Depth In	159.0 m	HSI	hp/in²			ROP(avg)	52.79 m/h	ROP(avg)	52.79 m/h			
Depth Out	745.0 m	TFA	0.001 m²									
Bit Comment												

BHA #2							
Weight(Wet)	74.00 klb	Length	251.6 m	Torque(max)	4,000 ft.lbf	D.C. (1) Ann Velocity	117 ft/min
Wt Below Jar(Wet)	41.00 klb	String Weight	260.00 klb	Torque(Off.Btm)	500 ft.lbf	D.C. (2) Ann Velocity	129 ft/min
		Pick-Up Weight	260.00 klb	Torque(On.Btm)	2,000 ft.lbf	H.W.D.P. Ann Velocity	99 ft/min
		Slack-Off Weight	260.00 klb			D.P. Ann Velocity	99 ft/min
BHA Run Description		Rotary with MWD-GR					
BHA Run Comment							

Equipment	Length	OD	ID	Serial #	Comment
17 1/2" Bit	0.65 m	17.50 in	in	PR4804	Non Ported Float
Bit Sub	1.15 m	9.50 in	3.00 in	507A50	
MWD	9.90 m	9.50 in	in	11230619	
9 1/2 drill collars	9.45 m	9.56 in	3.00 in	1145	
String Stab	1.13 m	9.42 in	3.00 in	207A211	
9 1/2 drill collars	9.41 m	9.56 in	3.00 in	1150	
X/Over	1.13 m	8.25 in	2.88 in	94	
Drill Collar	46.84 m	8.25 in	2.88 in		
Drilling Jars	9.16 m	7.92 in	2.88 in	214A26	
Drill Collar	18.89 m	8.25 in	2.88 in		
X/Over	1.22 m	6.56 in	2.88 in	1793	
HWDP	141.14 m	5.00 in	3.00 in		

Survey								
MD (m)	Incl (°)	Azim (°)	TVD (m)	Vsect (m)	N/-S (m)	E/-W (m)	DLS (deg/30m)	Tool Type
613.00	0.1	187.0	513.00	-1.2	-1.2	-0.6	0.2	
642.75	0.2	157.0	542.74	-1.3	-1.3	-0.6	0.1	
670.88	0.1	195.5	570.87	-1.3	-1.3	-0.6	0.2	
700.02	0.1	260.8	600.01	-1.4	-1.4	-0.6	0.1	
723.95	0.1	20.4	623.94	-1.4	-1.4	-0.6	0.2	

Bulk Stocks					
Name	Unit	In	Used	Adjust	Balance
Diesel	m3	0.0	8.0	0.0	612.00
Drill Water	m3	0.0	66.0	0.0	899.00
Potable Water	m3	0.0	24.0	0.0	236.00
Barite	MT	0.0	0.0	0.0	71.00
Bentonite	MT	0.0	31.0	0.0	24.00
CEMENT G	MT	0.0	0.0	0.0	45.00
Brine	m3	148.0	0.0	0.0	148.00

Pumps

Pump Data - Last 24 Hrs									Slow Pump Data			
No.	Type	Liner (in)	MW (ppg)	Eff (%)	SPM	SPP (psi)	Flow (gpm)	Depth (m)	Check	SPM	Pressure ()	Flow ()
1	Continental Emsco	6.50	8.60	97	78	2,550	390					
2	Continental Emsco	6.50	8.60	97	81	2,550	405					
3	Continental Emsco	6.50	8.60	97	71	2,550	355					

Casing

OD	LOT / FIT	Csg Shoe (MD/TVD)	Cementing
762 mm (30")	ppg/ ppg	157.00 m/ 157.00 m	270bbl of 15.8ppg G cmt slurry. Yield 1.19ft3/sk - Mix fluid 5.34gal/sk 53mt of G cmt used

Personnel On Board

Company	Pax
ADA Services	4
Maersk	35
OMS	23
GRN	1
PCS	5
Fugro ROV	6
Halliburton - Cement	2
Halliburton - Sperry	2
Baroid	2
Dril-Quip	1
Geoservices	6
Sinopec Star	1
Fugro Survey LTD	1
Total	89

Mud Volumes, Mud Losses and Shale Shaker Data

Engineer :

Available	1,144.0	Losses	2,363.4	Equipment	Description	Mesh Size	Comments
Active		Downhole					
Mixing		Surf+ Equip	2363.4 bbl				
Hole		Dumped					
Slug		De-Gasser					
Reserve	1144.0 bbl	De-Sander					
Kill		De-Silter					
		Centrifuge					

Marine

Weather on 25 Dec 2010								Rig Support	
Visibility	Wind Speed	Wind Dir.	Pressure	Air Temp.	Wave Height	Wave Dir.	Wave Frequency	Anchors	Tension
10.0 NM	16 kn	235.0 °	1,006.0 mbar	13 °C	0.6 m	235.0 °	5 s	#1 Anchor	250.00 klb
								#2 Anchor	218.00 klb
Heave	Pitch	Roll	Rig Dir.	Ris. Tension	VDL	Weather Comments		#3 Anchor	262.00 klb
0.8 m	0.50 °	0.70 °	°	klb	420.00 klb	Fine and clear with calm seas		#4 Anchor	306.00 klb
Swell Height	Swell Dir.	Swell Frequency		Comments				#5 Anchor	137.00 klb
								#6 Anchor	264.00 klb
								#7 Anchor	172.00 klb
								#8 Anchor	189.00 klb
1.0 m	225.0 °	5 s							

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	22 Dec 2010 14:00	23 Dec 2010 06:40	Enroute KT IV	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	15.0	0.00	0.0	486
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	369
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	412
				Barite (MT)	MT	0.0	0.0	0.00	0.0	52
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	84.00	0.0	84
				Brine (bbl)	bbl	0.0	0.0	930.00	0.0	0
0000-0210 Enroute KT IV 0210-0327 Close standby 0327-0420 Discharge cargo 0420-0642 Close standby 0642-0815 Awaiting instructions 0815-0930 Close standby 0930-1415 Running standby 1415-1625 Discharge deck Cargo 1625-2015 Running Standby 2015-2359 Discharge Brine & cmt										
Far Scimitar	22 Dec 2010 14:00	25 Dec 2010 07:45	Std by KT IV	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	20.0	0.00	0.0	278
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	125
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	395
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	0
				0000 - 0055 Cargo ops 0055 - 0310 Close stby 0310 - 0705 Running stby 0705 - 0745 Cargo ops 0745 - 1838 Transit to melb 1838-2400 Alongside melb 1920 - 2400 Cargo ops						

26 Dec 2010

From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller

DRILLING MORNING REPORT # 5**Craigow-1****Well Data**

Country	Australia	MDBRT	745.0 m	Cur. Hole Size	17.500 in	AFE Cost	AUD 18,289,310
Field	Craigow	TVDBRT	745.0 m	Last Casing OD	13.375 in	AFE No.	
Drill Co.	Maersk Drilling	Progress	586.00 m	Shoe TVDBRT	735.0 m	Daily Cost	AUD 1,166,970
Rig	Kan Tan IV (semi)	Days From Spud	2.88	Shoe MDBRT	735.0 m	Cum Cost	AUD 4,074,877
Wtr Depth (MSL)	74 m	Days On Well	4.42	FIT/LOT	sg / sg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI	420
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600	Preparing BOP for running.		
		Last BOP Test	25 Dec 2010	Planned Op	Run BOP and land off on wellhead. Rig down BOP handling equipment. Lay out 17½" BHA. Make up 12¼" BHA		

Summary of Period 0000 to 2400 Hrs

Circulated well clean and displaced well to 9.0ppg PHG mud. POOH to Wellhead. Jetted wellhead and PGB. POOH and racked back BHA. Rigged up and ran 13 3/8" casing. Landed out in 30" LP housing and cemented in 13 3/8" casing.

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	18	0	Associated with permits and major tasks	
PTW issued	15	0	Permits Administered	
ToolBox Talk	16	0		
Number Observe Cards	28	0		
Safety Meeting	7	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: Reminded crew to think safety first, it may be Christmas, however, safety should always be at the forefront of every task. Rig is looking great, good housekeeping. Crew helping each other out to get jobs done or when they need a hand, and they do it safely. Evening pre-tour: Observed crew members using incorrect lifting techniques, many were bending with their backs not with their knees. Reminded crew to use correct lifting techniques at all time and that injury can easily be sustained from lifting incorrectly. Crew pleased with the great efforts put into the Christmas lunches by the catering crew. Great job, lifted crew's spirit. Keep safety on their minds at all time, get their ACTIVE cards in.
Weekly Safety Meeting	11	0		Departmental safety meetings

Operations For Period 0000 Hrs to 2400 Hrs On 26 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P4	P	F4	00:00	01:30	1.50	745.0 m	Pumped 100bbl 8.6ppg PHG pill and displaced from well. Pumped 100bbl Guar Gum Hi Vis pill and displaced from well. Displaced well with 1.5 times open hole volume 9.0ppg PHG PAD mud.
P4	P	G8	01:30	03:30	2.00	745.0 m	POOH on elevators. Max overpull on trip 50klbs. Wiped tight sections clean. Tight spots; 660m to 656m, 640m, 503m, 492m to 482m
P4	P	G16	03:30	04:00	0.50	745.0 m	Pumped out of wellhead and jetted to clear PGB of cuttings. 1150gpm, 2000psi for 15mins.
P4	P	G6	04:00	05:30	1.50	745.0 m	POOH and racked back BHA. Sperry removed probe from MWD. Laid out bit.

Operations For Period 0000 Hrs to 2400 Hrs On 26 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P5	P	G15	05:30	09:00	3.50	745.0 m	Picked up 18-3/4" WHRT assembly and torqued connections. Laid out same. Picked up 18-3/4" HP housing 20" x 13 3/8" jt and set in rotary. Picked up 18-3/4" wellhead RT assembly. Installed equaliser sub and 13-3/8" cement plugs on bottom. Ran RT assembly into WH joint and made up to 18-3/4" WH. Laid out made up assembly.
P5	P	G1	09:00	09:30	0.50	745.0 m	Rigged up to run 13-3/8" casing.
P5	P	G9	09:30	11:00	1.50	745.0 m	Made up shoe track. Bakerlocked connection and function tested shoe/float valves. Secured shoe to guide lines with rope.
P5	TP (WO)	G1	11:00	11:30	0.50	745.0 m	Cranes down due to helicopter operations.
P5	P	G9	11:30	18:00	6.50	745.0 m	Made up and ran 13-3/8" casing from 75m to 624m. Entered well blind due to ROV being out of action.
P5	P	G9	18:00	19:00	1.00	745.0 m	Rigged down casing handling equipment. Picked up 18-3/4" WH jt and made up to casing. Ran WH below rotary to 641m.
P5	P	G9	19:00	19:30	0.50	745.0 m	RIH 13-3/8" casing from 641m to 729m on landing string.
P5	P	G9	19:30	20:00	0.50	745.0 m	Made up space out pup jt and connected cement head assembly to landing string.
P5	P	G9	20:00	21:00	1.00	745.0 m	String took 30klbs weight at 642m. Established circulation and pumped down to land off 18-3/4" WH in 30" LP housing with 50klbs down. Confirmed latch of WH with 50klbs overpull. Reduced weight to 40klbs down on 30" wellhead. Continued to circulate 9.0ppg PHG mud. Total 330bbl pumped
P5	TP (TP)	F4	21:00	21:30	0.50	745.0 m	Cmt unit pumped 5bbl SW and pressure tested surface lines to 3000psi. Cmt unit hose failed on additive system. Made temporary repair to hose. Pumped 60 bbl seawater spacer using rig pumps.
P5	P	CMT	21:30	22:00	0.50	745.0 m	Cmt unit pumped 5bbl SW and retested surface lines to 3000psi. Cmt unit pumped 10bbl SW. Weatherford Eng dropped ball and cmt unit sheared bottom plug with 1500psi.
P5	P	CMT	22:00	24:00	2.00	745.0 m	Cmt unit mixed and pumped 380bbl 12.5ppg lead cmt slurry. Cmt unit mixed and pumped 104bbl 15.8ppg tail cmt slurry.

Operations For Period 0000 Hrs to 0600 Hrs On 27 Dec 2010

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
P5	P	CMT	00:00	01:00	1.00	745.0 m	Weatherford Eng released dart. Flag indicated dart launched. Cmt unit chased dart with SW at 1.5bblm/min and sheared top plug with 500psi after 5.8bbl. Cmt unit pumped a further 14.2bbl of SW and handed over to rig pumps. Displaced cement with rig pumps at 12bbl/min, 900psi, slowing to 4bbl/min, 500psi for final 10bbls. Pumped calculated displacement volume of 289.5bbls plus another 3bbls (50% shoe track volume) with rig pumps. No bump. Checked for back flow at cement unit. 3/4bbl returned. No back flow.
P5	P	G15	01:00	02:00	1.00	745.0 m	Reduced string weight to landing string weight of 170klbs MD. Released 18-3/4" WHRT with 4 turns to right and laid out cement head.
P5	P	G8	02:00	03:30	1.50	745.0 m	POOH and laid out Drill-quip 18-3/4" WHRT and Halliburton equalising sub and swivel.
P6A	P	G1	03:30	04:30	1.00	745.0 m	Rigged up drill floor to run Riser and BOPs
P6A	P	G1	04:30	06:00	1.50	745.0 m	Moved rig off location 40ft aft.
							Made up riser double on drill floor.

Phase Data to 2400hrs, 26 Dec 2010

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	32.50	24 Dec 2010	26 Dec 2010	87.50	3.646	745.0 m
Surface Casing(P5)	18.50	26 Dec 2010	26 Dec 2010	106.00	4.417	745.0 m

General Comments	
00:00 TO 24:00 Hrs ON 26 Dec 2010	
Operational Comments	ROV out of service. Waiting on spares to arrive on board.
Operational Comments	18-3/4" HP Wellhead installed with 13-3/8" casing: P/N: 420002-02 S/N: R56-6018

WBM Data				Cost Today AUD3,080					
Mud Type:	Water Based	API FL:	cm³/30min	Cl:	mg/L	Solids:	2 %	Viscosity	180 s/qt(UK)
Sample-From:	1	Filter-Cake:	/32nd"	K+C*1000:	%	Low-Gravity	1.4 %vol	PV	6 cP
Time:	18:00			Hard/Ca:	600 mg/L	Solids:		YP	59 lbf/100ft²
Weight:	9.00 ppg	HTHP-FL:	cm³/30min	MBT:	20.0	H2O:	96 %	Gels 10s	22 lbf/100ft²
Temp:	20 °C	HTHP-cake:	/32nd"	Pm:	0.5	Oil:	%	Gels 10m	26 lbf/100ft²
				Pf:	0.1	Sand:		Fann 003	68
						pH:	9.0	Fann 006	52
						PHPA(Density):	kg/m³	Fann 100	47
								Fann 200	39
								Fann 300	22
								Fann 600	20
Comment								Swept hole with 100bbl of PHG at TD and 100bbl guar gum. Displaced well with 9ppg PAD mud. Prepare pits for mixing 12.25" section mud.	

Bit #2		Wear	I	O1	D	L	B	G	O2	R
			2	2	WT	A	E	I	CT	TD
		Bit wear comment:								
Size ("):	444 mm (17 1/2")	IADC#	115	Nozzles		Drilled over last 24 hrs		Calculated over Bit Run		
Mfr:	Smith Bits	WOB(avg)		No.	Size	Progress	586.0 m	Cum. Progress	1,172.0 m	
Type:	Milled Tooth	RPM(avg)		3	13/32nd"	On Bottom Hrs	11.1 h	Cum. On Btm Hrs	22.2 h	
Serial No.:	PR4804	F.Rate		3	16/32nd"	IADC Drill Hrs	18.0 h	Cum IADC Drill Hrs	36.0 h	
Bit Model	VR+VEJ3PS	SPP				Total Revs	150,000 revs	Cum Total Revs	300,000 revs	
Depth In	159.0 m	HSI	hp/in ²			ROP(avg)	52.79 m/h	ROP(avg)	52.79 m/h	
Depth Out	745.0 m	TFA	0.001 m ²							

Bit Comment

BHA #2							
Weight(Wet)	74.00 klb	Length	251.6 m	Torque(max)	4,000 ft.lbf	D.C. (1) Ann Velocity	0 ft/min
Wt Below Jar(Wet)	41.00 klb	String Weight	260.00 klb	Torque(Off.Btm)	500 ft.lbf	D.C. (2) Ann Velocity	0 ft/min
		Pick-Up Weight	260.00 klb	Torque(On.Btm)	2,000 ft.lbf	H.W.D.P. Ann Velocity	0 ft/min
		Slack-Off Weight	260.00 klb			D.P. Ann Velocity	0 ft/min

BHA Run Description	Rotary with MWD-GR

BHA Run Comment

Equipment	Length	OD	ID	Serial #	Comment
17 1/2" Bit	0.65 m	17.50 in	in	PR4804	Non Ported Float
Bit Sub	1.15 m	9.50 in	3.00 in	507A50	
MWD	9.90 m	9.50 in	in	11230619	
9 1/2 drill collars	9.45 m	9.56 in	3.00 in	1145	
String Stab	1.13 m	9.42 in	3.00 in	207A211	
9 1/2 drill collars	9.41 m	9.56 in	3.00 in	1150	
X/Over	1.13 m	8.25 in	2.88 in	94	
Drill Collar	46.84 m	8.25 in	2.88 in		
Drilling Jars	9.16 m	7.92 in	2.88 in	214A26	
Drill Collar	18.89 m	8.25 in	2.88 in		
X/Over	1.22 m	6.56 in	2.88 in	1793	
HWDP	141.14 m	5.00 in	3.00 in		

Bulk Stocks					
Name	Unit	In	Used	Adjust	Balance
Diesel	m3	0.0	14.0	0.0	598.00
Drill Water	m3	0.0	10.0	0.0	889.00
Potable Water	m3	35.0	31.0	0.0	240.00
Barite	MT	0.0	0.0	0.0	71.00
Bentonite	MT	0.0	0.0	0.0	24.00
CEMENT G	MT	80.0	21.0	0.0	104.00
Brine	m3	0.0	0.0	0.0	148.00

Pumps													
Pump Data - Last 24 Hrs									Slow Pump Data				
No.	Type	Liner (in)	MW (ppg)	Eff (%)	SPM	SPP (psi)	Flow (gpm)	Depth (m)	Check	SPM	Pressure ()	Flow ()	
1	Continental Emsco	6.50	8.60	97									
2	Continental Emsco	6.50	8.60	97									
3	Continental Emsco	6.50	8.60	97									

Casing				
OD	LOT / FIT	Csg Shoe (MD/TVD)	Cementing	
762 mm (30")	ppg/ ppg	157.00 m/ 157.00 m	270bbl of 15.8ppg G cmt slurry. Yield 1.19ft3/sk - Mix fluid 5.34gal/sk 53mt of G cmt used	
340 mm (13 3/8")	ppg/ ppg	735.00 m/ 735.00 m	Lead slurry: 380bbl 12.5ppg G cement. Yield 2.21ft3/sk. Mix fluid 13.02gal/sk. Used 41MT of G cmt. Tail Slurry: 104bbl of 15.8ppg G cmt. Yield 1.16ft3/sk. Mix fluid 5.16gal/sk. Used: 22MT G cmt.	

Personnel On Board	
Company	Pax
ADA Services	4
Maersk	34
OMS	23
GRN	1
PCS	5
Fugro ROV	6
Halliburton - Cement	2
Halliburton - Sperry	2
Baroid	2
Dril-Quip	1
Geoservices	6
Sinopec Star	1
Weatherford	1
Total	88

Mud Volumes, Mud Losses and Shale Shaker Data				Engineer :			
Available	836.7	Losses	544.0	Equipment	Description	Mesh Size	Comments
Active		Downhole					
Mixing		Surf+ Equip	544.0 bbl				
Hole		Dumped					
Slug		De-Gasser					
Reserve	836.7 bbl	De-Sander					
Kill		De-Silter					
		Centrifuge					

Marine									
Weather on 26 Dec 2010								Rig Support	
Visibility	Wind Speed	Wind Dir.	Pressure	Air Temp.	Wave Height	Wave Dir.	Wave Frequency	Anchors	Tension
10.0 NM	26 kn	265.0 °	1,007.0 mbar	°C	1.0 m	225.0 °	5 s	#1 Anchor	255.00 klb
								#2 Anchor	222.00 klb
Heave	Pitch	Roll	Rig Dir.	Ris. Tension	VDL	Weather Comments		#3 Anchor	267.00 klb
1.4 m	0.60 °	0.70 °	248.0 °	klb	790.00 klb			#4 Anchor	309.00 klb
Swell Height	Swell Dir.	Swell Frequency		Comments				#5 Anchor	135.00 klb
								#6 Anchor	248.00 klb
								#7 Anchor	167.00 klb
1.3 m	225.0 °	5 s						#8 Anchor	179.00 klb

Support Vessels											
Boats	Arrived Time	Departed Time	Status	Bulks							
Far Fosna	25 Dec 2010 02:45	23 Dec 2010 06:40	At KT IV	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity	
				Diesel (m3)	m3	0.0	11.0	0.00	0.0	475	
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	366	
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	412	
				Barite (MT)	MT	0.0	0.0	0.00	0.0	52	
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0	
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	84	
				Brine (bbl)	bbl	0.0	0.0	0.00	0.0	0	
0000-0230 Discharge cargo KT IV 0230-0715 Running Standby 0715-1940 Close Standby 1940-2130 Running Standby 2130-2330 Discharge / Backload Cargo 2330-2359 Awaiting Hoses											
Far Scimitar	22 Dec 2010 14:00	25 Dec 2010 07:45	Alongside 28 Sth Wharf	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity	
				Diesel (m3)	m3	0.0	1.0	0.00	0.0	277	
				Potable Water (m3)	m3	432.0	3.0	0.00	0.0	554	
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	395	
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0	
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0	
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	0	
				0000 - 2400 Alongside 28 Sth Wharf							

Helicopter Movement				
Flight #	Company	Arr/Dep. Time	Pax In/Out	Comment
1	Bristow Helicopters	11:10 / 11:20	1/ 2	

27 Dec 2010
From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller
DRILLING MORNING REPORT # 6**Craigow-1**

Well Data						
Country	Australia	MDBRT	745.0 m	Cur. Hole Size	17.500 in	AFE Cost AUD 18,289,310
Field	Craigow	TVDBRT	745.0 m	Last Casing OD	13.375 in	AFE No.
Drill Co.	Maersk Drilling	Progress		Shoe TVDBRT	735.0 m	Daily Cost AUD 960,655
Rig	Kan Tan IV (semi)	Days From Spud	3.88	Shoe MDBRT	735.0 m	Cum Cost AUD 5,035,532
Wtr Depth (MSL)	74 m	Days On Well	5.42	FIT/LOT	sg / sg	Last LTI Date 01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI 421
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600	Installing storm saddles to Umbilical hoses.	
		Last BOP Test	25 Dec 2010	Planned Op	Land off BOP. Pressure test connector and casing to 2500psi. Rig down BOP running equipment. Lay out 17-1/2" BHA. Make up 12¼" BHA and RIH to drill out shoe track and change out to 9.8ppg PHPA mud. Perform LOT and drill ahead 12¼" hole.	

Summary of Period 0000 to 2400 Hrs

Displaced cement around 13 3/8" casing. Released RT and laid out cement head. POOH and laid out WHRT. Rigged up to run riser. Made up riser double. Moved BOP to transporter and skidded to well centre. Waited on weather. Made up riser double to BOP and ran BOP in to slip joint.

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	34	0	Associated with permits and major tasks	
PTW issued	23	0	Permits Administered	
ToolBox Talk	39	0		
Number Observe Cards	25	0		
Safety Meeting	8	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: Observed crew members using incorrect lifting techniques, many were bending with their backs not with their knees. Reminded crew to use correct lifting techniques at all time and that injury can easily be sustained from lifting incorrectly. Crew pleased with the great efforts put into the Christmas lunches by the catering crew. Great job, lifted crew's spirit. Keep safety on their minds at all time, get their ACTIVE cards in. Evening pre-tour: Waste is becoming an issue. With limited capacity of the bins, crew need to be extra cautious that waste does not go overboard. Areas are being barriered off correctly; however, crew should ensure that if working with scaffolding that they update their scafftags. Two were found out of date. Be cautious with high winds whilst working, in particular with the BOP and cranes. Great example of stop the job; crew member thought anchor winch breaks were not on so intercepted the job and had Barge check out the situation.
Weekly Safety Meeting	0	1		
First Aid Case	1	0	Right ankle sprain/soft tissue injury.	The IP was walking across the pipe deck guiding a bundled load of 3 drill collars with a tag line as it was moved by the crane. As he stepped over a deck rail ("I beam") he stood on a Sampson post that he did not see as it had been rolled in alongside & under the deck rail. His right foot rolled off the Sampson Post and he twisted his right ankle on the deck.

Operations For Period 0000 Hrs to 2400 Hrs On 27 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P5	P	CMT	00:00	01:00	1.00	745.0 m	Weatherford Eng released dart. Flag indicated dart launched. Cmt unit chased dart with SW at 1.5bblm/min and sheared top plug with 500psi after 5.8bbl. Cmt unit pumped a further 14.2bbl of SW and handed over to rig pumps. Displaced cement with rig pumps at 12bbl/min, 900psi, slowing to 4bbl/min, 500psi for final 10bbls. Observed pressure build up as tail slurry was pumped through shoe and up the annulus from 950psi to 1200psi at 12bbl/min. FCP at 4bbl/min 365psi Pumped calculated displacement volume of 289.5bbls plus another 3bbls (50% shoe track volume) with rig pumps. No bump. Checked for back flow at cement unit. 3/4bbl returned. No back flow.
P5	P	G15	01:00	02:00	1.00	745.0 m	Reduced string weight to landing string weight of 170klbs MD. Released 18-3/4" WHRT with 4 turns to right and laid out cement head.
P5	P	G8	02:00	03:30	1.50	745.0 m	POOH and laid out Drill-quip 18-3/4" WHRT and Halliburton equalising sub and swivel.
P6A	P	G1	03:30	04:30	1.00	745.0 m	Rigged up drill floor to run Riser and BOPs Moved rig off location 40ft aft.
P6A	P	G1	04:30	06:00	1.50	745.0 m	Made up riser double on drill floor.
P6A	P	G1	06:00	10:00	4.00	745.0 m	Skidded BOP onto transporter and moved BOP to well centre. Offline: ROV installed VX ring gasket on wellhead.
P6A	TP (WOW)	G1	10:00	19:00	9.00	745.0 m	Waited on weather. Wind speed exceeded Rig manriding limit. 10:00 Wind 33knts - Heave 1.8m - Pitch 1.5° - Roll 0.9° 11:00 Wind 33knts - Heave 1.6m - Pitch 0.8° - Roll 0.9° 12:00 Wind 35knts - Heave 1.8m - Pitch 0.8° - Roll 0.9° 13:00 Wind 35knts - Heave 2.2m - Pitch 0.9° - Roll 0.9° 14:00 Wind 33knts - Heave 2.4m - Pitch 0.9° - Roll 0.9° 15:00 Wind 35knts - Heave 2.2m - Pitch 0.9° - Roll 0.9° 16:00 Wind 30knts - Heave 2.4m - Pitch 0.8° - Roll 0.8° 17:00 Wind 30knts - Heave 1.6m - Pitch 0.6° - Roll 0.8° 18:00 Wind 31knts - Heave 1.8m - Pitch 0.7° - Roll 0.8°
P6A	P	G1	19:00	21:00	2.00	745.0 m	Prepared BOP for running. Made up riser double to BOP.
P6A	P	G1	21:00	21:30	0.50	745.0 m	Picked up BOP clear of transporter and removed transporter from well centre. Ran BOP through splash zone.
P6A	P	G8	21:30	23:30	2.00	745.0 m	Continued to run BOPs. Made up riser jt and 2 pups jts
P6A	P	G8	23:30	24:00	0.50	745.0 m	Picked up slip jt

Operations For Period 0000 Hrs to 0600 Hrs On 28 Dec 2010

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
P6A	P	G8	00:00	01:30	1.50	745.0 m	Made up slip jt. Picked up and made up landing jt. Ran slip jt into moonpool.
P6A	P	G1	01:30	03:00	1.50	745.0 m	Installed Choke and Kill hoses to slip jt.
P6A	P	P1	03:00	04:00	1.00	745.0 m	Pressure tested Choke and Kill lines to 250psi/5min - 5000psi/10min (Moved rig back over well centre)
P6A	P	G1	04:00	06:00	2.00	745.0 m	Installed MRT lines to slip jt. Installed Umbilical storm saddles in moonpool.

Phase Data to 2400hrs, 27 Dec 2010

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	32.50	24 Dec 2010	26 Dec 2010	87.50	3.646	745.0 m
Surface Casing(P5)	22.00	26 Dec 2010	27 Dec 2010	109.50	4.563	745.0 m
Run BOPs/Riser(P6A)	20.50	27 Dec 2010	27 Dec 2010	130.00	5.417	745.0 m

WBM Data				Cost Today AUD3,080							
Mud Type:	Water Based	API FL:	cm³/30min	Cl:	50,000 mg/L	Solids:	4 %	Viscosity	52 s/qt(UK)		
Sample-From:	1	Filter-Cake:	/32nd"	K+C*1000:	8 %	Low-Gravity	0.8 %vol	PV	13 cP		
Time:	17:00	HTHP-FL:	cm³/30min	Hard/Ca:	40 mg/L	Solids:		YP	29 lbf/100ft²		
Weight:	9.80 ppg			HTHP-FL:	cm³/30min	MBT:		H2O:	3 %	Gels 10s	10 lbf/100ft²
Temp:	20 °C			HTHP-cake:	/32nd"	Pm:		Oil:	%	Gels 10m	12 lbf/100ft²
						Pf:	0.3	Sand:		Fann 003	10
								Fann 006	11		
								Fann 100	28		
								Fann 200	36		
								Fann 300	42		
								PHPA(Density):	kg/m³	Fann 600	55
Comment								Mixing the 8% KCL/Polmer/CLAYSEAL Plus mud.			

Mud Volumes, Mud Losses and Shale Shaker Data

Engineer :

Available	1,410.0	Losses	0.0	Equipment	Description	Mesh Size	Comments
Active		Downhole					
Mixing		Surf+ Equip					
Hole		Dumped					
Slug		De-Gasser					
Reserve	1410.0 bbl	De-Sander					
Kill		De-Silter					
		Centrifuge					

Marine

Weather on 27 Dec 2010								Rig Support	
Visibility	Wind Speed	Wind Dir.	Pressure	Air Temp.	Wave Height	Wave Dir.	Wave Frequency	Anchors	Tension
10.0 NM	18 kn	210.0 °	1,014.0 mbar	°C	1.0 m	225.0 °	5 s	#1 Anchor	287.00 klb
								#2 Anchor	106.00 klb
Heave	Pitch	Roll	Rig Dir.	Ris. Tension	VDL	Weather Comments			
1.4 m	0.40 °	0.60 °	248.0 °	klb	530.00 klb				
Swell Height	Swell Dir.	Swell Frequency	Comments				#3 Anchor	156.00 klb	
							#4 Anchor	323.00 klb	
2.0 m	225.0 °	5 s					#5 Anchor	104.00 klb	
							#6 Anchor	169.00 klb	
							#7 Anchor	102.00 klb	
							#8 Anchor	101.00 klb	

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	25 Dec 2010 02:45	23 Dec 2010 06:40	At KT IV	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	12.0	0.00	0.0	463
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	363
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	412
				Barite (MT)	MT	0.0	0.0	0.00	0.0	52
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	84
				Brine (bbl)	bbl	0.0	0.0	0.00	0.0	0
0000-0405 Discharge cargo KT IV 0405-0520 Running Standby 0520-2359 Close Standby										
Far Scimitar	22 Dec 2010 14:00	25 Dec 2010 07:45	Alongside 28 Sth Wharf	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	655.0	2.0	0.00	10.0	940
				Potable Water (m3)	m3	0.0	4.0	0.00	0.0	550
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	395
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	0
				0000 - 2400 Alongside 28 Sth Wharf 2017 - 2230 Load bunkers						

Helicopter Movement

Flight #	Company	Arr/Dep. Time	Pax In/Out	Comment
1	Bristow Helicopters	09:05 / 09:20	11/ 12	Maersk Crew Change
2	Bristow Helicopters	12:45 / 13:00	5/ 10	

28 Dec 2010
From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller
DRILLING MORNING REPORT # 7**Craigow-1****Well Data**

Country	Australia	MDBRT	745.0 m	Cur. Hole Size	17.500 in	AFE Cost	AUD 18,289,310
Field	Craigow	TVDBRT	745.0 m	Last Casing OD	13.375 in	AFE No.	
Drill Co.	Maersk Drilling	Progress		Shoe TVDBRT	735.0 m	Daily Cost	AUD 702,735
Rig	Kan Tan IV (semi)	Days From Spud	4.88	Shoe MDBRT	735.0 m	Cum Cost	AUD 5,738,267
Wtr Depth (MSL)	74 m	Days On Well	6.42	FIT/LOT	sg / 1.79 sg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI	422
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600	Drilling ahead 12¼" hole.		
		Last BOP Test	25 Dec 2010	Planned Op	Drill ahead 12¼" hole.		

Summary of Period 0000 to 2400 Hrs

Made up slip joint and landing joint. Connected and pressure tested kill and choke lines. Installed MRT lines to slip joint and installed storm saddles to umbilical hoses. Landed off BOP and locked onto 18 3/4" wellhead. Pressure tested casing to 2500psi. Rigged down handling equipment. Laid out 17½" BHA. Made up 12¼" BHA and RIH picking up DP to 685m. Preformed well control and shut in exercise. Function tested BOP.

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	29	0	Associated with permits and major tasks	
PTW issued	19	0	Permits Administered	
ToolBox Talk	22	0		
Number Observe Cards	21	0		
Safety Meeting	7	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: Waste is becoming an issue. With limited capacity of the bins, crew need to be extra cautious that waste does not go overboard. Areas are being barriered off correctly; however, crew should ensure that if working with scaffolding that they update their scaffags. Two were found out of date. Be cautious with high winds whilst working, in particular with the BOP and cranes. Great example of stop the job; crew member thought anchor winch breaks were not on so intercepted the job and had Barge check out the situation. Evening pre-tour: Some crew members are locking doors, informed crew of the dangers and advised that doors are to remain unlocked. Obstacles/equipment left on walkways around the rig. Slip/trip hazards; be more cautious of where you place equipment and tools. Good to see crew making a conscious effort to improve lifting techniques. They do a good job on taking on advice.
Weekly Safety Meeting	0	2		
Abandonment	1	0		1947 Prepare to abandon platform alarm sounded – Muster point FWD lifeboats 1948 Far Scimitar notified. 1949 Well reported as secured 1950 Accommodation cleared – 1 in galley on fire watch 1952 Full Muster - End of exercise. Test of General & Toxic Hazard alarms completed. 1953 De-brief held in pilot house

Operations For Period 0000 Hrs to 2400 Hrs On 28 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P6A	P	G8	00:00	01:30	1.50	745.0 m	Made up slip joint. Picked up and made up landing joint. Ran slip joint into moonpool.

Operations For Period 0000 Hrs to 2400 Hrs On 28 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P6A	P	G1	01:30	03:00	1.50	745.0 m	Installed Choke and Kill hoses to slip joint.
P6A	P	P1	03:00	04:00	1.00	745.0 m	Pressure tested Choke and Kill lines to 250psi/5min - 5000psi/10min (Moved rig back over well centre)
P6A	P	G1	04:00	06:30	2.50	745.0 m	Installed MRT lines to slip joint. Installed Umbilical storm saddles in moonpool.
P6A	P	G8	06:30	08:00	1.50	745.0 m	Aligned BOP to guide posts and landed off BOP on 18-3/4" HP wellhead. Locked wellhead connector and tested with 50klbs overpull.
P6A	P	P1	08:00	08:30	0.50	745.0 m	Pressure tested connector and 13-3/8" casing to 2500psi/10mins.
P6A	P	G1	08:30	09:00	0.50	745.0 m	Stroked open slip joint and laid out landing joint.
P6A	P	G1	09:00	10:00	1.00	745.0 m	Installed diverter into housing.
P6A	P	G1	10:00	11:00	1.00	745.0 m	Rigged down riser handling equipment.
P11	P	G6	11:00	12:30	1.50	745.0 m	Laid out excess 17½" BHA.
P11	P	G11	12:30	13:30	1.00	745.0 m	Serviced Top Drive.
P11	P	G7	13:30	17:00	3.50	745.0 m	Made up Drilling stand of 12¼" BHA. Set Sperry mud motor at 0.78° bend.
P11	P	G7	17:00	17:30	0.50	745.0 m	Downloaded data to Sperry MWD/LWD tools.
P11	P	G6	17:30	20:00	2.50	745.0 m	Continued to make up 12¼" BHA from 18m to 264m.
P11	P	G15	20:00	20:30	0.50	745.0 m	Shallow tested Sperry MWD/LWD. 850gpm, 1300psi.
P11	P	G6	20:30	21:00	0.50	745.0 m	Confirmed mousehole empty prior to picking up pipe from deck. Installed diverter element.
P11	P	G6	21:00	22:30	1.50	745.0 m	RIH from 264m to 685m picking up 45 joints DP from deck.
P11	P	P3	22:30	23:00	0.50	745.0 m	Held well control drill. Closed in well, checked tool joint space out. Conducted choke circulation exercise with Drill Crew.
P11	P	G13	23:00	24:00	1.00	745.0 m	Function tested BOPs. Functioned on Yellow Pod from drillfloor. Functioned on Blue Pod from koomey unit.

Operations For Period 0000 Hrs to 0600 Hrs On 29 Dec 2010

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
P11	P	F1	00:00	00:30	0.50	745.0 m	Washed in hole from 685m and tagged top of cement at 696m. Confirmed with 20klbs tag with out pumps.
P11	P	D1	00:30	01:00	0.50	745.0 m	Drilled out light cement from 696m to 718m. 700gpm, 1100psi, 30rpm, 0klbs wob.
P11	P	D1	01:00	03:00	2.00	745.0 m	Drilled out cement plugs, float and shoe track from 718m to 732m with seawater and Guar Gum hi vis sweeps. Broke through float at 723m.
P11	P	D1	03:00	03:30	0.50	748.0 m	Displaced well to 9.8ppg KCL PHPA mud while continued to drill out shoe track (Shoe drilled out at 735m). Cleaned out rat hole to 745m. Reamed shoe and rat hole to clean and drilled 3m of 12¼" hole from 745m to 748m
P11	P	F4	03:30	04:30	1.00	748.0 m	Circulated and conditioned mud.
P11	P	E1	04:30	05:30	1.00	748.0 m	Pulled into shoe and performed LOT. Flushed lines and pressure tested surface lines to 250psi/1500psi. Perform LOT. Shoe at 735m, MW 9.8ppg, breakover pressure 640psi. 4.61bbl pumped, 4.3bbl returned. EMW: 14.9PPG.
P11	P	P3	05:30	06:00	0.50	748.0 m	Recorded SCRs and choke line friction losses.

Phase Data to 2400hrs, 28 Dec 2010

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	32.50	24 Dec 2010	26 Dec 2010	87.50	3.646	745.0 m
Surface Casing(P5)	22.00	26 Dec 2010	27 Dec 2010	109.50	4.563	745.0 m
Run BOPs/Riser(P6A)	31.50	27 Dec 2010	28 Dec 2010	141.00	5.875	745.0 m
Production Hole (1)(P11)	13.00	28 Dec 2010	28 Dec 2010	154.00	6.417	745.0 m

WBM Data				Cost Today AUD3,080					
Mud Type:	Water Based	API FL:	cm³/30min	Cl:	49,000 mg/L	Solids:	4 %	Viscosity	53 s/qt(UK)
Sample-From:	1	Filter-Cake:	/32nd"	K+C*1000:	8 %	Low-Gravity	0.8 %vol	PV	14 cP
Time:	20:30			Hard/Ca:	40 mg/L	Solids:		YP	27 lbf/100ft²
Weight:	9.80 ppg	HTHP-FL:	cm³/30min			H2O:	92 %	Gels 10s	10 lbf/100ft²
Temp:	28 °C	HTHP-cake:	/32nd"	MBT:				Gels 10m	12 lbf/100ft²
				Pm:	1.0	Oil:	%	Fann 003	10
				Pf:	0.1	Sand:		Fann 006	11
						pH:	9.0	Fann 100	28
						PHPA(Density):	kg/m³	Fann 200	36
								Fann 300	41
								Fann 600	55
Comment		Continue Mixing the 8% KCL/Polmer/CLAYSEAL Plus mud. Dressed shakers with used 12 x API20 - top scalper screens and 16 x API80 - Bottom screens							

Mud Volumes, Mud Losses and Shale Shaker Data

Engineer :

Available	1,443.0	Losses	0.0	Equipment	Description	Mesh Size	Comments
Active		Downhole					
Mixing		Surf+ Equip					
Hole		Dumped					
Slug		De-Gasser					
Reserve	1443.0 bbl	De-Sander					
Kill		De-Silter					
		Centrifuge					

Marine

Weather on 28 Dec 2010								Rig Support	
Visibility	Wind Speed	Wind Dir.	Pressure	Air Temp.	Wave Height	Wave Dir.	Wave Frequency	Anchors	Tension
10.0 NM	17 kn	35.0 °	1,013.0 mbar	°C	0.3 m	225.0 °	4 s	#1 Anchor	18.00 klb
								#2 Anchor	260.00 klb
Heave	Pitch	Roll	Rig Dir.	Ris. Tension	VDL	Weather Comments			
0.8 m	0.50 °	0.50 °	248.0 °	klb	730.00 klb				
Swell Height	Swell Dir.	Swell Frequency	Comments						
1.0 m	225.0 °	5 s							
						#3 Anchor	246.00 klb		
						#4 Anchor	281.00 klb		
						#5 Anchor	155.00 klb		
						#6 Anchor	234.00 klb		
						#7 Anchor	147.00 klb		
						#8 Anchor	176.00 klb		

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	25 Dec 2010 02:45	28 Dec 2010 22:20	Enroute S 28 Melbourne	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	11.0	0.00	0.0	452
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	360
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	412
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	84.00	0.0	0
				Brine (bbl)	bbl	0.0	0.0	0.00	0.0	0
0000-1100 Cose standby 1100-1400 Running Standby 1400-1758 Discharge Backload cargo KT IV 1758-2220 Running Standby 2220-2359 Enroute S 28 Melbourne										
Far Scimitar	28 Dec 2010 22:00	25 Dec 2010 07:45	Running stby	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	12.0	0.00	0.0	928
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	547
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	395
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	0
0000 - 1100 Alongside 28 Sth Wharf 1100 - 2220 Transit Melbourne to KT4 (Craigow-1) 2220 - 2400 Running stby										

Helicopter Movement

Flight #	Company	Arr/Dep. Time	Pax In/Out	Comment
1	Bristow Helicopters	11:20 / 11:35	8/ 4	

29 Dec 2010

From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller

DRILLING MORNING REPORT # 8**Craigow-1**

Well Data							
Country	Australia	MDBRT	1,304.0 m	Cur. Hole Size	12.250 in	AFE Cost	AUD 18,289,310
Field	Craigow	TVDBRT	1,304.0 m	Last Casing OD	13.375 in	AFE No.	
Drill Co.	Maersk Drilling	Progress	559.00 m	Shoe TVDBRT	735.0 m	Daily Cost	AUD 856,483
Rig	Kan Tan IV (semi)	Days From Spud	5.88	Shoe MDBRT	735.0 m	Cum Cost	AUD 6,594,750
Wtr Depth (MSL)	74 m	Days On Well	7.42	FIT/LOT	ppg / 14.90 ppg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI	423
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600	Drilled 12¼" hole from 1304m to 1311m. POOH for bit trip.		
		Last BOP Test	25 Dec 2010	Planned Op	POOH. Change out bit. RIH and continue to drill 12¼" hole.		

Summary of Period 0000 to 2400 Hrs

Tagged TOC at 696m. Drilled out cement, shoe track and rathole to 745m. Drilled 12¼" hole from 745m to 748m. Pulled into shoe and performed LOT to EMW 14.90 ppg. Drilled ahead 12¼" hole from 748m to 1304m.

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	29	0	Associated with permits and major tasks	
PTW issued	21	0	Permits Administered	
ToolBox Talk	29	0		
Number Observe Cards	17	0		
Safety Meeting	7	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: Some crew members are locking doors, informed crew of the dangers and advised that doors are to remain unlocked. Obstacles/equipment left on walkways around the rig. Slip/trip hazards; be more cautious of where you place equipment and tools. Good to see crew making a conscious effort to improve lifting techniques. They do a good job on taking on advice. Evening pre-tour: Good communication taking place amongst crew both working together and working in concurrent activity. A reminder about situational awareness. Don't drop the ball this late in the game! Keep an eye on loads overhead and around your work area. Good use of crane horn to warn when loads are moving over helideck
Weekly Safety Meeting	0	3		

Operations For Period 0000 Hrs to 2400 Hrs On 29 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P11	P	F1	00:00	00:30	0.50	745.0 m	Washed in hole from 685m and tagged top of cement at 696m. Confirmed with 20klbs tag with out pumps.
P11	P	D1	00:30	01:00	0.50	745.0 m	Drilled out light cement from 696m to 718m. 700gpm, 1100psi, 30rpm, 0klbs wob.
P11	P	D1	01:00	03:00	2.00	745.0 m	Drilled out cement plugs, float and shoe track from 718m to 732m with seawater and Guar Gum hi vis sweeps. Broke through float at 723m.
P11	P	D2	03:00	03:30	0.50	748.0 m	Displaced well to 9.8ppg KCL PHPA mud while continued to drill out shoe track (Shoe drilled out at 735m). Cleaned out rat hole to 745m. Reamed shoe and rat hole to clean and drilled 3m of 12¼" hole from 745m to 748m.
P11	P	F4	03:30	04:30	1.00	748.0 m	Circulated and conditioned mud.

Operations For Period 0000 Hrs to 2400 Hrs On 29 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P11	P	E1	04:30	05:30	1.00	748.0 m	Pulled into shoe and performed LOT. Flushed lines and pressure tested surface lines to 250psi/1500psi. Perform LOT. Shoe at 735m, MW 9.8ppg, breakover pressure 640psi. 4.61bbl pumped, 4.3bbl returned. EMW: 14.9PPG.
P11	P	P3	05:30	06:00	0.50	748.0 m	Recorded SCRs and choke line friction losses.
P11	P	D2	06:00	12:00	6.00	1,013.0 m	Drilled 12¼" hole from 748m to 1013m. 10klbs wob, 80rpm, 988gpm, 2310psi 2kftlbs torq.
P11	P	D2	12:00	18:00	6.00	1,185.0 m	Drilled 12¼" hole from 1013m to 1185m. 10/25klbs wob, 80rpm, 1000gpm, 2720psi 2kftlbs torq.
P11	P	D2	18:00	24:00	6.00	1,304.0 m	Drilled 12¼" hole from 1185m to 1304m. 25/30klbs wob, 80rpm, 1000gpm, 2890psi 3.5kftlbs torq. Drilled Dolomite stringer at 1266m. ROP dropped to 10-15m/hr and did not increase again once the bit was back in the shale.

Operations For Period 0000 Hrs to 0600 Hrs On 30 Dec 2010

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
P11	P	D2	00:00	01:00	1.00	1,311.0 m	Drilled 12¼" hole from 1304m to 1311m. 25/30klbs wob, 80rpm, 1000gpm, 2890psi 3.5kftlbs torq. Varied parameters in an attempt to improve ROP. Pumped 45bbl Steelseal 20lb/bbl pill in attempt to clear possible bit balling. No effect on low ROP.
P11	P	F4	01:00	02:00	1.00	1,311.0 m	Pumped 40bbl Hi Vis pill and circulated clean.
P11	P	G8	02:00	02:30	0.50	1,311.0 m	Flow checked well. POOH from 1311m to 1243m on elevators. Took overpulls of 55klbs and noted well swabbing.
P11	P	D7	02:30	05:00	2.50	1,311.0 m	Pumped out of hole (no rotation) from 1243m to shoe at 735m. 900gpm, 2400psi. Attempted unsuccessfully to pull without pumps at 1161m and 1016m. Both attempts recorded high overpulls and well swabbing. (Max overpull 70klbs). Heavy returns at shakers of fines and mushy regrounds.
P11	P	D7	05:00	05:30	0.50	1,311.0 m	Circulated bottoms up.
P11	P	G8	05:30	06:00	0.50	1,311.0 m	Flow checked well. Pumped slug.

Phase Data to 2400hrs, 29 Dec 2010

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	32.50	24 Dec 2010	26 Dec 2010	87.50	3.646	745.0 m
Surface Casing(P5)	22.00	26 Dec 2010	27 Dec 2010	109.50	4.563	745.0 m
Run BOPs/Riser(P6A)	31.50	27 Dec 2010	28 Dec 2010	141.00	5.875	745.0 m
Production Hole (1)(P11)	37.00	28 Dec 2010	29 Dec 2010	178.00	7.417	1,304.0 m

WBM Data
Cost Today AUD3,080

Mud Type:	Water Based	API FL:	4.8 cm³/30min	Cl:	49,000 mg/L	Solids:	6 %	Viscosity	57 s/qt(UK)
Sample-From:	pit#2	Filter-Cake:	1 /32nd"	K+C*1000:	8 %	Low-Gravity	3.4 %vol	PV	20 cP
Time:	20:30			Hard/Ca:	80 mg/L	Solids:		YP	23 lbf/100ft²
Weight:	10.00 ppg	HTHP-FL:	9.1 cm³/30min	MBT:	7.5	H2O:	90 %	Gels 10s	9 lbf/100ft²
Temp:	46 °C	HTHP-cake:	2 /32nd"	Pm:	0.6	Oil:	%	Gels 10m	11 lbf/100ft²
				Pf:	0.7	Sand:		Fann 003	8
						pH:	9.3	Fann 006	9
						PHPA(Density):	kg/m³	Fann 100	24
								Fann 200	35
								Fann 300	43
								Fann 600	63
Comment Continue Mixing the 8% KCL/Polmer/CLAYSEAL Plus mud. Used citric acid to lower th pH after drilling cement and displacing the well. Built another 350 bbls of 8% KCL/Polymer/CLAYSEAL PLUS mud to keep up with volume of hole drilled. Continuously adding drill water at 4 bbl/hr and KCL brine at 20 bbl/hr. Increased the concentration of CLAYSEAL PLUS to 3% and EZ-MUD to 1.5 ppb. RAised the mud weight up from 9.8 to 10 ppg.									

Bit #3				Wear	I	O1	D	L	B	G	O2	R	
				Bit wear comment:									
Size ("):	311 mm (12 1/4")	IADC#	M432	Nozzles		Drilled over last 24 hrs			Calculated over Bit Run				
Mfr:	Reed Hycalog	WOB(avg)	20.00 klb	No. Size		Progress		559.0 m	Cum. Progress		559.0 m		
Type:	PDC	RPM(avg)	73 rpm	8	14/32nd"		On Bottom Hrs		12.9 h	Cum. On Btm Hrs		12.9 h	
Serial No.:	223735	F.Rate	961 gpm			IADC Drill Hrs		18.0 h	Cum IADC Drill Hrs		18.0 h		
Bit Model	RSR616M	SPP	2,700 psi			Total Revs		118,000 revs	Cum Total Revs		118,000 revs		
Depth In	745.0 m	HSI	hp/in²			ROP(avg)		43.33 m/h	ROP(avg)		43.33 m/h		
Depth Out	1,311.0 m	TFA	0.001 m²										
Bit Comment													

BHA #3						
Weight(Wet)	74.00 klb	Length	264.7 m	Torque(max)	3,500 ft.lbf	D.C. (1) Ann Velocity 287 ft/min
Wt Below Jar(Wet)	41.00 klb	String Weight	295.00 klb	Torque(Off.Btm)	200 ft.lbf	D.C. (2) Ann Velocity 0 ft/min
		Pick-Up Weight	290.00 klb	Torque(On.Btm)	2,000 ft.lbf	H.W.D.P. Ann Velocity 188 ft/min
		Slack-Off Weight	300.00 klb		D.P. Ann Velocity 188 ft/min	
BHA Run Description		PDM Motor assembly with MWD				
BHA Run Comment						

Equipment	Length	OD	ID	Serial #	Comment
12 1/4" bit	0.30 m	12.25 in	in	223735	12 1/8" BLADES
Sperrydrill motor	9.25 m	9.38 in	in	11117508	
Float Sub	0.71 m	7.93 in	2.88 in	1078245	
String Stab	1.99 m	8.13 in	2.88 in	207A137	
Flex joint	2.78 m	8.00 in	3.50 in	10544571	
LWD Tools	8.55 m	7.93 in	3.00 in	PA90264345	
HOC	3.10 m	8.00 in	in	1052335	
String Stab	2.13 m	7.88 in	2.88 in	207A703	
Drill Collar	65.52 m	8.25 in	2.88 in		
Drilling Jars	9.16 m	7.93 in	2.88 in	214A26	
Drill Collar	18.89 m	8.25 in	2.88 in		EWR-DGR-HCIM MWD 12 1/8" BLADES
X/Over	1.22 m	6.93 in	2.88 in	1793	
HWDP	141.14 m	5.00 in	3.00 in		

Survey								
MD (m)	Incl (°)	Azim (°)	TVD (m)	Vsect (m)	N/-S (m)	E/-W (m)	DLS (deg/30m)	Tool Type
1,111.87	0.9	255.0	1,111.84	-2.5	-2.5	-4.7	0.1	MWD HOC
1,140.07	0.9	262.3	1,140.03	-2.6	-2.6	-5.2	0.1	MWD HOC
1,197.98	1.2	275.4	1,197.93	-2.6	-2.6	-6.3	0.2	MWD HOC
1,226.83	1.2	286.3	1,226.78	-2.5	-2.5	-6.8	0.2	MWD HOC
1,255.82	1.2	283.8	1,255.76	-2.3	-2.3	-7.4	0.1	MWD HOC

Bulk Stocks					
Name	Unit	In	Used	Adjust	Balance
Diesel	m3	0.0	12.0	0.0	560.00
Drill Water	m3	0.0	43.0	0.0	663.00
Potable Water	m3	38.0	40.0	0.0	253.00
Barite	MT	0.0	0.0	0.0	98.00
Bentonite	MT	0.0	0.0	0.0	24.00
CEMENT G	MT	0.0	0.0	0.0	128.00

Bulk Stocks					
Name	Unit	In	Used	Adjust	Balance
Brine	m3	0.0	23.0	0.0	37.00

Pumps												
Pump Data - Last 24 Hrs									Slow Pump Data			
No.	Type	Liner (in)	MW (ppg)	Eff (%)	SPM	SPP (psi)	Flow (gpm)	Depth (m)	Check	SPM	Pressure (psi)	Flow (gpm)
1	Continental Emsco	6.50	9.80	97	66	2,850	333	1,115.00		50	300	250
										30	180	150
										40	230	200
2	Continental Emsco	6.50	9.80	97	67	2,850	334	1,115.00		30	190	150
										50	290	250
										40	240	200
3	Continental Emsco	6.50	9.80	97	66	2,850	333	1,115.00		30	180	150
										50	300	250
										40	250	200

Casing			
OD	LOT / FIT	Csg Shoe (MD/TVD)	Cementing
762 mm (30")	ppg/ ppg	157.00 m/ 157.00 m	270bbl of 15.8ppg G cmt slurry. Yield 1.19ft3/sk - Mix fluid 5.34gal/sk 53mt of G cmt used
340 mm (13 3/8")	14.90 ppg/ ppg	735.00 m/ 735.00 m	Lead slurry: 380bbl 12.5ppg G cement. Yield 2.21ft3/sk. Mix fluid 13.02gal/sk. Used 41MT of G cmt. Tail Slurry: 104bbl of 15.8ppg G cmt. Yield 1.16ft3/sk. Mix fluid 5.16gal/sk. Used: 22MT G cmt.

Personnel On Board	
Company	Pax
ADA Services	4
Tap Oil	2
Maersk	35
OMS	22
GRN	2
Halliburton - Sperry	1
Fugro ROV	3
Halliburton - Cement	1
Halliburton - Sperry	2
Baroid	2
Maersk 3rd party	1
Geoservices	9
Other	1
Swaco	1
LQC	1
Schlumberger - Wireline	5
Total	92

Mud Volumes, Mud Losses and Shale Shaker Data				Engineer :			
Available	875.0	Losses	161.6	Equipment	Description	Mesh Size	Comments
Active		Downhole	9.0 bbl				
Mixing		Surf+ Equip	152.6 bbl				
Hole		Dumped					
Slug		De-Gasser					
Reserve	875.0 bbl	De-Sander					
Kill		De-Silter					
		Centrifuge					

Marine

Weather on 29 Dec 2010								Rig Support	
Visibility	Wind Speed	Wind Dir.	Pressure	Air Temp.	Wave Height	Wave Dir.	Wave Frequency	Anchors	Tension
10.0 NM	18 kn	213.0 °	1,015.0 mbar	°C	1.0 m	213.0 °	5 s	#1 Anchor	191.00 klb
								#2 Anchor	274.00 klb
Heave	Pitch	Roll	Rig Dir.	Ris. Tension	VDL	Weather Comments			
0.8 m	0.50 °	0.80 °	248.0 °	klb	880.00 klb				
Swell Height	Swell Dir.	Swell Frequency		Comments					
1.3 m	260.0 °	5 s							
								#3 Anchor	247.00 klb
								#4 Anchor	282.00 klb
								#5 Anchor	152.00 klb
								#6 Anchor	233.00 klb
								#7 Anchor	141.00 klb
								#8 Anchor	174.00 klb

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	25 Dec 2010 02:45	28 Dec 2010 22:20	S 28 Melbourne	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	15.0	0.00	0.0	437
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	357
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	412
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	87.0	0.0	0.00	0.0	87
				Brine (bbl)	bbl	0.0	0.0	0.00	0.0	0
0000-1200 Enroute S 28 Melbourne 1200-2359 Discharge / Backload cargo await Bunkers										
Far Scimitar	28 Dec 2010 22:00	25 Dec 2010 07:45	Running stby	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	12.0	0.00	0.0	916
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	544
				Drill Water (m3)	m3	0.0	0.0	0.00	-195.0	200
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	0
				0000 - 0845 Running stby 0845 - 0915 Close stby 0915 - 1340 Running stby 1340 - 1700 Cargo ops 1700 - 2400 Running stby						

Helicopter Movement

Flight #	Company	Arr/Dep. Time	Pax In/Out	Comment
1	Bristow Helicopters	15:25 / 15:35	10/ 4	

30 Dec 2010
From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller
DRILLING MORNING REPORT # 9**Craigow-1**

Well Data							
Country	Australia	MDBRT	1,445.0 m	Cur. Hole Size	12.250 in	AFE Cost	AUD 18,289,310
Field	Craigow	TVDBRT	1,444.9 m	Last Casing OD	13.375 in	AFE No.	
Drill Co.	Maersk Drilling	Progress	141.00 m	Shoe TVDBRT	735.0 m	Daily Cost	AUD 911,391
Rig	Kan Tan IV (semi)	Days From Spud	6.88	Shoe MDBRT	735.0 m	Cum Cost	AUD 7,506,141
Wtr Depth (MSL)	74 m	Days On Well	8.42	FIT/LOT	ppg / 14.90 ppg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI	424
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600	Drilling 12¼" hole		
		Last BOP Test	25 Dec 2010	Planned Op	Drill ahead 12¼" hole to TD. Circulate clean. POOH. Rig up and run Wireline logs.		

Summary of Period 0000 to 2400 Hrs

Drilled 12¼" hole from 1304m to 1311m. Circulated Hi vis and cleaned well. POOH from 1311m to 1243m. Well swabbing on POOH with high overpulls. Pumped out of hole from 1243m to shoe at 735m Circulated bottoms up at shoe. POOH and removed bit. Serviced Top Drive. Made up new 12¼" bit and RIH to shoe. Slipped and cut drilling line. RIH from shoe to 1277m. Washed in hole from 1277m to 1311m. Drilled 12¼" hole from 1311m to 1445m

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	22	0	Associated with permits and major tasks	
PTW issued	19	0	Permits Administered	
ToolBox Talk	20	0		
Number Observe Cards	19	0		
Safety Meeting	6	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: Good communication taking place amongst crew both working together and working in concurrent activity. A reminder about situational awareness. Don't drop the ball this late in the game! Keep an eye on loads overhead and around your work area and if passing through a watertight door then ensure it is closed once passed through. Good use of crane horn to warn when loads are moving over helideck Evening pre-tour: A reminder that housekeeping, while improving, is still being let down by the little things. A bit of attention to detail at the completion of a task can go a long way. Also if moving something clear, ensure that you don't put it where it will create another hazard. Excellent work with guys taking ownership of a problem and resolving in short time
Weekly Safety Meeting	0	4		

Operations For Period 0000 Hrs to 2400 Hrs On 30 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P11	P	D2	00:00	01:00	1.00	1,311.0 m	Drilled 12¼" hole from 1304m to 1311m. 25/30klbs wob, 80rpm, 1000gpm, 2890psi 3.5kftlbs torq. Varied parameters in an attempt to improve ROP. Pumped 45bbl Steelseal 20lb/bbl pill in attempt to clear possible bit balling. No effect on low ROP.
P11	P	F4	01:00	02:00	1.00	1,311.0 m	Pumped 40bbl Hi Vis pill and circulated clean.
P11	P	G8	02:00	02:30	0.50	1,311.0 m	Flow checked well. POOH from 1311m to 1243m on elevators. Took overpulls of 55klbs and noted well swabbing.

Operations For Period 0000 Hrs to 2400 Hrs On 30 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P11	P	D7	02:30	05:00	2.50	1,311.0 m	Pumped out of hole (no rotation) from 1243m to shoe at 735m. 900gpm, 2400psi. Attempted unsuccessfully to pull without pumps at 1161m and 1016m. Both attempts recorded high overpulls and well swabbing. (Max overpull 70klbs). Heavy returns at shakers of fines and mushy regrounds.
P11	P	F4	05:00	05:30	0.50	1,311.0 m	Circulated bottoms up. 800gpm, 1550psi
P11	P	G8	05:30	07:00	1.50	1,311.0 m	Flow checked well. Pumped slug and POOH to 264m
P11	P	G6	07:00	09:30	2.50	1,311.0 m	Racked back BHA and broke off bit.
P11	P	G11	09:30	10:00	0.50	1,311.0 m	Serviced Rig. Greased Top Drive
P11	P	G7	10:00	11:30	1.50	1,311.0 m	Made up new 12¼" bit. Downloaded and reprogrammed LWD tools.
P11	P	G6	11:30	13:00	1.50	1,311.0 m	Continued to make up BHA to 264m. Shallow tested MWD/LWD at 122m
P11	P	G6	13:00	14:00	1.00	1,311.0 m	RIH with 12¼" drilling assembly from 264m to shoe.
P11	P	G11	14:00	16:00	2.00	1,311.0 m	Slipped and cut drilling line.
P11	P	G8	16:00	17:30	1.50	1,311.0 m	RIH from shoe to 1277m. Washed past tight spot from 756m to 784m
P11	TP (TP)	G8	17:30	19:00	1.50	1,311.0 m	Circulated while Geoservices repaired and reinstated well monitoring and logging system.
P11	P	D2	19:00	24:00	5.00	1,445.0 m	Drilled 12¼" hole from 1311m to 1445m. 0-5klbs wob, 80rpm, 2-5klbs torq, 1000gpm, 3000psi

Operations For Period 0000 Hrs to 0600 Hrs On 31 Dec 2010

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
P11	P	D2	00:00	06:00	6.00	1,640.0 m	Drilled 12¼" hole from 1445m to 1640m. 0-5klbs wob, 80rpm, 2-5klbs torq, 1000gpm, 3000psi

Phase Data to 2400hrs, 30 Dec 2010

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	32.50	24 Dec 2010	26 Dec 2010	87.50	3.646	745.0 m
Surface Casing(P5)	22.00	26 Dec 2010	27 Dec 2010	109.50	4.563	745.0 m
Run BOPs/Riser(P6A)	31.50	27 Dec 2010	28 Dec 2010	141.00	5.875	745.0 m
Production Hole (1)(P11)	61.00	28 Dec 2010	30 Dec 2010	202.00	8.417	1,445.0 m

General Comments

00:00 TO 24:00 Hrs ON 30 Dec 2010

Operational Comments	Metal collected from ditch magnets: 17.5gms

WBM Data

WBM Data		Cost Today AUD3,080	
Mud Type:	Water Based	API FL:	4.5 cm³/30min
Sample-From:	pit#2	Filter-Cake:	1 /32nd"
Time:	22:00	HTHP-FL:	9.4 cm³/30min
Weight:	10.20 ppg	HTHP-cake:	2 /32nd"
Temp:	52 °C		
		Cl:	53,000 mg/L
		K+C*1000:	8 %
		Hard/Ca:	100 mg/L
		MBT:	7.5
		Pm:	0.3
		Pf:	0.4
		Solids:	6 %
		Low-Gravity	1.6 %vol
		Solids:	90 %
		H2O:	%
		Oil:	%
		Sand:	%
		pH:	9.0
		PHPA(Density):	kg/m³
Comment		Continue maintaining the concentration of CLAYSEAL PLUS to 3% and EZ-MUD to 1.5 ppb. Mixed & pumped LCM pill with STEELSEAL at 20 ppb as asked by company man. Treated system with BARAZAN D+ for viscosity. Changed shaker #1,4 to API 100 and #2,3 to API 120 screens. Maintaining the system with small additions of DEXTRID LTE, PAC L. Continue adding KCL brine at 15 bbl /hpr and added 150 bbl drill water over 3 hours as mud weight creeping up in the active system	

Bit #3				Wear	I	O1	D	L	B	G	O2	R
					2	6	LT	N	X	I	CT	PR
				Bit wear comment:								
Size ("):	311 mm (12 1/4")	IADC#	M432	Nozzles		Drilled over last 24 hrs			Calculated over Bit Run			
Mfr:	Reed Hycalog	WOB(avg)		No.	Size	Progress	7.0 m	Cum. Progress	566.0 m			
Type:	PDC	RPM(avg)		8	14/32nd"	On Bottom Hrs	0.6 h	Cum. On Btm Hrs	13.5 h			
Serial No.:	223735	F.Rate				IADC Drill Hrs	1.0 h	Cum IADC Drill Hrs	19.0 h			
Bit Model	RSR616M	SPP				Total Revs	7,200 revs	Cum Total Revs	125,200 revs			
Depth In	745.0 m	HSI	hp/in²			ROP(avg)	11.67 m/h	ROP(avg)	41.93 m/h			
Depth Out	1,311.0 m	TFA	0.001 m²									
Bit Comment												

BHA #3							
Weight(Wet)	74.00 klb	Length	264.7 m	Torque(max)	5,000 ft.lbf	D.C. (1) Ann Velocity	0 ft/min
Wt Below Jar(Wet)	41.00 klb	String Weight	295.00 klb	Torque(Off.Btm)	200 ft.lbf	D.C. (2) Ann Velocity	0 ft/min
		Pick-Up Weight	290.00 klb	Torque(On.Btm)	2,000 ft.lbf	H.W.D.P. Ann Velocity	0 ft/min
		Slack-Off Weight	300.00 klb			D.P. Ann Velocity	0 ft/min
BHA Run Description		PDM Motor assembly with MWD					
BHA Run Comment							

Equipment	Length	OD	ID	Serial #	Comment
12 1/4" bit	0.30 m	12.25 in	in	223735	12 1/8" BLADES
Sperrydrill motor	9.25 m	9.38 in	in	11117508	
Float Sub	0.71 m	7.93 in	2.88 in	1078245	
String Stab	1.99 m	8.13 in	2.88 in	207A137	
Flex joint	2.78 m	8.00 in	3.50 in	10544571	
LWD Tools	8.55 m	7.93 in	3.00 in	PA90264345	EWR-DGR-HCIM
HOC	3.10 m	8.00 in	in	1052335	MWD
String Stab	2.13 m	7.88 in	2.88 in	207A703	12 1/8" BLADES
Drill Collar	65.52 m	8.25 in	2.88 in		
Drilling Jars	9.16 m	7.93 in	2.88 in	214A26	
Drill Collar	18.89 m	8.25 in	2.88 in		
X/Over	1.22 m	6.93 in	2.88 in	1793	
HWDP	141.14 m	5.00 in	3.00 in		

Bit #4				Wear	I	O1	D	L	B	G	O2	R	
				Bit wear comment:									
Size ("):	311 mm (12 1/4")	IADC#	M432	Nozzles		Drilled over last 24 hrs			Calculated over Bit Run				
Mfr:	Reed Hycalog	WOB(avg)	2.00 klb	No. Size		Progress		134.0 m	Cum. Progress		134.0 m		
Type:	PDC	RPM(avg)	76 rpm	7	14/32nd"		On Bottom Hrs		4.0 h	Cum. On Btm Hrs		4.0 h	
Serial No.:	22440	F.Rate	960 gpm			IADC Drill Hrs		5.0 h	Cum IADC Drill Hrs		5.0 h		
Bit Model	RSR516S	SPP	2,941 psi			Total Revs		25,000 revs	Cum Total Revs		25,000 revs		
Depth In	1,311.0 m	HSI	hp/in²			ROP(avg)		33.50 m/h	ROP(avg)		33.50 m/h		
Depth Out	m	TFA	0.001 m²										
Bit Comment													

BHA #4					
Weight(Wet)	74.00 klb	Length	264.7 m	Torque(max)	4,500 ft.lbf
Wt Below Jar(Wet)	41.00 klb	String Weight	305.00 klb	Torque(Off.Btm)	200 ft.lbf

BHA #4							
	Pick-Up Weight	300.00 klb	Torque(On.Btm)		2,500 ft.lbf	H.W.D.P. Ann Velocity	188 ft/min
	Slack-Off Weight	310.00 klb				D.P. Ann Velocity	188 ft/min
BHA Run Description		PDM Motor assembly with MWD					
BHA Run Comment							
Equipment		Length	OD	ID	Serial #	Comment	
12 1/4" bit		0.30 m	12.25 in	in	224400	12 1/8" BLADES EWR-DGR-HCIM MWD 12 1/8" BLADES	
Sperrydrill motor		9.25 m	9.38 in	in	11117508		
Float Sub		0.71 m	7.93 in	2.88 in	1078245		
String Stab		1.99 m	8.13 in	2.88 in	207A137		
Flex joint		2.78 m	8.00 in	3.50 in	10544571		
LWD Tools		8.55 m	7.93 in	3.00 in	PA90264345		
HOC		3.10 m	8.00 in	in	1052335		
String Stab		2.13 m	7.88 in	2.88 in	207A703		
Drill Collar		65.52 m	8.25 in	2.88 in			
Drilling Jars		9.16 m	7.93 in	2.88 in	214A26		
Drill Collar		18.89 m	8.25 in	2.88 in			
X/Over		1.22 m	6.93 in	2.88 in	1793		
HWDP		141.14 m	5.00 in	3.00 in			

Survey								
MD (m)	Incl (°)	Azim (°)	TVD (m)	Vsect (m)	N/-S (m)	E/-W (m)	DLS (deg/30m)	Tool Type
1,287.02	1.1	286.0	1,286.96	-2.2	-2.2	-8.0	0.1	MWD HOC
1,313.56	1.3	284.7	1,313.49	-2.0	-2.0	-8.5	0.2	MWD HOC
1,342.87	1.2	279.6	1,342.79	-1.9	-1.9	-9.2	0.1	MWD HOC
1,371.53	1.1	282.4	1,371.45	-1.8	-1.8	-9.7	0.2	MWD HOC
1,401.26	1.2	284.2	1,401.17	-1.6	-1.6	-10.3	0.1	MWD HOC

Bulk Stocks					
Name	Unit	In	Used	Adjust	Balance
Diesel	m3	0.0	18.0	0.0	542.00
Drill Water	m3	0.0	0.0	0.0	663.00
Potable Water	m3	42.0	42.0	0.0	253.00
Barite	MT	0.0	0.0	0.0	98.00
Bentonite	MT	0.0	0.0	0.0	24.00
CEMENT G	MT	0.0	0.0	0.0	128.00
Brine	m3	0.0	0.0	0.0	37.00

Pumps												
Pump Data - Last 24 Hrs									Slow Pump Data			
No.	Type	Liner (in)	MW (ppg)	Eff (%)	SPM	SPP (psi)	Flow (gpm)	Depth (m)	Check	SPM	Pressure (psi)	Flow (gpm)
1	Continental Emsco	6.50	10.00	97	66	3,050	333	1,306.00		50	375	250
										30	200	150
										40	275	200
2	Continental Emsco	6.50	10.00	97	67	3,050	334	1,306.00		30	200	150
										50	250	250
										40	350	200
3	Continental Emsco	6.50	10.00	97	66	3,050	333			30		150
										50		250
										40		200

Casing

OD	LOT / FIT	Csg Shoe (MD/TVD)	Cementing
762 mm (30")	ppg/ ppg	157.00 m/ 157.00 m	270bbl of 15.8ppg G cmt slurry. Yield 1.19ft3/sk - Mix fluid 5.34gal/sk 53mt of G cmt used
340 mm (13 3/8")	14.90 ppg/ ppg	735.00 m/ 735.00 m	Lead slurry: 380bbl 12.5ppg G cement. Yield 2.21ft3/sk. Mix fluid 13.02gal/sk. Used 41MT of G cmt. Tail Slurry: 104bbl of 15.8ppg G cmt. Yield 1.16ft3/sk. Mix fluid 5.16gal/sk. Used: 22MT G cmt.

Personnel On Board

Company	Pax
ADA Services	4
Tap Oil	2
Maersk	35
OMS	22
GRN	2
Halliburton - Sperry	1
Fugro ROV	3
Halliburton - Cement	1
Halliburton - Sperry	2
Baroid	2
Maersk 3rd party	1
Geoservices	9
Other	1
Swaco	1
LQC	1
Schlumberger - Wireline	5
Total	92

Mud Volumes, Mud Losses and Shale Shaker Data

Engineer :

Available	865.0	Losses	119.0	Equipment	Description	Mesh Size	Comments
Active		Downhole	12.0 bbl				
Mixing		Surf+ Equip	107.0 bbl				
Hole		Dumped					
Slug		De-Gasser					
Reserve	865.0 bbl	De-Sander					
Kill		De-Silter					
		Centrifuge					

Marine

Weather on 30 Dec 2010								Rig Support	
Visibility	Wind Speed	Wind Dir.	Pressure	Air Temp.	Wave Height	Wave Dir.	Wave Frequency	Anchors	Tension
10.0 NM	8 kn	36.0 °	1,014.0 mbar	°C	0.6 m	36.0 °	5 s	#1 Anchor	190.00 klb
								#2 Anchor	265.00 klb
Heave	Pitch	Roll	Rig Dir.	Ris. Tension	VDL	Weather Comments			
0.6 m	0.60 °	0.70 °	248.0 °	klb	870.00 klb				
Swell Height	Swell Dir.	Swell Frequency	Comments						
1.0 m	160.0 °	5 s							
								#3 Anchor	238.00 klb
								#4 Anchor	277.00 klb
								#5 Anchor	162.00 klb
								#6 Anchor	229.00 klb
								#7 Anchor	143.00 klb
								#8 Anchor	181.00 klb

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	30 Dec 2010 19:00	28 Dec 2010 22:20	Running standby	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	350.0	15.0	0.00	-1.0	771
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	354
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	412
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	87
				Brine (bbl)	bbl	0.0	0.0	0.00	0.0	0
0000-0600 S 28 Melbourne Bunkers 0600-1900 Enroute KTIV 1900-2222 Discharge deck cargo 2222-2359 Running standby										
Far Scimitar	28 Dec 2010 22:00	30 Dec 2010 21:40	Transit to Melbourne	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	9.0	0.00	0.0	907
				Potable Water (m3)	m3	0.0	4.0	0.00	0.0	540
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	200
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	0
				0000- 0045 Running stby 0045 - 0155 Cargo ops 0155 - 2035 Running stby 2035 - 2140 Cargo ops 2140 - 2400 Transit to Melb						

31 Dec 2010
From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller
DRILLING MORNING REPORT # 10**Craigow-1**

Well Data							
Country	Australia	MDBRT	1,800.0 m	Cur. Hole Size	12.250 in	AFE Cost	AUD 18,289,310
Field	Craigow	TVDBRT	1,799.8 m	Last Casing OD	13.375 in	AFE No.	
Drill Co.	Maersk Drilling	Progress	355.00 m	Shoe TVDBRT	735.0 m	Daily Cost	AUD 804,291
Rig	Kan Tan IV (semi)	Days From Spud	7.88	Shoe MDBRT	735.0 m	Cum Cost	AUD 8,310,432
Wtr Depth (MSL)	74 m	Days On Well	9.42	FIT/LOT	ppg / 14.90 ppg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI	425
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600	Running Schlumberger logs		
		Last BOP Test	25 Dec 2010	Planned Op	Rig down Schlumberger and RIH with cement stinger to P&A well.		

Summary of Period 0000 to 2400 Hrs

Drilled 12¼" hole from 1445m to 1800m. Circulated well clean. POOH from 1800m to 1655m. Pumped out of hole from 1645m to 1300m. POOH from 1300m and racked back BHA. Laid out Sperry tools to deck. Rigged up Schlumberger w/line and ran Logs.

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	14	0	Associated with permits and major tasks	
PTW issued	9	0	Permits Administered	
ToolBox Talk	12	0		
Number Observe Cards	17	0		
Safety Meeting	6	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: A reminder that housekeeping, while improving, is still being let down by the little things. A bit of attention to detail at the completion of a task can go a long way. Also if moving something clear, ensure that you don't put it where it will create another hazard. Excellent work with guys taking ownership of a problem and resolving in short time. Keep up the water intake. It's going to be hot on the mainland and it'll increase the temp out here from what we're all used to over the past few weeks. A big thank you from the outgoing campboss to all who helped with stores last night Evening pre-tour: Right tool for the job. When rigging up a job ensure all components are in test, adequate for the task, and compliant with regulations. Good interventions for crew members looking over jobs. A card on an unsafe act or condition beats an incident investigation any day. A big thank you from the outgoing campboss to all who helped with stores last night
Weekly Safety Meeting	0	5		

Operations For Period 0000 Hrs to 2400 Hrs On 31 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P11	P	D2	00:00	06:00	6.00	1,640.0 m	Drilled 12¼" hole from 1445m to 1640m. 0-5klbs wob, 80rpm, 2-5klbs torq, 1000gpm, 3000psi
P11	P	D2	06:00	12:00	6.00	1,780.0 m	Drilled 12¼" hole from 1640m to 1780m. 20klbs wob, 80rpm, 2-6klbs torq, 1000gpm, 3410psi
P11	P	D2	12:00	12:30	0.50	1,800.0 m	Drilled 12¼" hole from 1780m to 1800m. 20klbs wob, 80rpm, 2-6klbs torq, 1000gpm, 3410psi
P11	P	F4	12:30	13:30	1.00	1,800.0 m	Pumped Hi Vis pill and circulated well clean
P11	P	G8	13:30	14:00	0.50	1,800.0 m	Flow checked well. POOH from 1800m to 1655m.

Operations For Period 0000 Hrs to 2400 Hrs On 31 Dec 2010

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P11	P	D7	14:00	16:00	2.00	1,800.0 m	Pumped out of hole from 1655m to 1300m due to excessive drag in hole.
P11	P	G8	16:00	18:00	2.00	1,800.0 m	POOH from 1300m to BHA at 264m. (Pulled 10stds without hole drag then pumped slug)
P11	P	G6	18:00	20:00	2.00	1,800.0 m	Racked back BHA.
P11	P	G7	20:00	22:00	2.00	1,800.0 m	Laid out Sperry tools to deck. Sperry download tools on deck.
LOG1	P	C1	22:00	23:00	1.00	1,800.0 m	Rigged up Schl wireline on drill floor.
LOG1	P	C1	23:00	24:00	1.00	1,800.0 m	Schl made up PPC-MSIP-HRLA-SP-PEX toolstring

Operations For Period 0000 Hrs to 0600 Hrs On 01 Jan 2011

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
LOG1	P	C2	00:00	00:30	0.50	1,800.0 m	Schl commenced to RIH with PPC-MSIP-HRLA-SP-PEX toolstring.
LOG1	P	C2	00:30	01:00	0.50	1,800.0 m	Tied back TDS service hoses in derrick
LOG1	P	C2	01:00	02:30	1.50	1,800.0 m	Schlumberger continued to RIH to HUD at 1762m
LOG1	P	C2	02:30	06:00	3.50	1,800.0 m	Schl logged out of hole from 1762m to shoe.

Phase Data to 2400hrs, 31 Dec 2010

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	32.50	24 Dec 2010	26 Dec 2010	87.50	3.646	745.0 m
Surface Casing(P5)	22.00	26 Dec 2010	27 Dec 2010	109.50	4.563	745.0 m
Run BOPs/Riser(P6A)	31.50	27 Dec 2010	28 Dec 2010	141.00	5.875	745.0 m
Production Hole (1)(P11)	83.00	28 Dec 2010	31 Dec 2010	224.00	9.333	1,800.0 m
Logging (1)(LOG1)	2.00	31 Dec 2010	31 Dec 2010	226.00	9.417	1,800.0 m

General Comments

00:00 TO 24:00 Hrs ON 31 Dec 2010

Operational Comments	Metal collected from ditch magnets: 8gms

WBM Data

Cost Today AUD3,080

Mud Type:	Water Based	API FL:	4.5 cm ³ /30min	Cl:	49,000 mg/L	Solids:	6 %	Viscosity	50 s/qt(UK)
Sample-From:	pit#2	Filter-Cake:	1 /32nd"	K+C*1000:	8 %	Low-Gravity	2.7 %vol	PV	17 cP
Time:	19:30			Hard/Ca:	100 mg/L	Solids:		YP	21 lbf/100ft ²
Weight:	10.10 ppg	HTHP-FL:	9.3 cm ³ /30min	MBT:	7.5	H2O:	90 %	Gels 10s	8 lbf/100ft ²
Temp:	°C	HTHP-cake:	2 /32nd"	Pm:	0.3	Oil:	%	Gels 10m	10 lbf/100ft ²
				Pf:	0.2	Sand:		Fann 003	6
						pH:	8.9	Fann 006	7
						PHPA(Density):	kg/m ³	Fann 100	22
								Fann 200	30
								Fann 300	38
								Fann 600	55

Comment

Continue maintaining the concentration of CLAYSEAL PLUS to 3% and EZ-MUD to 1.5 ppb. Treated system with BARAZAN D+ for viscosity. Changed shaker #1,4 to API 100 and #2,3 to API 120 screens. Maintaining the system with small additions of DEXTRID LTE, PAC L. Continue adding KCL brine at 15 bbl /hour and drill water in the active system. Cleaning pill pit and pit#1 in preparation of cement job.

Bit #4				Wear	I	O1	D	L	B	G	O2	R
					1	6	WT	T	X	I	ER	TD
				Bit wear comment:								
Size ("):	311 mm (12 1/4")	IADC#	M432	Nozzles		Drilled over last 24 hrs		Calculated over Bit Run				
Mfr:	Reed Hycalog	WOB(avg)	2.00 klb	No.	Size	Progress	355.0 m	Cum. Progress	489.0 m			
Type:	PDC	RPM(avg)	76 rpm	7	14/32nd"	On Bottom Hrs	8.9 h	Cum. On Btm Hrs	12.9 h			
Serial No.:	22440	F.Rate	960 gpm			IADC Drill Hrs	12.5 h	Cum IADC Drill Hrs	17.5 h			
Bit Model	RSR516S	SPP	2,941 psi			Total Revs	88,000 revs	Cum Total Revs	113,000 revs			
Depth In	1,311.0 m	HSI	hp/in²			ROP(avg)	39.89 m/h	ROP(avg)	37.91 m/h			
Depth Out	1,800.0 m	TFA	0.001 m²									
Bit Comment												

BHA #4					
Weight(Wet)	74.00 klb	Length	264.7 m	Torque(max)	6,000 ft.lbf
Wt Below Jar(Wet)	41.00 klb	String Weight	310.00 klb	Torque(Off.Btm)	500 ft.lbf
		Pick-Up Weight	305.00 klb	Torque(On.Btm)	4,000 ft.lbf
		Slack-Off Weight	315.00 klb		
BHA Run Description PDM Motor assembly with MWD					
BHA Run Comment					

Equipment	Length	OD	ID	Serial #	Comment
12 1/4" bit	0.30 m	12.25 in	in	224400	12 1/8" BLADES
Sperrydrill motor	9.25 m	9.38 in	in	11117508	
Float Sub	0.71 m	7.93 in	2.88 in	1078245	
String Stab	1.99 m	8.13 in	2.88 in	207A137	
Flex joint	2.78 m	8.00 in	3.50 in	10544571	EWR-DGR-HCIM MWD
LWD Tools	8.55 m	7.93 in	3.00 in	PA90264345	
HOC	3.10 m	8.00 in	in	1052335	
String Stab	2.13 m	7.88 in	2.88 in	207A703	
Drill Collar	65.52 m	8.25 in	2.88 in	214A26	12 1/8" BLADES
Drilling Jars	9.16 m	7.93 in	2.88 in		
Drill Collar	18.89 m	8.25 in	2.88 in		
X/Over	1.22 m	6.93 in	2.88 in		
HWDP	141.14 m	5.00 in	3.00 in	1793	

Survey								
MD (m)	Incl (°)	Azim (°)	TVD (m)	Vsect (m)	N/-S (m)	E/-W (m)	DLS (deg/30m)	Tool Type
1,603.82	1.3	287.9	1,603.69	-0.5	-0.5	-14.3	0.0	MWD HOC
1,632.10	1.3	283.8	1,631.96	-0.3	-0.3	-14.9	0.1	MWD HOC
1,661.12	1.2	294.8	1,660.97	-0.1	-0.1	-15.6	0.3	MWD HOC
1,690.11	1.4	286.9	1,689.96	0.2	0.2	-16.2	0.2	MWD HOC
1,773.44	1.5	292.7	1,773.26	0.9	0.9	-18.1	0.1	MWD HOC

Bulk Stocks					
Name	Unit	In	Used	Adjust	Balance
Diesel	m3	0.0	30.0	0.0	512.00
Drill Water	m3	0.0	106.0	0.0	557.00
Potable Water	m3	26.0	48.0	0.0	231.00
Barite	MT	0.0	8.0	0.0	90.00
Bentonite	MT	0.0	0.0	0.0	24.00
CEMENT G	MT	78.0	0.0	0.0	206.00

Bulk Stocks

Name	Unit	In	Used	Adjust	Balance
Brine	m3	0.0	0.0	0.0	37.00

Pumps

Pump Data - Last 24 Hrs									Slow Pump Data			
No.	Type	Liner (in)	MW (ppg)	Eff (%)	SPM	SPP (psi)	Flow (gpm)	Depth (m)	Check	SPM	Pressure (psi)	Flow (gpm)
1	Continental Emsco	6.50	10.00	97	66	3,400	333	1,306.00		50	375	250
										30	200	150
										40	275	200
2	Continental Emsco	6.50	10.00	97	67	3,400	334	1,306.00		30	200	150
										50	250	250
										40	350	200
3	Continental Emsco	6.50	10.00	97	66	3,400	333			30		150
										50		250
										40		200

Casing

OD	LOT / FIT	Csg Shoe (MD/TVD)	Cementing
762 mm (30")	ppg/ ppg	157.00 m/ 157.00 m	270bbl of 15.8ppg G cmt slurry. Yield 1.19ft3/sk - Mix fluid 5.34gal/sk 53mt of G cmt used
340 mm (13 3/8")	14.90 ppg/ ppg	735.00 m/ 735.00 m	Lead slurry: 380bbl 12.5ppg G cement. Yield 2.21ft3/sk. Mix fluid 13.02gal/sk. Used 41MT of G cmt. Tail Slurry: 104bbl of 15.8ppg G cmt. Yield 1.16ft3/sk. Mix fluid 5.16gal/sk. Used: 22MT G cmt.

Personnel On Board

Company	Pax
ADA Services	4
Tap Oil	2
Maersk	35
OMS	23
GRN	2
Halliburton - Sperry	1
Fugro ROV	3
Halliburton - Cement	2
Halliburton - Sperry	2
Baroid	2
Geoservices	9
Swaco	1
LQC	1
Schlumberger - Wireline	7
Total	94

Mud Volumes, Mud Losses and Shale Shaker Data

Engineer :

Available	959.5	Losses	118.2	Equipment	Description	Mesh Size	Comments
Active		Downhole	12.0 bbl				
Mixing		Surf+ Equip	106.2 bbl				
Hole		Dumped					
Slug		De-Gasser					
Reserve	959.5 bbl	De-Sander					
Kill		De-Silter					
		Centrifuge					

Marine

Weather on 31 Dec 2010								Rig Support	
Visibility	Wind Speed	Wind Dir.	Pressure	Air Temp.	Wave Height	Wave Dir.	Wave Frequency	Anchors	Tension
10.0 NM	13 kn	278.0 °	1,014.0 mbar	°C	0.6 m	278.0 °	5 s	#1 Anchor	191.00 klb
								#2 Anchor	267.00 klb
Heave	Pitch	Roll	Rig Dir.	Ris. Tension	VDL	Weather Comments			
0.5 m	0.50 °	0.70 °	248.0 °	248.00 klb	560.00 klb				
Swell Height	Swell Dir.	Swell Frequency		Comments					
1.3 m	180.0 °	8 s							
								#3 Anchor	233.00 klb
								#4 Anchor	277.00 klb
								#5 Anchor	162.00 klb
								#6 Anchor	230.00 klb
								#7 Anchor	146.00 klb
								#8 Anchor	188.00 klb

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	30 Dec 2010 19:00	28 Dec 2010 22:20	Running standby	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	11.0	0.00	0.0	760
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	351
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	412
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	87.00	0.0	0
				Brine (bbl)	bbl	0.0	0.0	0.00	0.0	0
0000-1330 Running Standby 1330-2000 Clearing Blockage 2000-2210 Discharge Cmt 2210-2359 Running standby										
Far Scimitar	28 Dec 2010 22:00	30 Dec 2010 21:40	Melbourne	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	15.0	0.00	0.0	892
				Potable Water (m3)	m3	0.0	12.0	0.00	0.0	528
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	200
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	0
				0000-0956 Transit to Melb 0956-2400 Melbourne						

Helicopter Movement

Flight #	Company	Arr/Dep. Time	Pax In/Out	Comment
1	Bristow Helicopters	08:30 / 08:45	8/ 6	

01 Jan 2011

From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller

DRILLING MORNING REPORT # 11**Craigow-1**

Well Data							
Country	Australia	MDBRT	1,800.0 m	Cur. Hole Size	12.250 in	AFE Cost	AUD 18,289,310
Field	Craigow	TVDBRT	1,799.8 m	Last Casing OD	13.375 in	AFE No.	
Drill Co.	Maersk Drilling	Progress		Shoe TVDBRT	735.0 m	Daily Cost	AUD 810,800
Rig	Kan Tan IV (semi)	Days From Spud	8.88	Shoe MDBRT	735.0 m	Cum Cost	AUD 9,121,232
Wtr Depth (MSL)	74 m	Days On Well	10.42	FIT/LOT	ppg / 14.90 ppg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI	426
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600	Laying out 8 1/4" DCs while waiting on cement samples to set.		
		Last BOP Test	25 Dec 2010	Planned Op	RIH to tag top of #2 cmt plug. Pressure test cement plug to 1000psi. POOH laying down DP to 380m. Spot hi vis pill and set surface cmt plug #3. Displace well to water. Lay out DCs and DP. Recover BOP.		

Summary of Period 0000 to 2400 Hrs

Schl log well. Rigged down schl. Serviced Top Drive. Made up cmt stgr and RIH to 1370m. Circulated. Pumped and spotted 94bbl Hi vis pill at 1370m. POOH to 1220m and circulated bottoms up. Set cement plug #1 from 1220m to 1070m. POOH to 1000m and circulated bottoms up. POOH from 1000m to 920m. Spotted 94bbl Hi Vis pil at 920m. POOH to 770m. Set cement plug #2 from 770m to 620m. POOH above cement.

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	21	0	Associated with permits and major tasks	
PTW issued	11	0	Permits Administered	
ToolBox Talk	18	0		
Number Observe Cards	14	0		
Safety Meeting	7	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: Right tool for the job. When rigging up a job ensure all components are in test, adequate for the task, and compliant with regulations. Good interventions for crew members looking over jobs. A card on an unsafe act or condition beats an incident investigation any day. Evening pre-tour: Right tool for the job. When rigging up a job ensure all components are in test, adequate for the task, and compliant with regulations. Good interventions for crew members looking over jobs. A card on an unsafe act or condition beats an incident investigation any day.
Weekly Safety Meeting	0	6		

Operations For Period 0000 Hrs to 2400 Hrs On 01 Jan 2011

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
LOG1	P	C2	00:00	00:30	0.50	1,800.0 m	Schl commenced to RIH with PPC-MSIP-HRLA-SP-PEX toolstring.
LOG1	P	C2	00:30	01:00	0.50	1,800.0 m	Tied back TDS service hoses in derrick
LOG1	P	C2	01:00	02:30	1.50	1,800.0 m	Schlumberger continued to RIH to HUD at 1762m
LOG1	P	C2	02:30	08:00	5.50	1,800.0 m	Schl logged out of hole from 1762m to wellhead. POOH to surface
LOG1	P	C1	08:00	09:00	1.00	1,800.0 m	Schl rigged down toolstring. Rigged down sheaves and wireline equipment.
P21	P	G11	09:00	09:30	0.50	1,800.0 m	Serviced Top Drive
P21	P	G2	09:30	11:00	1.50	1,800.0 m	Made up 19jts with mule shoe of 2-7/8" cmt stinger from deck.
P21	P	G8	11:00	14:30	3.50	1,800.0 m	RIH with cmt stinger from 179.5m to 1370m.

Operations For Period 0000 Hrs to 2400 Hrs On 01 Jan 2011

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P21	P	F4	14:30	16:00	1.50	1,800.0 m	Circulated and conditioned mud. Pumped and displaced to spot on bottom 94bbl 11ppg Hi Vis pill at 4bbl/min
P21	P	G8	16:00	16:30	0.50	1,800.0 m	POOH from 1370m to 1220m and rigged up cement stand.
P21	P	F4	16:30	17:00	0.50	1,800.0 m	Circulated bottoms up. Hi vis pill returns observed at shakers.
P21	P	CMT	17:00	18:30	1.50	1,800.0 m	Plug #1: 1070 - 1220m (open hole plug). Cmt unit pumped 10bbl DW and pressure tested surface lines to 300/3000psi. Cmt unit pumped 50bbl DW spacer. Cmt unit mixed and pumped 94bbl 15.8ppg G cement slurry. Cmt unit pumped 3bbl DW behind cement. Drill floor installed foam ball in drill pipe. Cmt unit continued to displace cmt slurry with 52bbl of 10ppg mud.
P21	P	G8	18:30	19:00	0.50	1,800.0 m	Racked back cmt std and POOH slowly from 1220m to 1000m
P21	P	F4	19:00	20:00	1.00	1,800.0 m	Circulated bottoms up. Diverted cement contaminated mud at shakers.
P21	P	F4	20:00	20:30	0.50	1,800.0 m	POOH from 1000m to 920m and spotted 94bbl 11ppg Hi Vis pill at 920m at 4bbl/min
P21	P	F4	20:30	21:00	0.50	1,800.0 m	POOH from 920m to 770m and circulated bottoms up. Hi vis pill observed at shakers on bottoms up.
P21	P	G1	21:00	22:00	1.00	1,800.0 m	Reconfigured cement std and loaded foam ball above side entry sub. Rigged up cement std and spaced out at 770m
P21	P	CMT	22:00	23:00	1.00	1,800.0 m	Plug #2: 620 - 770m (shoe plug). Cmt unit pumped 10bbl DW and pressure tested surface lines to 300/3000psi. Cmt unit pumped 50bbl DW spacer. Installed foam ball in drill pipe on drill floor. Cmt unit mixed and pumped 94bbl 15.8ppg G cement slurry. Cmt unit pumped 3bbl DW behind cement. Drill floor released foam ball in drill pipe and chased with 2bbl to place it below side entry sub. Cmt unit continued to displace cmt slurry with 3bbl DW followed by 21bbl of 10ppg mud.
P21	P	G8	23:00	24:00	1.00	1,800.0 m	Racked back cement stand and POOH slowly from 770m to 540m

Operations For Period 0000 Hrs to 0600 Hrs On 02 Jan 2011

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
P21	P	F4	00:00	00:30	0.50	1,800.0 m	Circulated bottoms up with 10ppg inhibited KCL PHPA mud. Diverted cement contaminated mud returns at shakers.
P21	P	G2	00:30	06:00	5.50	1,800.0 m	Laid out DP from derrick while waiting of cement samples to set. 96jts DP laid out

Phase Data to 2400hrs, 01 Jan 2011

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	32.50	24 Dec 2010	26 Dec 2010	87.50	3.646	745.0 m
Surface Casing(P5)	22.00	26 Dec 2010	27 Dec 2010	109.50	4.563	745.0 m
Run BOPs/Riser(P6A)	31.50	27 Dec 2010	28 Dec 2010	141.00	5.875	745.0 m
Production Hole (1)(P11)	83.00	28 Dec 2010	31 Dec 2010	224.00	9.333	1,800.0 m
Logging (1)(LOG1)	11.00	31 Dec 2010	01 Jan 2011	235.00	9.792	1,800.0 m
Suspend and Abandon(P21)	15.00	01 Jan 2011	01 Jan 2011	250.00	10.417	1,800.0 m

General Comments

00:00 TO 24:00 Hrs ON 01 Jan 2011

Operational Comments	Metal collected from ditch magnets: 8gms

WBM Data		Cost Today AUD3,080					
Mud Type:	Water Based	API FL:	4.4 cm ³ /30min	Cl:	48,000 mg/L	Solids:	6 %
Sample-From:	pit#2	Filter-Cake:	1 /32nd"	K+C*1000:	8 %	Low-Gravity	2.8 %vol
Time:	03:30	HTHP-FL:	9.5 cm ³ /30min	Hard/Ca:	80 mg/L	Solids:	
Weight:	10.10 ppg	HTHP-cake:	2 /32nd"	MBT:	7.5	H2O:	90 %
Temp:	°C			Pm:	0.3	Oil:	%
				Pf:	0.2	Sand:	
						pH:	9.0
						PHPA(Density):	kg/m ³
Comment		Continue cleaning pill pit and pit#1 in preparation of cement job. Mixed Hi-Vis pill in pit#3 and weigh it up. Hi-Vis pill : FV - 240 PV - 30 YP - 108 Backloading chemicals.					
						Viscosity	48 s/qt(UK)
						PV	17 cP
						YP	23 lbf/100ft ²
						Gels 10s	8 lbf/100ft ²
						Gels 10m	10 lbf/100ft ²
						Fann 003	6
						Fann 006	7
						Fann 100	23
						Fann 200	33
						Fann 300	40
						Fann 600	57

Bulk Stocks					
Name	Unit	In	Used	Adjust	Balance
Diesel	m3	0.0	9.0	0.0	503.00
Drill Water	m3	0.0	6.0	0.0	551.00
Potable Water	m3	10.0	31.0	0.0	210.00
Barite	MT	0.0	16.0	0.0	74.00
Bentonite	MT	0.0	0.0	0.0	24.00
CEMENT G	MT	0.0	42.0	0.0	164.00
Brine	m3	0.0	0.0	0.0	37.00

Casing			
OD	LOT / FIT	Csg Shoe (MD/TVD)	Cementing
762 mm (30")	ppg/ ppg	157.00 m/ 157.00 m	270bbl of 15.8ppg G cmt slurry. Yield 1.19ft3/sk - Mix fluid 5.34gal/sk 53mt of G cmt used
340 mm (13 3/8")	14.90 ppg/ ppg	735.00 m/ 735.00 m	Lead slurry: 380bbl 12.5ppg G cement. Yield 2.21ft3/sk. Mix fluid 13.02gal/sk. Used 41MT of G cmt. Tail Slurry: 104bbl of 15.8ppg G cmt. Yield 1.16ft3/sk. Mix fluid 5.16gal/sk. Used: 22MT G cmt.

Personnel On Board	
Company	Pax
ADA Services	4
Tap Oil	2
Maersk	35
OMS	23
GRN	2
Smith Red Barron	1
Fugro ROV	6
Halliburton - Cement	2
Halliburton - Sperry	2
Baroid	2
Geoservices	4
Swaco	1
LQC	1
Schlumberger - Wireline	7
Total	92

Mud Volumes, Mud Losses and Shale Shaker Data

Engineer :

Available	720.0	Losses	617.2	Equipment	Description	Mesh Size	Comments
Active		Downhole					
Mixing		Surf+ Equip	155.0 bbl				
Hole		Dumped					
Slug		De-Gasser					
Reserve	720.0 bbl	De-Sander					
Kill		De-Silter					
		Centrifuge					
left behind the cement plug	462.2 bbl						

Marine

Weather on 01 Jan 2011								Rig Support	
Visibility	Wind Speed	Wind Dir.	Pressure	Air Temp.	Wave Height	Wave Dir.	Wave Frequency	Anchors	Tension
10.0 NM	11 kn	250.0 °	1,013.0 mbar	°C	0.6 m	250.0 °	5 s	#1 Anchor	200.00 klb
								#2 Anchor	275.00 klb
Heave	Pitch	Roll	Rig Dir.	Ris. Tension	VDL	Weather Comments			
0.6 m	0.80 °	0.60 °	248.0 °	248.00 klb	860.00 klb				
Swell Height	Swell Dir.	Swell Frequency	Comments						
1.0 m	190.0 °	6 s							
								#3 Anchor	242.00 klb
								#4 Anchor	283.00 klb
								#5 Anchor	164.00 klb
								#6 Anchor	244.00 klb
								#7 Anchor	148.00 klb
								#8 Anchor	188.00 klb

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	30 Dec 2010 19:00	28 Dec 2010 22:20	Running standby	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	10.0	0.00	0.0	75
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	34
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	41
				Barite (MT)	MT	0.0	0.0	0.00	0.0	
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	
				Brine (bbl)	bbl	0.0	0.0	0.00	0.0	
0000-1030 Running Standby 1030-1836 Discharge / Backload Deck cargo 1836-2359 Running Standby										
Far Scimitar	28 Dec 2010 22:00	30 Dec 2010 21:40	Melbourne	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	1.0	0.00	0.0	89
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	52
				Drill Water (m3)	m3	0.0	50.0	0.00	0.0	15
				Barite (MT)	MT	0.0	0.0	0.00	0.0	
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	
				0000 - 2400 Alongside Sth Wharf Tank cleaning						

Helicopter Movement

Flight #	Company	Arr/Dep. Time	Pax In/Out	Comment
1	Bristow Helicopters	08:45 / 08:55	4/ 6	

02 Jan 2011

From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller

DRILLING MORNING REPORT # 12**Craigow-1**

Well Data							
Country	Australia	MDBRT	1,800.0 m	Cur. Hole Size	12.250 in	AFE Cost	AUD 18,289,310
Field	Craigow	TVDBRT	1,799.8 m	Last Casing OD	13.375 in	AFE No.	
Drill Co.	Maersk Drilling	Progress		Shoe TVDBRT	735.0 m	Daily Cost	AUD 757,448
Rig	Kan Tan IV (semi)	Days From Spud	9.88	Shoe MDBRT	735.0 m	Cum Cost	AUD 9,878,680
Wtr Depth (MSL)	74 m	Days On Well	11.42	FIT/LOT	ppg / 14.90 ppg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI	427
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600	Pulling BOPs		
		Last BOP Test	25 Dec 2010	Planned Op	Recover BOPs to rig and rig down handling equipment. Make up 18-3/4" WH spear and cutting assembly. RIH and recover WH and PGB. Separate and lay out WH. Remove PGB from moonpool. Lay out remaining tubulars from derrick. Continue demob and seafasten rig.		

Summary of Period 0000 to 2400 Hrs

Circulated bottoms up at 540m. Laid out DP and DCs while WOC. RIH and tagged TOC at 576m. Pressure tested against cement plug to 1000psi/10min. POOH laying out DP. Spotted Hi vis pill at 380m. POOH to 230m and set surface cement plug #3. POOH to 130m and circulated to seawater. POOH laying out cement stinger. Laid out excess DCs and HWDP to deck. RIH and recovered wear bushing. Rigged up to pull BOPs. Laid out diverter. Made up landing jt to slip jt.

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	23	0	Associated with permits and major tasks	
PTW issued	21	0	Permits Administered	
ToolBox Talk	21	0		
Number Observe Cards	12	0		
Safety Meeting	7	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: Barriers and work zones need to be observed. As De-Mob starts up there will be increased activity around the decks with heavy lifts etc. Look up/ look around and if you see an area taped off then stay clear and ask before passing through. Housekeeping – Improving with workshops looking very good. As we start to clear decks and move equipment take the time to get in and clean out those normally inaccessible areas. Evening pre-tour: Barriers and work zones need to be observed. As De-Mob starts up there will be increased activity around the decks with heavy lifts etc. Look up/ look around and if you see an area taped off then stay clear and ask before passing through. Housekeeping – Improving with workshops looking very good. As we start to clear decks and move equipment take the time to get in and clean out those normally inaccessible areas.
Weekly Safety Meeting	2	0	General safety meetings	

Operations For Period 0000 Hrs to 2400 Hrs On 02 Jan 2011

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P21	P	F4	00:00	00:30	0.50	1,800.0 m	Circulated bottoms up with 10ppg inhibited KCL PHPA mud. Diverted cement contaminated mud returns at shakers.
P21	P	G2	00:30	08:30	8.00	1,800.0 m	Laid out DP and DCs from derrick while waiting of cement samples to set. 96jts DP and 6x8¼" DCs laid out
P21	P	G8	08:30	09:00	0.50	1,800.0 m	RIH and tagged top of cement at 576m with 10klbs weight.

Operations For Period 0000 Hrs to 2400 Hrs On 02 Jan 2011

Phse	CLS (RC)	Op	From	To	Hrs	Depth	Activity Description
P21	P	P1	09:00	09:30	0.50	1,800.0 m	Closed upper annular and pressure tested against the cement plug with rig pump. 1000psi for 10 mins. Good test.
P21	P	G2	09:30	12:00	2.50	1,800.0 m	POOH laying out excess DP to 179m
P21	P	G8	12:00	12:30	0.50	1,800.0 m	RIH to 380m
P21	P	P1	12:30	13:00	0.50	1,800.0 m	Retested cement plug with cement unit tp 1000psi/10min.
P21	P	F3	13:00	13:30	0.50	1,800.0 m	Spotted 82bbl 11ppg Hi Vis pill at 380m
P21	P	G8	13:30	14:00	0.50	1,800.0 m	POOH from 380m to 217m. Made up cement std and spaced out to 230m.
P21	P	F4	14:00	14:30	0.50	1,800.0 m	Circulated bottoms up.
P21	P	CMT	14:30	15:00	0.50	1,800.0 m	Cmt unit pumped 10bbl DW spacer and pressure tested surface lines to 3000psi. Cmt unit pumped 50bbl DW spacer. Cmt unit mixed and pumped 50bbl 15.8ppg G cmt slurry #3 and displaced with 3bbl of DW.
P21	P	CMT	15:00	16:00	1.00	1,800.0 m	Racked back 2 stds 5" DP and laid out 2-7/8" cmt stinger to 106m.
P21	P	F4	16:00	16:30	0.50	1,800.0 m	Made up std of 5" DP and RIH to 130m. Circulated seawater to clean cmt top. Displaced BOPs and riser to seawater.
P21	P	G2	16:30	17:00	0.50	1,800.0 m	POOH. Laid out remaining 13jts of 2-7/8" cement stinger
P21	P	G16	17:00	17:30	0.50	1,800.0 m	RIH and flushed BOPs.
P21	P	G2	17:30	20:30	3.00	1,800.0 m	Laid out excess DP, HWDP and DCs to deck.
P21	P	G12	20:30	22:00	1.50	1,800.0 m	Made up WBRT. RIH, engaged wear bushing and sheared free with 80klbs overpull. POOH and laid out wear bushing and WBRT.
P6B	P	G1	22:00	23:00	1.00	1,800.0 m	Rigged up on drill floor to pull BOPs.
P6B	P	G2	23:00	23:30	0.50	1,800.0 m	Laid out diverter assembly to deck.
P6B	P	G2	23:30	24:00	0.50	1,800.0 m	Picked up landing jt to drill floor.

Operations For Period 0000 Hrs to 0600 Hrs On 03 Jan 2011

PHSE	CLS (RC)	OP	From	To	Hrs	Depth	Activity Description
P6B	P	G2	00:00	01:30	1.50	1,800.0 m	Made up landing jt to slip jt. Collapsed and locked slip jt. Unlocked wellhead connector and lifted BOP clear of wellhead.
P6B	P	G1	01:30	03:30	2.00	1,800.0 m	Removed umbilical storm saddles, removed choke and kill hoses, removed MRT lines from slip jt.
P6B	P	G8	03:30	04:30	1.00	1,800.0 m	Laid out landing jt and slip jt.
P6B	P	G8	04:30	06:00	1.50	1,800.0 m	Laid out riser pup jts and flotation jt

Phase Data to 2400hrs, 02 Jan 2011

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	32.50	24 Dec 2010	26 Dec 2010	87.50	3.646	745.0 m
Surface Casing(P5)	22.00	26 Dec 2010	27 Dec 2010	109.50	4.563	745.0 m
Run BOPs/Riser(P6A)	31.50	27 Dec 2010	28 Dec 2010	141.00	5.875	745.0 m
Production Hole (1)(P11)	83.00	28 Dec 2010	31 Dec 2010	224.00	9.333	1,800.0 m
Logging (1)(LOG1)	11.00	31 Dec 2010	01 Jan 2011	235.00	9.792	1,800.0 m
Suspend and Abandon(P21)	37.00	01 Jan 2011	02 Jan 2011	272.00	11.333	1,800.0 m
Pull BOPs/Riser(P6B)	2.00	02 Jan 2011	02 Jan 2011	274.00	11.417	1,800.0 m

WBM Data				Cost Today AUD3,080			
Mud Type:	Water Based	API FL:	cm ³ /30min	Cl:	mg/L	Solids:	%
Sample-From:	pit#2	Filter-Cake:	/32nd"	K+C*1000:	%	Low-Gravity	%vol
Time:	03:30	HTHP-FL:	cm ³ /30min	Hard/Ca:	mg/L	Solids:	%
Weight:	ppg	HTHP-cake:	/32nd"	MBT:		H2O:	%
Temp:	°C			Pm:		Oil:	%
				Pf:		Sand:	
						pH:	
						PHPA(Density):	kg/m ³
Comment				Backloading chemicals and mud lab equipment.			

Bulk Stocks					
Name	Unit	In	Used	Adjust	Balance
Diesel	m3	0.0	9.0	0.0	494.00
Drill Water	m3	0.0	214.0	0.0	337.00
Potable Water	m3	42.0	52.0	0.0	200.00
Barite	MT	0.0	10.0	0.0	64.00
Bentonite	MT	0.0	6.0	0.0	18.00
CEMENT G	MT	0.0	31.0	0.0	133.00
Brine	m3	0.0	0.0	0.0	37.00

Casing			
OD	LOT / FIT	Csg Shoe (MD/TVD)	Cementing
762 mm (30")	ppg/ ppg	157.00 m/ 157.00 m	270bbl of 15.8ppg G cmt slurry. Yield 1.19ft3/sk - Mix fluid 5.34gal/sk 53mt of G cmt used
340 mm (13 3/8")	14.90 ppg/ ppg	735.00 m/ 735.00 m	Lead slurry: 380bbl 12.5ppg G cement. Yield 2.21ft3/sk. Mix fluid 13.02gal/sk. Used 41MT of G cmt. Tail Slurry: 104bbl of 15.8ppg G cmt. Yield 1.16ft3/sk. Mix fluid 5.16gal/sk. Used: 22MT G cmt.

Personnel On Board	
Company	Pax
ADA Services	4
Maersk	35
OMS	23
GRN	2
Smith Red Barron	1
Fugro ROV	6
Halliburton - Cement	2
Halliburton - Sperry	1
Baroid	2
Dril-Quip	1
Geoservices	4
Swaco	1
Schlumberger - Wireline	2
Total	84

Mud Volumes, Mud Losses and Shale Shaker Data

Engineer :

Available	150.0	Losses	718.5	Equipment	Description	Mesh Size	Comments
Active		Downhole					
Mixing		Surf+ Equip	718.5 bbl				
Hole		Dumped					
Slug		De-Gasser					
Reserve	150.0 bbl	De-Sander					
Kill		De-Silter					
		Centrifuge					

Marine

Weather on 02 Jan 2011								Rig Support	
Visibility	Wind Speed	Wind Dir.	Pressure	Air Temp.	Wave Height	Wave Dir.	Wave Frequency	Anchors	Tension
10.0 NM	18 kn	204.0 °	1,016.0 mbar	°C	0.6 m	204.0 °	5 s	#1 Anchor	198.00 klb
								#2 Anchor	280.00 klb
Heave	Pitch	Roll	Rig Dir.	Ris. Tension	VDL	Weather Comments			
0.6 m	0.80 °	0.60 °	248.0 °	248.00 klb	960.00 klb				
Swell Height	Swell Dir.	Swell Frequency	Comments						
1.0 m	175.0 °	6 s							
								#3 Anchor	243.00 klb
								#4 Anchor	284.00 klb
								#5 Anchor	162.00 klb
								#6 Anchor	222.00 klb
								#7 Anchor	147.00 klb
								#8 Anchor	189.00 klb

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	30 Dec 2010 19:00	28 Dec 2010 22:20	Running standby	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	8.0	0.00	0.0	742
				Potable Water (m3)	m3	0.0	3.0	0.00	0.0	345
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	412
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	0
				Brine (bbl)	bbl	0.0	0.0	0.00	0.0	0
0000-1600 Running Standby 1600-2015 Backload Deck cargo 2015-2359 Running Standby										
Far Scimitar	28 Dec 2010 22:00	30 Dec 2010 21:40	Transit to KT4	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
				Diesel (m3)	m3	0.0	9.0	0.00	0.0	882
				Potable Water (m3)	m3	0.0	5.0	0.00	0.0	520
				Drill Water (m3)	m3	50.0	0.0	0.00	0.0	200
				Barite (MT)	MT	0.0	0.0	0.00	0.0	0
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0	0
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0	0
				0000 - 1500 Alongside Sth Wharf Tank cleaning 1500 - 2400 Transit to KT4						

Helicopter Movement

Flight #	Company	Arr/Dep. Time	Pax In/Out	Comment
1	Bristow Helicopters	08:45 / 08:55	1/ 9	

03 Jan 2011

From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller

DRILLING MORNING REPORT # 13**Craigow-1**

Well Data							
Country	Australia	MDBRT	1,800.0 m	Cur. Hole Size	12.250 in	AFE Cost	AUD 18,289,310
Field	Craigow	TVDBRT	1,799.8 m	Last Casing OD	13.375 in	AFE No.	
Drill Co.	Maersk Drilling	Progress		Shoe TVDBRT	735.0 m	Daily Cost	AUD 653,339
Rig	Kan Tan IV (semi)	Days From Spud	10.69	Shoe MDBRT	735.0 m	Cum Cost	AUD 10,532,019
Wtr Depth (MSL)	74 m	Days On Well	12.23	FIT/LOT	ppg / 14.90	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m		ppg	Days Since Last LTI	428
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600			
		Last BOP Test	25 Dec 2010	Planned Op			

Summary of Period 0000 to 2400 Hrs

Made up landing joint to slip joint. Collapsed and locked slip joint and unlatched BOP from wellhead. Removed hoses and MRTs from slip joint and laid out same. Pulled BOP surface and rigged down riser handling equipment. Unlocked HAC joint. Made up 13-3/8" cutting and 18-3/4" WH retrieval assembly and RIH. Landed assembly in 18-3/4" WH and cut 13-3/8" casing. POOH with 18-3/4" WH, 30" LP housing and PGB. Landed on BOP trolley and unlocked the 30" housing from the PGB. Laid out 30" housing, 18-3/4" WH and casing cut. Laid out 8 1/4" DCs and HWDP.

From 19:30hr onwards; Consortium Demob operations

HSE Summary

Events	Num. Events	Days Since	Description	Remarks
JSA	25	0	Associated with permits and major tasks	
PTW issued	17	0	Permits Administered	
ToolBox Talk	23	0		
Number Observe Cards	17	0		
Safety Meeting	7	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: A reminder that procedures still need to be observed –even the ‘small’ ones. Just because the operation is winding down it doesn’t mean the risk is doing the same. Another reminder to be aware of non-routine operations/ activity taking place around the rig as demob commences . Be aware, look around and if in doubt ask! Professionalism – lots of cards commending others for their professionalism in carrying out tasks and assisting others in theirs. Keep it up and look out for each other. Evening pre-tour: A reminder that procedures still need to be observed –even the ‘small’ ones. Just because the operation is winding down it doesn’t mean the risk is doing the same. Another reminder to be aware of non-routine operations/ activity taking place around the rig as demob commences . Be aware, look around and if in doubt ask! Professionalism – lots of cards commending others for their professionalism in carrying out tasks and assisting others in theirs. Keep it up and look out for each other.
Weekly Safety Meeting	0	1	General safety meetings	
First Aid Case	1	0	Laceration to 5th knuckle of left hand.	The IP was accessing some equipment underneath the workbench when he pulled a drawer out, he caught his hand on a roll of Stainless Steel “Band it” strap cutting the top of his knuckle 1.5cm long. The IP was wearing protective gloves at the time.

Operations For Period 0000 Hrs to 2400 Hrs On 03 Jan 2011

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P6B	P	G2	00:00	01:30	1.50	1,800.0 m	Made up landing joint to slip joint. Collapsed and locked slip joint. Unlocked wellhead connector and lifted BOP clear of wellhead.
P6B	P	G1	01:30	03:30	2.00	1,800.0 m	Removed umbilical hose storm saddles, removed choke and kill hoses, removed MRT lines from slip joint.
P6B	P	G8	03:30	04:30	1.00	1,800.0 m	Laid out landing joint and slip joint.
P6B	P	G8	04:30	06:30	2.00	1,800.0 m	Laid out riser pup joints and flotation joint.
P6B	P	G8	06:30	07:00	0.50	1,800.0 m	Pulled BOP out of water and landed on moonpool transporter.
P6B	P	G13	07:00	10:00	3.00	1,800.0 m	Disconnected riser double. Removed guidelines from BOP and skidded BOPs to aft moonpool on transporter. Laid out riser double.
P6B	P	G1	10:00	12:00	2.00	1,800.0 m	Rigged down riser handling equipment from DF. (HAC connector released offline with ROV)
P21	P	G7	12:00	13:00	1.00	1,800.0 m	Made up Smith 13-3/8" cutting / 18-3/4" WH retrieval assembly.
P21	P	G17	13:00	13:30	0.50	1,800.0 m	RIH and stabbed into well. Landed out on 18-3/4" wellhead. Confirmed latch engaged with overpull. Cut 13-3/8" casing at 111.43m.
P21	P	G17	13:30	16:00	2.50	1,800.0 m	POOH with 18-3/4" WH, 30" LP Housing, PGB and casing cut to moonpool. Installed skid beams to BOP setback and moved BOPs to same. Installed moonpool cart in moonpool. Landed and secured PGB on cart.
P21	P	G6	16:00	16:30	0.50	1,800.0 m	Released latch spear from 18-3/4" housing. Racked back DC stand and laid out casing cutting and fishing assembly.
P21	P	G7	16:30	18:00	1.50	1,800.0 m	Made up Dril-Quip 18-3/4" RT. Ran in and engaged WH. Released 30" LP Housing from PGB and laid out assembly to deck.
P21	P	G2	18:00	19:30	1.50	1,800.0 m	Laid out std of 8 1/4" DCs and excess HWDP from derrick.
From 19:30hr onwards; Consortium Demob operations							

Phase Data to 2400hrs, 03 Jan 2011

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	32.50	24 Dec 2010	26 Dec 2010	87.50	3.646	745.0 m
Surface Casing(P5)	22.00	26 Dec 2010	27 Dec 2010	109.50	4.563	745.0 m
Run BOPs/Riser(P6A)	31.50	27 Dec 2010	28 Dec 2010	141.00	5.875	745.0 m
Production Hole (1)(P11)	83.00	28 Dec 2010	31 Dec 2010	224.00	9.333	1,800.0 m
Logging (1)(LOG1)	11.00	31 Dec 2010	01 Jan 2011	235.00	9.792	1,800.0 m
Suspend and Abandon(P21)	44.50	01 Jan 2011	03 Jan 2011	279.50	11.646	1,800.0 m
Pull BOPs/Riser(P6B)	14.00	02 Jan 2011	03 Jan 2011	293.50	12.229	1,800.0 m

General Comments

00:00 TO 24:00 Hrs ON 03 Jan 2011

Operational Comments	Dril-Quip Demob:- 80% completed Geoservices Demob:- 80% completed Fugro ROV Demob:- 60% completed Baroid Demob:- 100% completed Schl Comms Demob:- 0% completed Smith Demob:- 95% completed

WBM Data		Cost Today AUD3,080					
Mud Type:	Water Based	API FL:	cm ³ /30min	Cl:	mg/L	Solids:	%
Sample-From:		Filter-Cake:	/32nd"	K+C*1000:	%	Low-Gravity	%vol
Time:	03:30	HTHP-FL:	cm ³ /30min	Hard/Ca:	mg/L	Solids:	%
Weight:	ppg	HTHP-cake:	/32nd"	MBT:		H ₂ O:	%
Temp:	°C			Pm:		Oil:	%
				Pf:		Sand:	
						pH:	
						PHPA(Density):	kg/m ³
Comment		None					

Bulk Stocks					
Name	Unit	In	Used	Adjust	Balance
Diesel	m3	0.0	19.0	0.0	475.00
Drill Water	m3	0.0	83.0	0.0	254.00
Potable Water	m3	39.0	19.0	0.0	220.00
Barite	MT	0.0	64.0	0.0	0.00
Bentonite	MT	0.0	18.0	0.0	0.00
CEMENT G	MT	0.0	133.0	0.0	0.00
Brine	m3	0.0	0.0	0.0	37.00

Casing			
OD	LOT / FIT	Csg Shoe (MD/TVD)	Cementing
762 mm (30")	ppg/ ppg	157.00 m/ 157.00 m	270bbl of 15.8ppg G cmt slurry. Yield 1.19ft3/sk - Mix fluid 5.34gal/sk 53mt of G cmt used
340 mm (13 3/8")	14.90 ppg/ ppg	735.00 m/ 735.00 m	Lead slurry: 380bbl 12.5ppg G cement. Yield 2.21ft3/sk. Mix fluid 13.02gal/sk. Used 41MT of G cmt. Tail Slurry: 104bbl of 15.8ppg G cmt. Yield 1.16ft3/sk. Mix fluid 5.16gal/sk. Used: 22MT G cmt.

Personnel On Board	
Company	Pax
ADA Services	4
Maersk	34
OMS	28
GRN	1
Smith Red Barron	1
Fugro ROV	6
Halliburton - Cement	2
Halliburton - Sperry	1
Baroid	1
Dril-Quip	1
Geoservices	4
PCS	1
Total	84

Marine									
Weather on 03 Jan 2011								Rig Support	
Visibility	Wind Speed	Wind Dir.	Pressure	Air Temp.	Wave Height	Wave Dir.	Wave Frequency	Anchors	Tension
10.0 NM	7 kn	105.0 °	1,016.0 mbar	°C	0.6 m	105.0 °	5 s	#1 Anchor	198.00 klb
								#2 Anchor	272.00 klb
Heave	Pitch	Roll	Rig Dir.	Ris. Tension	VDL	Weather Comments		#3 Anchor	243.00 klb
0.6 m	0.60 °	0.70 °	248.0 °	0.00 klb	1,770.00 klb	Mild		#4 Anchor	282.00 klb
Swell Height	Swell Dir.	Swell Frequency	Comments					#5 Anchor	165.00 klb
								#6 Anchor	227.00 klb
1.0 m	175.0 °	5 s						#7 Anchor	145.00 klb
								#8 Anchor	191.00 klb

Support Vessels											
Boats		Arrived Time	Departed Time	Status	Bulks						
Far Fosna	30 Dec 2010 19:00	03 Jan 2011 02:45	En route to KT4	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity	
				Diesel (m3)	m3	0.0	20.0	0.00	0.0	72	
				Potable Water (m3)	m3	128.0	3.0	0.00	0.0	47	
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	41	
				Barite (MT)	MT	0.0	0.0	0.00	0.0		
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0		
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0		
				Brine (bbl)	bbl	0.0	0.0	0.00	0.0		
0000-0245 Close Standby 0245-1420 Steam to Melbourne 1420-2300 S 27 Discharge a backload cargo 2300-2359 Steam to KT IV											
Far Scimitar	03 Jan 2011 02:30	30 Dec 2010 21:40	Close stby	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity	
				Diesel (m3)	m3	0.0	16.0	0.00	0.0	86	
				Potable Water (m3)	m3	0.0	7.0	0.00	0.0	51	
				Drill Water (m3)	m3	0.0	0.0	0.00	0.0	20	
				Barite (MT)	MT	0.0	0.0	0.00	0.0		
				Bentonite (MT)	MT	0.0	0.0	0.00	0.0		
				CEMENT G (MT)	MT	0.0	0.0	0.00	0.0		
				0000 - 0230 Transit to KT4 0230 - 1240 Close stby 1240 - 1820 Cargo ops 1820 - 2400 Close stby							

Helicopter Movement				
Flight #	Company	Arr/Dep. Time	Pax In/Out	Comment
1	Bristow Helicopters	08:55 / 09:10	12/ 12	

05 Jan 2011

From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller

DRILLING MORNING REPORT # 14**Craigow-1**

Well Data							
Country	Australia	MDBRT	1,800.0 m	Cur. Hole Size	12.250 in	AFE Cost	AUD 18,289,310
Field	Craigow	TVDBRT	1,799.8 m	Last Casing OD	13.375 in	AFE No.	
Drill Co.	Maersk Drilling	Progress		Shoe TVDBRT	735.0 m	Daily Cost	AUD 457,302
Rig	Kan Tan IV (semi)	Days From Spud	11.06	Shoe MDBRT	735.0 m	Cum Cost	AUD 10,989,321
Wtr Depth (MSL)	74 m	Days On Well	12.60	FIT/LOT	ppg / 14.90 ppg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI	430
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600			
		Last BOP Test	25 Dec 2010	Planned Op			

Summary of Period 0000 to 2400 Hrs**HSE Summary**

Events	Num. Events	Days Since	Description	Remarks
JSA	18	0	Associated with permits and major tasks	
PTW issued	14	0	Permits Administered	
ToolBox Talk	18	0		
Number Observe Cards	18	0		
Safety Meeting	8	0	Daily pre tour meetings and helicopter briefs	Morning pre-tour: In light of last night's FAC a reminder for all crew members to ensure the PPE they are using provides adequate level of protection for the task. If it doesn't then bring it to the attention of the RSA/ Supervisor. Also if an item is fitted with a safety device then use it. Good to see people cleaning up oils stains etc as equipment gets moved off the rig. If there is a oil stain/ leak near a piece of equipment then bring it to the attention of the operator so they can follow up. Overall the level of cleanliness is looking good so keep it up. Evening Pre-tour: Excellent safety culture displayed by the crew; looking out for each other, ownership of concerns and professionalism – encouraging to see at this stage of the operation. Crane operation – Well done conducted TOFS to inform all crew involved; hazard with ball – avoiding struck against manual handling pinch points reiterated. Crew conducting confined space safely in Ballast tank safely – following procedures. Environmental focus: As we are about to commence tow this will be the final chance to get rid of waste to take the time to identify and ditch into waste bins.
Weekly Safety Meeting	0	3	General safety meetings	

Operations For Period 0000 Hrs to 2400 Hrs On 05 Jan 2011

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P32	P	M3	04:00	13:00	9.00	m	***Rig Offhire from KT4 Consortium and Onhire to Craigow-1 at 04:00hrs for deballasting*** Deballasting rig from drilling draft to transit draft. ***Rig Offhire from Craigow-1 and Onhire to KT4 Consortium at 13:00hrs***

Phase Data to 2400hrs, 05 Jan 2011

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	32.50	24 Dec 2010	26 Dec 2010	87.50	3.646	745.0 m
Surface Casing(P5)	22.00	26 Dec 2010	27 Dec 2010	109.50	4.563	745.0 m
Run BOPs/Riser(P6A)	31.50	27 Dec 2010	28 Dec 2010	141.00	5.875	745.0 m
Production Hole (1)(P11)	83.00	28 Dec 2010	31 Dec 2010	224.00	9.333	1,800.0 m
Logging (1)(LOG1)	11.00	31 Dec 2010	01 Jan 2011	235.00	9.792	1,800.0 m
Suspend and Abandon(P21)	44.50	01 Jan 2011	03 Jan 2011	279.50	11.646	1,800.0 m
Pull BOPs/Riser(P6B)	14.00	02 Jan 2011	03 Jan 2011	293.50	12.229	1,800.0 m
Demob(P32)	9.00	05 Jan 2011	05 Jan 2011	302.50	12.604	

General Comments

00:00 TO 24:00 Hrs ON 05 Jan 2011

Operational Comments	Dril-Quip Demob:- 100% completed Geoservices Demob:- 100% completed Fugro ROV Demob:- 90% completed Baroid Demob:- 100% completed Schl Comms Demob:- 0% completed Smith Demob:- 100% completed

Casing

OD	LOT / FIT	Csg Shoe (MD/TVD)	Cementing
762 mm (30")	ppg/ ppg	157.00 m/ 157.00 m	270bbl of 15.8ppg G cmt slurry. Yield 1.19ft3/sk - Mix fluid 5.34gal/sk 53mt of G cmt used
340 mm (13 3/8")	14.90 ppg/ ppg	735.00 m/ 735.00 m	Lead slurry: 380bbl 12.5ppg G cement. Yield 2.21ft3/sk. Mix fluid 13.02gal/sk. Used 41MT of G cmt. Tail Slurry: 104bbl of 15.8ppg G cmt. Yield 1.16ft3/sk. Mix fluid 5.16gal/sk. Used: 22MT G cmt.

Personnel On Board

Company	Pax
ADA Services	3
Maersk	35
OMS	27
GRN	1
Noble Denton	1
Schlumberger (communications)	1
Total	68

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	04 Jan 2011 10:55		Stby KT4	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
0000-0055 Discharge cargo 0055-1400 Running Standby 1400-2359 Backload Cargo										
Far Scimitar		04 Jan 2011 18:40	Melbourne berth 27	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
0000 - 0600 Steam to port – all fast 0810 - 1500 Cargo discharge and load out – commence fuel oil at 1555 1555 - 2400 Continue fuel oil load at port										

07 Jan 2011

From: Paul Jenkins / Kevin Monkhouse
To: Bob Miller

DRILLING MORNING REPORT # 15

Craigow-1

Well Data							
Country	Australia	MDBRT	1,800.0 m	Cur. Hole Size	12.250 in	AFE Cost	AUD 18,289,310
Field	Craigow	TVDBRT	1,799.8 m	Last Casing OD	13.375 in	AFE No.	
Drill Co.	Maersk Drilling	Progress		Shoe TVDBRT	735.0 m	Daily Cost	AUD 1,633,252
Rig	Kan Tan IV (semi)	Days From Spud	11.67	Shoe MDBRT	735.0 m	Cum Cost	AUD 12,622,573
Wtr Depth (MSL)	74 m	Days On Well	13.21	FIT/LOT	ppg / 14.90 ppg	Last LTI Date	01 Nov 2009
RT To Seabed	100.0 m	Planned TD MD	1,826 m			Days Since Last LTI	432
Datum	26.00 m RT MSL	Planned TD TVDRT	1,826 m	Current Op @ 0600			
		Last BOP Test	25 Dec 2010	Planned Op			

Summary of Period 0000 to 2400 Hrs

End of Craigow-1 at 14:30hrs, 7th January 2011 with rig on tight tow

Operations For Period 0000 Hrs to 2400 Hrs On 07 Jan 2011

Phse	Cls (RC)	Op	From	To	Hrs	Depth	Activity Description
P32	P	M4	00:00	14:30	14.50	m	***Rig Offhire from KT4 Consortium and Onhire to Craigow-1 at 00:00hrs for pulling anchors*** Pulled Secondary Anchors. Pulled Primary Anchors. ***End of Craigow-1 at 14:30hrs, 7th January 2011 with rig on tight tow*** Rig Onhire to KT4 Consortium for demob.

Phase Data to 2400hrs, 07 Jan 2011

Phase	Phase Hrs	Start On	Finish On	Cum Hrs	Cum Days	Max Depth
Mob(P1)	25.50	22 Dec 2010	23 Dec 2010	25.50	1.063	
Conductor Hole(P2)	15.00	23 Dec 2010	24 Dec 2010	40.50	1.688	159.0 m
Conductor Casing(P3)	14.50	24 Dec 2010	24 Dec 2010	55.00	2.292	159.0 m
Surface Hole(P4)	32.50	24 Dec 2010	26 Dec 2010	87.50	3.646	745.0 m
Surface Casing(P5)	22.00	26 Dec 2010	27 Dec 2010	109.50	4.563	745.0 m
Run BOPs/Riser(P6A)	31.50	27 Dec 2010	28 Dec 2010	141.00	5.875	745.0 m
Production Hole (1)(P11)	83.00	28 Dec 2010	31 Dec 2010	224.00	9.333	1,800.0 m
Logging (1)(LOG1)	11.00	31 Dec 2010	01 Jan 2011	235.00	9.792	1,800.0 m
Suspend and Abandon(P21)	44.50	01 Jan 2011	03 Jan 2011	279.50	11.646	1,800.0 m
Pull BOPs/Riser(P6B)	14.00	02 Jan 2011	03 Jan 2011	293.50	12.229	1,800.0 m
Demob(P32)	23.50	05 Jan 2011	07 Jan 2011	317.00	13.208	

General Comments

00:00 TO 24:00 Hrs ON 07 Jan 2011

Operational Comments	Dril-Quip Demob:- 100% completed Geoservices Demob:- 100% completed Fugro ROV Demob:- 100% completed Baroid Demob:- 100% completed Schl Comms Demob:- 100% completed Smith Demob:- 100% completed

Casing

OD	LOT / FIT	Csg Shoe (MD/TVD)	Cementing
762 mm (30")	ppg/ ppg	157.00 m/ 157.00 m	270bbl of 15.8ppg G cmt slurry. Yield 1.19ft3/sk - Mix fluid 5.34gal/sk 53mt of G cmt used
340 mm (13 3/8")	14.90 ppg/ ppg	735.00 m/ 735.00 m	Lead slurry: 380bbl 12.5ppg G cement. Yield 2.21ft3/sk. Mix fluid 13.02gal/sk. Used 41MT of G cmt. Tail Slurry: 104bbl of 15.8ppg G cmt. Yield 1.16ft3/sk. Mix fluid 5.16gal/sk. Used: 22MT G cmt.

Personnel On Board

Company	Pax
Maersk	34
OMS	21
Noble Denton	1
Total	56

Support Vessels

Boats	Arrived Time	Departed Time	Status	Bulks						
Far Fosna	07 Jan 2011 02:40		Escorting KT4	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
0000-0240 Enroute KT IV 0240-1440 Retrieve Anchors 1440-2359 Escort KT IV										
Far Scimitar	06 Jan 2011 18:50		Tow rig to western port	Item	Unit	In	Used	Transfer to Rig	Adjust	Quantity
0000 - 0600 Recovery of secondary anchors 0600 - 1440 Static tow 1440 - 2400 Slow tow toward Western port pilot station ETA 09/0900hrs										

Helicopter Movement

Flight #	Company	Arr/Dep. Time	Pax In/Out	Comment
1	Bristow Helicopters	16:15 / 16:25	12/ 12	

Appendix 3: Rig Positioning Report

**REPORT FOR THE
KAN TAN IV RIG MOVE TO
CRAIGOW-1**

FUGRO BTW JOB NO. 09011

Client : AUSTRALIAN DRILLING ASSOCIATES LTD

Date of Survey : 17– 27 December 2010

0	Final	S. Armstrong	13 Jan 2011
Rev	Description	Checked and Approved	Date

This document is confidential. The copyright © therein is vested in Fugro BTW Ltd. All rights reserved. Neither the whole, nor any part of this document may be disclosed to any third party nor reproduced, stored in any retrieval system or transmitted in any form nor by any means (electronic, mechanical, reprographic, recording nor otherwise) without the prior written consent of the copyright owner.

CONTENTS

		Page No.
	<i>ABSTRACT</i>	<i>i</i>
1.0	INTRODUCTION	1
1.1	Scope of Work	1
1.2	Sequence of Events	1
2.0	RESULTS	3
2.1	Final Position	3
2.2	Rig Heading	3
2.3	Anchor Positions	4
3.0	SAFETY	4
4.0	SURVEY OPERATIONS	5
4.1	Mobilisation	5
4.2	General Survey Procedures	5
4.3	Demobilisation	5
5.0	EQUIPMENT CALIBRATION	6
5.1	DGPS Navigation Integrity Check	6
5.2	Gyro Compass Calibration	6
6.0	SURVEY PARAMETERS	7
6.1	Geodetic Parameters	7
6.2	Differential GPS Reference Stations	8
6.3	Project Coordinates and Tolerances	8
7.0	SURVEY EQUIPMENT, VESSEL AND PERSONNEL	9
7.1	Equipment	9
7.2	Vessels	9
7.3	Personnel	9
8.0	CONCLUSIONS AND RECOMMENDATIONS	13
9.0	DISTRIBUTION	13

FIGURES

FIGURE 1-1 : GENERAL LOCATION DIAGRAM	2
FIGURE 7-1 : EQUIPMENT FLOW DIAGRAM – MODU <i>KAN TAN IV</i>	10
FIGURE 7-2 : EQUIPMENT FLOW DIAGRAM – AHVS	11
FIGURE 7-3 : RIG OFFSET DIAGRAM – MODU <i>KAN TAN IV</i>	12

TABLES

TABLE 2-1 : GEOGRAPHICAL POSITIONS FOR CRAIGOW-1	3
TABLE 2-2 : GRID COORDINATES FOR CRAIGOW-1	3
TABLE 2-3 : RIG HEADING FOR CRAIGOW-1	3
TABLE 2-4 : ANCHOR POSITIONS FOR CRAIGOW-1	4
TABLE 5-1 : DGPS NAVIGATION INTEGRITY CHECK	6
TABLE 6-1 : TRANSFORMATION PARAMETERS	7
TABLE 6-2 : DGPS REFERENCE STATIONS	8
TABLE 6-3 : PROJECT DESIGN COORDINATES	8
TABLE 7-1 : EQUIPMENT LIST	9

APPENDICES

APPENDIX A : DAILY OPERATIONS REPORTS
APPENDIX B : FINAL POSITIONING DATA
APPENDIX C : RIG MOVE POSITIONING SYSTEM SETUP, CHECKS AND CALIBRATIONS
APPENDIX D : CLIENT SUPPLIED INFORMATION

ABSTRACT

Between 17 December and 27 December 2010, Fugro BTW provided equipment and personnel for the semi-submersible Mobile Offshore Drilling Unit Kan Tan IV rig move to the Craigow-1 location in T/44P in the Bass Basin, Australia.

Surface positioning was provided by Fugro's Starfix Total Position System (Starfix TOPS) and Starfix.Seis Navigation Software.

The final position for the drill stem derived from HP GPS observations at Craigow-1 is:

Location Name:	Craigow-1
MGA94 (UTM Zone 55 south)	
Easting (m):	383473.486
Northing (m):	5616630.646
GDA94	
Latitude:	39° 35' 31.6857" S
Longitude:	145° 38' 34.5855" E
WGS84	
Latitude:	39° 35' 31.6562" S
Longitude:	145° 38' 34.5990" E
Rig Heading:	248.11° (True)

This position is 2.22m at a bearing of 42.93° (True) from the proposed Craigow-1 location.

All coordinates in this report are referenced to the Geocentric Datum of Australia 1994 (GDA94) and projected onto the Map Grid of Australia 1994 (MGA94) Zone 55 (CM 147°E), unless otherwise stated.

All times in this report are quoted in Australian Eastern Daylight Time (AEDT) unless otherwise stated.

1.0 INTRODUCTION

Fugro-BTW Ltd (Fugro) was contracted by ADA Ltd to provide navigation and positioning survey services onboard the semi-submersible Mobile Offshore Drilling Unit (MODU) *Kan Tan IV*, during the rig move from Silvereye-1 to Craigow-1 in T/44P in the Bass Basin, Australia.

A general location diagram is shown in Figure 1-1.

This report details the equipment used, survey parameters adopted, procedures employed and the results achieved. A section on safety is included in Section 3.0 of this report.

1.1 Scope of Work

Personnel and equipment were provided on a 24 hour per day basis for:

- Calibration and function testing of the survey equipment onboard the rig and the two Anchor Handling Vessels (AHVs).
- Surface navigation for the *Kan Tan IV* using Fugro's Starfix HP (High Performance) DGPS services.
- Surface navigation for AHVs during anchoring operations, using Starfix HP DGPS.
- Final rig surface positioning using DGPS observations.
- Final reporting of the positioning results.

1.2 Sequence of Events

On 17 December 2010 C Simonson and B Healy departed New Plymouth airport for Melbourne. On 18 December 2010 Fugro personnel departed Essendon airport for *Kan Tan IV* situated at the Silvereye-1 location.

The *Kan Tan IV* was positioned on location at Craigow-1 with all cross tensioning complete at 1515 on 23 December 2010.

At 0909 on 25 December 2010 the Final Fix for the *Kan Tan IV* position at Craigow-1 was completed.

C. Simonson departed the *Kan Tan IV* at 0900 on 24 December 2010.
B. Healy departed the *Kan Tan IV* at 1030 on 26 December 2010.

C. Simonson arrived back in NZ on 24 December 2010.
B. Healy arrived back in NZ on 27 December 2010.

Further details of Fugro's involvement in the rig move are presented in the Daily Operations Reports included in Appendix A.

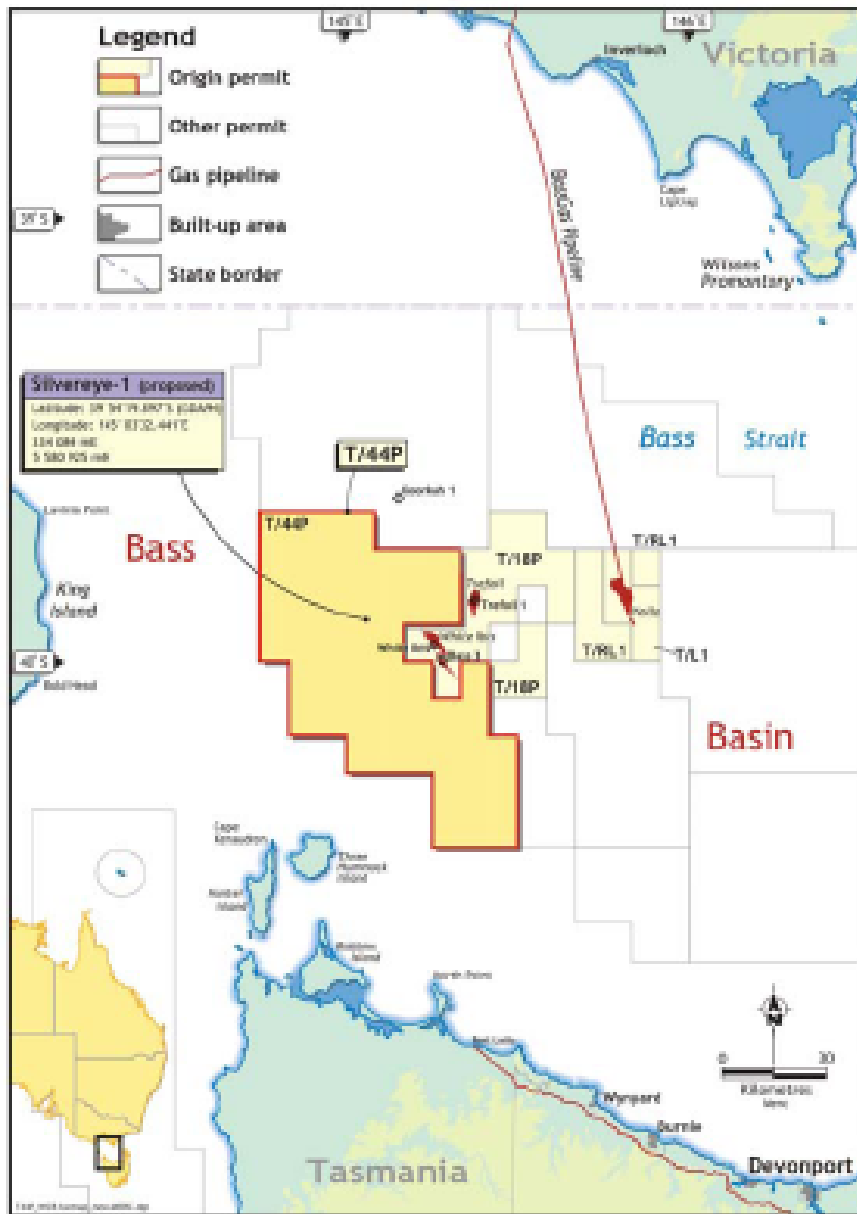


FIGURE 1-1 : GENERAL LOCATION DIAGRAM

2.0 RESULTS

2.1 Final Position

The final position of the *Kan Tan IV* drill stem was established upon the installation of the conductor at Craigow-1 location. A mean position was calculated from two hours of HP data logged between 0709 and 0909 on 25 December 2010. During this period, calculated drill stem coordinates from the primary and secondary positioning systems were logged at five second intervals in Starfix.Seis. Data from the primary positioning system were used for the final position calculation.

GDA94 geographical positions for Craigow-1 are shown in Table 2-1.

GDA94			
Position	Method	Latitude	Longitude
Drill Stem at Surface	Starfix HP	39° 35' 31.6857" S	145° 38' 34.5855" E
Proposed Location	-	39° 35' 31.7384" S	145° 38' 34.5222" E

TABLE 2-1 : GEOGRAPHICAL POSITIONS FOR CRAIGOW-1

MGA94 grid coordinates for Craigow-1 are shown in Table 2-2.

GDA94, MGA, UTM Zone 55, CM 147°E			
Position	Method	Easting (m)	Northing (m)
Drill Stem at Surface	Starfix HP	383473.486	5616630.646
Proposed Location	-	383472.000	5616629.000

TABLE 2-2 : GRID COORDINATES FOR CRAIGOW-1

This position is 2.22m at a bearing of 42.93° True (42.06° Grid) from the design location.

A copy of the original rig position field report is contained in Appendix B.

2.2 Rig Heading

The heading of the *Kan Tan IV* was established by calculating the average heading during two hours of gyro data logged between 0709 and 0909 on 25 December 2010. During this period, gyro readings were logged at five second intervals in Starfix.Seis.

The *Kan Tan IV*'s heading is shown in Table 2-3.

Description	Method	True	Grid
Rig Heading	Starfix.TOPS	248.11°	247.24°
Proposed Heading	-	245.00°	244.14°

TABLE 2-3 : RIG HEADING FOR CRAIGOW-1

2.3 Anchor Positions

The approximate locations of the *Kan Tan IV*'s anchors are shown in Table 2-4.

GDA94, MGA, UTM Zone 55, CM 147°E			
Anchor	Easting (m)	Northing (m)	Deployed By
1	383508.9	5615700.9	<i>Far Fosna</i>
2	382880.6	5615932.3	<i>Far Fosna</i>
3	382532.0	5616589.7	<i>Far Fosna</i>
4	382745.9	5617275.9	<i>Far Scimitar</i>
5	383446.7	5617608.7	<i>Far Scimitar</i>
6	384216.9	5617455.9	<i>Far Fosna</i>
7	384420.7	5616662.5	<i>Far Fosna</i>
8	384174.8	5616029.3	<i>Far Fosna</i>

TABLE 2-4 : ANCHOR POSITIONS FOR CRAIGOW-1

The approximate coordinates of the *Kan Tan IV*'s anchors were calculated from:

- The azimuth from the fairlead position to the AHVs stern position at the time of anchor deployment
- The range from the fairlead position to the anchor, as obtained from a correction applied to the AHVs stern position at the time of anchor deployment based on workwire paid out and water depth.

3.0 SAFETY

All work undertaken by Fugro personnel during the project was performed within the guidelines of Fugro's Health Safety & Environmental Management System Manual (HSEMS).

Fugro personnel worked within all project safety guidelines and plans adopted by ADA Ltd and Maersk.

No safety incidents involving Fugro personnel were reported during the project.

Fugro personnel attended all relevant safety meetings onboard the rig as required.

4.0 SURVEY OPERATIONS

4.1 Mobilisation

The survey equipment onboard the *Kan Tan IV*, *Far Scimitar* and *Far Fosna* was mobilised between 24 July and 12 August 2009. Rig offsets were checked and a total station traverse was conducted to determine C-O values for the Gyro compass and Starfix.TOPS.

The equipment was confirmed as operational on the *Kan Tan IV* and AHVs after arrival at 1000 on 19 December 2010.

4.2 General Survey Procedures

Anchor recovery commenced at 0426 on 22 December 2010. During recovery of the anchors the AHVs were provided with anchor lines via the Wombat telemetry system. The AHVs stripped back along these anchors during recovery.

At 1400 on 22 December 2010 the tow to Craigow-1 began.

Anchor deployment operations commenced at 2245 on 22 December 2010. During the deployment of the anchors, the AHVs were provided with anchor lines via the Wombat telemetry system. The AHVs ran out the anchors along this line to the desired drop point.

The *Kan Tan IV* was positioned at Craigow-1 with all anchoring, cross-tensioning and ballasting complete at 1515 on 23 December 2010. A Pre Spud Fix report was logged between 1616 and 1631 on 23 December 2010 which was issued to the ADA Ltd Company Representative. On the completion of the conductor installation, final position data was logged between 0709 and 0909 on 25 December 2010 (see Appendix B).

4.3 Demobilisation

The survey equipment onboard the *Kan Tan IV* was demobilised on 25 December 2010 into the Fugro BTW container ready to be shipped to Melbourne.

C. Simonson departed the *Kan Tan IV* at 0900 on 24 December 2010.

B. Healy departed the *Kan Tan IV* at 1030 on 26 December 2010.

5.0 EQUIPMENT CALIBRATION

5.1 DGPS Navigation Integrity Check

In order to prove the correct operation of the navigation systems installed on board the *Kan Tan IV* DGPS data was logged for 15 minutes on 18 December 2010 whilst the rig was located at Silvereye-1, the results of the check against Silvereye-1 established coordinates is shown in Table 5-1.

GDA94, MGA, UTM Zone 55, CM 147°E		
	Easting (m)	Northing (m)
Established Well Coordinates	334088.708	5580927.328
Observed Coordinates	334088.723	5580927.158
Difference	0.015	-0.170

TABLE 5-1 : DGPS NAVIGATION INTEGRITY CHECK

Details of all positioning checks are provided in Appendix C.

5.2 Gyro Compass Calibration

The primary heading system Starfix.TOPS calculates a highly accurate real-time True heading using two GPS antennas set up at a known baseline and offset.

The calibration of the Starfix.TOPS heading system and survey gyro compasses comprised a total station traverse to determine the correction in heading from the GPS antenna baseline and the rig centreline.

These observations were carried out while the rig was alongside Lascelles Wharf in Geelong and stationary on 11 August 2009.

As the GPS baseline is a constant offset from the rig centreline and GPS is not affected by a slow 'drift' effect like conventional gyro compasses, therefore regular sun observations for a gyro compass correction are not required.

A C-O (Corrected-Observed) value of 99.98° was determined for the Starfix.TOPS baseline correction to align it to the rig centreline. This correction was applied in the navigation suite.

6.0 SURVEY PARAMETERS

6.1 Geodetic Parameters

All coordinates are referenced to the Geocentric Datum of Australia 1994 (GDA94) unless otherwise noted. The Global Positioning System (GPS) operates on the World Geodetic System 1984 (WGS84) datum. Fugro's Differential GPS Reference Stations are currently defined in the International Terrestrial Reference Frame 2000 (ITRF2000 Epoch 2009.5) datum. Due to the continual refinement of the WGS84 reference frame, for all cases, the transformation parameters indicate that the WGS84 and ITRF2000 reference frames are essentially identical.

Datum : **World Geodetic System 1984 (WGS84)**
Reference Spheroid : World Geodetic System 1984
Semi Major Axis : 6378137.000m
Inverse flattening : 298.257223563

Datum : **Geocentric Datum of Australia 1994 (GDA94)**
Reference Spheroid : Geodetic Reference System 1980 (GRS80)
Semi Major Axis : 6378137.000m
Inverse flattening : 298.257222101

The following seven parameter datum transformation (Table 6-1) was used in Fugro's software to transform WGS84 (ITRF2000 Epoch 2010.5) coordinates to GDA94 coordinates. These parameters are calculated from the 14 parameter transformation defined by Geoscience Australia. Fugro follows the coordinate Frame Rotation method (as defined by UKOOA convention) for datum transformations.

Transformation Parameters from WGS84 (ITRF2000 Epoch 2010.5) to GDA94			
dX	+0.0394m	rX	+0.019622"
dY	-0.0574m	rY	+0.016407"
dZ	-0.1383m	rZ	+0.020235"
dS	0.002286ppm		

TABLE 6-1 : TRANSFORMATION PARAMETERS

The proposed drilling location and all project coordinates are grid coordinates on the Map Grid of Australia.

Grid : **Map Grid of Australia (MGA94)**
Projection : Universal Transverse Mercator
Latitude of Origin : 0°
Central Meridian : 147° E (UTM Zone 55)
Central Scale Factor : 0.9996
False Easting : 500000m
False Northing : 10000000m
Units : Metres

6.2 Differential GPS Reference Stations

Fugro's Differential GPS Reference Stations are currently defined in the ITRF2005 (Epoch 2010.5) datum and are shown in Table 6-2.

STARFIX DGPS REFERENCE STATIONS (DATUM ITRF2005 EPOCH 2010.5)					
Station	Id	Latitude	Longitude	Height (m)	Uplink
Melbourne	385	37° 47' 59.25910" S	144° 57' 39.31317" E	67.446	OCSat
Bathurst	336	33° 25' 46.87252" S	149° 34' 01.97224" E	756.594	OCSat
Brisbane	275	27° 28' 38.48179" S	153° 01' 37.35492" E	93.022	OCSat

TABLE 6-2 : DGPS REFERENCE STATIONS

6.3 Project Coordinates and Tolerances

Project target coordinates and surface tolerance for Craigow-1 were supplied by ADA Ltd and are shown in Table 6-3. Client supplied project information is provided in Appendix D.

GDA94, MGA, UTM Zone 55, CM 147°E			
Location	Easting (m)	Northing (m)	Tolerance
Craigow-1	383472.000	5616629.000	25m radius

TABLE 6-3 : PROJECT DESIGN COORDINATES

7.0 SURVEY EQUIPMENT, VESSEL AND PERSONNEL

7.1 Equipment

Survey equipment used for positioning the *Kan Tan IV* is shown in Table 7-1.

Equipment Listing	
<i>Kan Tan IV</i>	
3 x	Starfix 8200HP (1 APSat link, 1 spare)
2 x	Starfix.TOPS Total Positioning System (1 OCSat link, 1 spare)
2 x	Pentium 4 computers, running Fugro's Starfix.Seis navigation software suite (1 spare)
5 x	20" monitors (2 spare)
1 x	SG Brown gyro compass
2 x	Uninterruptible power supply units (UPS)
2 x	Teledesign radio/modem (1 spare)
2 x	Esteem Wireless WiFi radios
1 x	Theodolite, tripod and dark glass
1 x	Printer
<i>AHVs (complete system per vessel, plus one complete set of spares)</i>	
1 x	Pentium 4 computer, running Starfix Display/Wombat
1 x	Monitor
1 x	Starfix 8200HP unit
1 x	Fluxgate compass
1 x	Teledesign radio/modem

TABLE 7-1 : EQUIPMENT LIST

All systems were provided complete with all necessary cabling, connectors, power supplies, antennae, accessories, manuals and consumables.

Refer to Figure 7-1 for an equipment flow diagram for the *Kan Tan IV* and Figure 7-2 for the equipment flow diagram for the AHVs.

7.2 Vessels

The vessels used for anchor handling and towing the *Kan Tan IV* were the *Far Fosna* and the *Far Scimitar*.

Refer to Figure 7-3 for the rig offsets.

7.3 Personnel

Fugro personnel involved in the rig move and positioning operations were as follows:

Carey Simonson	Surveyor in Charge	17 Dec – 24 Dec 2010
Brett Healy	Surveyor	17 Dec – 27 Dec 2010

KAN TAN IV

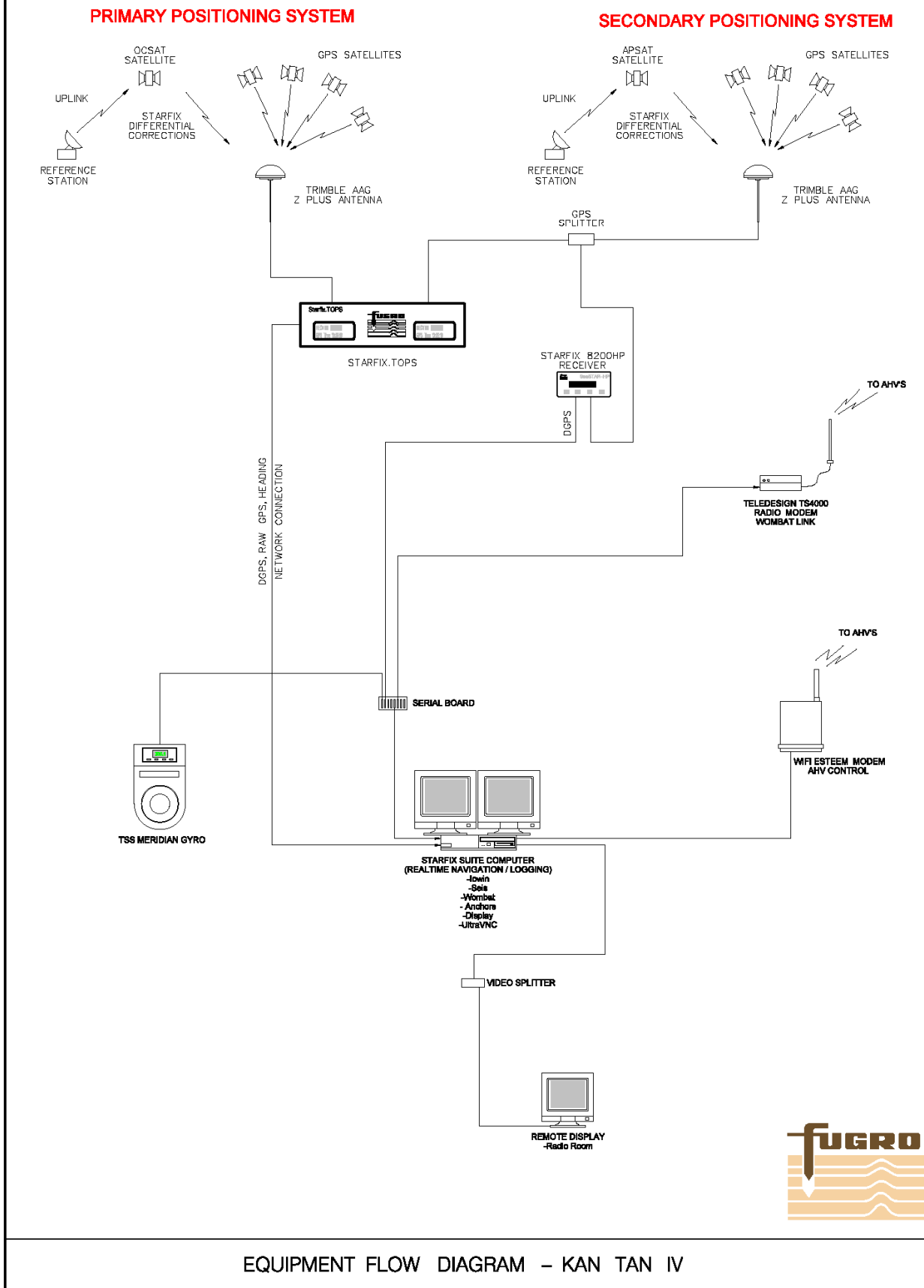
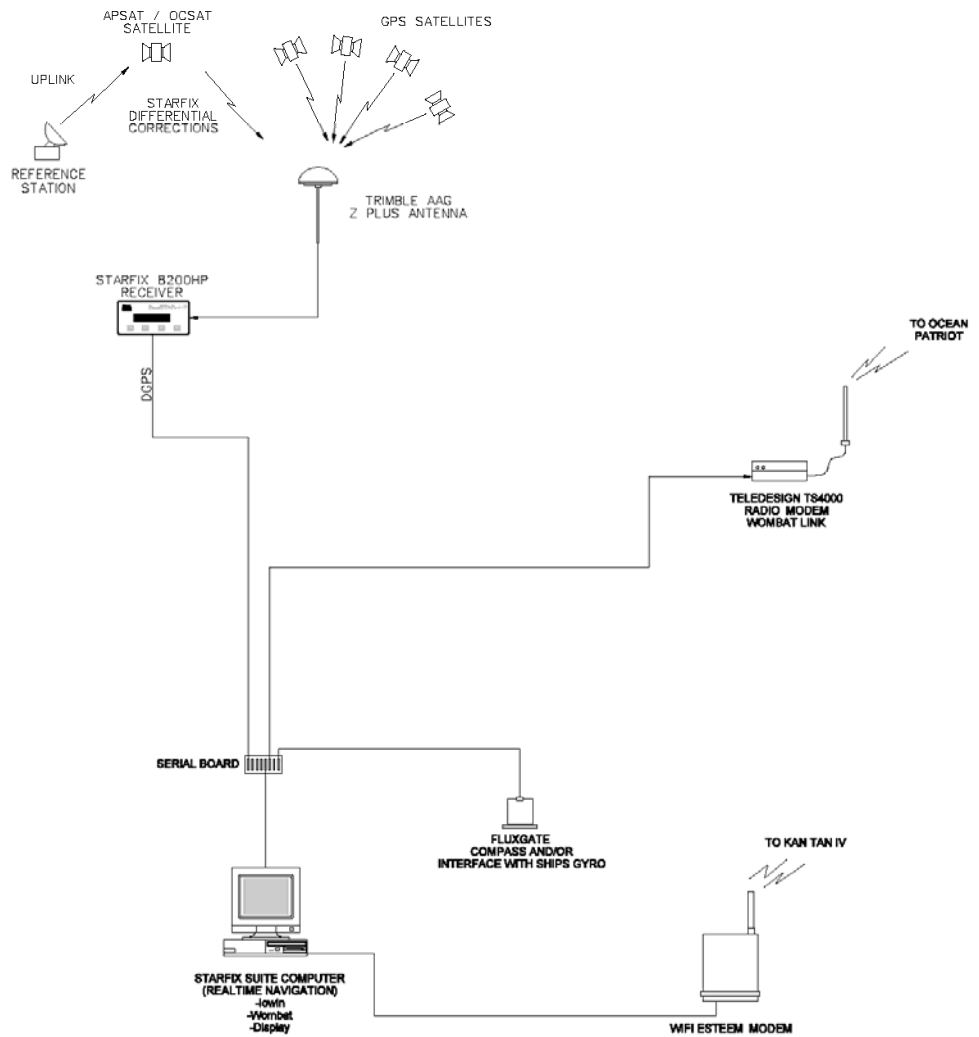


FIGURE 7-1 : EQUIPMENT FLOW DIAGRAM – MODU KAN TAN IV

ANCHOR HANDLING / SUPPORT VESSEL'S

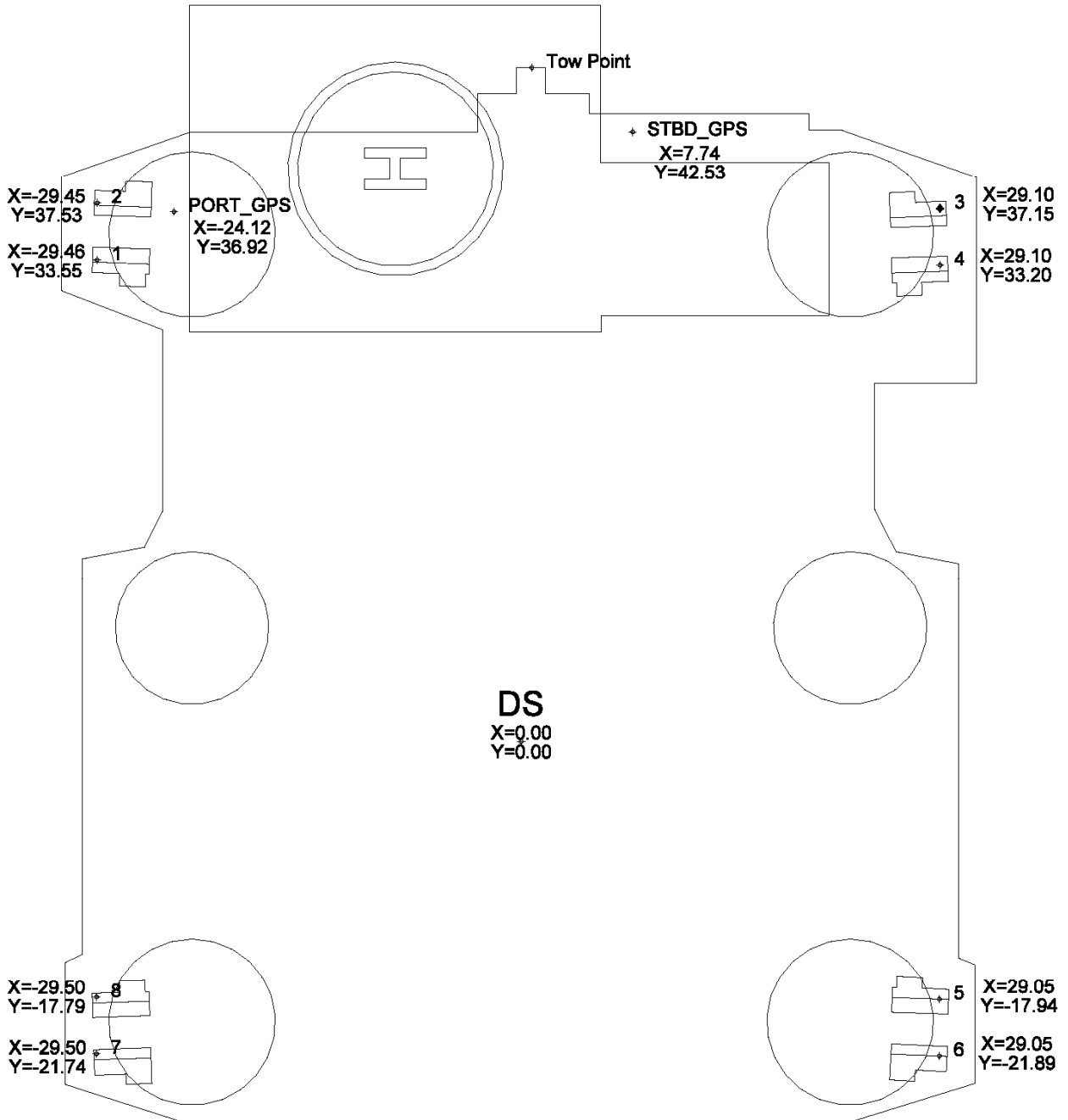
FAR SCIMITAR and FAR FOSNA



EQUIPMENT FLOW DIAGRAM – AHV'S

FIGURE 7-2 : EQUIPMENT FLOW DIAGRAM – AHVS

KAN TAN IV



KAN TAN IV OFFSETS

FIGURE 7-3 : RIG OFFSET DIAGRAM – MODU KAN TAN IV

8.0 CONCLUSIONS AND RECOMMENDATIONS

- The *Far Fosna* and *Far Scimitar* were successfully positioned during the towing and anchoring operations.
- The surface position of the Craigow-1 well was determined.
- Fugro personnel worked well together with the Tow-masters, Marine and AHV crews resulting in a safe, efficient and positive working environment.

9.0 DISTRIBUTION

Copies of this report have been distributed as follows:

ADA Ltd	: 2 hard copies
Attn: Mr Rajiv Tikkoo	: 1 electronic copy

**APPENDIX A :
DAILY OPERATIONS REPORTS**

Representative

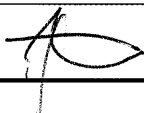
Fugro-BTW
PM-F50
DAILY OPERATIONS REPORT



CLIENT: ADA PTY LTD		LOCATION: MELBOURNE, AUS		DATE: 22/12/10	
PROJECT: KAN TAN IV RIG MOVE TO CRAIGOW-1		VESSEL: KAN TAN IV		JOB NO: 09011	
FROM	TO	SUMMARY OF OPERATIONS			
0001		Continued De-ballasting			
0420		PCP spares passed to Far Fosna			
0420		PCP spares passed to Far Scimitar			
0426		PCP # 4 passed to Far Fosna			
0430		Completed De-ballasting			
0444		PCP # 8 passed to Far Scimitar			
0504		Anchor # 4 off bottom			
0515		Anchor # 8 off bottom			
0604		Anchor # 8 Racked			
0615		Anchor # 4 Racked			
0625		PCP # 8 Passed back to Kan Tan IV			
0627		PCP # 4 Passed back to Kan Tan IV			
0631		PCP # 1 passed to Far Scimitar			
0636		PCP # 5 passed to Far Fosna			
0705		Anchor # 5 off bottom			
0706		Anchor # 1 off bottom			
0750		Anchor # 5 Racked			
0803		PCP # 5 Passed back to Kan Tan IV			
0810		PCP # 3 passed to Far Fosna			
0826		PCP # 1 Passed back to Kan Tan IV			
0936		Far Scimitar connected to Tow Bridle			
0948		Anchor # 3 Racked			
1019		PCP # 7 passed to Far Fosna			
1045		Anchor # 7 off bottom			
1129		Anchor # 7 Racked			
1145		PCP # 7 Passed back to Kan Tan IV			
1153		PCP # 2 passed to Far Fosna			
1212		Anchor # 2 off bottom			
1219		Commence Heaving in Anchor # 6			
1252		Anchor # 2 Racked			
1255		Far Fosna stopping operations for Helicopter			
1300		Helicopter on deck			
1312		Helicopter off deck			
1325		PCP # 2 Passed back to Kan Tan IV			
1326		Continue Heaving in Anchor # 6			
1343		Anchor # 6 off bottom			
1400		Under Tow to Craigow-1			
2145	2150	Toolbox Meeting for Anchor Lay			
2245		PCP # 7 passed to Far Fosna			
2308		Anchor # 6 on bottom			
2348		Far Fosna running out #7			
HSE DETAILS					
Emergency Muster	0	Toolbox Meetings	1	JHA's	0
Incidents	0	Hazard Cards Submitted	0	HSE / Project Meetings	0
Safety Drills Fire/Abandon	0	Safety Notices Received	0	Vessel inductions	0
Comments:					

Fugro-BTW
PM-F50
DAILY OPERATIONS REPORT



EQUIPMENT RIG	NO.	EQUIPMENT REMOTE	NO.	PERSONNEL	TITLE
Starfix Seis	2	Starfix Wombat (remote)	2	C. Simonson	Surveyor in Charge
Starfix HP DGPS	1	Fluxgate Compass	1	B. Healy	Surveyor
Radio Modem	2	Radio Modem	2		
UPS	2	Starfix HP DGPS	2		
Theodolite	1				
SG Brown Gyro	1				
Starfix.TOPS	2				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					
AUTHORISED CONTRACT CHANGES / COMMENTS:					
Party Chief Signature:		Client Representative Signature:		D O R Number	
		 P. Simonson		09011-06	

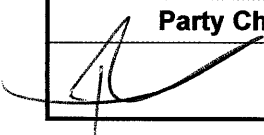
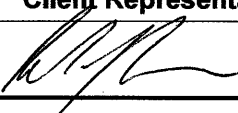
Fugro-BTW
PM-F50
DAILY OPERATIONS REPORT



CLIENT: ADA PTY LTD		LOCATION: MELBOURNE, AUS		DATE: 23/12/10	
PROJECT: KAN TAN IV RIG MOVE TO CRAIGOW-1		VESSEL: KAN TAN IV		JOB NO: 09011	
FROM	TO	SUMMARY OF OPERATIONS			
0007		Anchor # 7 on bottom			
0033		PCP # 7 passed back to KT			
0052		PCP # 3 passed to Far Fosna			
0115		Far Fosna running out Anchor # 3			
0118		Halt to running out, winch # 3 over temp			
0122		Cont'd running out			
0136		Anchor # 3 on bottom			
0156		PCP # 3 passed back to Kan Tan IV			
0217		PCP # 2 passed to Far Fosna			
0236		Far Fosna running out Anchor # 2			
0302		Anchor # 2 on bottom			
0305		Far Fosna chasing back on Anchor # 2			
0326		Far Scimitar unconnected from tow bridle			
0326		PCP # 2 passed back to Kan Tan IV			
0339		PCP # 1 passed to Far Fosna			
0400		Far Fosna running out Anchor # 1			
0419		PCP # 5 passed to Far Scimitar			
0422		Anchor # 1 on bottom			
0424		Far Fosna chasing back on Anchor # 1			
0448		Far Scimitar running out Anchor # 5			
0509		PCP # 8 passed to Far Fosna			
0527		Far Fosna running out Anchor # 8			
0547		Anchor # 8 on bottom			
0549		Anchor # 5 on bottom			
0550		Far Scimitar and Far Fosna chasing back			
0611		PCP # 8 passed back to Kan Tan IV			
0622		PCP # 5 passed back to Kan Tan IV			
0640		PCP # 4 passed to Far Scimitar			
0655		Commence Ballasting			
0700		Far Scimitar running out Anchor # 4			
0721		Anchor # 4 on bottom			
0723		Far Scimitar chasing back on Anchor # 4			
0745		PCP # 4 passed back to Kan Tan IV			
0730		All Stop to Ballasting. Waiting on Cranes			
0800		Recommence Ballasting to Drilling Depth			
1135		Ballasting Complete. Rig at Drilling Draft			
1140		Commence Pretension			
1411		Pretension completed			
1515		Rig in Position			
1616	1631	Pre Spud Fix			
1631		C Simonson waiting to depart Kan Tan IV, B Healy waiting to complete final fix			
HSE DETAILS					
Emergency Muster	0	Toolbox Meetings	1	JHA's	0
Incidents	0	Hazard Cards Submitted	0	HSE / Project Meetings	0
Safety Drills Fire/Abandon	0	Safety Notices Received	0	Vessel inductions	0
Comments:					

Fugro-BTW
PM-F50
DAILY OPERATIONS REPORT



EQUIPMENT RIG	NO.	EQUIPMENT REMOTE	NO.	PERSONNEL	TITLE
Starfix Seis	2	Starfix Wombat (remote)	2	C. Simonson	Surveyor in Charge
Starfix HP DGPS	1	Fluxgate Compass	1	B. Healy	Surveyor
Radio Modem	2	Radio Modem	2		
UPS	2	Starfix HP DGPS	2		
Theodolite	1				
SG Brown Gyro	1				
Starfix.TOPS	2				
VEHICLES:					
CONSUMABLES:					
ACCOMMODATION:					
AUTHORISED CONTRACT CHANGES / COMMENTS:					
Party Chief Signature:		Client Representative Signature:		D O R Number	
		 P. Jenkins		09011-07	

**APPENDIX B :
FINAL POSITIONING DATA**



Starfix Final Fix Report



Fugro Job Number 09011
Job Name Rig Move to Craigow-1
Fugro Personnel C. Simonson, B. Healy
Client Name Australian Drilling Associates Pty Ltd
Client Representative P. Jenkins
Sampling Started 25 Dec 2010 7:09:45 a.m. (local)
Sampling Ended 25 Dec 2010 9:09:49 a.m. (local)
Comment Final Fix at Craigow-1

Intended Offset / Well Location

Geodetic Datum GDA94
Latitude 39°35'31.7384"S
Longitude 145°38'34.5222"E
Projection Universal Transverse Mercator Zone: 55
Easting 383472.000 m
Northing 5616629.000 m
Intended Rig Heading 245.00 °T

Final DGPS Position Fix Summary for Kan Tan IV At Craigow-1, AUS

DS computed from MultiFix.GGA (Primary)

DS Offset From CRP

Starboard 0.000 m
Forward 0.000 m
Up 0.000 m

Geodetic Datum GDA94 WGS84
Latitude 39°35'31.6857"S 39°35'31.6562"S
Longitude 145°38'34.5855"E 145°38'34.5990"E
Projection Universal Transverse Mercator Zone: 55
Easting 383473.486 m
Northing 5616630.646 m
Height 21.788 m (ellipsoidal)

Final Rig Heading 248.11 °T
247.24 °G (Convergence -0.86° Australia/New Zealand)

Gyro C-O 99.98 °

Position is 2.22 m @ 42.93 °T (42.06 °G) FROM intended location

DS computed from 8200HP_APSAT.GGA (Secondary)

Geodetic Datum GDA94
Latitude 39°35'31.6847"S
Longitude 145°38'34.5843"E
Projection Universal Transverse Mercator Zone: 55
Easting 383473.457 m
Northing 5616630.677 m
Height 21.879 m (ellipsoidal)

Position is 2.22 m @ 40.98 °T (40.11 °G) FROM intended location

Positioning System Comparison (System 2 minus System 1)

Delta Easting -0.029 m
Delta Northing 0.030 m
Delta Height 0.091 m

Party Chief: 

Client Representative: 

P. Jenkins
25-Dec-2010



Starfix Final Fix Report



Geodetic Parameters

Geodetic Datum	GDA94		
Ellipsoid	GRS80		
Semi-Major Axis	6378137.000 m		
Inverse Flattening	298.2572221010		
Eccentricity^2	0.006694380022901		
DX	0.0394 m	RX	0.0196 arc seconds
DY	-0.0574 m	RY	0.0164 arc seconds
DZ	-0.1383 m	RZ	0.0202 arc seconds
D Scale	0.0023 ppm		
Rotation Convention	+RZ=-RLongitude		
Projection	Universal Transverse Mercator Zone: 55		
Latitude of Origin	0°00'00.0000"N		
Longitude of Origin	147°00'00.0000"E		
False Easting	500000.000 m		
False Northing	10000000.000 m		
Scale Factor	0.9996		



Starfix Final Fix Report



Final Primary Antenna Position (MultiFix.GGA)

1260 observations used out of a total of 1260

Primary Antenna Offset from CRP

Starboard	7.740 m
Forward	42.530 m
Up	0.000 m

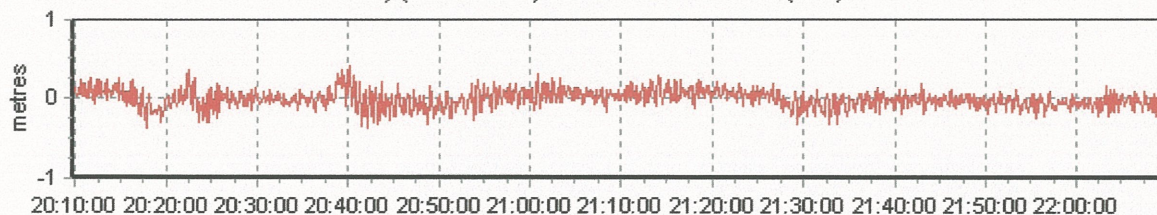
Mean

Geodetic Datum	WGS84
Latitude	39°35'31.9376"S
Longitude	145°38'32.8237"E
Ellipsoidal Ht	21.73 m
Geodetic Datum	GDA94
Latitude	39°35'31.9671"S
Longitude	145°38'32.8102"E
Ellipsoidal Ht	21.79 m
Projection	Universal Transverse Mercator Zone: 55
Easting	383431.272 m
Northing	5616621.333 m
HDOP	0.83
Heading	248.11 °T
Age Of Corrections	17.6 s
Satellites	14

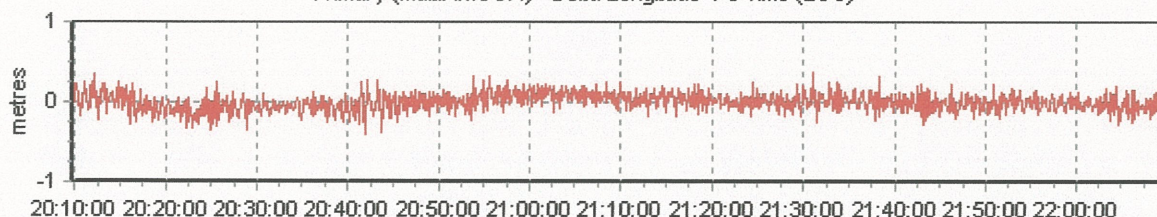
Standard Deviation

Latitude or Northing	0.11 m
Longitude or Easting	0.11 m
Ellipsoidal Height	0.31 m
HDOP	0.12
Heading	0.10 °T

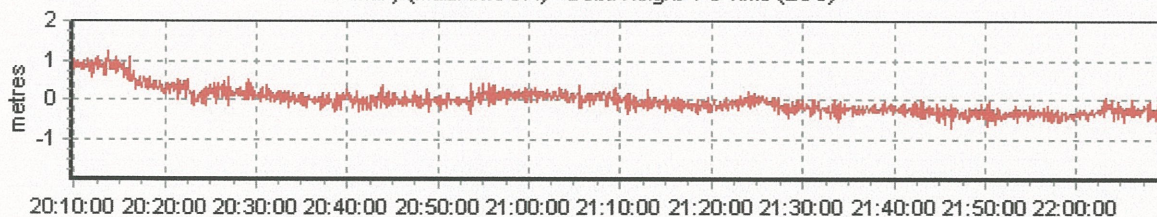
Primary (MultiFix.GGA) - Delta Latitude V's Time (LOC)



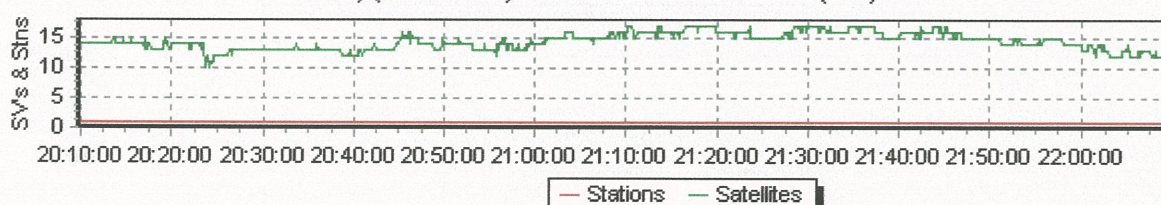
Primary (MultiFix.GGA) - Delta Longitude V's Time (LOC)



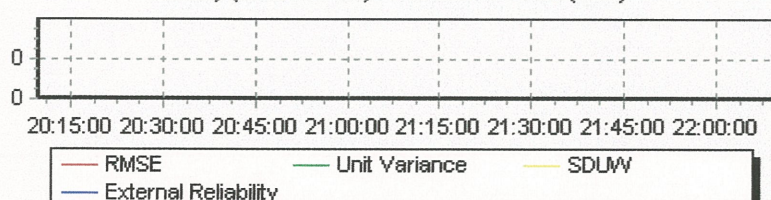
Primary (MultiFix.GGA) - Delta Height V's Time (LOC)



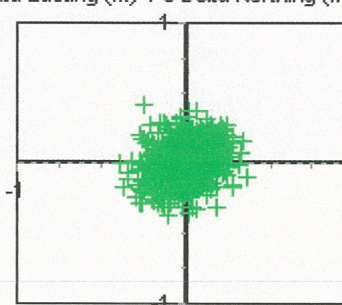
Primary (MultiFix.GGA) - Satellites & Stations V's Time (LOC)



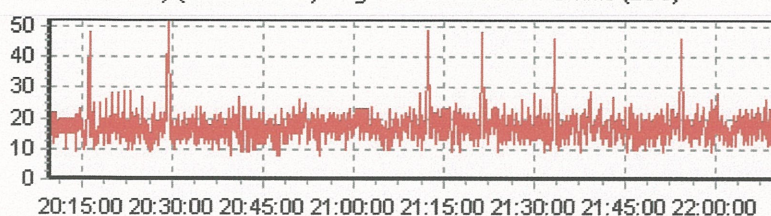
Primary (MultiFix.GGA) - Qualities V's Time (LOC)



Delta Easting (m) V's Delta Northing (m)



Primary (MultiFix.GGA) - Age Of Corrections V's Time (LOC)



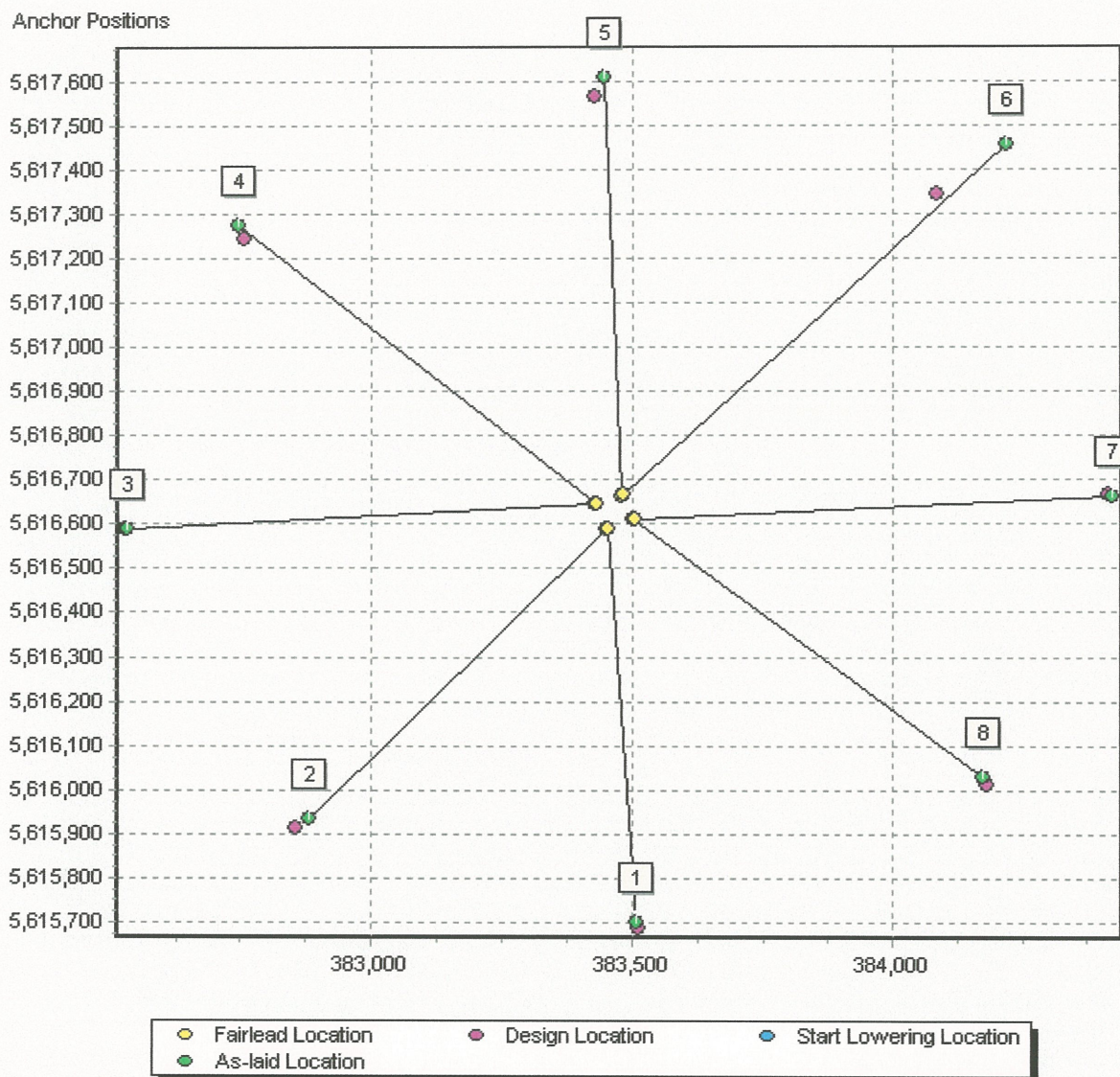


Starfix Final Fix Report



Anchors of Kan Tan IV

Fairlead	Status	Universal Transverse Mercator Zone: 55		
1	Laid	39°36'02.3384"S	145°38'35.6440"E	(Design)
		383513.000 m	5615686.000 m	
		39°36'01.8527"S	145°38'35.4808"E	(As-Laid)
		383508.882 m	5615700.916 m	
		15.474 m @	164°33'59.3213"	(TO design:Grid)
		891.281 m @	176°27'57.6091"	(FL TO A-L:Grid)
2	Laid	39°35'54.6861"S	145°38'08.1630"E	(Design)
		382854.000 m	5615912.000 m	
		39°35'54.0409"S	145°38'09.2916"E	(As-Laid)
		382880.617 m	5615932.300 m	
		33.475 m @	232°40'05.6143"	(TO design:Grid)
		869.322 m @	220°56'27.9290"	(FL TO A-L:Grid)
3	Laid	39°35'32.6034"S	145°37'54.8871"E	(Design)
		382527.000 m	5616588.000 m	
		39°35'32.5492"S	145°37'55.0958"E	(As-Laid)
		382531.953 m	5616589.744 m	
		5.251 m @	250°36'02.7951"	(TO design:Grid)
		897.606 m @	266°35'29.3753"	(FL TO A-L:Grid)
4	Laid	39°35'11.4113"S	145°38'04.9457"E	(Design)
		382757.000 m	5617245.000 m	
		39°35'10.4053"S	145°38'04.5002"E	(As-Laid)
		382745.902 m	5617275.856 m	
		32.791 m @	160°13'02.8757"	(TO design:Grid)
		932.006 m @	312°37'49.5414"	(FL TO A-L:Grid)
5	Laid	39°35'01.2984"S	145°38'33.2297"E	(Design)
		383427.000 m	5617567.000 m	
		39°34'59.9554"S	145°38'34.0810"E	(As-Laid)
		383446.682 m	5617608.710 m	
		46.121 m @	205°15'40.2154"	(TO design:Grid)
		944.881 m @	358°03'09.0252"	(FL TO A-L:Grid)
6	Laid	39°35'08.8513"S	145°39'00.6657"E	(Design)
		384085.000 m	5617344.000 m	
		39°35'05.2872"S	145°39'06.2628"E	(As-Laid)
		384216.871 m	5617455.885 m	
		172.940 m @	229°41'14.0282"	(TO design:Grid)
		1078.642 m @	42°54'47.4639"	(FL TO A-L:Grid)
7	Laid	39°35'30.9649"S	145°39'13.9875"E	(Design)
		384413.000 m	5616667.000 m	
		39°35'31.1154"S	145°39'14.3086"E	(As-Laid)
		384420.727 m	5616662.474 m	
		8.955 m @	300°21'26.2295"	(TO design:Grid)
		917.181 m @	86°50'09.8030"	(FL TO A-L:Grid)
8	Laid	39°35'52.1258"S	145°39'03.8926"E	(Design)
		384182.000 m	5616011.000 m	
		39°35'51.5288"S	145°39'03.6037"E	(As-Laid)
		384174.833 m	5616029.300 m	
		19.653 m @	158°36'43.0909"	(TO design:Grid)
		889.513 m @	130°46'58.2512"	(FL TO A-L:Grid)





Starfix Pre Spud Fix Report



Fugro Job Number 09011
Job Name Rig Move to Craigow-1
Fugro Personnel C. Simonson, B. Healy
Client Name Australian Drilling Associates Pty Ltd
Client Representative P. Jenkins
Sampling Started 23 Dec 2010 4:16:49 p.m. (local)
Sampling Ended 23 Dec 2010 4:31:53 p.m. (local)
Comment Pre Spud Fix at Craigow-1

Intended Offset / Well Location

Geodetic Datum GDA94
Latitude 39°35'31.7384"S
Longitude 145°38'34.5222"E
Projection Universal Transverse Mercator Zone: 55
Easting 383472.000 m
Northing 5616629.000 m
Intended Rig Heading 245.00 °T

Final DGPS Position Fix Summary for Kan Tan IV At Craigow-1, AUS

DS computed from MultiFix.GGA (Primary)

DS Offset From CRP

Starboard 0.000 m
Forward 0.000 m
Up 0.000 m

Geodetic Datum GDA94 WGS84
Latitude 39°35'31.6742"S 39°35'31.6447"S
Longitude 145°38'34.5767"E 145°38'34.5901"E
Projection Universal Transverse Mercator Zone: 55
Easting 383473.270 m
Northing 5616630.999 m
Height 22.110 m (ellipsoidal)
Final Rig Heading 248.15 °T
247.28 °G (Convergence -0.86° Australia/New Zealand)
Gyro C-O 99.98 °
Position is 2.37 m @ 33.30 °T (32.43 °G) FROM intended location

The approximate as-dropped positions of the rig anchors are:

Anchor	Easting (m)	Northing (m)	Range (m)	Bearing (°T)
1	383508.9	5615700.9	891.7	176.5
2	382880.6	5615932.3	869.4	220.9
3	382532.0	5616589.7	897.4	266.6
4	382745.9	5617275.9	931.6	312.6
5	383446.7	5617608.7	944.5	358.1
6	384216.9	5617455.9	1078.5	42.9
7	384420.7	5616662.5	917.4	86.9
8	384174.8	5616029.3	889.9	130.8

Party Chief: 

Client Representative: 

P. Jenkins
23-Dec-2010

APPENDIX C :
RIG MOVE POSITIONING SYSTEM SETUP, CHECKS AND CALIBRATIONS



Starfix Pre Rig Move Fix Report



Fugro Job Number 09011
Job Name Rig Move to Craigow-1
Fugro Personnel C. Simonson, B. Healy
Client Name Australian Drilling Associates Pty Ltd
Client Representative P. Jenkins
Sampling Started 18 Dec 2010 11:26:50 a.m. (local)
Sampling Ended 18 Dec 2010 11:41:55 a.m. (local)
Comment Pre Rig Move Fix at Silvereye-1

Intended Offset / Well Location

Geodetic Datum GDA94
Latitude 39°54'19.8250"S
Longitude 145°03'32.6409"E
Projection Universal Transverse Mercator Zone: 55
Easting 334088.708 m
Northing 5580927.328 m
Intended Rig Heading 245.00 °T

Final DGPS Position Fix Summary for Kan Tan IV At Silvereye-1, AUS

DS computed from MultiFix.GGA (Primary)

DS Offset From CRP

Starboard 0.000 m
Forward 0.000 m
Up 0.000 m

Geodetic Datum GDA94 WGS84
Latitude 39°54'19.8305"S 39°54'19.8010"S
Longitude 145°03'32.6413"E 145°03'32.6550"E
Projection Universal Transverse Mercator Zone: 55
Easting 334088.723 m
Northing 5580927.158 m
Height 21.725 m (ellipsoidal)

Final Rig Heading 246.24 °T
244.99 °G (Convergence -1.25° Australia/New Zealand)

Gyro C-0 99.98 °

Position is 0.17 m @ 176.24 °T (175.00 °G) FROM intended location

Party Chief:_____ Client Representative:_____

Configuration Summary.txt

25/12/2010 00:00:00 LOC
*** FUGRO STARFIX.SEIS ***

```
Header : Project Name      : Rig Move to Craigow-1
        Project Number    : 09011
        Project Description :
        Project Location   : Craigow-1, AUS
        Client             : Australian Drilling Associates Pty
Ltd
        Client Representative : P. Jenkins
        Client Reference Number :
        Geophysical Contractor : Fugro
        Positioning Contractor : Fugro
        Positioning Processing Contractor : Fugro
        Fugro Personnel      : C. Simonson - Senior Surveyor
                             : B. Healy - Surveyor
        Configuration Created At : 24/12/2010 22:49:36 LOC
        Time Source           : MasterSource
        Time Offset           : 11:00 (Using LOC)
        Vessel                : Kan Tan IV
```

```
Files Runline :
C:\Fugro_Projects\09011\Settings\Data\Craigow-1_Runlines.srn
  FLF          : (None)
  Centreline   : (None)
  Database     : (None)
  Vector       : C:\Fugro_Projects\09011\Vector\GDA94_147_zone55.dgn
  Waypoint     :
C:\Fugro_Projects\09011\Settings\Data\Craigow-1_Waypoint.swy
  Client Logo  : C:\Fugro_Projects\09011\Settings\Data\ADA Logo.jpg
  Coverage     :
C:\Fugro_Projects\09011\RawData\NonSession\09011.Coverage
  Swath        :
C:\Fugro_Projects\09011\RawData\NonSession\09011.Swath
  SVP Well     : (None)
```

```
Logging: Directory : C:\Fugro_Projects\09011\RawData\NonSession\
```

```
Fixing : Mode      : Time
        Start Mode : Manual
        Stop Mode  : Manual
        Fix Devices :
          Auto-Fix  : SEIS
          Manual    : SEIS
          External  : (None)
          Offset    : (None)
          MOB       : (None)
        Fix Interval : 30.000s
        Reset at SOL : No
        Next Fix No. : 26783
        Fix Increment : 1
        Start FFID   : 26783
        Start Man. Fix : 2
        Early Start   : 5s
        Logging Start : 5s
        Fix Position  : From Filter
```

```
Datum 1: Datum      : GDA94-ITRF2010.50
        Spheroid    : GRS80
        SemiMajor Axis : 6378137.000
        1/Flattening  : 298.2572221010
        Eccentricity^2 : 0.006694380022901
```

```
Projection : Universal Transverse Mercator
Grid Name  :
Lat. Origin : 0d00'00.0000"N
Lon. Origin : 147d00'00.0000"E
False East : 500000.000m
```

Configuration Summary.txt

False North : 10000000.000m
Scale Factor : 0.9996
Convergence : Australia/New Zealand

Datum 2: Datum : WGS84
Spheroid : WGS84
SemiMajor Axis: 6378137.000
1/Flattening : 298.2572235630
Eccentricity^2: 0.006694379990141

Datum2>1:Parameters : From WGS84 to GDA94-ITRF2010.50
DX : 0.0394m RX : 0.0196"
DY : -0.0574m RY : 0.0164"
DZ : -0.1383m RZ : 0.0202"
D Scale : 0.0023ppm Rot Convention: +RZ=-RLongitude

Sundry : Vertical Datum:
Ell. Sep. : 0.0000m
Distances : Grid
Bearings : Grid
Units : metres
Conversion : 1.0000000000

Main Vessel : Kan Tan IV
: Kan Tan IV

Nav. 1 : System : TOPS_OCSAT.GGA
Type : Lat - Long
Priority : 2
Time-out : 5.0s
Offset Name : PORT_GPS
X Offset : -24.12m
Y Offset : 36.92m
Ant. Height : 0.00m

Nav. 2 : System : 8200HP_APSAT.GGA
Type : Lat - Long
Priority : 3
Time-out : 5.0s
Offset Name : STBD_GPS
X Offset : 7.74m
Y Offset : 42.53m
Ant. Height : 0.00m

Nav. 3 : System : RAW_TOPS_HDG
Type : Lat - Long
Priority : 4
Time-out : 5.0s
Offset Name : STBD_GPS
X Offset : 7.74m
Y Offset : 42.53m
Ant. Height : 0.00m

Nav. 4 : System : MultiFix.GGA (In Use)
Type : Lat - Long
Priority : 1
Time-out : 5.0s
Offset Name : STBD_GPS
X Offset : 7.74m
Y Offset : 42.53m
Ant. Height : 0.00m

Dead Reckoning: No Timeout: 30.0s

Heading 1 : System : TOPS_HDG.HDT (In Use)
Priority : 1
Time-out : 3.0s
Offset Name : STBD_GPS
X Offset : 7.74m
Y Offset : 42.53m
Z Offset : 0.00m
Correction : 99.98 Degrees

Configuration Summary.txt

Heading 2 : System : SGBrown
 Priority : 2
 Time-out : 3.0s
 Offset Name : CRP
 X Offset : 0.00m
 Y Offset : 0.00m
 Z Offset : 0.00m
 Correction : 177.20 Degrees

Offsets:	Name	X	Y	Z
	CRP	0.00	0.00	0.00
	PORT_GPS	-24.12	36.92	0.00
	STBD_GPS	7.74	42.53	0.00
	DS	0.00	0.00	0.00
	Tow Point	0.75	47.00	0.00

Fairlead:	Name	X	Y	Z
1	-29.46	33.55	0.00	
2	-29.45	37.53	0.00	
3	29.10	37.15	0.00	
4	29.10	33.20	0.00	
5	29.05	-17.94	0.00	
6	29.05	-21.89	0.00	
7	-29.50	-21.74	0.00	
8	-29.50	-17.79	0.00	

O/Ts : Steered Point: O/T 0
 Shot : O/T 0

O/T 0	PR Kan Tan IV/CRP	Flt:	Pos Sys: Datum In-Use
O/T 1	PR Kan Tan IV/6_1	Flt:	Frlead : 6
O/T 3	PR Kan Tan IV/Tow Point	Flt:	Fxd Off: Tow Point
O/T 4	PR Kan Tan IV/OCSAT.GGA DAT	Flt:	Pos Sys: TOPS_OCSAT.GGA
Datum			
O/T 5	PR Kan Tan IV/APSAT.GGA DAT	Flt:	Pos Sys: 8200HP_APSAT.GGA
Datum			

O/T Legend: PR=Print LG=Log SN=Snap to line

Waypoint : Craigow1
 Position : 39d35'31.7384"S 145d38'34.5222"E 0.0m
 383472.000mE 5616629.000mN 0.0m

Printing:
 Fix mark rate : 1
 Config Changes : No
 System Timeouts : No
 Concise Header : No

Software:Starfix Suite 9.1 (Service Pack 2)
 RC: Starfix Suite 9.1 COP RC3
 RC: Starfix Suite 9.1 FBFView RC5
 RC: Starfix Suite 9.1 GPS (Shared) RC2
 RC: Starfix Suite 9.1 RTCM3In RC2
 RC: Starfix Suite 9.1 TrimbleDCF RC2
 RC: Starfix Suite 9.1 FinalFix RC1
 RC: Starfix Suite 9.1 MeanPositionReport RC2
 RC: Starfix Suite 9.1 IOWIN RC12
 HF: Starfix Suite 9.1 ConfigIn HF1
 HF: Starfix Suite 9.1 FugroXpIn HF1
 HF: Starfix Suite 9.1 LeicaGSIIIn HF1
 HF: Starfix Suite 9.1 SeisEngine HF2
 HF: Starfix Suite 9.1 Time Multicast HF2
 Seis Ver 4.02.0015
 SeisEngine Ver 4.02.0018
 Display Ver 4.02.0016
 Anchors Ver 4.01.0026

Fugro Party Chief: _____ Client
Representative: _____

**APPENDIX D :
CLIENT SUPPLIED INFORMATION**

4.0 General Information

4.1 Well Data

4.1.1 General License and Field Data

Well Name	Craigow-1
Well Type	Exploration
Field Name	Craigow
License/Permit	T/47P
Field Operator	Tap (Shelfal) Pty Ltd
Participants	Tap (Shelfal) Pty Ltd (75%) Jubilant Energy Ltd (25%)
Expected Spud Date	December 2010
Total Depth	1800 mTVDSS / 1826 mTVDRT
Well Type	Vertical
Water Depth	74.0 m LAT
End of Well Status	Plugged and Abandoned

4.1.2 Surface Location

Datum	Geocentric Datum of Australia 1994 (GDA94)
Projection	Map Grid of Australia Zone 55 (MGA55)
Easting	383 472 m E
Northing	5 616 629 m N
Longitude	145° 38' 34.52" E
Latitude	39° 35' 31.74" S
Surface Tolerance	25m radius, centred on proposed well location
Rig Heading	245°

4.1.3 Total Depth Location

TD Location	Vertical Well: Same as surface location

Appendix 4: Directional Drilling MWD and LWD End of Well Report

**End of Well Report
for
TAP Oil Ltd**

Rig : Kan Tan IV
Well : Craigow-1
Field : Craigow
Country : Australia
Job Number : AU-FE-0007779925
Date : 25-Dec-10
API Number :

Table of Contents

1. General Information
2. Operational Overview
3. Summary of MWD Runs
4. Bitrun Summary
5. Directional Survey Data

General Information

Company:	TAP Oil Ltd
Rig:	Kan Tan IV
Well:	Craigow-1
Field:	Craigow
Lease Name:	
State:	Victoria
County:	
Country:	Australia
API Number:	
Sperry Job Number:	AU-FE-0007779925
Job start date:	25-Dec-10
Job end date:	31-Dec-10
North reference:	Grid
Declination:	12.519 deg
Dip angle:	-70.179 deg
Total magnetic field:	60830 nT
Date of magnetic data:	24 December, 2010
Wellhead coordinates N:	39 deg. 35 min 31.69 sec South
Wellhead coordinates E:	145 deg. 38 min 34.59 sec East
Vertical section direction:	0.00 deg
Unit Number:	SSH-40
MWD Engineers:	A. Ingram, S. Allan
Company Representatives:	P. Jenkins
Company Geologist:	A. Hodgson,

Operational Overview

Sperry Drilling was contracted by Tap Oil Ltd to provide Logging While Drilling (LWD) services for the drilling of Craigow-1. The well was drilled by Maersk operators using the Kan Tan IV rig.

17 ½" Hole Section:

This section was drilled in one bit run using a conventional rotary assembly.

A Pressure Case Directional (PCDC) was run for well bore surveying and a Pressure Case Gamma (PCGR) utilized for gamma data.

The section was drilled from 157mMDRT to section TD at 745mMDRT. Pulled out of hole to run 13.375" casing.

12 ¼" Hole Section:

This section was drilled in two bit runs (MWD Run 200, 300) using Sperry Drilling Logging While Drilling tool suite which comprised of the following:

Dual Gamma Ray (DGR) and Electromagnetic Wave Resistivity (EWR P-4) for formation evaluation. The Drilling String Dynamics (DDSR-DGR) and Pressure while Drilling (PWD) tools were used for drilling optimization. Well bore surveying was done with a Pressure Case Directional (PCDC) sonde. This section was drilled using Sperry Drilling performance motor.

12 ¼" hole was drilled from 745.0mMDRT to well TD of 1800.0mMDRT

Summary of MWD runs

[illegible]

Bitrun Summary

RUN TIME DATA

MWD Run	: 100	Run Start	: 24-Dec-10 23:59	BRT Hrs	: 29.02 hr	Circ. Hrs	: 19.38 hr
Rig Bit No	: 2	Run End	: 26-Dec-10 05:00	Hole Size	: 17.500 in	Oper. Hrs	: 19.38 hr

DRILLING DATA

Start Depth	: 157.00 m	Footage	: 588.00 m	Avg WOB	: 10.0 klb	Avg ROP	: 58.00 m/hr
End Depth	: 745.00 m	Avg Flow Rate	: 1150.00 gpm	Avg TOB	: 1.4000 f-kp	Avg SPP	: 2300 psig
Drilling Hours	: 12.530 hr	Avg RPM	: 80 rpm	Avg Bend	: 0.00 f-p		

MUD DATA

Mud Type	: Sea Water						
Weight	: 8.70 ppg	Viscosity	: 188.00 spqt	PV	: 6 cP	YP	: 59.00 lhf2
Chlorides	: 36000.00 ppm	Max Temp.	: 25.00 degC	% Solids	: 0.00 %	% Sand	: 0.00 %
pH	: 9.00 pH	Fluid Loss	: 0 mptm	% Oil	: 0.00 %	O:W	: 0:99

MWD PERFORMANCE

Tool OD	: 9.50 in	Type	: D/GWD	Min. Inc.	: 0.00 deg	Min. Inc. Depth	: 100.000 m
Final Az.	: 20.35 deg	Max Op. Press.	: 1105 psig	Max Inc.	: 0.50 deg	Max Inc. Depth	: 379.670 m
MWD Real-time %		: 100 %		MWD Recorded %		: 100 %	

	Length (m)	Dist From Bit (m)		Length (m)	Dist From Bit (m)
5" X 3" HWDP #49.3 - NC50(IF) 5.00 in OD / 3.00 in ID	141.14	251.10			
X-Over Sub 8.00 in OD / 2.88 in ID	1.22	109.96	HOC 9.50 in OD / 4.13 in ID	9.90	8.59
8 1/4" X 2.8125" - 160.6# Drill Collar 8.25 in OD / 2.81 in ID	18.89	108.74	* Positive Pulser - SN : 10482110		
		89.85	* PCG Sonde - SN : 11061956		
Jar 8.00 in OD / 2.88 in ID	9.16		* PCDC Sonde		
		80.69			
8 1/4" X 2.8125" - 160.6# Drill Collar 8.25 in OD / 2.81 in ID	46.84				
X-Over Sub 9.50 in OD / 2.81 in ID	1.13	33.85			
Spiral Drill Collar 9.50 in OD / 3.00 in ID	9.41	32.72			
Stabilizer 9.50 in OD / 3.00 in ID	2.16	23.31			
Spiral Drill Collar 9.50 in OD / 3.00 in ID	9.45	21.15			
		11.70			
MWD	9.90				
Bit Sub 9.50 in OD / 3.00 in ID	1.15	1.80			
Tricone 9.50 in OD / 3.00 in ID	0.65	0.65			

COMMENTS

Drill 17 1/2" hole to section TD at 745mMDRT using our Directional Gamma tools.

Bitrun Summary

RUN TIME DATA

MWD Run	: 200	Run Start	: 28-Dec-10 00:00	BRT Hrs	: 57.00 hr	Circ. Hrs	: 23.25 hr
Rig Bit No	: 3	Run End	: 30-Dec-10 09:00	Hole Size	: 12.250 in	Oper. Hrs	: 57.00 hr

DRILLING DATA

Start Depth	: 745.00 m	Footage	: 566.00 m	Avg WOB	: 15.0 klb	Avg ROP	: 67.00 m/hr
End Depth	: 1311.00 m	Avg Flow Rate	: 990.00 gpm	Avg TOB	: 1.4000 f-kp	Avg SPP	: 2465 psig
Drilling Hours	: 15.068 hr	Avg RPM	: 74 rpm	Avg Bend	: 0.00 f-p		

MUD DATA

Mud Type	: Polymer						
Weight	: 9.90 ppg	Viscosity	: 57.00 spqt	PV	: 20 cP	YP	: 23.00 lbf/ft ²
Chlorides	: 49000.00 ppm	Max Temp.	: 52.94 degC	% Solids	: 6.10 %	% Sand	: 0.00 %
pH	: 9.30 pH	Fluid Loss	: 5 mptm	% Oil	: 0.00 %	O:W	: 0:90

MWD PERFORMANCE

Tool OD	: 8.00 in	Type	: PFE	Min. Inc.	: 0.25 deg	Min. Inc. Depth	: 763.590 m
Final Az.	: 285.68 deg	Max Op. Press.	: 29986 psig	Max Inc.	: 1.22 deg	Max Inc. Depth	: 1168.430 m
MWD Real-time %		: 99 %		MWD Recorded %		: 100 %	

	Length (m)	Dist From Bit (m)		Length (m)	Dist From Bit (m)
15 x 5" X 3" HWDP #49.3 - NC50(IF) 5.00 in OD / 3.00 in ID	141.14	264.74	HOC 8.00 in OD / 4.02 in ID * Positive Pulser - SN : 10450060 * PCM Sonde - SN : 11055350	3.10	25.00
X-Over Sub 8.25 in OD / 2.75 in ID	1.22	123.60			23.58
2 X 8 1/4" X 2.8125" - 160.6# Drill Collar 8.25 in OD / 2.81 in ID	18.89	122.38	8" HCIM Collar 8.00 in OD / 1.92 in ID * HCIM Insert - SN : 11071380	1.51	
8" Sledgehammer Jar 7.94 in OD / 2.75 in ID	9.16	103.49	8" PWD 8.00 in OD / 1.92 in ID	1.35	22.07
7 x 8 1/4" X 2.8125" - 160.6# Drill Collar 8.25 in OD / 2.81 in ID	65.52	94.33			
Integral Blade 8.00 in OD / 2.75 in ID	2.13	28.81	8" EWR-P4 Collar 8.00 in OD / 1.98 in ID * EWR-P4 Insert - SN : 10486171	3.72	18.51
MWD	14.43	26.68			
Stabilizer 8.13 in OD / 2.88 in ID	1.99	12.25	8" DGR Collar 8.00 in OD / 1.92 in ID * DDS Insert * DGR Insert - SN : 10907802	1.97	16.16
Float Sub 7.94 in OD / 2.88 in ID	0.71	10.26			
9 5/8" SperryDrill Lobe 6/7 - 5.0 stg 9.62 in OD / 6.14 in ID	9.25	9.55	Non Mag Flex Collar 8.00 in OD / 3.50 in ID * PCDC Sonde - SN : 11297502	2.78	13.20
PDC 12.25 in OD / 3.00 in ID	0.30	0.30			

COMMENTS

Drill out cement and shoetrack, 3m of new formation then carry out LOT. Drill ahead to 1311mMDRT where decision was made to POOH due to low ROPs.

Bitrun Summary

RUN TIME DATA

MWD Run	: 300	Run Start	: 30-Dec-10 11:14	BRT Hrs	: 32.78 hr	Circ. Hrs	: 18.69 hr
Rig Bit No	: 4	Run End	: 31-Dec-10 20:01	Hole Size	: 12.250 in	Oper. Hrs	: 32.78 hr

DRILLING DATA

Start Depth	: 1311.00 m	Footage	: 489.00 m	Avg WOB	: 9.3 klb	Avg ROP	: 38.14 m/hr
End Depth	: 1800.00 m	Avg Flow Rate	: 993.00 gpm	Avg TOB	: 1.5000 f-kp	Avg SPP	: 3042 psig
Drilling Hours	: 12.814 hr	Avg RPM	: 75 rpm	Avg Bend	: 0.00 f-p		

MUD DATA

Mud Type	: Polymer						
Weight	: 10.00 ppg	Viscosity	: 50.00 spqt	PV	: 18 cP	YP	: 22.00 lbf/2
Chlorides	: 53000.00 ppm	Max Temp.	: 60.78 degC	% Solids	: 5.80 %	% Sand	: 0.00 %
pH	: 9.00 pH	Fluid Loss	: 4 mptm	% Oil	: 0.00 %	O:W	: 0:90

MWD PERFORMANCE

Tool OD	: 8.00 in	Type	: PFE	Min. Inc.	: 1.05 deg	Min. Inc. Depth	: 1489.200 m
Final Az.	: 292.66 deg	Max Op. Press.	: 4862 psig	Max Inc.	: 1.48 deg	Max Inc. Depth	: 1773.440 m
MWD Real-time %		: 98 %		MWD Recorded %		: 100 %	

	Length (m)	Dist From Bit (m)		Length (m)	Dist From Bit (m)
5" X 3" HWDP #49.3 - NC50(IF) 5.00 in OD / 3.00 in ID	9.60	65.17	HOC 8.00 in OD / 4.15 in ID * Positive Pulser - SN : 11228089 * PCM Sonde - SN : 11227428	3.10	25.00
X-Over Sub 8.00 in OD / 2.79 in ID	1.22	55.57			24.05
8 1/4" X 2.8125" - 160.6# Drill Collar 8.25 in OD / 2.81 in ID	9.14	54.35	8" HCIM Collar 8.00 in OD / 1.92 in ID * HCIM Insert - SN : 11071380	1.51	
8" Sledgehammer Jar 8.12 in OD / 2.75 in ID	6.78	45.20	8" PWD 8.00 in OD / 1.92 in ID	1.35	22.53
8 1/4" X 2.8125" - 160.6# Drill Collar 8.25 in OD / 2.81 in ID	9.14	38.42			
Integral Blade 8.00 in OD / 2.79 in ID	2.13	29.28	8" EWR-P4 Collar 8.00 in OD / 1.98 in ID * EWR-P4 Insert - SN : 10486171	3.71	18.51
MWD	13.85	27.15			
Stabilizer 8.00 in OD / 2.88 in ID	1.99	13.30	8" DGR Collar 8.00 in OD / 1.92 in ID * DDS Insert * DGR Insert - SN : 10907802	1.39	16.16
Float Sub 7.94 in OD / 2.88 in ID	0.71	11.31			
9 5/8" SperryDrill Lobe 6/7 - 5.0 stg 9.62 in OD / 6.14 in ID	10.30	10.60	Non Mag Flex Collar 8.00 in OD / 3.50 in ID * PCDC Sonde - SN : 11297502	2.78	13.20
PDC 12.25 in OD / 3.00 in ID	0.30	0.30			

COMMENTS

Run in hole with new bit and drill to well TD of 1800mMDRT.

Directional Survey Data

Tie-in

0.000	0.00	0.00	0.000	0.000 N	0.000 E	***

Measured Depth (m)	Inclination (deg)	Direction (deg)	Vertical Depth (m)	Latitude (m)	Departure (m)	Vertical Section (m)	Dogleg (°/30m)
100.000	0.00	0.00	100.000	0.000 N	0.000 E	0.000	0.00
176.220	0.15	218.73	176.220	0.080 S	0.060 W	0.050	0.06
204.250	0.32	233.37	204.250	0.150 S	0.150 W	0.130	0.19
235.960	0.33	219.33	235.960	0.280 S	0.280 W	0.240	0.08
297.000	0.40	91.96	297.000	0.420 S	0.180 W	0.130	0.32
323.330	0.18	99.51	323.330	0.430 S	0.040 W	-0.010	0.25
351.470	0.49	238.19	351.470	0.500 S	0.100 W	0.040	0.68
379.670	0.50	200.42	379.670	0.680 S	0.250 W	0.170	0.34
437.630	0.22	246.22	437.630	0.960 S	0.440 W	0.330	0.20
466.660	0.20	245.13	466.660	1.010 S	0.530 W	0.420	0.02
494.840	0.09	24.79	494.840	1.010 S	0.570 W	0.450	0.29
523.840	0.09	12.10	523.840	0.960 S	0.560 W	0.440	0.02
553.900	0.22	159.47	553.900	0.990 S	0.530 W	0.410	0.30
583.400	0.25	220.99	583.400	1.100 S	0.550 W	0.420	0.25
613.000	0.13	187.03	613.000	1.180 S	0.600 W	0.460	0.16
642.750	0.24	156.95	642.740	1.270 S	0.580 W	0.430	0.14
670.880	0.11	195.47	670.870	1.350 S	0.560 W	0.410	0.18
700.020	0.09	260.83	700.010	1.380 S	0.590 W	0.430	0.11
723.950	0.07	20.35	723.940	1.370 S	0.610 W	0.450	0.17
763.590	0.25	253.49	763.580	1.370 S	0.680 W	0.520	0.23
792.600	0.26	270.64	792.590	1.390 S	0.810 W	0.640	0.08
821.350	0.25	230.08	821.340	1.430 S	0.920 W	0.750	0.18
850.440	0.38	252.66	850.430	1.500 S	1.060 W	0.880	0.18
879.880	0.57	252.68	879.870	1.570 S	1.290 W	1.110	0.19
909.230	0.65	254.81	909.220	1.660 S	1.590 W	1.400	0.08
938.410	0.83	249.82	938.400	1.770 S	1.950 W	1.740	0.20
967.740	0.89	247.97	967.730	1.930 S	2.360 W	2.130	0.07
996.770	0.79	253.44	996.750	2.070 S	2.760 W	2.510	0.13
1025.870	0.94	263.63	1025.850	2.160 S	3.190 W	2.930	0.22
1054.700	0.88	263.07	1054.680	2.210 S	3.650 W	3.370	0.06
1083.470	0.88	259.60	1083.440	2.280 S	4.080 W	3.800	0.06
1111.870	0.91	254.98	1111.840	2.370 S	4.520 W	4.220	0.08
1140.070	0.94	262.34	1140.030	2.460 S	4.960 W	4.650	0.13
1197.980	1.20	275.42	1197.930	2.470 S	6.040 W	5.720	0.18
1226.830	1.18	286.27	1226.780	2.360 S	6.620 W	6.310	0.23
1255.820	1.22	283.77	1255.760	2.200 S	7.210 W	6.910	0.07
1287.020	1.11	285.68	1286.960	2.040 S	7.820 W	7.540	0.11
1313.560	1.27	284.73	1313.490	1.900 S	8.350 W	8.090	0.18
1342.870	1.22	279.60	1342.790	1.760 S	8.980 W	8.720	0.12
1371.530	1.08	282.39	1371.450	1.650 S	9.540 W	9.290	0.16
1401.260	1.20	284.21	1401.170	1.520 S	10.120 W	9.880	0.13
1430.650	1.15	282.94	1430.560	1.370 S	10.700 W	10.480	0.06
1489.200	1.05	289.05	1489.090	1.070 S	11.780 W	11.590	0.08
1517.010	1.18	285.80	1516.900	0.910 S	12.300 W	12.120	0.16
1547.040	1.29	286.90	1546.920	0.720 S	12.920 W	12.750	0.11

Directional Survey Data

Measured Depth (m)	Inclination (deg)	Direction (deg)	Vertical Depth (m)	Latitude (m)	Departure (m)	Vertical Section (m)	Dogleg (°/30m)
1603.820	1.27	287.88	1603.690	0.340 S	14.130 W	14.000	0.02
1632.100	1.33	283.81	1631.960	0.170 S	14.750 W	14.630	0.12
1661.120	1.22	294.79	1660.970	0.040 N	15.350 W	15.260	0.28
1690.110	1.35	286.89	1689.960	0.270 N	15.960 W	15.890	0.23
1773.440	1.48	292.66	1773.260	0.970 N	17.890 W	17.890	0.07
1800.000	1.54	292.16	1799.810	1.240 N	18.540 W	18.560	0.07

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 0.00 DEGREES (GRID)
A TOTAL CORRECTION OF 11.65 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD
HORIZONTAL DISPLACEMENT (CLOSURE) AT 1800.00 METRES
IS 18.58 METRES ALONG 273.83 DEGREES (GRID)

Appendix 5: Mudlogging End of Well Report



Craigow - 1

FINAL WELL REPORT

Prepared by



Geoservices Australasia Pty Ltd
14 Desmond Avenue
Marleston, S.A. 5033
Tel: 08-8297 5010
Fax: 08-8297 5125

Tap Oil Ltd
Lv 1, 17 Colin Street
West Perth, W.A. 6005
Ph: 08-9485 1000
Fax: 08-94851060

CONTENTS

Page No.

1.0	WELL DATA SUMMARY	3
2.0	GENERAL INFORMATION.....	4
2.1	Geoservices Personnel	5
2.2	Contractor Information	5
2.3	Days vs. Depth Progress Chart.....	6
2.4	Sample Collection & Distribution Summary	7
3.0	GEOLOGICAL INFORMATION	
3.1	Lithological Summary	7
3.2	Gas Ratio Interpretation – Introduction.....	13
3.3	Explanation of Gas Composition Diagrams	13
3.4	Explanation of Wetness/Balance/Character Curves	14
3.5	Gas Composition Discussion	15
3.6	Gas Peaks	17
4.0	PRESSURE ANALYSIS	
4.1	Pressure Summary	17
5.0	DRILLING INFORMATION	
5.1	Bit Records	18
5.2	Mud records	18
5.3	Drilling Summary.....	20
5.4	914 mm (36") Hole Section	20
5.5	311 mm (17½") Hole Section	20
5.6	216 mm (12¼") Hole Section	21
6.0	ENCLOSURES	22

1.0 WELL DATA SUMMARY

Operator: Tap (Shelfa) Pty Ltd
Well name: Craigow-1
Basin: Bass
Permit: T/47P
Surface location: Latitude: 39° 35' 31.6857" S
Longitude: 145° 38' 34.5855" E
2.22m @ 42.93°T (42.06°G)
from intended location

Total Depth: 1800mMDRT
1799.92mTVDRT

Rotary Table Elevation.: 26 m above MSL
Sea-water depth: 74.0 m below MSL
Rig Arrived: 1515 hr 23rd December, 2010
Spud Well: 0300 hr 24th December, 2010
Bit Reached TD: 1230 hr 31st December, 2010
Well Status: Plugged and abandoned

Rig name: Kan Tan IV (semi-sub)
Drilling Contractor: Maersk

Drilling Phases

Diameter (inch)	From (m)	To (m)	Mud Type
914mm (36")	100.0	159.0	Seawater / Bentonite sweeps
445mm (17½")	159.0	745.0	Seawater / Bentonite sweeps
311mm (12¼")	745.0	1800.0	KCI / PHPA

Cased Hole

Casing Diameter (inch)	Casing Type	Shoe Depth (m)
762mm (30")	Conductor	157.0 mMDRT
340mm (13⅜")	Surface	735.0 mMDRT

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

2.0 GENERAL INFORMATION

Craigow-1 is located in the Bass Basin, approximately 140km from the north coast of Tasmania in 74m of water. It was proposed to test a simple robust anticlinal structure located in the Cormorant Trough in the north-western part of the Bass Basin.

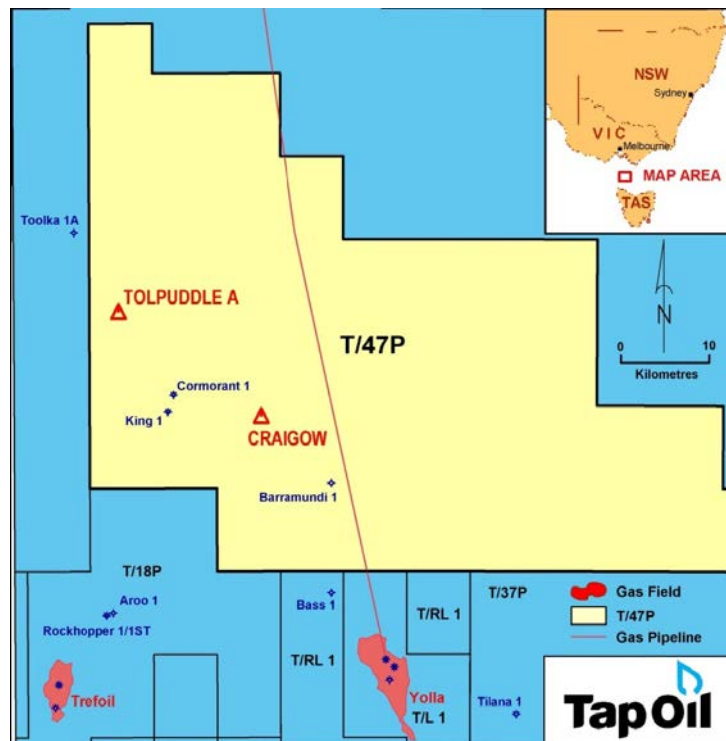
The well was designed as a vertical oil test with a primary target at the 0450 seismic marker level within the Upper Eastern View Group. Good quality sandstones at this level are present at Cormorant-1 and King-1, where they are described as being fine to coarse grained.

The secondary objective was also an oil test at the 0350 seismic marker level near the top Eastern View Coal Measures.

Craigow-1 was spudded on 24th December 2010, and reached a total depth of 1800.0 mMDRT (1799.92 mTVDRT) on 31st December 2010.

No significant gas or fluorescence was observed while drilling this well.

There were no overpressure zones observed during the drilling of this well.



Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

2.1 Geoservices Personnel

ALS Engineers:	Paul Currie Laurence Hannon
Mudloggers:	Kirupan Velauthapillai Trenton Frost
Sample Catchers:	Ken Van Vaught Kye Hensen

2.2 Contractor Information

Drilling:	Maersk Drilling Property
Rig name:	Kan Tan 4
Rig type:	Semi-submersible
Mud logging:	Geoservices Australasia
Mud engineering:	Baroid
MWD:	Halliburton-Sperry Sun
Wireline logging:	Schlumberger Wireline
Cementing:	Halliburton Cementing
Well head completion:	Dril-Quip
ROV:	Fugro
Casing:	Premium Casing Services
Helicopters:	Bristow

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

2.3 Days vs. Depth Progress Chart

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

2.4 Sample Collection Summary

Sample Type	Number of sets	Quantity per set	Sampling interval	From (m)	To (m)
Lightly was and dried	1	200 grams	10 metres 5 metres	745 1000	1000 1826
Washed and Dried	3	200 grams	10 metres 5 metres	745 1000	1000 1826
Samplex Trays	1	-	10 metres 5 metres	745 1000	1000 1826
Mud Samples	1	0.5L	As Required	745	1826
Isotube	-	3	1200,1350, 1507m		

Cuttings and Sample Distribution

Company	Lightly Washed	Unwashed	Samplex Trays	Mud
Tap(Shelfal) Pty Ltd	X	X	X	X
Mineral Resources Tasmania	X	-	-	-
Geoscience Australia	X	-	-	-

3.0 GEOLOGICAL INFORMATION

3.1 Lithological Summary

All returns to the seabed prior to 745.0 mMDRT.

INTERVAL: 745.0 – 780.0 m MDRT (745.0 to 779.91 m TVDRT)

ROP (Range): 9 - 216 m/h

Av. ROP: 87 m/h

Claystone: light to medium grey, pale green grey, soft-friable, blocky, silty, calcareous, mostly indeterminate fossil and shell fragments, forams, trace carbonaceous specks, trace cryptocrystalline pyrite aggregates, tr very fine sand grains, trace very fine peletal glauconite.

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

INTERVAL: 780.0 – 870.0 m MDRT (779.91 to -869.92 m TVDRT)

ROP (Range): 16 – 185 m/h

Av. ROP: 88 m/h

Claystone: (40-80%): light to medium grey, pale green grey, soft-friable, blocky, silty, calcareous, mostly indeterminate fossil and shell fragments, forams, trace carbonaceous specks, trace cryptocrystalline pyrite aggregates, tr very fine sand grains, trace very fine peletal glauconite.

Sandstone:(30-0%): pale to light green grey to light grey, speckled grey, white, pale green grey, firm to friable, very fine to fine grained, sub-rounded, mod well sorted, silty, calcareous cement and fine fossil debris, poor visible porosity, **NO SHOWS**.

Siltstone:(20-40%): light grey, light grey brown, soft to friable, argillaceous, calcareous, trace sand, trace carbonaceous matter, trace fine fossil debris.

Limestone:(0-10%): white to light grey, soft-firm, chalky to coarsely bioclastic (calcutite to calcarenite), argillaceous in part, common fine to medium grained peletal glauconite, poor to fair visible porosity, **NO SHOWS**.

INTERVAL: 870.0 – 1005.0 m MDRT (869.92 to 1004.92 m TVDRT)

ROP (Range): 14 – 248 m/h

Av. ROP: 86 m/h

Limestone:(50-80%): white to light brownish grey, soft to friable, blocky, chalky matrix with very fine sand grains and traces of fine peletal glauconite, trace carbonaceous flakes, argillaceous in part, no visible porosity, no shows.

Siltstone:(20-50%): light grey to light brown grey, soft, sub-blocky, argillaceous, calcareous, grades to very fine sandstone

INTERVAL: 1005.0 – 1110.0 m MDRT (1004.92 to 1109.98 m TVDRT)

ROP (Range): 12 – 207 m/h

Av. ROP: 61 m/h

Calcareous Claystone:(92-95%): light grey to light brown grey, olive grey, soft, sub blocky, amorphous, common very fine sandy matrix

Limestone:(0-5%): white to translucent, pale yellow, grey-white, buff, mottled, soft to firm, crystalline in part, micritic, amorphous, common shell fragments, 5% shell fragments, turritella, gastropod, 3% Glauc matrix

Dolomite:(0-2%): dark red brown, hard, loose

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

INTERVAL: 1110.0 – 1160.0 m MDRT (1109.98 to 1159.97 m TVDRT)

ROP (Range): 17 – 104 m/h

Av. ROP: 52 m/h

Claystone:(93-100%): light grey to light brown grey, olive grey, minor pale green-grey, soft, sub-blocky, amorphous, trace calcareous cement, common very fine sandy matrix

Limestone:(5-0%): As Above., 2% shell fragments

Sandstone:(0-3%): clear, opaque, loose grains, very coarse, well sorted, sub-angular to sub-rounded, good visual porosity, **NO SHOWS**.

INTERVAL: 1160.0 – 1265 m MDRT (1159.97 to 1264.97 m TVDRT)

ROP (Range): 10 – 148 m/h

Av. ROP: 50 m/h

Claystone:(10-60%): light grey to light brown grey, olive grey, minor pale green-grey, soft, sub-blocky, amorphous, trace calcareous cement, common very fine sandy matrix.

Sandstone:(3-60%): clear, opaque, loose grains, fine to very coarse, well sorted, sub-rounded to rounded, good visual porosity, **NO SHOWS**.

Sandstone:(0-30%): buff to light orange brown, friable to brittle, medium-course, moderate sorted, sub angular to sub-rounded, dolomitic and calcareous cements, common *mineral fluorescence*

Dolomite:(0-10%): buff, hard to very hard, massive.

INTERVAL: 1265.0 – 1311.0 m MDRT (1264.97 to 1310.97 m TVDRT)

ROP (Range): 7 – 44 m/h

Av. ROP: 15.6 m/h

Claystone: (70-100%): dark grey to greyish black, grey brown, soft, sub-blocky, silty in part, trace calcareous, commonly very fine sand, trace shell fragments, forams, trace disseminated pyrite, trace carbonaceous flecks.

Dolomite:(0-30%):dark brown, mottled white in parts, buff, hard to very hard, sub-blocky, calcareous in part, common recrystallised bioclastic debris, no visible porosity.

INTERVAL: 1311 – 1365 m MDRT (1310.97 to 1364.97 m TVDRT)

ROP (Range): 16 – 80 m/h

Av. ROP: 44.2 m/h

Claystone: (95-100%): dusky yellow brown, pale green, soft to blocky, calcareous (pale green) to trace calcareous (dusky brown,) 3% carbonaceous inclusions, rare glauconite (1%). Tr pyrite, rare dolomite, common shell fragments , rare turitella, forams.

Sandstone: (0-5%): clear, opaque, loose grains, medium to very. coarse, well sorted, sub-rounded to rounded, good visual porosity, **NO SHOWS**.

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

	Craigow-1 Tap Oil	

INTERVAL: 1365.0 – 1380.0 m MDRT (1264.92 to 1379.92 m TVDRT)
ROP (Range): 20 – 60 m/h
Av. ROP: 34.5.m/h
Glaucanitic Claystone: (100%): dusky yell brown light brown, soft to blocky, non-calcareous 15% glauconite inclusions, 3% carbonaceous, rare pyrite, loose.

INTERVAL: 1380 – 1445 m MDRT (1279.92 to 144.92 m TVDRT)
ROP (Range): 22 – 45 m/h
Av. ROP: 39 m/h
Claystone: (80-94%): dusky yell brown, light brown, soft to blocky, non-calcareous 15% glauconite inclusions, 3% carbonaceous, rare pyrite, loose.

Dolomite: (5-10%): buff to light brown, firm to mod hard, brittle.

Sandstone: (1-10%): clear to translucent white, pale to dark brown, firm to brittle, loose in part, med to very coarse, poorly sorted, sub round to rounded, good inferred porosity, **NO SHOWS**.

INTERVAL: 1445 – 1460 m MDRT (1444.92 to 1459.92 m TVDRT)
ROP (Range): 35 – 85 m/h
Av. ROP: 69 m/h
Silty Claystone: (90-95): light grey brown to pale grey mottled white, soft, soluble, blocky, very silty, grades to siltstone, miner calcareous, trace fossils, glauconite pellets, trace carbonaceous specks and flecks ,coaly laminae, rare pyrite.

Sandstone:(5-10%): clear to translucent, white, occasional light grey, loose , very coarse to granular, moderately well sorted, sub-rounded to rounded, sub spherical, broken grains (bit fractured pebbles), trace lithic grains, trace pyrite cement, trace kaolin coating, good inferred porosity, **NO SHOWS**.

Dolomite: (Tr-1%): buff to medium tan to brown, mottled white in part, firm to mod hard, brittle, calcareous, silty-sandy(very fine) trace argillaceous, trace disseminated microxst pyrite, no visible porosity .

INTERVAL: 1460 – 1485 m MDRT (1459.92 to 1484.92 m TVDRT)
ROP (Range): 20– 110m/h
Av. ROP: 63 m/h
Siltstone:(30-70%): light grey brown to mottled white to pale grey, soft, soluble, blocky, argillaceous, very sandy (very fine), grades to sandstone, slightly calcareous, trace dolomite, trace to common kaolin, common coaly laminae, rare pyrite.

Sandstone:(70-30%): clear to transl white, occasional light grey, loose , very fine-granular, trace fine dolomitic/argillaceous matrix, poorly sorted, sub-angular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, **NO SHOWS**.

Coal:(0-10%): dark brown to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

	Craigow-1 Tap Oil	

INTERVAL: 1485 – 1515 m MDRT (1484.92 to 1414.92 m TVDRT)

ROP (Range): 30 – 60m/h

Av. ROP: 47 m/h

Siltstone:(65-95%): light grey brown to mottled white to pale grey, soft, soluble, blocky, argillaceous, very sandy (very fine), grades to sandstone, slightly calcareous, trace dolomite, trace to common kaolin, common coaly laminae, rare pyrite.

Sandstone:(tr-30%): clear to translucent white, occasional light grey, loose, very fine-granular, trace fine dolomitic/argillaceous matrix, poorly sorted, sub-angular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, **NO SHOWS**.

Coal:(0-10%): dark brown to black, dull, earthy to predom bright, vitreous, friable to hard, brittle, blocky. Argillaceous in parts.

Dolomite:(0-Trace): med yellow brown, hard, blocky, arg, silty, probably as nodules within Sandstone. granular, trace fine dolomitic/argillaceous matrix, poorly sorted, sub-angular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, **NO SHOWS**.

INTERVAL: 1515 -1635m MDRT (1514.92-1614.92m TVDRT)

ROP (Range): 25 – 80 m/h

Av. ROP: 65m/h

Siltstone:(5-80%): white to pale grey, light grey brown, soft, soluble, blocky, argillaceous, very sandy (very fine), grades to sandstone, slightly calcareous, trace dolomitic, tr - com kaolin, com coaly laminae, rare pyrite.

Sandstone:(20-95%): clear to trnsl white, occasional light grey, loose, very fine-granular, trace fine dolomitic/argillaceous matrix, poorly sorted, sub-angular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, **NO SHOWS**.

Coal:(Tr-20%): dark brown to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

INTERVAL: 1615 1675 MDRT (1614.92-1674.92m TVDRT)

ROP (Range): 30 – 95m/h

Av. ROP: 45m/h

Volcanics(20-80%) :white mottled dark brown, friable-firm, fine grained weathered feldspar (kaolin) with dark micaceous mafic mineral. ,trace spotty dull yellow mineral fluor, no cut.

Carbonaceous Siltstone:(10-30%): medium grey -dark grey brown, mottled white, soft-friable, soluble, blocky, argillaceous, trace kaolin, very carbonaceous, rare pyrite.

Sandstone:(10-30%): clear to translucent white, occasional light grey, loose , very fine-granular, trace fine dolomitic/argillaceous matrix, poorly sorted, sub-angular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, **NO SHOWS**.

INTERVAL: 1675-1770 MDRT (1674.92-1769.92m TVDRT)

ROP (Range): 40 – 110m/h

Av. ROP: 51 m/hr

Silty Claystone:(10-90%): light grey to light grey brown, very soft, amorphous, silty, slightly calc, trace mica, trace carb specks, trace light brown hard cryptocrystalline dolomite.

Sandstone:(10-100%): clear to translucent white, occasional light grey, loose , very fine-granular, trace fine dolomitic/argillaceous matrix, poorly sorted, sub-angular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, **NO SHOWS**.

Coal:(0-20%): dark brown to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.

INTERVAL: 1770 1800 MDRT (1769.92-1799.92m TVDRT)

ROP (Range): 10-80 m/h

Av. ROP: 60 m/h

Siltstone: (5-80%): white to pale grey, light grey brown , soft, soluble, blocky, argillaceous, very sandy (very fine), grades to sandstone, slightly calcareous, trace dolomitic, tr - com kaolin, com coaly laminae, rare pyrite.

Sandstone:(20-95%): clear to translucent white, occasional light grey, loose , very fine-granular, trace fine dolomitic/argillaceous matrix, poorly sorted, sub-angular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, **NO SHOWS**.

Coal:(Tr-20%): dark brown to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.

Fluorescence

No Fluorescence observed.

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

3.2 Gas Ratio Interpretation

Gas composition and total gas in mud at the shaker header box were measured using the Geoservices Reserval™. This utilises a GZG degasser to extract gas from mud. The GFF coupled with a GZ11degasser is used as an auxiliary gas detection system. Both use the FID technique of measuring ions released when hydrocarbons are burnt in a pure hydrogen flame. Independent sensors in the unit also measure H₂S and CO₂.

The composition of the gas in mud from the formation is significant in determining the geochemical origin, and value of a show. There are several methods that can be used to determine whether the hydrocarbon gas in mud comes from a potential gas or oil zone. Amongst these methods are the Triangle Diagram (also known as the gas composition diagram), Pixler Diagram (also known as the gas ratios method), and the gas Wetness/Balance/Character plots.

3.3 Explanation of Gas Composition Diagrams

The Triangle or Gas Composition Diagram is used to graphically represent the hydrocarbon distribution in the gas and to determine whether it corresponds to a gas or oil reservoir. The triangular diagram is obtained by tracing lines on three scales at 120° to each other, corresponding respectively to the ratios of ethane, propane and normal butane to the total gas. The scales are arranged in such a way that if the apex of the triangle is upward, the diagram represents the analysis of gas from a gas zone, while if the apex points downwards, the diagram represents the analysis of gas from an oil zone. A large triangle diagram represents dry gas or low GOR oil, while small triangles represent wet gases or high GOR oils. The centre of the triangle should fall inside the area delineated by the dotted line, which encircles compositions that are regarded as 'normal'. If the triangle area is outside this area the gas indicates that the reservoir is not exploitable and that the heavier hydrocarbon composition is 'abnormal' i.e. hydrocarbons that are chemically altered or gases with special compositions which are not associated with oil.

The Gas Ratio Analysis Diagram is a plot of the ratio of C1 to the other gas elements. The magnitude of the methane to ethane ratio determines if the reservoir contains gas or oil or if it is non-productive. The following conclusions are possible:

Ratio C1/C2:	< 2	non-productive zone
	2 – 15	oil present
	15 – 65	gas present
	> 65	non-productive zone

The slope of the line of the ratio plot of C1/C2, C1/C3, C1/C4 and C1/C5 indicates whether the reservoir will produce hydrocarbons or hydrocarbons and water. Positive line slopes indicate production; negative line slopes indicate water-bearing formations. When using the Gas Ratio Diagram, the following points should be borne in mind:

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

1. Productive dry gas zones may show only C1, but abnormally high shows of C1 are usually indicative of saltwater zones.
2. If the ratio C1/C2 is low in the oil section and the ratio C1/C4 is high in the gas section, the zone is probably non-productive.
3. If any ratio (C1/C5 except in an oil based mud) is lower than the preceding ratio then the zone is probably non-productive.
4. The ratios may not be definitive for zones of low permeability.
5. Steep gas ratio plots may be indicative of tight zones.

3.4 Explanation of Wetness/Balance/Character Curves

Another method for evaluating gas zones plots against depth three ratios: hydrocarbon Wetness (W_h), hydrocarbon Balance (B_h) and hydrocarbon Character (C_h), where:

$$W_h = \frac{(C_2 + C_3 + C_4 + C_5)}{(C_1 + C_2 + C_3 + C_4 + C_5)} \times 100 (\%)$$

$$B_h = \frac{(C_1 + C_2)}{(C_3 + C_4 + C_5)}$$

$$C_h = \frac{(C_4 + C_5)}{C_3}$$

Wetness (W_h) is the primary zone indicator and provides a measure of the relative proportion of heavier gases in the overall gas show as follows:

$W_h < 0.5$	Light non-associated gas with low productivity potential or only geo-pressured methane.
$0.5 < W_h < 17.5$	Potentially productive gas with gas density increasing with W_h .
$17.5 < W_h < 40.0$	Potentially productive oil with gravity decreasing as W_h increases.
$W_h > 40.0$	Heavy or residual oil with low productivity potential.

As reservoir hydrocarbons become denser in the transition from gas to oil, Balance (B_h) and Wetness (W_h) values move closer together and eventually intersect. The zone guidelines for B_h combine with those for W_h to improve reliability of show evaluation as follows:

$W_h < 0.5$ productive. And $B_h > 100$	Very light, dry gas that is almost certainly non-productive.
$0.5 < W_h < 17.5$ density as and $W_h < B_h < 100$	Productive gas with gas increasing in wetness and the two curves converge.
$0.5 < W_h < 17.5$ ratio. And $B_h < W_h$	Productive gas condensate or a high gravity gas/oil

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	



Craigow-1
Tap Oil



Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

	Craigow-1 Tap Oil	

3.6 Gas Peaks

There was no significant gas peaks recorded while drilling Craigow-1

4.0 PRESSURE ANALYSIS

4.1 Pressure Summary

Formation pressures were monitored throughout this well by recording a range of indicators. These indicators vary from direct observations of background gas and cuttings to drilling characteristics such as torque and tight hole, as well as quantitative methods such as the D'exponent. This is a normalized rate of penetration that takes into account mud weight, bit wear and hydraulics. It can only be reliably used in shales and clean claystones; and as an indicator in siltstones, silty shales and calcareous claystones. A normal trend line is established through normally pressured shale points, representing a normal compaction trend, and any leftward deviation of subsequent shale points from this trend, representing relative under-compaction, indicates overpressure (plotted relative to depth) or increased porosity due to changes in the lithology.

Formation pressure evaluation using D'exponent was done using the Eaton method. The Eaton method states the relationship between the formation pressure and the Dcs/Dcn ratio depending on changes in the overburden gradient.

$$P = S - (S - P_n) * (D_{cs}/D_{cn})^{1.2}$$

Where: P : formation pressure gradient

S : overburden gradient

P_n: normal pressure gradient

D_{cs}: observed d'exponent

D_{cn}: normalised d'exponent

D'exponent coefficients used for this well

Poisson : a = 0.26600 b = -2.66700

source : Santa Barbara (Soft)

Overburden : a = 0.01304 b = -0.17314 c = 1.43350

source : Santa Barbara (Soft)

Dexponent: No shallow gas or overpressure zones expected or observed

Temperature: No abnormal temperature zones were observed, however, regular additions to the Active mud system may mask any formation related variations.

Cavings: No overpressure related cavings were observed

Gas: Maximum gas for this section was 1.062%, recorded at 1201.50 mMDRT. Average gas values were between 0 and 0.281%

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

	Craigow-1 Tap Oil	

5.0 DRILLING INFORMATION

5.1 Bit Record

Bit	Size (")	Type	Jets	In (m)	Out (m)	Hours	Condition
1	26 / 36	Smith XR-VCPS	1 x 16 1 x 18 1 x 24	80.0	159.0	0.96	2-2-WT-A-2-I-NO-TD
2	17½	Smith Mill Tooth	3 x 13 3 x 16	159.0	745.0	11.12	2-2-WT-A-E-I-CT-TD
3	12 ¼	Reed Hycalog RSR616M	8 x 14	745.0	1311.0	13.50	2-6-LT-N-X-I-CT-PR
4	12 ¼	Reed Hycalog RSR516S	7 x 14	1311.0	1800	12.93	1-6-WT-T-X-I-ER-PR

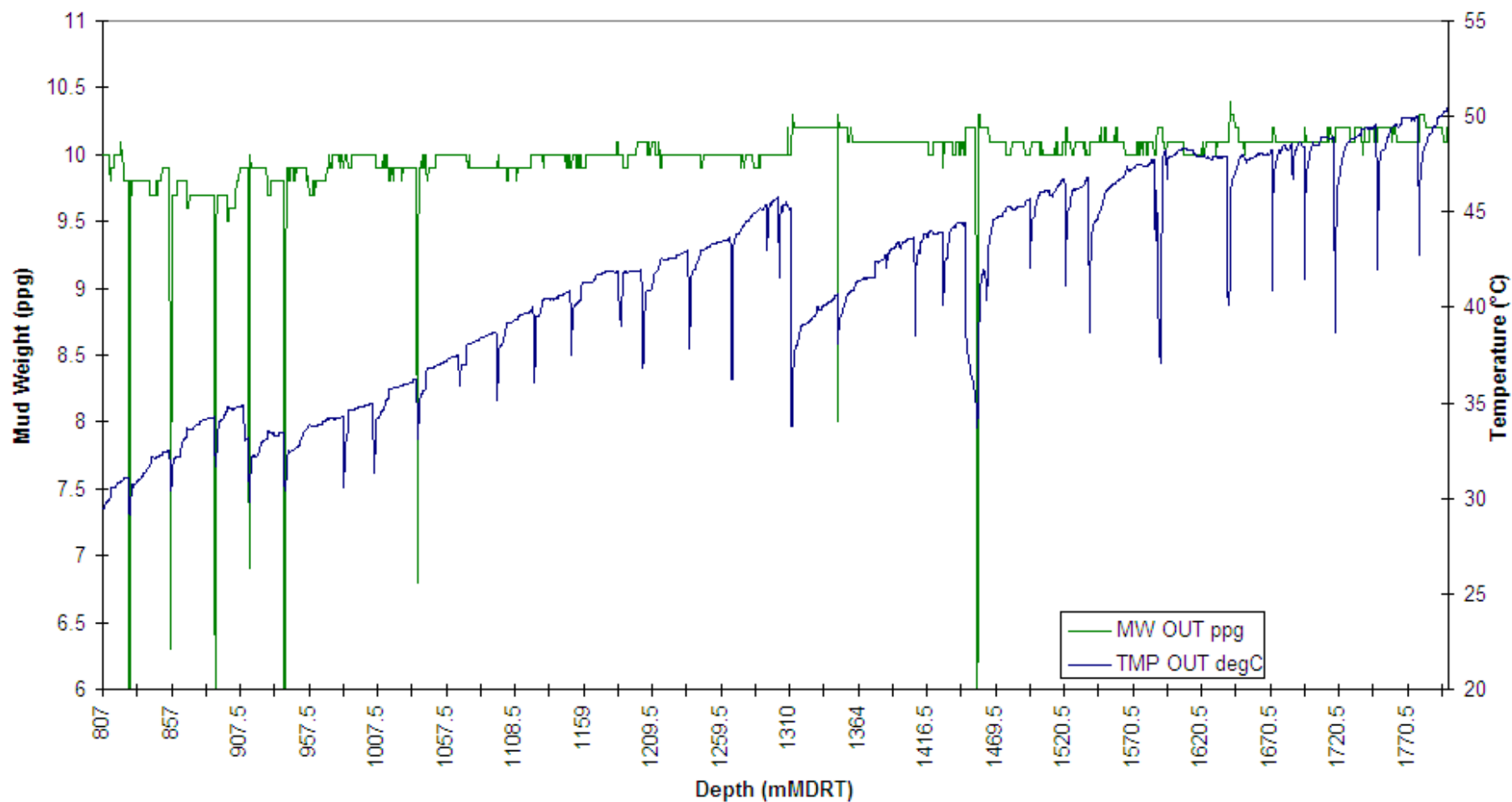
5.2 Mud Record

The 914mm (36") section (80.0 – 141.0 mMDRT), and the 445mm (17½") section were drilled with seawater and bentonite sweeps. All returns were to the seabed.

The 311mm (12¼") section was drilled with KCl/PHPA mud from 745.0 to 1311.0 mMDRT with the first bit. The second bit was drilled from 1311.0 to 1800 mMDRT. with mud weight 9.8 - 10.3 ppg. A mud weight and temperature versus depth plot follows.

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

Mud weight and Temperature vs Depth



Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

	Craigow-1 Tap Oil	

5.3 Drilling Phase Summary

5.4 914 mm (36") Hole Section

Date	: 24th December 2010
Measured depth	: 100.0 – 159.0 mMDRT
Vertical depth	: 100.0 – 159.0 mTVDRT
Number of bits used	: 1
Mud type	: Seawater with bentonite sweeps

Craigow-1 was spudded at 03:30hrs, on the 24th of December, 2010, with a 26" Smith Mill tooth bit, in conjunction with a 36" hole opener. The seabed was tagged at 100.0 mMDRT and drilled to a total phase depth of 159.0 mMDRT. 50.0 bbl high viscosity sweeps were circulated every 15m to aid hole cleaning. The bit drilled 59.0m in 1.2 hours, with an average ROP of 49.16 m/hr. A grading of 2-2-WT-A-2-I-NO-TD was recorded.

The open hole was displaced with 8.6ppg mud, and the string pulled out of hole to surface. The 30" conductor was run and cemented with 264.0bbl of 15.8ppg cement. The conductor shoe was set at 137.4 mMDRT.

5.5 445 mm (17½") Hole Section

Date	: 25 th December – 26 th December 2010
Measured depth	: 159.0 - 745.0 mMDRT
Vertical depth	: 159.0 –745.0 mTVDRT
Number of bits used	: 1
Mud type	: Seawater with bentonite sweeps

On 4th December, a 17½" Smith XRVEJ+3PS bit was made up, along with an MWD survey tool, and Gamma Ray. The conductor shoe was drilled out, and drilling commenced from 159.0 mMDRT to 745.0 mMDRT, pumping 50.0 bbl high viscosity sweeps every 15.0m. MWD surveys were also conducted at every connection. The bit drilled 586.0 m in 11.1 hours, with an average ROP of 52.79 m/hr. The bit received a grading of 2-2-WT-A-E-I-CT-TD

The well was displaced 1.5 times with 9.0ppg mud and the string pulled out of hole to surface. A max overpull of 50klbs was recorded while working through tight spots ranging through 482 to 660m, then the 13¾" casing was run to a shoe depth of 735.0 mMDRT. The BOP stack and 21" riser were installed, and successfully pressure tested.

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

 A Schlumberger Company	Craigow-1 Tap Oil	

5.6 311 mm (12¼") Hole Section

Date	: 29 th December – 31 st December 2010
Measured depth	: 745.0 – 1800.0 mMDRT
Vertical depth	: 745.0 – 1799.92 mTVDRT
Number of bits used	: 2
Mud type	: KCl / PHPA

On 29th December, a Reed Hycalog RSR616M bit with Sperry MWD was run in hole, and cement tagged at 696.0 mMDRT. Cement was drilled from 696.0 mMDRT to 718 mMDRT, cement plug where then drilled from 718.0 mMDRT to 732.0 mMDRT and drilled out the casing shoe at 735.0 mMDRT. The well was displaced to 9.8 ppg mud prior to drilling rat hole from 735.0 mMDRT to 745.0 mMDRT. New formation was drilled from 745.0 mMDRT to 748.0 mMDRT. A Leak off Test was conducted to a pressure of 640psi, yielding an equivalent mud weight of 14.9 ppg. Drilling recommenced, and 12¼" hole was drilled to 1285.0 mMDRT where a Dolomite stringer was encountered. ROP dropped to 10-15m/hr and continued to drill at that rate. From 1304.0 mMDRT to 1311.0 mMDRT drilling parameters were varied to attempt to improve the drill rate, a 45 bbl Steelseal 20 lb/bbl pill was pumped to clear a possible bit balling. This had no effect on the ROP so a 40 bbl Hi Vis pill was pumped, circulated clean and pulled the string. From 1311.0 mMDRT to 1243.0 mMDRT an overpull of 55klbs was recorded and well swabbing noted. Continued to pull out until 1161.0 mMDRT. From 1161.0 mMDRT to 1016.0 mMDRT a max overpull of 70klbs was recorded with the well swabbing. Continued to pull out of hole till 264.0 mMDRT where a slug was pumped and a flow check was also conducted before pulling the rest of the way out of hole and racking back the 12.25" BHA. The bit received a grading of 2-6-LT-N-X-I-PR, and drilled 566.0 m in 13.5 hours. A Reed Hycalog RSR516S bit (Bit # 4) was made up with the 12.25" BHA and run back in the hole. Drilling continued from 1311.0 mMDRT to a total depth of 1800.0 mMDRT which was reached at 1200hrs on 31st December 2010. The string was pulled out of hole from 1800.0 mMDRT to surface. The bit drilled 489.0m in 12.93 hours and received a grading of 1-6-WT-T-X-I-ER-PR

On 1st January 2011, a 27/8" cement stinger was made up and run in hole to 1370.0 mMDRT. The hole was circulated clean, and a 94bbl Hi Vis pill at 11.0ppg displaced from 1370.0 mMDRT to 1220.0 mMDRT. Plug 1 (94.0 bbl of 15.8ppg cement) was pumped and spotted between 1220.0 mMDRT and 1070.0 mMDRT. The string was then pulled back to 1000.0 mMDRT, where one annular volume was circulated. A 94bbl Hi Vis pill at 11.0ppg displaced from 920.0 mMDRT to 770.0 mMDRT. Plug 2 (90.0 bbl of 15.8ppg cement) was spotted between 770.0 mMDRT to 620.0 mMDRT. The string was then pulled back to 540.0 mMDRT and one annular volume was circulated.

After waiting on cement, the top of Plug 2 was tagged and the string pulled out of hole to 380.0 mMDRT before pressure testing the casing to 3000 psi. An 82bbl Hi Vis pill was spotted between 380.0 mMDRT and 230.0 mMDRT and Plug 3 (50 bbl of 15.8 ppg cement) was spotted between 230.0 mMDRT and 130.0 mMDRT. The string was pulled back to 130.0 mMDRT and the casing and riser were displaced to seawater. The BOP and riser were recovered, and the 30" conductor was cut at 97.1 mMDRT.

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

	Craigow-1 Tap Oil	

6.0 ENCLOSURES

A.	ASCII Data	
B.	Formation Evaluation Log)	1:500
C.	Drilling Data Log	1:1000
D.	Pressure Evaluation Log	1:1000
E.	Gas Evaluation Log	1:500
F.	Cuttings Sample Manifest	

Revision	Date	Issued by	Approved by	Remarks
1	December 2010	Geoservices Unit 174	Operations Assistant	

Appendix 6: Daily Geological Reports

Craigow-1

Date:	28-12-2010	Last Casing:	13.375" @ 735.0mMDRT
Report Number:	01	Leak Off Test (FIT):	14.9ppg EMW
Report Period:	24hrs to 24:00	Current hole size:	311 mm (12 ¼")
Depth @ 2400 Hrs:	745.0mMDRT	Mud Weight:	9.8 ppg
Last Depth:	745.0 mMDRT	ECD:	
Progress:	0m	Mud Type:	Water based.
TD Lithology (0600hrs):	Claystone		KCL/Polymer/Clayseal Plus
Water Depth (MSL):	74.0m	Mud Fluid Loss:	N/A
RT Elevation: (MSL):	26.0m	Bit Type:	Reed Hycalog RSR616M

OPERATIONS SUMMARY

24 HOUR SUMMARY 00:00 – 24:00:	Made up slip jt and landing jt. Connected and pressure tested kill and choke lines. Installed MRT lines to slip jt and installed storm saddles to umbilical hoses. Landed off BOP and locked onto 18 3/4" wellhead. Pressure tested casing to 2500psi. Rigged down handling equipment. Laid out 17½" BHA. Made up 12¼" BHA and RIH picking up DP to 685m. Performed well control and shut in exercise. Function tested BOP.
06:00 Update	Drilling to 748m in 12¼" hole. Perform LOT
NEXT 24 HOURS:	Drill ahead in 12¼" hole.

GEOLOGICAL SUMMARY

LITHOLOGIC DESCRIPTION:

Interval mMDRT ROP (m/hr)	Description
	No new lithology drilled

HYDROCARBON FLUORESCENCE:

INTERVAL (mMDRT)	FLUORESCENCE
	Nil

GAS SUMMARY:

INTERVAL (mMDRT)	Total GAS (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	IC4 (ppm)	NC4 (ppm)	IC5 (ppm)	NC5 (ppm)
Nil								

SURVEY

MD.	ANGLE	Azi	TVD
723.950	0.07	20.35	723.95

SAMPLE INTERVAL

Depth Interval	Sample Rate

FEWD

Sperry LWD sensor to bit distances for 12 ¼" drilling assembly:

Sensor	Distance to bit (m)
D&I	13.2
Gamma Ray	16.68
Resistivity	18.52
APWD	21.04
Vibration	16.15

WELLSITE GEOLOGIST: Lindsay Cullen / David Cohen

Craigow-1

Date:	29-12-2010	Last Casing:	13.75" @ 735.0mMDRT
Report Number:	02	Leak Off Test (FIT):	14.94ppg EMW
Report Period:	24hrs to 24:00	Current hole size:	311 mm (12 ¼")
Depth @ 2400 Hrs:	1304mMDRT	Mud Weight:	9.9 ppg
Last Depth:	745.0 mMDRT	ECD:	10.1 ppg EMW
Progress:	559m	Mud Type:	Water based.
TD Lithology (0600hrs):	Claystone		KCL/Polymer/Clayseal Plus
Water Depth (MSL):	75.4m	Mud Fluid Loss:	N/A
RT Elevation: (MSL):	26.0m	Bit Type:	Reed Hycalog RSR616M

OPERATIONS SUMMARY

24 HOUR SUMMARY	Tagged TOC and drilled out shoe track. Drilled 12¼" hole from 745m to 748m. Pulled into shoe and performed LOT to EMW 14.9ppg. Drilled ahead 12¼" hole from 748m to 1304m.
00:00 – 24:00:	
06:00 Update	Pull out of hole from 1311m, due to slow ROP.
NEXT 24 HOURS:	Run in hole, drill ahead in 12¼" hole.

GEOLOGICAL SUMMARY

LITHOLOGIC DESCRIPTION:

Interval mMDRT ROP (m/hr)	Description
745-780m Av. 87m/Hr	CLAYSTONE: light to medium grey, pale green grey, soft-friable, blocky, silty, calcareous, mostly indeterminate fossil and shell fragments, forams, trace carbonaceous specks, trace cryptocrystalline pyrite aggregates, tr very fine sand grains, trace very fine peletal glauconite.
780-870m Av.88m/Hr	CLAYSTONE(40-80%): light to medium grey, pale green grey, soft-friable, blocky, silty, calcareous, mostly indeterminate fossil and shell fragments, forams, trace carbonaceous specks, trace cryptocrystalline pyrite aggregates, tr very fine sand grains, trace very fine peletal glauconite. SANDSTONE(30-0%): pale to light green grey to light grey, speckled grey, white, pale green grey, firm to friable, very fine to fine grained, subrounded, mod well sorted, silty, calcareous cement and fine fossil debris, poor visible porosity, NO SHOWS . SILTSTONE(20-40%): light grey, light grey brown, soft to friable, argillaceous, calcareous, trace sand, trace carbonaceous matter, trace fine fossil debris. LIMESTONE(0-10%): white to light grey, sft-firm, chalky to coarsely bioclastic (calcutitite to calcarenite), argillaceous in part, common fine to medium grained peletal glauconite, poor to fair visible porosity, no shows.
870-1005 Av.86m/Hr	LIMESTONE(50-80%): white to light brownish grey, soft to friable, blocky, chalky matix with very fine snd grains and traces of fine peletal glauconite, trace carbonaceous flakes, argillaceous in part, no visible porosity, no shows. SILTSTONE(20-50%): light grey to light brown grey, soft, subblocky, argillaceous, calcareous, grades to very fine sandstone
1005-1110 Av.61m/Hr	CALCAREOUS CLAYSTONE(92-95%): light grey to light brown grey, olive grey, soft, sub blocky, amorphous, common vf sandy matrix LIMESTONE(0-5%): white to translucent, pale yellow, grey-white, buff, mottled, soft to firm, crystalline in part, micritic, amorphous, common shell fragments, 5% shell frags, turritella, gastropod, 3% Glauc mtx DOLOMITE(0-2%): dark red brown, hard, loose
	CLAYSTONE(93-100%): light grey to light brown grey, olive grey, minor plgn-gy,soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx LIMESTONE(5-0%): As Above., 2% shell frags

1110-1160 Av.52m/Hr	SANDSTONE(0-3%): clear, opaque, loose grains, very coarse, well sorted, subangular to subrounded, good visual porosity, NO SHOWS.
1160-1265 Av.50m/Hr	Claystone with minor sandstone and dolomite streaks CLAYSTONE(10-60%): light grey to light brown grey, olive grey, minor plgn-gy,soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. SANDSTONE(3-60%): clear, opaque, loose grains, fine to very coarse, well sorted, subrd to rounded, good visual porosity, NO SHOWS. SANDSTONE(0-30%): buff to light org brn, fri to brittle, med-crse, mod srtd, sub ang to subrd, dol and cal cmts, common <i>mineral fluor</i> DOLOMITE(0-10%): buff, hard to very hard, massive.
1265-1311 Av ROP 15.6m/hr	Claystone with dolomite band (1266-168m) CLAYSTONE (70-100%): dark grey to greyish black, grey brown, soft, sub-blocky, silty in part, trace calcareous, commonly very fine sand, trace shell fragments, forams, trace disseminated pyrite, trace carbonaceous flecks. DOLOMITE(0-30%):dark brown, mottled white in parts, buff, hard to very hard, subblocky, calcareous in part, common recrystallised bioclastic debris, no visible porosity.

HYDROCARBON FLUORESCENCE:

INTERVAL (mMDRT)	FLUORESCENCE
	Nil

GAS SUMMARY:

INTERVAL (mMDRT)	Total GAS (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	IC4 (ppm)	NC4 (ppm)	IC5 (ppm)	NC5 (ppm)
745-780m	0	0	0	0	0	0	0	0
780-870m	0.5	4866	0	2	11	12	6	8
870-1005m	0.51	5066	0	1	2	2	1	3
1005-1110m	0.56	5546	0	1	1	1	0	2
1110-1160m	0.44	4237	0	0	1	1	0	1
1160-1265m	1.06	9494	0	18	7	6	7	8
1265-1311	0.55	5465	13	18	7	9	8	16

SURVEY

MD.	ANGLE	Azi	TVD
723.95	0.07	20.35	723.95
1140.07	0.94	262.34	1140.03
1197.98	1.2	275.42	1197.93
1226.83	1.18	286.27	1226.78
1255.82	1.22	283.77	1255.76
1287.02	1.11	285.68	1286.96

COMMENTS: drilling rate slowed after encountering hard Dolomite at 1266m. Pull out at 1311m in order to check bit condition.

SAMPLE INTERVAL

Depth Interval	Sample Rate
745 – 1000m	10m
1000m - TD	5m

FEWD

Sperry LWD sensor to bit distances for 12 ¼" drilling assembly:

Sensor	Distance to bit (m)
D&I	13.2
Gamma Ray	16.68
Resistivity	18.52
APWD	21.04
Vibration	16.15

WELLSITE GEOLOGIST: Lindsay Cullen / David Cohen

Craigow-1

Date:	30-12-2010	Last Casing:	13.375" @ 735.0mMDRT
Report Number:	03	Leak Off Test (FIT):	14.94ppg EMW
Report Period:	24hrs to 24:00	Current hole size:	311 mm (12 ¼")
Depth @ 2400 Hrs:	1445mMDRT	Mud Weight:	10.1 ppg
Last Depth:	1304 mMDRT	ECD:	10.3 ppg EMW
Progress:	141m	Mud Type:	Water based.
TD Lithology (0600hrs):	Sandstone/ siltstone/ coal		KCL/Polymer/Clayseal Plus
Water Depth (MSL):	75.4m	Mud Fluid Loss:	Nil
RT Elevation: (MSL):	24.6	Bit Type:	Reed Hycalog RSR516S

OPERATIONS SUMMARY

24 HOUR SUMMARY 00:00 – 24:00:	Drilled 12¼" hole from 1304m to 1311m. Circulated Hi vis and cleaned well. POOH from 1311m to 1243m. Well swabbing on POOH with high overpulls. Pumped out of hole from 1243m to shoe at 735m Circulated bottoms up at shoe. POOH and removed bit. Serviced Top Drive. Made up new 12¼" bit and RIH to shoe. Slipped and cut drilling line. RIH from shoe to 1277m. Washed in hole from 1277m to 1311m. Drilled 12¼" hole from 1311m to 1445m
06:00 Update	Drilling 12¼" hole.
NEXT 24 HOURS:	Drill ahead 12¼" hole to TD. Circulate clean. POOH. Rig up and run Wireline logs.

GEOLOGICAL SUMMARY

LITHOLOGIC DESCRIPTION:

Interval mMDRT ROP (m/hr)	Description
1311-1365 Av ROP 44.3m/hr	CLAYSTONE with rare SANDSTONE interbeds CLAYSTONE (95-100%): dusky yell brown, pale green, soft to blocky, calcareous (pale green) to trace calc (dusky brn,) 3% carbonaceous inclusions, rare glauconite (1%). Tr pyrite, rare dolomite, common shell fragments , rare turitella, forams. SANDSTONE (0-5%): clear, opaque, loose grains, med to v. coarse, well sorted, subrd to rounded, good visual porosity, NO SHOWS.
1365-1380 Av ROP 34.5m/hr	GLAUCONITIC CLAYSTONE GLAUCONITIC CLAYSTONE (100%): dusky yell brn, light brown, soft to blocky, non-calcareous 15% glauconite inclusions, 3% carbonaceous, rare pyrite, loose.
1380-1445 Av ROP 39m/hr	CLAYSTONE with minor DOLOMITE and SANDSTONE interbeds CLAYSTONE (80-94%): dusky yell brn, light brown, soft to blocky, non-calcareous 15% glauconite inclusions, 3% carbonaceous, rare pyrite, loose. DOLOMITE (5-10%): buff to light brown, firm to mod hard, brittle. SANDSTONE (1-10%): clr to translucent white, pale to dark brown, firm to brittle, loose in part, med to very coarse, prly sorted, subrd to rounded, good inferred porosity, NO SHOWS.

HYDROCARBON FLUORESCENCE:

INTERVAL (mMDRT)	FLUORESCENCE
	Nil

GAS SUMMARY:

INTERVAL (mMDRT)	Total GAS (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	IC4 (ppm)	NC4 (ppm)	IC5 (ppm)	NC5 (ppm)
1311-1365	0.389	3769	18	11	5	5	3	17
1365-1380	0.283	2705	18	8	3	2	2	2
1380-1445	0.217	2059	62	5	2	4	3	6

SURVEY

MD.	ANGLE	Azi	TVD
723.95	0.07	20.35	723.95
1140.07	0.94	262.34	1140.03
1197.98	1.2	275.42	1197.93
1226.83	1.18	286.27	1226.78
1255.82	1.22	283.77	1255.76
1287.02	1.11	285.68	1286.96
1313.56	1.27	284.73	1313.49
1401.26	1.2	284.21	1401.17
1489.2	1.05	289.05	1489.09
1603.82	1.27	287.88	1603.69

COMMENTS: Geoservice unit had major outage during trip for NB. New data base was started from 1311m, and will be merged with top of hole at end of well.

SAMPLE INTERVAL

Depth Interval	Sample Rate
745 – 1000m	10m
1000m - TD	5m

FEWD

Sperry LWD sensor to bit distances for 12 ¼" drilling assembly:

Sensor	Distance to bit (m)
D&I	13.2
Gamma Ray	16.68
Resistivity	18.52
APWD	21.04
Vibration	16.15

WELLSITE GEOLOGIST: Lindsay Cullen / David Cohen

Craigow-1

Date:	31-12-2010	Last Casing:	13.375" @ 735.0mMDRT
Report Number:	04	Leak Off Test (FIT):	14.94ppg EMW
Report Period:	24hrs to 24:00	Current hole size:	311 mm (12 ¼")
Depth @ 2400 Hrs:	1800mMDRT	Mud Weight:	10.1 ppg
Last Depth:	1445 mMDRT	ECD:	10.3 ppg EMW
Progress:	355m	Mud Type:	Water based.
TD Lithology (0600hrs):	Sandstone/ Claystone		KCL/Polymer/Clayseal Plus
Water Depth (MSL):	75.4m	Mud Fluid Loss:	N/A
RT Elevation: (MSL):	24.6m	Bit Type:	Reed Hycalog RSR516S

OPERATIONS SUMMARY

24 HOUR SUMMARY 00:00 – 24:00:	Drilled 12¼" hole from 1445m to 1800m. Circulated well clean. POOH from 1800m to 1655m. Pumped out of hole from 1645m to 1300m. POOH from 1300m and racked back BHA. Laid out Sperry tools to deck. Rigged up Schlumberger w/line and ran Logs.
06:00 Update	Logging out in casing Wireline logging Run 1.
NEXT 24 HOURS:	Rig down Schlumberger and RIH with cement stinger to P&A well.

GEOLOGICAL SUMMARY

LITHOLOGIC DESCRIPTION:

Interval mMDRT ROP (m/hr)	Description
1445-1460 Av ROP 69m/hr	SILTY CLAYSTONE with SANDSTONE and minor DOLOMITE SILTY CLAYSTONE (90-95): light grey brown to pale grey mottled white, soft, soluble, blocky, very silty, grades to siltstone, mnr calcareous, trace fossils, glauconite pellets, trace carbonaceous specks and flecks, coaly laminae, rare pyrite. SANDSTONE (5-10%): clear to translucent, white, occasional light grey, loose, very coarse to granular, moderately well sorted, subrounded to rounded, sub spherical, broken grains (bit fractured pebbles), trace lithic grains, trace pyrite cement, trace kaolin coating, good inferred porosity, NO SHOWS. DOLOMITE (Tr-1%): buff to medium tan to brown, mottled white in part, firm to mod hard, brittle, calcareous, silty-sandy(vf) trace argillaceous, trace disseminated microxst pyrite, no visible porosity.
1460-1485 Av ROP 63m/hr	SILTSTONE with SANDSTONE and minor COAL interbeds. SILTSTONE (30-70%): light grey brown to mottled white to pale grey, soft, soluble, blocky, argillaceous, very sandy (vf), grades to sandstone, slightly calcareous, trace dolomite, trace to common kaolin, common coaly laminae, rare pyrite. SANDSTONE (70-30%): clear to trnsl white, occasional light grey, loose, very fine-granular, trace fine dolomitic/argillaceous matrix, poorly sorted, subangular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, NO SHOWS. COAL (0-10%): dark brown to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.

1485-1515 Av ROP 47m/hr	SILTSTONE with minor SANDSTONE and minor COAL interbeds. SILTSTONE (65-95%): light grey brown to mottled white to pale grey, soft, soluble, blocky, argillaceous, very sandy (vf), grades to sandstone, slightly calcareous, trace dolomite, trace to common kaolin, common coaly laminae, rare pyrite. SANDSTONE (tr-30%): clear to trnsl white, occasional light grey, loose, very fine-granular, trace fine dolomitic/argillaceous matrix, poorly sorted, subangular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, NO SHOWS. COAL (0-10%): dark brown to black, dull, earthy to predom bright, vitreous, friable to hard, brittle, blocky. Argillaceous in parts. DOLOMITE (0-Trace): med yel brn, hard, blocky, arg, silty, probably as nodules within Sst. granular, trace fine dolomitic/argillaceous matrix, poorly sorted, subangular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, NO SHOWS.
1515-1635 Av ROP 65 m/hr	SILTSTONE with SANDSTONE and COAL interbeds. SILTSTONE (5-80%): white to pale grey, light grey brown, soft, soluble, blocky, argillaceous, very sandy (vf), grades to sandstone, slightly calcareous, trace dolomitic, tr - com kaolin, com coaly laminae, rare pyrite. SANDSTONE (20-95%): clear to trnsl white, occasional light grey, loose, very fine-granular, trace fine dolomitic/argillaceous matrix, poorly sorted, subangular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, NO SHOWS. COAL (Tr-20%): dark brown to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1635-1675 Av ROP 45m/hr	VOLCANICS with interbedded CARBONACEOUS CLAYSTONE and SANDSTONE VOLCANICS (20-80%): white mottled dark brown, friable-firm, fine grained weathered feldspar (kaolin) with dark micaceous mafic mineral., trace spotty dull yellow mineral fluor, no cut. CARBONACEOUS SILTSTONE (10-30%): medium grey -dark grey brown, mottled white, soft-friable, soluble, blocky, argillaceous, trace kaolin, very carbonaceous, rare pyrite. SANDSTONE (10-30%): clear to trnsl white, occasional light grey, loose, very fine-granular, trace fine dolomitic/argillaceous matrix, poorly sorted, subangular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, NO SHOWS.
1675-1770 Av ROP 51m/hr	SILTY CLAYSTONE with interbedded SANDSTONE and minor COAL SILTY CLAYSTONE (10-90%): light grey to light grey brown, very soft, amorphous, silty, slightly calc, trace mica, trace carb specks, trace light brown hard cryptocrystalline dolomite. SANDSTONE (10-100%): clear to trnsl white, occasional light grey, loose, very fine-granular, trace fine dolomitic/argillaceous matrix, poorly sorted, subangular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, NO SHOWS. COAL (0-20%): dark brown to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1770-1800 Av ROP 60m/hr	SANDSTONE with SANDY CLAYSTONE and minor CARBONACEOUS SILTSTONE SANDSTONE (60-100%): clear to trnsl white, occasional light grey, loose, very fine-granular, trace fine dolomitic/argillaceous matrix, poorly sorted, subangular to rounded, sub spherical, trace lithic grains, trace pyrite cement, trace kaolin coating grains, good inferred porosity, NO SHOWS. SANDY CLAYSTONE (10-90%): light grey to light grey brown, grades to white, very soft, amorphous, silty, slightly calc, trace mica, trace carbonaceous specks, trace light brown hard cryptocrystalline dolomite. CARBONACEOUS SILTSTONE (0-20%): pale brown to med brown, common carbonaceous and coal interbeds, grades to coaly bands

HYDROCARBON FLUORESCENCE:

INTERVAL (mMDRT)	FLUORESCENCE
	Nil

GAS SUMMARY:

INTERVAL (mMDRT)	Total GAS (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	IC4 (ppm)	NC4 (ppm)	IC5 (ppm)	NC5 (ppm)
1445-1460	0.0926	801	69	4	2	3	1	2
1460-1485	0.0643	499	106	4	3	5	3	2
1485-1515	0.0462	301	95	2	2	3	2	3
1515-1635	0.1723	1369	171	10	9	7	5	5
1635-1675	0.7685	7139	148	16	18	11	3	7
1675-1770	0.4658	4329	64	9	9	7	8	7
1770-1800	0.2583	2336	36	7	5	6	3	7

SURVEY

MD.	ANGLE	Azi	TVD
1603.82	1.27	287.88	1603.69
1632.1	1.33	283.81	1631.96

COMMENTS: Reached TD 12:30 Hrs 31 Dec 2010. Circulated 1.25 hours. Circulation stopped 13:45Hrs 31 Dec 2010. Tools on bottom

Mud data
W 10.1ppg

FEWD

Sperry LWD sensor to bit distances for 12 ¼" drilling assembly:

Sensor	Distance to bit (m)
D&I	13.2
Gamma Ray	16.68
Resistivity	18.52
APWD	21.04
Vibration	16.15

WELLSITE GEOLOGIST: Lindsay Cullen / David Cohen

Craigow-1

Date:	01-01-2010	Last Casing:	13.375" @ 735.0mMDRT
Report Number:	05	Leak Off Test (FIT):	14.94ppg EMW
Report Period:	24hrs to 24:00	Current hole size:	311 mm (12 ¼")
Depth @ 2400 Hrs:	1800mMDRT	Mud Weight:	10.1 ppg
Last Depth:	1800 mMDRT	ECD:	10.3 ppg EMW
Progress:	0m	Mud Type:	Water based.
TD Lithology:	Sandstone		KCL/Polymer/Clayseal Plus
Water Depth (MSL):	75.4m	Mud Fluid Loss:	N/A
RT Elevation: (MSL):	24.6m	Bit Type:	Reed Hycalog RSR516S

OPERATIONS SUMMARY

24 HOUR SUMMARY	Continued to run Schlumberger log. Rigged down Schlumberger. Serviced Top Drive. Made up cement stinger and RIH to 1370m. Circulated. Pumped and spotted 94bbl Hi vis pill at 1370m. POOH to 1220m and circulated bottoms up. Set cement plug #1 from 1220m to 1070m. POOH to 1000m and circulated bottoms up. POOH from 1000m to 920m. Spotted 94bbl Hi Vis pil at 920m. POOH to 770m. Set cement plug #2 from 770m to 620m. POOH above cement.
00:00 – 24:00:	
06:00 Update	Laying out 8¼" DCs while waiting on cement samples to set.
NEXT 24 HOURS:	RIH to tag top of #2 cmt plug. Pressure test cement plug to 1000psi. POOH laying down DP to 380m. Spot hi vis pill and set surface cmt plug #3. Displace well to water. Lay out DCs and DP. Recover BOP.

GEOLOGICAL SUMMARY

LITHOLOGIC DESCRIPTION:

Interval mMDRT ROP (m/hr)	Description
	Nil

HYDROCARBON FLUORESCENCE:

INTERVAL (mMDRT)	FLUORESCENCE
	Nil

GAS SUMMARY:

INTERVAL (mMDRT)	Total GAS (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	IC4 (ppm)	NC4 (ppm)	IC5 (ppm)	NC5 (ppm)
Nil								

SURVEY

MD.	ANGLE	Azi	TVD

COMMENTS: Ran Schlumberger Log No.1: PEX-HRLA-MSIP-GR

WELLSITE GEOLOGIST: Lindsay Cullen / David Cohen

Appendix 7: Cuttings Descriptions



CUTTINGS DESCRIPTIONS

		Craigow - 1 Sample descriptions
		Geologists arrived on site 28/12/10, @ 745 mRT (736m 13 5/8" Csg shoe)
		RT 26m ASL
		WD 74m MSL
M RT		10m Samples
745-750	100	CLAYSTONE: light to medium grey, pale green grey, occasional dark brown, soft-friable, blocky, silty, calcareous...mostly indeterminate fossil and shell fragments, forams, trace carbonaceous specks, trace cryptocrystalline pyrite aggregates,
750-760	100	CLAYSTONE: aa.
760-770	100	CLAYSTONE: light to medium grey, pale green grey, soft-friable, blocky, silty, calcareous...mostly indeterminate fossil and shell fragments, forams, trace carbonaceous specks, trace cryptocrystalline pyrite aggregates, tr very fine sand grains, trace very fine peletal glauconite.
770-780	90 10	CLAYSTONE: As Above SANDSTONE: white to light grey, mottled white, translucent, friable, very fine to fine, subangular to subrounded, silty, argillaceous, common fine calcareous fossil debris, trace carbonaceous specks, poor visible porosity. No shows.
780-790	80 20	CLAYSTONE: as above ARGILLACEOUS SANDSTONE: as above.
790-800	70 20 10	CLAYSTONE: as above SANDSTONE: as above grades to siltstone. LIMESTONE: white to light grey, sft-firm, chalky to coarsely bioclastic (calcitutite to calcarenite), argillaceous in part, common fine to medium grained peletal glauconite, poor to fair visible porosity, no shows.
800-810	60 30 10	CLAYSTONE as above SILTSTONE: pale to light grey, speckled grey, white, pale green grey soft to friable, argillaceous, common fine to medium grained quartz, grading to sandstone in parts, minor glauconite, calcareous, LIMESTONE: as above
810-820	40 30 20 10	CLAYSTONE: As Above SILTSTONE: light grey, soft to friable, argillaceous, calcareous, trace sand, trace carbonaceous matter, trace fine fossil debris. SANDSTONE: lt grey to light brownish grey, friable, very fine to fine, subangular to subrounded, poorly sorted, trace fossil fragments. Slightly calcareous, argillaceous and silty in parts, trace glauconite. Poor visible porosity, no shows. LIMESTONE: as above
820-830	40 30 20 10	SILTSTONE: light grey, light grey brown, soft to friable, argillaceous, calcareous, trace sand, trace carbonaceous matter, trace fine fossil debris. SANDSTONE: pale to light green grey to light grey, speckled grey, white, pale green grey, firm to friable, very fine to fine grained, subrounded, mod well sorted, silty, calcareous cement and fine fossil debris, poor visible porosity, NO SHOWS . CLAYSTONE: as above LIMESTONE: as above
830-840	60 40	CLAYSTONE: light grey to light green grey, soft, subblocky, silty, trace carbonaceous specks, trace calcareous, trace disseminated pyrite. micromicaceous. SILTSTONE: lght grey, soft, blocky, argillaceous, sandy, calcareous, trace glauconite.

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
840-850	60 30 10	CLAYSTONE: as above SILTSTONE: as above . LIMESTONE:white to pale yellow and light grey, soft to friable, blocky, common fossiliferous debris in chalky matrix ,(bioclastic calcilutite)
850-860	80 20	CLAYSTONE: As Above SILTSTONE: As Above.
860-870	70 20 10	CLAYSTONE: As Above SILTSTONE: As Above LIMESTONE: as above
870-880	70 30	LIMESTONE: white to light brownish grey, soft to friable, blocky, chalky matrix with very fine sand grains and traces of fine peletal glauconite, trace carbonaceous flakes, argillaceous in part, no visible porosity, no shows. SILTSTONE: light grey to light brown grey, soft, subblocky, argillaceous, calcareous, grades to very fine sandstone.
880-890	70 30	LIMESTONE: white to light brownish grey, soft to friable, blocky, chalky matix with very fine snd grains and traces of fine peletal glauconite, trace carbonaceous flakes, argillaceous in part, no visible porosity, no shows. SILTSTONE: light grey to light brown grey, soft, subblocky, argillaceous, calcareous, grades to very fine sandstone
890-900	80 20	LIMESTONE: white to light brownish grey, soft to friable, blocky, chalky matrix with very fine sand grains and common glauconite (10%), trace carbonaceous flakes, argillaceous in part, no visible porosity, no shows. SILTSTONE: light grey to light brown grey, soft, subblocky, argillaceous, calcareous, grades to very fine sandstone
900-910	80 20	LIMESTONE: white to light brownish grey, soft to friable, blocky, chalky matix with very fine snd grains and common glauconite, trace carbonaceous flakes, argillaceous in part, no visible porosity, no shows. SILTSTONE: light grey to light brown grey, soft, subblocky, argillaceous, calcareous, grades to very fine sandstone
910-920	80 20	LIMESTONE: white to light brownish grey, soft to friable, blocky, chalky matix with very fine snd grains and common glauconite (5%), trace carbonaceous flakes, argillaceous in part, no visible porosity, no shows. SILTSTONE: light grey to light brown grey, soft, subblocky, argillaceous, calcareous, grades to very fine sandstone
920-930	80 20	LIMESTONE: white to light brownish grey, soft to friable, blocky, chalky matix with very fine snd grains and common glauconite (15%), trace carbonaceous flakes, argillaceous in part, no visible porosity, no shows. SILTSTONE: light grey to light brown grey, soft, subblocky, argillaceous, calcareous, grades to very fine sandstone
930-940	80 20	LIMESTONE: white to light brownish grey, soft to friable, blocky, chalky matix with very fine snd grains and common glauconite (15%), trace carbonaceous flakes, argillaceous in part, no visible porosity, common shell fragments (5%) with trace echinoid spines, gastropods, no shows. SILTSTONE: light grey to light brown grey, soft, subblocky, argillaceous, calcareous, grades to very fine sandstone
940-950	70 30	LIMESTONE: white to light brownish grey, olive grey, soft to friable, blocky, chalky matix with very fine snd grains and common glauconite (5%), trace carbonaceous flakes, argillaceous in part, no visible porosity, no shows. SILTSTONE: light grey to light brown grey, soft, subblocky, argillaceous, calcareous, grades to very fine sandstone
950-960	70 30	LIMESTONE: brownish grey, olive grey, soft to friable, blocky, chalky matrix with very fine snd grains and common glauconite (5%), common shell frags, (20%), rr coral frags, 5 % glauc mtx, argillaceous in part, no visible porosity, no shows. SILTSTONE: light grey to light brown grey, soft, subblocky, argillaceous, calcareous, grades to very fine sandstone
960-970	25 75	SILTSTONE: As Above LIMESTONE: As Above., 30% shell frags
970-980	25 75	SILTSTONE: As Above LIMESTONE: As Above., 30% shell frags
980-990	25 75	SILTSTONE: As Above LIMESTONE: As Above., 20% shell frags

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
990-1000	65 35	SILTSTONE: As Above LIMESTONE: As Above., 10% shell frags
M RT		5m Samples
1000-1005	65 35	SILTSTONE: As Above LIMESTONE: As Above., 10% shell frags
1005-1010	95 5	CALCAREOUS CLAYSTONE: light grey to light brown grey, olive grey, soft, subblocky, argillaceous in part, amorphous, common vf sandy mtx LIMESTONE: white to translucent, pale yellow, grey-white, buff, mottled, soft to firm, crystalline in part, micritic, amorphous, common shell fragments, 5% shell frags, turritella, 3% Glauc mtx
1010-1015	95 5	CALCAREOUS CLAYSTONE: light grey to light brown grey, olive grey, soft, subblocky, argillaceous in part, amorphous, common vf sandy mtx LIMESTONE: white to translucent, pale yellow, grey-white, buff, mottled, soft to firm, crystalline in part, micritic, amorphous, common shell fragments, 5% shell frags, turritella, 3% Glauc mtx
1015-1020	95 5	CALCAREOUS CLAYSTONE: light grey to light brown grey, olive grey, soft, subblocky, argillaceous in part, amorphous, common vf sandy mtx LIMESTONE: white to translucent, pale yellow, grey-white, buff, mottled, soft to firm, crystalline in part, micritic, amorphous, common shell fragments, 5% shell frags, turritella, 3% Glauc mtx
1020-1025	93 5 2	CALCAREOUS CLAYSTONE: light grey to light brown grey, olive grey, soft, subblocky, argillaceous in part, amorphous, common vf sandy mtx LIMESTONE: white to translucent, pale yellow, grey-white, buff, mottled, soft to firm, crystalline in part, micritic, amorphous, common shell fragments, 5% shell frags, turritella, gastropod, 3% Glauc mtx DOLOMITE, dark red brn, hard, loose
1025-1030	93 5 2	CALCAREOUS CLAYSTONE: light grey to light brown grey, olive grey, soft, subblocky, argillaceous in part, amorphous, common vf sandy mtx LIMESTONE: white to translucent, pale yellow, grey-white, buff, mottled, soft to firm, crystalline in part, micritic, amorphous, common shell fragments, 5% shell frags, turritella, gastropod, 3% Glauc mtx DOLOMITE, dak red brn, hard, loose
1030-1035	95 5	CLAYSTONE: light grey to light brown grey, olive grey, soft, sub-blocky, silty in part, amorphous, minor calcareous cmt, common vf sand LIMESTONE: white to translucent, pale yellow, grey-white, buff, mottled, soft to firm, common glauconite mtx, crystalline in part, micritic, amorphous, common shell fragments, bryozoa (4%)
1035-1040	95 5	CLAYSTONE: As Above LIMESTONE: As Above., 5% shell frags
1040-1045	99 1	CLAYSTONE: As Above LIMESTONE: As Above., 5% shell frags
1045-1050	96 4	CLAYSTONE: As Above LIMESTONE: As Above., 5% shell frags
1050-1055	95 5	CLAYSTONE: As Above LIMESTONE: As Above., 5% shell frags
1055-1060	95 5	CLAYSTONE: As Above LIMESTONE: As Above., 5% shell frags
1060-1065	95 5	CLAYSTONE: As Above LIMESTONE: As Above., 3% shell frags
1065-1070	94 5 1	CLAYSTONE: light grey to light brown grey, olive grey, minor plgn-gy, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common very fine sand. LIMESTONE: As Above, 2% shell frags DOLOMITE, buff, hard, angular, loose, amorphous
1070-1075	95 3 2	CLAYSTONE: As Above LIMESTONE: As Above., 1% shell frags DOLOMITE, buff, hard, angular, loose, amorphous
1075-1080	95 3 2	CLAYSTONE: As Above LIMESTONE: As Above., 2% shell frags DOLOMITE, buff, hard, angular, loose, amorphous
1080-1085	95 3 2	CLAYSTONE: As Above LIMESTONE: As Above., 2% shell frags DOLOMITE, buff, hard, angular, loose, amorphous

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1085-1090	95 3 2	CLAYSTONE: light grey to light brown grey, olive grey, minor plgn-gy, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx LIMESTONE: As Above., 2% shell frags DOLOMITE, buff, hard, angular, loose, amorphous
1090-1095	96 2 2	CLAYSTONE: light grey to light brown grey, olive grey, minor plgn-gy, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx LIMESTONE: As Above., 2% shell frags DOLOMITE, buff, hard, angular, loose, amorphous
1095-1100	92 8	CLAYSTONE: light grey to light brown grey, olive grey, minor pale green-gy, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sandy mtx LIMESTONE: As Above., 2% shell frags
1100-1105	91 5 4	CLAYSTONE: light grey to light brown grey, olive grey, minor pale gn-gy, soft, sub-blocky, silty in part, amorphous, trace calcite cmt, common very f sand LIMESTONE: As Above., 2% shell frags DOLOMITE, buff, hard, angular, loose, amorphous
1105-1110	93 5 2	CLAYSTONE: light grey to light brown grey, olive grey, minor plgn-gy, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx LIMESTONE: As Above., 2% shell frags SANDSTONE: clear, opaque, loose grains, very coarse, well sorted, subangular to subrounded, good visual porosity, NO SHOWS.
1110-1115	93 5 2	CLAYSTONE: light grey to light brown grey, olive grey, minor plgn-gy, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sandy mtx LIMESTONE: As Above., 2% shell frags SANDSTONE: clear, opaque, loose grains, very coarse, well sorted, subangular to subrounded, good visual porosity, NO SHOWS.
1115-1120	100	CLAYSTONE: light grey to light brown grey, olive grey, minor pl white, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sandy mtx.
1120-1125	100	CLAYSTONE: light grey to light brown grey, olive grey, minor pl white, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sandy mtx.
1125-1130	95 5	CLAYSTONE: light grey to light brown grey, olive grey, minor pl white, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sandy mtx. DOLOMITE, buff, hard, angular, loose, amorphous.
1130-1135	100	CLAYSTONE: light grey to light brown grey, olive grey, minor pl white, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sandy mtx. Mnr pyritised echin spines, rr carb fragments
1135-1140	98 2	CLAYSTONE: light grey to light brown grey, olive grey, minor plgn-gy, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sandy mtx. SANDSTONE: clear, opaque, loose grains, very coarse, well sorted, subrd to rounded, good visual porosity, NO SHOWS.
1140-1145	100	CLAYSTONE: light grey to light brown grey, olive grey, minor pl white, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sand, Mnr shell frags.
1145-1150	100	CLAYSTONE: light grey to light brown grey, olive grey, minor pl white, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sand, . Mnr shell frags, rr pyrite
1150-1155	100	CLAYSTONE: light grey to light brown grey, olive grey, minor pl white, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, rr pyrite
1155-1160	100	CLAYSTONE: light grey to light brown grey, olive grey, minor pl white, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, rr pyrite
1160-1165	97 3	CLAYSTONE: light grey to light brown grey, olive grey, minor plgn-gy, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. SANDSTONE: clear, opaque, loose grains, very coarse, well sorted, subrd to rounded, good visual porosity, NO SHOWS.
1165-1170	40 55 5	CLAYSTONE: light grey to light brown grey, olive grey, minor pl gn-gy, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. SANDSTONE: clear, opaque, loose grains, fine to very coarse, well sorted, subrdd to rounded, good visual porosity, NO SHOWS. SANDSTONE: buff to light org brn, fri to brittle, med-crse, mod srted, sub ang to subrd, dol and cal cmts, mineral fluor (dolomitic) . NO SHOWS

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1170-1175	10 60 30	CLAYSTONE: light grey to light brown grey, olive grey, minor plgn-gy, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. SANDSTONE: clear, opaque, loose grains, fine to very coarse, well sorted, subrd to rounded, good visual porosity, NO SHOWS. SANDSTONE: buff to light org brn, fri to brittle, med-crse, mod srted, sub ang to subrd, dol and cal cmts, <i>mineral fluor (dolomitic)</i>
1175-1180	20 40 30 10	CLAYSTONE: light grey to light brown grey, olive grey, minor plgn-gy, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. SANDSTONE: clear, opaque, loose grains, fine to very coarse, well sorted, subrd to rounded, good visual porosity, NO SHOWS. SANDSTONE: buff to light org brn, fri to brittle, med-crse, mod srted, sub ang to subrd, dol and cal cmts, <i>mineral fluor (dolomitic)</i> DOLOMITE: buff, hard to v hard, amorphous, <i>mineral fluor (dolomitic)</i>
1180-1185	60 30 10	CLAYSTONE: light grey to very dark grey, light brown grey, olive grey, minor pl gn-gy, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sandy mtx. SANDSTONE: clear, opaque, loose grains, fine to very coarse, well sorted, subrd to rounded, good visual porosity, NO SHOWS. DOLOMITE: buff, hard to v hard, amorphous
1185-1190	88 2 10	CLAYSTONE: light grey to dark grey to greyish black, dk olive grey, minor plgn-gy, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. SANDSTONE: clear, opaque, loose grains, fine to very coarse, well sorted, subrd to rounded, good visual porosity, NO SHOWS. DOLOMITE: buff, hard to v hard, amorphous
1190-1195	97 3	CLAYSTONE: dark grey to greyish black, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sandy mtx. DOLOMITE: buff, hard to v hard, amorphous
1195-1200	100	CLAYSTONE: light grey to light brown grey, olive grey, minor pl white, soft, sub-blocky, argillaceous in part, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, rr pyrite
1200-1205	100	CLAYSTONE: dark grey to greyish black, soft, sub-blocky, argillaceous in part, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, rr pyrite
1205-1210	97 3	CLAYSTONE: dark grey to greyish black, soft, sub-blocky, argillaceous in part, amorphous, trace calc cmt, common vf sandy mtx. DOLOMITE: buff, hard to v hard, amorphous
1210-1215	95 5	CLAYSTONE: As Above. DOLOMITE, As Above, common loose calcite
1215-1220	98 2	CLAYSTONE: As Above. DOLOMITE, As Above,
1220-1225	98 2	CLAYSTONE: As Above. DOLOMITE, As Above,
1225-1230	98 2	CLAYSTONE: As Above. DOLOMITE, As Above,
1230-1235	99 1	CLAYSTONE: As Above. DOLOMITE, As Above,
1235-1240	99 1	CLAYSTONE: dark grey to greyish black, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, rr pyrite . DOLOMITE: buff, hard to v hard, amorphous.
1240-1245	99 1	CLAYSTONE: dark grey to greyish black, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, rr pyrite . DOLOMITE: buff, hard to v hard, amorphous.
1245-1250	100	CLAYSTONE: dark grey to greyish black, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, radiol, rr pyrite .
1245-1250	100	CLAYSTONE: dark grey to greyish black, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, radiol, rr pyrite .
1250-1255	100	CLAYSTONE: dark grey to greyish black, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, radiol, rr pyrite .
1255-1260	100	CLAYSTONE: dark grey to greyish black, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, radiol, rr pyrite .
1260-1265	70 30	CLAYSTONE: dark grey to greyish black, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, rr pyrite . DOLOMITE: buff, brown, hard to v hard, amorphous.

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1265-1270	75 25	CLAYSTONE: dark grey to greyish black, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, rr pyrite . DOLOMITE: buff, brown, hard to v hard, amorphous.
1270-1275	74 25 1	CLAYSTONE: dark grey to greyish black, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, rr pyrite . DOLOMITE: buff, brown, hard to v hard, amorphous. SANDSTONE: clear, opaque, loose grains, fine to very coarse, well sorted, subrd to rounded, good visual porosity, NO SHOWS.
1275-1280	98 2	CLAYSTONE: dark grey to greyish black, grey brown, soft, sub-blocky, amorphous, trace calc cmt, common vf sandy mtx. Mnr shell frags, radiol, rr pyrite . . DOLOMITE: buff, brown, hard to v hard, amorphous.
1280-1285	98 2	CLAYSTONE: dark grey to greyish black, grey brown, soft, sub-blocky, silty in part, amorphous, trace calc cmt, common vf sandy mtx. trace shell frags, radiol, rr pyrite . . DOLOMITE: buff, brown, hard to v hard, amorphous.
1285-1290	90 10	CLAYSTONE: dark grey to greyish black, grey brown, soft, sub-blocky, silty in part, trace calcareous, commonly very fine sand, mnr shell frags, radiol, tr disseminated pyrite, trace carbonaceous flecks . DOLOMITE: dark brown, mottled white, hard to v hard, subblocky, calcareous in part, no visible porosity.
1290-1295	95 5	CLAYSTONE: dark grey to greyish black, grey brown, soft, sub-blocky, silty in part, trace calcareous, commonly very fine sand, trace shell fragments, forams, tr disseminated pyrite, trace carbonaceous flecks . DOLOMITE: dark brown, hard to very hard, subblocky, calcareous in part, com coarse recryst bioclastic mat, no visible porosity.
1296-1300	100 Tr	CLAYSTONE: dark grey to dark grey brown, soft, sub-blocky, silty in part, micaceous and micromicaceous, trace calcareous, commonly very fine sand, trace shell fragments, forams, trace disseminated pyrite, trace carbonaceous flecks . DOLOMITE: dark brown, hard to very hard, subblocky, calcareous in part, no visible porosity.
1300-1305	100 Tr	CLAYSTONE: dark grey to dark grey brown, soft, sub-blocky to subfissile in part, silty in part, micaceous and micromicaceous, trace calcareous, commonly very fine sand, trace shell fragments, forams, trace disseminated pyrite, trace carbonaceous flecks . DOLOMITE: dark brown, hard to very hard, subblocky, calcareous in part, no visible porosity
1305-1310	100 tr	CLAYSTONE: dark grey to dark grey brown, soft, sub-blocky to subfissile, silty in part, micaceous and micromicaceous, trace calcareous, commonly very fine sand, trace shell fragments, forams, trace disseminated pyrite, trace carbonaceous flecks . DOLOMITE: dark brown, hard to very hard, subblocky, calcareous in part, no visible porosity. <i>Note: BU sweep contained abundant dark metallic-silvery black, friable to hard, graphitic. Appears to be graphite added to sweep... confirmed by comparing sample.</i>
1311m		POOH for NB
1311-1315	100	CLAYSTONE, dusky yell brn, pl green, soft to blocky, calcareous (pale green) to trace calc (dusky brn,) 3% carb inclusions, rare glauconite (1%). Tr pyrite, rare Dolomite, common shell frags , rare turitella, forams
1315-1320	100	CLAYSTONE, dusky yell brn, mnr pl green, soft to blocky, calcareous (pale green) to trace calc (dusky brn,) 5% carb inclusions, rare glauconite (1%). Tr pyrite, rare Dolomite, common shell frags , rare turitella, forams
1320-1325	90 10	CLAYSTONE: A/A SANDSTONE: clear, opaque, loose grains, med to v. coarse, well sorted, subrd to rounded, good visual porosity, NO SHOWS.
1325-1330	100	CLAYSTONE, dusky yell brn, rr pl green, soft to blocky, calcareous (pale green) to trace calc (dusky brn,) 5% carb inclusions, rare glauconite (1%). Tr pyrite, rare Dolomite, common shell frags , rare turitella, forams
1330-1335	90 10	CLAYSTONE: A/A SANDSTONE: clear, opaque, loose grains, med to v. coarse, well sorted, subrd to rounded, good visual porosity, NO SHOWS.
1335-1340	98 2	CLAYSTONE: A/A SANDSTONE: clear, opaque, loose grains, med to v. coarse, well sorted, subrd to rounded, good visual porosity, NO SHOWS.
1340-1345	100	CLAYSTONE, dusky yell brn, soft to blocky, calcareous (pale green) to trace calc (dusky brn,) 5% carb inclusions, rare glauconite (1%). Tr pyrite, rare Dolomite, common shell frags , rare turitella, forams

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1345-1350	100	CLAYSTONE, dusky yell brn, soft to blocky, calcareous (pale green) to trace calc (dusky brn,) 5% carb inclusions, rare glauconite (1%). Tr pyrite, rare Dolomite, common shell frags , rare turitella, forams
1350-1355	90 10	CLAYSTONE: A/A SANDSTONE: pale to dark brown, firm to brittle, very fine to fine, well sorted, subrd to rounded, fair visual porosity, common lithics, quartz and rare glauconite, NO SHOWS.
1355-1360	100	CLAYSTONE, dusky yell brn, soft to blocky, calcareous (pale green) to trace calc (dusky brn,) 5% carb inclusions, rare glauconite (1%). Tr pyrite, rare Dolomite, common shell frags , rare turitella, forams, common vf sand
1360-1365	100	CLAYSTONE, dusky yell brn, soft to blocky, calcareous (pale green) to trace calc (dusky brn,) 5% carb inclusions, rare glauconite (1%). Tr pyrite, rare Dolomite, common shell frags , rare turitella, forams, common vf sand
1365-1370	100	GLAUCONITIC CLAYSTONE, dusky yell brn, light brown, soft to blocky, non-calcareous 15% glauconite inclusions, 3% carbonaceous, rare pyrite, loose.
1370-1375	100	GLAUCONITIC CLAYSTONE, dusky yell brn, light brown, soft to blocky, non-calcareous 15% glauconite inclusions, 3% carbonaceous, rare pyrite, loose.
1375-1380	100	GLAUCONITIC CLAYSTONE, dusky yell brn, light brown, soft to blocky, non-calcareous 15% glauconite inclusions, 3% carbonaceous, rare pyrite, loose.
1380-1385	80 10 10	GLAUCONITIC CLAYSTONE, dusky yell brn, light brown, soft to blocky, non-calcareous 15% glauconite inclusions, 3% carbonaceous, rare pyrite, loose. DOLOMITE, buff to light brown, firm to mod hard, brittle. SANDSTONE: clr to opaque, pale to dark brown, firm to brittle, loose in part, med to very coarse, prly sorted, subrd to rounded, good inferred porosity, NO SHOWS.
1385-1390	94 5 1	CLAYSTONE, dusky yell brn, light brown, soft to blocky, non-calcareous tr glauconite inclusions, 3% carbonaceous, rare pyrite, loose. DOLOMITE, buff to light brown, firm to mod hard, brittle. SANDSTONE: clr to opaque, loose , med to very coarse, prly sorted, subrd to rounded, good inferred porosity, NO SHOWS.
1390-1395	96 3 1	CLAYSTONE, dusky yell brn, light brown, soft to blocky, non-calcareous tr glauconite inclusions, 3% carbonaceous, rare pyrite, loose. DOLOMITE, buff to light brown, firm to mod hard, brittle. SANDSTONE: clr to opaque, loose , med to very coarse, prly sorted, subrd to rounded, good inferred porosity, NO SHOWS.
1395-1400	98 1 1	CLAYSTONE, dusky yell brn, light brown, soft to blocky, non-calcareous tr glauconite inclusions, 3% carbonaceous, rare pyrite, loose. DOLOMITE, buff to light brown, firm to mod hard, brittle. SANDSTONE: clr to opaque, loose , very coarse, prly sorted, subrd to rounded, good inferred porosity, NO SHOWS.
1400-1405	97 1 2	CLAYSTONE, dusky yell brn, light brown, soft to blocky, non-calcareous tr glauconite inclusions, 3% carbonaceous, rare pyrite, loose. DOLOMITE, buff to light brown, firm to mod hard, brittle. SANDSTONE: clr to opaque, loose , very coarse, prly sorted, subrd to rounded, good inferred porosity, NO SHOWS.
1405-1410	79 1 20	CLAYSTONE, dusky yell brn, light brown, soft , blocky, non-calcareous tr glauconite inclusions, 3% carbonaceous, rare pyrite. DOLOMITE, buff to light brown, firm to mod hard, brittle. SANDSTONE: clr to opaque, white, loose , very coarse, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
1410-1415	85 10 5	CLAYSTONE: dusky yell brn, light brown, soft, sol, blocky, non-calcareous, tr f glauconite pellets, 3% carbonaceous spks and flecks, rare pyrite. SANDSTONE: clr to trns white, occ lt gy, loose , very coarse-grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. DOLOMITE, buff to med tan brown, mottled wh in pt, firm to mod hard, brittle, calc, slty-sdy(vf) tr arg, no vis porosity

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1415-1420	90 Tr 10	CLAYSTONE: dusky yell brn, light brown, soft, sol, blocky, non-calcareous, tr f glauconite pellets, 3% carbonaceous spks and flecks, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose , very coarse-grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. DOLOMITE, buff to med tan brown, mottled wh in pt, firm to mod hard, brittle, calc, slty-sdy(vf) tr arg, no vis porosity
1420-1425	90 Tr 10	CLAYSTONE: dusky yell brn, light brown, soft-occ fm, sol, blocky, sli calcareous, tr f glauconite pellets, 3% carbonaceous spks and flecks, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose , very coarse-grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. DOLOMITE, buff to med tan brown, mottled wh in pt, firm to mod hard, brittle, calc, slty-sdy(vf) tr arg, no vis porosity
1425-1430	90 10	CLAYSTONE: dusky yell brn, light brown, soft, sol, blocky, sli calcareous, tr f glauconite pellets, 3% carbonaceous spks and flecks and coaly laminae, rare pyrite. DOLOMITE, buff to med tan brown, mottled wh in pt, firm to mod hard, brittle, calc, slty-sdy(vf) tr arg, no vis porosity
1430-1435	85 5 10	CLAYSTONE: dusky yell brn, light brown, soft, sol, blocky, silty, sli calcareous, tr f glauconite pellets, 3% carbonaceous spks and flecks and coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose , very coarse-grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. DOLOMITE, buff to med tan brown, mottled wh in pt, firm to mod hard, brittle, calc, slty-sdy(vf) tr arg, tr dissem microxslt pyr, no vis porosity
1435-1440	90 TR 10	CLAYSTONE: dusky yell brn, light brown, soft, sol, blocky, silty, sli calcareous, tr f glauconite pellets, 3% carbonaceous spks and flecks and coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose , very coarse-grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. DOLOMITE, buff to med tan brown, mottled wh in pt, firm to mod hard, brittle, calc, slty-sdy(vf) tr arg, tr dissem microxslt pyr, no vis porosity
1440-1445	100 Tr Tr	CLAYSTONE: dusky yell brn, light brown, soft, sol, blocky, silty, sli calcareous, tr f glauconite pellets, 3% carbonaceous spks and flecks and coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose , very coarse-grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. DOLOMITE, buff to med tan brown, mottled wh in pt, firm to mod hard, brittle, calc, slty-sdy(vf) tr arg, tr dissem microxslt pyr, no vis porosity
1445-1450	90 10 tr	CLAYSTONE: dusky yell brn, light gy brown, soft, sol, blocky, silty, sli calcareous, tr f glauconite pellets, Tr carbonaceous spks and flecks and coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose , very coarse-grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. DOLOMITE, buff to med tan brown, mottled wh in pt, firm to mod hard, brittle, calc, slty-sdy(vf) tr arg, tr dissem microxslt pyr, no vis porosity .
1450-1455	90 10 tr	CLAYSTONE: light gy brown to dusky yell brn, soft, sol, blocky, very silty, grades to siltstone, sli calcareous, tr f glauconite pellets, Tr carbonaceous spks and flecks and coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose , very coarse-grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. DOLOMITE, buff to med tan brown, mottled wh in pt, firm to mod hard, brittle, calc, slty-sdy(vf) tr arg, tr dissem microxslt pyr, no vis porosity

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1455-1460	95	CLAYSTONE: light gy brown to dusky yell brn, soft, sol, blocky, very silty, grades to siltstone, sli calcareous, tr f glauconite pellets, Tr carbonaceous specks and flecks and coaly laminae, rare pyrite.
	5	SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse-grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	tr	DOLOMITE, buff to med tan brown, mottled wh in pt, firm to mod hard, brittle, calc, slty-sdy(vf) tr arg, tr dissemin microxslt pyr, no vis porosity
1460-1465	30	Silty CLAYSTONE: light gy brown to pale gy mott white, soft, sol, blocky, very silty, grades to siltstone, sli calcareous, tr f glauconite pellets, Tr carbonaceous specks and flecks and coaly laminae, rare pyrite.
	70	SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	Tr	DOLOMITE, buff to med tan brown, mottled wh in pt, firm to mod hard, brittle, calc, slty-sdy(vf) tr arg, tr dissemin microxst pyr, no vis porosity .
1465-1470	30	Silty CLAYSTONE: light gy brown to pale gy mott white, soft, sol, blocky, very silty, grades to siltstone, sli calcareous, tr com kaol, com coaly laminae, rare pyrite.
	70	SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
1470-1475	30	SILTSTONE: light gy brown to pale gy mott white, soft, sol, blocky, very sdy (vf), grades to sandstone, sli calcareous, tr - com kaol, com coaly laminae, rare pyrite.
	60	SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	10	COAL: dk brn to black, dull, earthy, occ vitreous, friable to hard, brittle, blocky. Argillaceous.
1475-1480	60	SILTSTONE: light gy brown to pale gy mott white, soft, sol, blocky, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaol, com coaly laminae, rare pyrite.
	20	SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	20	COAL: dk brn to black, dull, earthy to pred bright vitreous, friable to hard, brittle, blocky. Argillaceous in parts.
1480-1485	70	SILTSTONE: light gy brown to pale gy mott white, soft, sol, blocky, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaol, com coaly laminae, rare pyrite.
	20	SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	10	COAL: dk brn to black, dull, earthy to pred bright vitreous, friable to hard, brittle, blocky. Argillaceous in parts.
1485-1490	90	SILTSTONE: light gy brown to pale gy mott white, soft, sol, blocky, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaol, com coaly laminae, rare pyrite.
	Tr	SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	10	COAL: dk brn to black, dull, earthy to pred bright vitreous, friable to hard, brittle, blocky. Argillaceous in parts.

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1490-1495	90 10 Tr Tr	SILTSTONE: light gy brown to pale gy mott white, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaol, com coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, tr fine dol/arg mtrx, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. COAL: dk brn to black, dull, earthy to pred bright vitreous, friable to hard, brittle, blocky. Argillaceous in parts. DOLOMITE: med yel brn, hard, blocky, arg, silty, probably as nodules within Sst.
1495-1500	65 30 5 tr	SILTSTONE: light gy brown to pale gy mott white, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaol, com coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, tr fine dol/arg mtrx, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, blocky. Argillaceous in parts. DOLOMITE: med yel brn, hard, blocky, arg, silty, probably as nodules within Sst.
1500-1505	95 Tr 5	SILTSTONE white to pale grey, light gy brown, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaol, com coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, tr fine dol/arg mtrx, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, blocky. Argillaceous in parts.
1505-1510	90 5 5	SILTSTONE: white to pale grey, light gy brown, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaol, com coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, tr fine dol/arg mtrx, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, blocky, argillaceous in parts.
1510-1515	95 5 tr	SILTSTONE: white to pale grey, light gy brown, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, tr fine dol/arg mtrx, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, blocky, argillaceous in parts.
1515-1520	40 50 10	SILTSTONE: white to pale grey, light gy brown, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, tr fine dol/arg mtrx, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1520-1525	10 70 20	SILTSTONE: white to pale grey, light gy brown, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, tr fine dol/arg mtrx, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1525-1530	5 90 5	SILTSTONE: white to pale grey, light gy brown, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite. SANDSTONE: clr to trns l white, occ lt gy, loose, very coarse- pred grlr, tr fine dol/arg mtrx, mod well sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS. COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1530-1535	10	SILTSTONE: white to pale grey, light gy brown , soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	80	SANDSTONE: clr to trns l white, occ lt gy, loose , med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	10	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1535-1540	5	SILTSTONE: white to pale grey, light gy brown , soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	90	SANDSTONE: clr to trns l white, occ lt gy, loose , med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	5	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1540-1545	80	SILTSTONE: white to pale grey, light gy brown , soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	20	SANDSTONE: clr to trns l white, occ lt gy, loose , med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	tr	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1545-1550	40	SILTSTONE: white to pale grey, light gy brown , soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	60	SANDSTONE: clr to trns l white, occ lt gy, loose , f-med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, poss bimodal, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	tr	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1550-1555	50	SILTSTONE: white to pale grey, light gy brown , soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	40	SANDSTONE: clr to trns l white, occ lt gy, loose , med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	10	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1555-1560	60	SILTSTONE: white to pale grey, light gy brown , soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	40	SANDSTONE: clr to trns l white, occ lt gy, loose , med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	tr	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1560-1565	20	SILTSTONE: white to pale grey, light gy brown , soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	70	SANDSTONE: clr to trns l white, occ lt gy, loose , f-med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	10	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1565-1570	80	SILTSTONE: white to pale grey, light gy brown , soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	20	SANDSTONE: clr to trns l white, occ lt gy, loose , f-med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	tr	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1570-1575	5	SILTSTONE: white to pale grey, light gy brown , soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	95	SANDSTONE: clr to trns l white, occ lt gy, loose , f-med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1575-1580	10	SILTSTONE: white to pale grey, light gy brown , soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	90	SANDSTONE: clr to trnsl white, occ lt gy, loose , f-med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
1580-1585	10	SILTSTONE: white to pale grey, light gy brown , soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	80	SANDSTONE: clr to trnsl white, occ lt gy, loose , f-med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS
	10	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1585-1590	80	SILTSTONE: light gy brown mottled white to pale grey, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	20	SANDSTONE: clr to trnsl white, occ lt gy, loose , f-med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS
1590-1595	70	SILTSTONE: light gy brown mottled white to pale grey, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	20	SANDSTONE: clr to trnsl white, occ lt gy, loose , f-med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	10	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1595-1600	80	SILTSTONE: light gy brown mottled white to pale grey, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	20	SANDSTONE: clr to trnsl white, occ lt gy, loose , f-med- pred grlr, tr fine dol/arg mtrx, fair sorted, subrd to rounded, sub spherical, broken grs prob pebbly, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	tr	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1600-1605	50	SILTSTONE: light gy brown mottled white to pale grey, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	50	SANDSTONE: clr to trnsl white, occ lt gy, loose , f-crs, grlr ip, tr fine dol/arg mtrx, poorly sorted, subrd to rounded, sub spherical, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	tr	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1605-1615	20	SILTSTONE: light gy brown mottled white to pale grey, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	80	SANDSTONE: clr to trnsl white, occ lt gy, loose , vf-crs, grlr ip, tr fine dol/arg mtrx, poorly sorted, subang to rounded, sub spherical, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	tr	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts. Missed sample due to ROP and suspected H2S at shakers...caused by unblocking a drain.
1615-1625	50	SILTSTONE: light gy brown mottled white to pale grey, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	50	SANDSTONE: clr to trnsl white, occ lt gy, loose , vf-cvrs, pred ominantly granular, tr fine dol/arg mtrx, poorly sorted, subang to rounded, sub spherical, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	tr	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts. Missed sample due to ROP

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1625-1630	50	SILTSTONE: white to pale grey, light gy brown, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	50	SANDSTONE: clr to trns white, occ lt gy, loose, vf-cvrs, pred ominantly granular, tr fine dol/arg mtrx, poorly sorted, subang to rounded, sub spherical, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	tr	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1630-1635	40	SILTSTONE: white to pale grey, light gy brown, soft, sol, blocky, argillaceous, very sdy (vf), grades to sandstone, sli calcareous, tr dol, tr - com kaolin, com coaly laminae, rare pyrite.
	50	SANDSTONE: clr to trns white, occ lt gy, loose, vf-cvrs, pred ominantly granular, tr fine dol/arg matrix, poorly sorted, subang to rounded, sub spherical, tr lithic grs, tr pyr cmt, tr kaol smears, good inferred porosity, NO SHOWS.
	10	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1635-1640	30	Carbonaceous SILTSTONE: med gy -dk gy brown, mott w hip, soft-friable, sol, blocky, argillaceous, tr kaolin, very carbonaceous, rare pyrite.
	30	CLAYSTONE: white-lt gy, v sft, amorphous, kaolinitic, silty, sli calc,
	40	SANDSTONE: clr to trns white, occ lt gy, loose, vf-cvrs, pred ominantly granular, tr fine dol/arg matrix, poorly sorted, subang to rounded, sub spherical, tr lithic grs, prob bimodal, good inferred porosity, tr dull yel fluorescence, no cut...mineral fluor?. NO SHOWS.
1640-1645	20	Carbonaceous SILTSTONE: med gy -dk gy brown, mott w hip, soft-friable, sol, blocky, argillaceous, tr kaolin, very carbonaceous, rare pyrite.
	20	CLAYSTONE: white-lt gy, v sft, amorphous, kaolinitic, silty, sli calc,
	20	SANDSTONE: clr to trns white, occ lt gy, loose, vf-cvrs, pred ominantly granular, tr fine dol/arg matrix, poorly sorted, subang to rounded, sub spherical, tr lithic grs, prob bimodal.. vf -f matrix in crs/granular sand, good inferred porosity, NO SHOWS.
	40	Indet VOLCANIC:white mottled dark brown, friable-firm, fine grained weathered feldspar (kaolin) with dark micaceous mafic mineral.,trace spotty dull yellow mineral fluor, no cut.
1645-1650	10	Carbonaceous SILTSTONE: med gy -dk gy brown, mott w hip, soft-friable, sol, blocky, argillaceous, tr kaolin, very carbonaceous, rare pyrite.
	10	SANDSTONE: clr to trns white, occ lt gy, loose, vf-cvrs, pred ominantly granular, tr fine dol/arg matrix, poorly sorted, subang to rounded, sub spherical, tr lithic grs, prob bimodal.. vf -f matrix in crs/granular sand, good inferred porosity, NO SHOWS.
	80	Indet VOLCANIC:white mottled dark brown, friable-firm, fine grained crystalline appearance, weathered feldspar (kaolin) with dark micaceous mafic mineral.,trace spotty dull yellow mineral fluor, no cut.
1650-1655	10	Carbonaceous SILTSTONE: med gy -dk gy brown, mott w hip, soft-friable, sol, blocky, argillaceous, tr kaolin, very carbonaceous, rare pyrite.
	30	SANDSTONE: clr to trns white, occ lt gy, loose, vf-cvrs, pred ominantly granular, tr fine dol/arg matrix, poorly sorted, subang to rounded, sub spherical, tr lithic grs, prob bimodal.. vf -f matrix in crs/granular sand, good inferred porosity, NO SHOWS.
	60	Indet VOLCANIC:white mottled dark brown, friable-firm, fine grained weathered feldspar (kaolin) with dark micaceous mafic mineral, trace pyrite,trace spotty dull yellow mineral fluor, no cut..
1655-1660	30	siltyCLAYSTONE: white-lt gy, lt gy bn, v sft, amorphous, kaolinitic, silty, sli calc,
	40	SANDSTONE: clr to trns white, occ lt gy, loose, vf-cvrs, pred ominantly granular, tr fine dol/arg matrix, poorly sorted, subang to rounded, sub spherical, tr lithic grs, prob bimodal.. vf -f matrix in crs/granular sand, , good inferred porosity,NO SHOWS.
	20	Indet VOLCANIC:white mottled dark brown, friable-firm, fine grained weathered feldspar (kaolin) with dark micaceous mafic mineral, trace pyrite,trace spotty dull yellow mineral fluor, no cut.
	10	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1660-1665	30	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	20	SANDSTONE: clr to trns l white, occ lt gy, loose, vf-crs, pred ominantly granular, tr fine dol/arg matrix, poorly sorted, subang to rounded, sub spherical, tr lithic grs, prob bimodal.. vf –f matrix in crs/granular sand, good inferred porosity, NO SHOWS.
	50	Indet VOLCANIC: white, mottled dark brown-blk, friable-firm, fine grained, crystalline, angular interlocking crystals, weathered feldspar (kaolin) with dark micaceous mafic mineral, trace pyrite, trace spotty dull yellow mineral fluor, no cut.
	tr	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1665-1670	30	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	20	SANDSTONE: clr to trns l white, occ lt gy, loose, vf-cvrs, pred ominantly granular, tr fine dol/arg matrix, poorly sorted, subang to rounded, sub spherical, tr lithic grs, prob bimodal.. vf –f matrix in crs/granular sand, good inferred porosity, NO SHOWS.
	50	Indet VOLCANIC: white, mottled dark brown-blk, friable-firm, fine grained, crystalline, angular interlocking crystals, weathered feldspar (kaolin) with dark micaceous mafic mineral, trace pyrite, trace spotty dull yellow mineral fluor, no cut.
1670-1675	60	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	30	SANDSTONE: clr to trns l white, occ lt gy, loose, vf-crs, pred ominantly granular, tr fine dol/arg matrix, poorly sorted, subang to rounded, sub spherical, tr lithic grs, prob bimodal.. vf –f matrix in crs/granular sand, good inferred porosity, NO SHOWS.
	10	Indet VOLCANIC: white, mottled dark brown-blk, friable-firm, fine grained, crystalline, angular interlocking crystals, weathered feldspar (kaolin) with dark micaceous mafic mineral, trace pyrite, trace spotty dull yellow mineral fluor, no cut.
1675-1680	80	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	10	SANDSTONE: clr to trns l white, occ lt gy, loose, vf-crs, pred ominantly granular, common soft kaol matrix, poorly sorted, subang to rounded, sub spherical, tr lithic grs, prob bimodal ip, vf –f matrix in crs/granular sand, good inferred porosity, NO SHOWS.
	10	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1680-1685	50	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	20	SANDSTONE: clr to trns l white, occ lt gy, loose, vf-crs, pred ominantly granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, prob bimodal ip, vf –f matrix in crs/granular sand, good inferred porosity, NO SHOWS.
	30	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1685-1690	70	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks, tr lt brn hard cryptocrystalline dolomite.
	20	SANDSTONE: clr to trns l white, occ lt gy, loose, vf-crs, pred ominantly granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, prob bimodal ip, vf –f matrix in crs/granular sand, good inferred porosity, NO SHOWS.
	10	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1690-1695	90	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks, tr lt brn hard cryptocrystalline dolomite.
	10	SANDSTONE: clr to trns l white, occ lt gy, loose, vf-crs, pred ominantly granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, prob bimodal ip, vf –f matrix in crs/granular sand, good inferred porosity, NO SHOWS.
1695-1700	90	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks, tr lt brn hard cryptocrystalline dolomite.
	10	SANDSTONE: clr to trns l white, occ lt gy, loose, v crs to granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1700-1705	80	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	10	SANDSTONE: clr to trns l white, occ lt gy, loose, vf-crs, predominantly granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, vf -f matrix in crs/granular sand, good inferred porosity, NO SHOWS.
	10	COAL: dk brn to black, dull, earthy to bright vitreous, friable to hard, brittle, laminated to blocky, argillaceous in parts.
1705-1710	60	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	40	SANDSTONE: clr to trns l white, occ lt gy, loose, m-v crs, predominantly granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS.
1710-1715	10	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	90	SANDSTONE: clr to trns l white, occ lt gy, loose, m-v crs, predominantly granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS.
1715-1720	10	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	90	SANDSTONE: clr to trns l white, occ lt gy, loose, m-v crs, predominantly granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS.
1720-1725	55	Silty CLAYSTONE: As Above.
	45	SANDSTONE: As Above., NO SHOWS.
1725-1730	50	Silty CLAYSTONE: As Above.
	30	SANDSTONE: As Above., NO SHOWS.
	20	COAL: dark brown to black, brittle to sub-fissile, blocky, lustrous in part
1730-1735	60	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	40	SANDSTONE: clr to trns l white, occ lt gy, loose, m-v crs, predominantly granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS.
1735-1740	15	Silty CLAYSTONE: As Above.
	85	SANDSTONE: As Above., NO SHOWS.
1740-1745	100	SANDSTONE: clr to trns l white, occ lt gy, loose, m-v crs, predominantly granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS.
1745-1750	100	SANDSTONE: clr to trns l white, occ lt gy, loose, m-v crs, predominantly granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS.
1750-1755	100	SANDSTONE: clr to trns l white, occ lt gy, loose, m-v crs, predominantly granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS.
1755-1760	100	SANDSTONE: As Above., NO SHOWS.
1760-1765	20	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	80	SANDSTONE: clr to trns l white, occ lt gy, loose, v crs to granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS
1765-1770	20	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	80	SANDSTONE: clr to trns l white, occ lt gy, loose, v crs to granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS

TAP OIL CRAIGOW-1

LITHOLOGICAL DESCRIPTIONS

Depth	%	Lithology
1770-1775	20	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	70	SANDSTONE: clr to trns l white, occ lt gy, loose , v crs to granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS
	10	CARBONACEOUS SILTSTONE: pale brown to med brown, common carbonaceous and coal interbeds, grades to coaly bands
1775-1780	10	SANDY CLAYSTONE: light grey to light grey brown, v sft, amorphous, sandy (f-m) mtx, silty in part, sli calc, tr mica, tr carb specks.
	70	SANDSTONE: clr to trns l white, occ lt gy, loose , v crs to granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS.
	20	CARBONACEOUS SILTSTONE: pale brown to med brown, common carbonaceous and coal interbeds, grades to coaly bands
1780-1785	30	SANDY CLAYSTONE: light grey to light grey brown, v sft, amorphous, sandy (f-m) mtx, silty in part, sli calc, tr mica, tr carb specks.
	60	SANDSTONE: clr to trns l white, occ lt gy, loose , v crs to granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS.
	10	CARBONACEOUS SILTSTONE: pale brown to med brown, common carbonaceous and coal interbeds, grades to coaly bands
1785-1790	100	SANDSTONE: clr to trns l white, occ lt gy, loose , v crs to granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS
1790-1795	20	Silty CLAYSTONE: light grey to light grey brown, v sft, amorphous, silty, sli calc, tr mica, tr carb specks.
	80	SANDSTONE: clr to trns l white, occ lt gy, loose , v crs to granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS
1795-1800	100	SANDSTONE: clr to trns l white, occ lt gy, loose , v crs to granular, common soft kaol matrix, poorly sorted, subang to rounded, elong to sub spherical, tr lithic grs, good inferred porosity, NO SHOWS
		Total Depth of 1800.00 mMDRT reached at 1230 Hrs 31 December 2010.
		Drillers Depth : 1800.0m
		Mud loggers Depth : 1800m

Appendix 8: Wireline Logging Diary

TAP OIL LTD

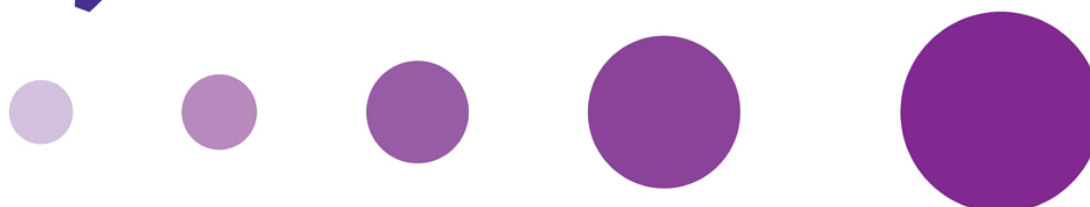
FIELD ELECTRIC LOG REPORT					
GENERAL INFORMATION					
WELL:	Craigow-1			REPORT NUMBER: 1	
(FINAL) LOCATION:	LAT: 39° 35' 31.6857" LONG: 145° 38' 34.5855" Easting: 383473.486m Northing: 5616630.646m			WATER DEPTH: 75.4m (MSL)	
SEISMIC LINE:	Labatt 3D, Inline 1894, Xline 4290			RT TO MEAN SEA LEVEL: 26.0	
PERMIT:	T/47P			LOGGING COMPANY: Schlumberger	
AREA:	Bass Basin Tasmania			LOGGING ENGINEERS: James Neilson, Patricia Guzman	
COUNTRY:	Australia			GEOLOGIST(S): Cohen / Cullen	
				QC witness: Bill Furber	
LOGGING SUITE NUMBER 1					
DATE LOGGED: 31st December, 2010			DRILLERS DEPTH: 1800m		
HOLE SIZE: 311mm (12 ¼")			LOGGERS DEPTH: 1764.0m (Deepest logged)		
CASING SHOE: 735m (Driller) m (Logger)					
LABEL	TYPE OF LOG	FROM	TO	RPT. SECT. / SUMRY.	Time Since Last Circ / BHT
1	HRLA-PEX-DSI-GR	1762		No Repeat	12.6hrs / 75.5 C
MUD DATA					
MUD TYPE:	KCL PHPA Clayseal		SAMPLE SOURCE:		Flowline
MUD WEIGHT:	10.1		Rm @ Measured Temp.		0.1069 @ 22.4
FUNNEL VISCOSITY:	50 @ 49C		Rmf @ Meas. Temp.		0.1828 @ 21.7
pH:	8.9		Rmc @ Measured Temp.		0.177 @ 22.1
FLUID LOSS	4.5		Rm @ BHT.		
CHLORIDES:	49K		COMMENTS:		Barite 3.4%/50.23ppb KCl 8%
CIRCULATION HISTORY & DIARY OF OPERATIONS					
From	To	Activity (Downtime/Lost time in bold typeface)			
31/12/10	31/12/10	Reached (12 ½ ") TD at 12:30hrs. 31 st December, 2010. Circ 1.0 hours. Circulation stopped at 13:45 hrs, 31/12/10. POH.			
21.45	22.00	JSA			
22.00	23.55	Pick up top sheave. Rig-up Run 1 HRLA-PEX-DSI-GR, load source, calibrate, power-up			
23.55	00:05	RIH to 150m			

00:05	00:15	Compensate and depth adjust
00:15	00:50	Tying back top drive hoses, run in to 210m
00:50	01:25	RIH to casing shoe, shoe at 735.5m
01:25	02:30	Log down at 3500ft/hr
02:30	02:40	Tool hanging up at 1764m, 5 attempts to pass, decide to log up..
02:40	05:05	Log up at 1300ft/hr. to casing shoe
05:05	07:00	Start new file, run back over shoe to 740m and log up in casing at 1300f/hr.
07:00	08:15	Run 1 HRLA-PEX-DSI-GR at surface. Download Radio Active sources. RD tools
08:15	08:30	Rig down sheaves
TOTAL LOGGING TIME: : 11 hrs 45 mins		
TOTAL LOST TIME / DOWNTIME: Nil		

HOLE PROBLEMS
COMMENTS

Appendix 9: FLAIR Report

Flair



Fluid Logging & Analysis In Real time

TAPOIL LTD

CRAIGOW-1

DECEMBER 2010

OFFSHORE/ONSHORE, AUSTRALIA

DISCLAIMER

The information and suggestions provided in this report have been prepared based on Geoservices experience in the field and whilst every effort is made to ensure that the information is correct, because individual circumstances will vary from well to well, Geoservices can not, and does not, give warranty either expressed or implied to the correctness or suitability of such information and suggestions, nor is any legal responsibility or liability accepted for any loss, damage or expenses, direct or consequential, arising howsoever out of or in connection with such information and suggestions.

Reported by:
Michaël DERCQ

Approved by:
GEC

Date:
07 March 2011

TABLE OF CONTENTS

1. ABSTRACT	1
1.1. GENERAL INFORMATION.....	1
1.2. FORMATION FLUID EVALUATION	2
2. OBJECTIVES	3
2.1. FLAIR OBJECTIVES	3
2.2. WELL OBJECTIVES.....	3
3. INTRODUCTION	4
3.1. DATA ACQUISITION	4
3.2. REVIEW OF FLAIR CALIBRATION PROCEDURES.....	5
4. RESULTS: GAS FROM FORMATION	7
4.1. QUALITY CONTROL ON THE DATA.....	7
4.2. SYNTHETIC FLUID FACIES	8
4.3. FORMATION FLUID COMPOSITION (C1-C5, EEC CORRECTED).....	11
4.4. ETHENE WHILE DRILLING	11
5. LOCALISED EVENTS: 1167 – 1173 MMD SAND	12
6. TEST	ERROR! BOOKMARK NOT DEFINED.
7. CONCLUSION	15
8. APPENDICES.....	I
8.1. APPENDIX I: GCMS CALIBRATION	II
8.2. APPENDIX II: LEAK DETECTION TEST.....	VIII
8.3. APPENDIX III: RATIO INTEGRITY TEST REPORTS	XI
8.4. APPENDIX IV: GAS CHAIN COMPARISON TEST	XII
8.5. APPENDIX V: CONTRIBUTION OF WBM IN THE GAS READINGS.....	XIII
8.6. APPENDIX VI: EXTRACTION EFFICIENCY TEST	XIV
8.7. APPENDIX VII: DAILY REPORTS WHILE DRILLING	XV

1. ABSTRACT

1.1. GENERAL INFORMATION

- Well Name: Craigow-1
- Country: Australia
- Block: T/47P, offshore Bass Basin
- Location: X: 383473.5 mE Y: 5616630.6 mN
Long: 145 38' 34.59" E Lat: 39 35' 31.69" S
- Operator: TapOil Ltd
- Well Type: Exploration
- Deviation: Vertical
- Total Depth: 1800 mMD/RT
- Rig: KAN TAN IV
- RT to MSL: 26.0 m
- Water Depth: 74.0 m
- Well Spud on: 24th December 2010
- FLAIR Logging Interval: 745 mMD/RT – 1800 mMD/RT
- FLAIR Logging dates: 29th – 31st December 2010

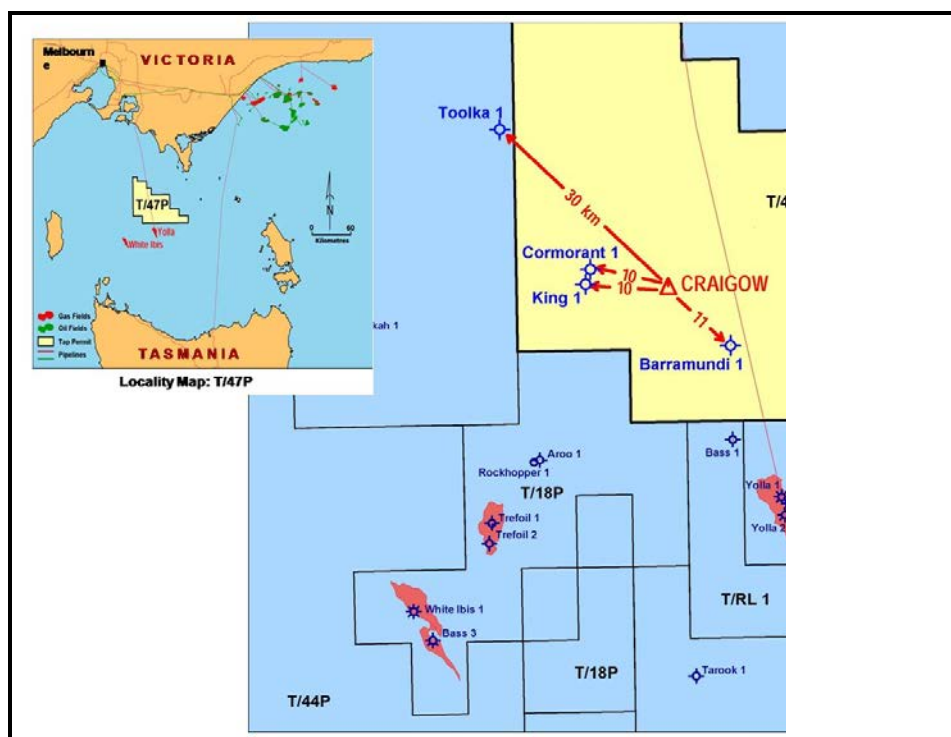


Fig. 1: Craigow-1 Location Map

1.2. FORMATION FLUID EVALUATION

The FLAIR logging of the well Craigow-1 permitted gas observations to be made in quasi real time. The principle aim of this study is to present the available FLEX/FLAIR gas data and to analyze various fluids encountered throughout the well.

Due to technical issues with the FLEXs, coupled with the very low gas levels detected in the well, no InFact study was performed.

The Isotope analysis performed in the second part of the logged section is not conclusive, since the quality of data acquisition is doubtful.

2. OBJECTIVES

2.1. FLAIR OBJECTIVES

The FLAIR service was employed on the Craigow-1 well with the following objectives:

1. Quantitative gas acquisition in the C1-C5 range, maintaining a strong and constant QC
2. Recognition of any fluid variation and/or fluid contacts to better locate eventual pay zones within the investigated intervals
3. Establish typical fluid signatures to correlate to offset wells.
4. Monitoring the presence of Ethene, if any, generated by drilling / bit artifact.

2.2. WELL OBJECTIVES

The primary target for the well was the EVCM - 0450 seismic marker, predicted at 1543mTVDSS. It was expected to be a low relief four-way dip closure at 0350 level with a HC contact interpreted at 1295mTVDSS maximum. The reservoir is well developed in Cormorant-1 and King with medium-grained shoreface sands.

The secondary target was the top of EVCM - 0350 seismic marker, predicted at 1283mTVDSS. It was expected to be a four way dip closure with the likelihood of two main sand/silt packages with gross thickness of 100 m (upper sand) with 25.6m net and 75m (lower sand) with 16m net. The expected HC contact was at maximum 1570mTVDSS.

In the Bass Basins, most discoveries have multiple hydrocarbon intervals with intra-formational seals. The potential hydrocarbon reservoirs expected at Craigow-1 are sandstones. The Eastern View Coal Measures are an inter-bedded claystone, siltstone and sandstone sequence with Ave Net: Gross = 35%; Ave Porosity = 20%.

At TD, the well was planned to be plugged and abandoned.

If a potential economic discovery was to be found, a sidetrack to cut core was planned. Up to 108 m of core was planned (2 runs) with the final length of core dependent on the size and location of intersected HC columns. Note multiple pay zones were probable.

3. INTRODUCTION

3.1. DATA ACQUISITION

The following components were monitored:

Family	Hydrocarbon		Mass	MS Channel
n-Alkanes	Methane	C1	15	mass 1
	Ethane (+ Ethene)	C2s	26	mass 2
	Ethane	C2	30	mass 3
	Propane	C3	43	mass 4
	i-Butane	iC4		
	n-Butane	nC4		
	i-Pentane	iC5		
	n-Pentane	nC5		
	n-Hexane	nC6		
	n-Heptane	nC7		
	n-Octane	nC8		
Aromatics	Benzene	C6H6	78	mass 5
Cyclo-Alkanes	Methylcyclohexane	C7H14	83	mass 6

Table 1 : Ions detected by the GCMS

The identification and measurement of the hydrocarbon species listed above was achieved using a Gas Chromatograph Mass Spectrometer (GCMS). The GCMS was configured for 6 ions (as outlined in the table), with a cycle analysis time of 90 seconds.

The gas was extracted using a FLEX (fluid extractor), placed in the Flow line to monitor gas coming out (Gas OUT) from the well. In normal logging condition, a second extractor is located in the suction pit to monitor gas going in to the well (Gas IN) in order to determine the level of gas recycling. In the case of Craigow-1, however, no FLEX IN was used due to a lack of proper equipment.

The FLEX extractor heats the mud to a constant temperature of 70°C in order to extract the heavier components from C6 to C8, as well as some other particular species (C6H6 and C7H14) improving the extraction efficiency of all the monitored components. This is further improved with constant volume of extraction and a constant partial vacuum maintained in the gas line.

In this well, the GC-MS configuration was modified for Ethene measurements. With standard GC-MS configuration, Ethene (if generated due to drilling artifact) is recorded in the same ion mass as Ethane, amplifying the actual C2 contribution from the formation.

3.2. REVIEW OF FLAIR CALIBRATION PROCEDURES

The calibration of the FLAIR system is achieved by performing six procedures. Descriptions of these procedures are given in Appendices, along with the corresponding reports.

1. *GC-MS Calibration Check (appendix I)*

Full calibration checks are performed prior to drilling each section logged using FLAIR, to ascertain the stability of the GCMS (reference: calibration reports in the annex).

The tests were successfully performed:

- Before the start of the 12 ¼ " phase, on 28th – 29th December, 2010

2. *Leak Detection Test (appendix II)*

Prior each section a LDT is performed to ascertain the integrity of the Flex filtration assembly, gas line and GC used on the FLAIR system. The test is performed to ensure that the system is Leak proof and the gas data acquired are not affected by a possible leak due to a damaged or faulty part for each FLEX used on FLAIR system.

The tests were successfully performed:

- Before the start of the 12 ¼ " phase, on 30th December, 2010

The test could not be performed with FLEX IN, as no filtration assembly was on board.

3. *Ratio Integrity Test (appendix III)*

This test is performed prior to drilling each phase, with an aim to check the integration process between the FLEX extractor and FLAIR analyzer over a wide range of concentrations. A jerry can is connected before the flow restrictor in the filtration assembly of the FLEX. This jerry can has a dilution port to displace the gas with air and to maintain a constant pressure during the test. It is ensured that the jerry can is uncontaminated by checking that the MS records almost 0 ppm of gas. A bottle of 10 % C1 mixture is connected to the jerry can entry and fully opened for five seconds. The response on the MS is recorded for linearity and good integration for each component until very low values are reached.

No Integrity test was performed, due to lack of time before the start of drilling the 12 ¼ " phase.

4. *Gas Chain Comparison Test (appendix IV)*

The Gas In and Out chains should exhibit the same efficiency so that correction of gas reading (i.e., subtraction of Gas IN from Gas OUT data) is valid and accurate. The test is conducted using mud from the active pit. The tests were done as per normal drilling conditions (90°C mud temperature and 280 mbar pressure maintained in the gas line) until stable readings were achieved.

No comparison was performed since the FLEX was not operational, and because of the mud system was fresh and without any HC contamination allowing gas readings.

5. *Mud Background Check (appendix V)*

As a standard procedure, FLAIR analysis of a fresh mud sample (Mud Background Analysis) is performed prior to drilling each phase. This helps to determine the contribution of the mud to the gas readings for all components recorded by FLAIR.

This test was not performed, due to lack of time before the start of drilling the 12 ¼ " phase.

6. *Extraction Efficiency Calibration Test (appendix VI)*

During extraction process, the sampled mud is not fully degassed inside the FLEX chamber. Moreover, all the components are not extracted in the same manner. Many factors influence the extraction process, among them: Mud chemistry, mud temperature, viscosity and solid content. This test allows the conversion from "gas in air mixture" results to "gas in mud" data. These later results are considered to be real hydrocarbons from the formation.

The EEC is obtained by analysing the same sample of mud several times, charged with a high quantity of gas. The mud is taken during a major gas peak, or a kick.

In Craigow-1, no EEC could be performed due to the lack of hydrocarbons in the mud.

4. RESULTS: GAS FROM FORMATION

4.1. QUALITY CONTROL ON THE DATA

The degassing process can be disturbed by many factors. In order to be able to determine the real contribution from the formation, the data has to be collected in the best conditions. Beside the QC control put in place to insure that the FLEX-GC-MS is operating within viable ranges, the drilling activity is also taken into account.

- Lack of operational FLEX IN

As the second filtration assembly was not on board, the FLEX IN could not be run. This made it impossible to correct the recycled gas.

- Unreliable data

The following table indicates all intervals that have been impacted by different events, such as malfunction of the FLEX, of loss of suction, or other, and that are not reliable in terms of data quality.

Depths		Comments
From	To	
1134.00	1138.00	Artifact: overheating
1175.00	1178.00	Artifact: overheating

Table 2 : Interval of unreliable data and associated event

- Correlation with MWD

No discrepancies can be identified between the MWD data and the FLAIR gas readings. Therefore, the depth intervals can be trusted, and the fluid can be related to lithology without any shifts.

4.2. SYNTHETIC FLUID FACIES

The fluid families are based on the comparison of the signatures from the delineated peaks encountered in the well. The fluids presented are characterised as following:

1. A number determined by the order of appearance in the well
2. A letter that determines the eventual sub-facies
3. A colour code to distinguish the different signatures on star diagrams
4. A quantitative composition in the C1-C5 range: the recycling effect is corrected and the EEC is applied.
5. Qualitative description of the spectrum nC6-nC8, C7H14 & C6H6: gas data are corrected for recycling.

The same colour is attributed to peaks having the same signature (composition). They represent a specific fluid facies. Different colours indicate variations in the composition. As some variations indicate small heterogeneities in the fluids, sub-facies are created in the same manner (indicated by a letter appended to the fluid number).

In Craigow-1, no intervals have been delineated, as the general gas level remained extremely low.

For the same reason, there will be no InFact study, and no fluid composition.

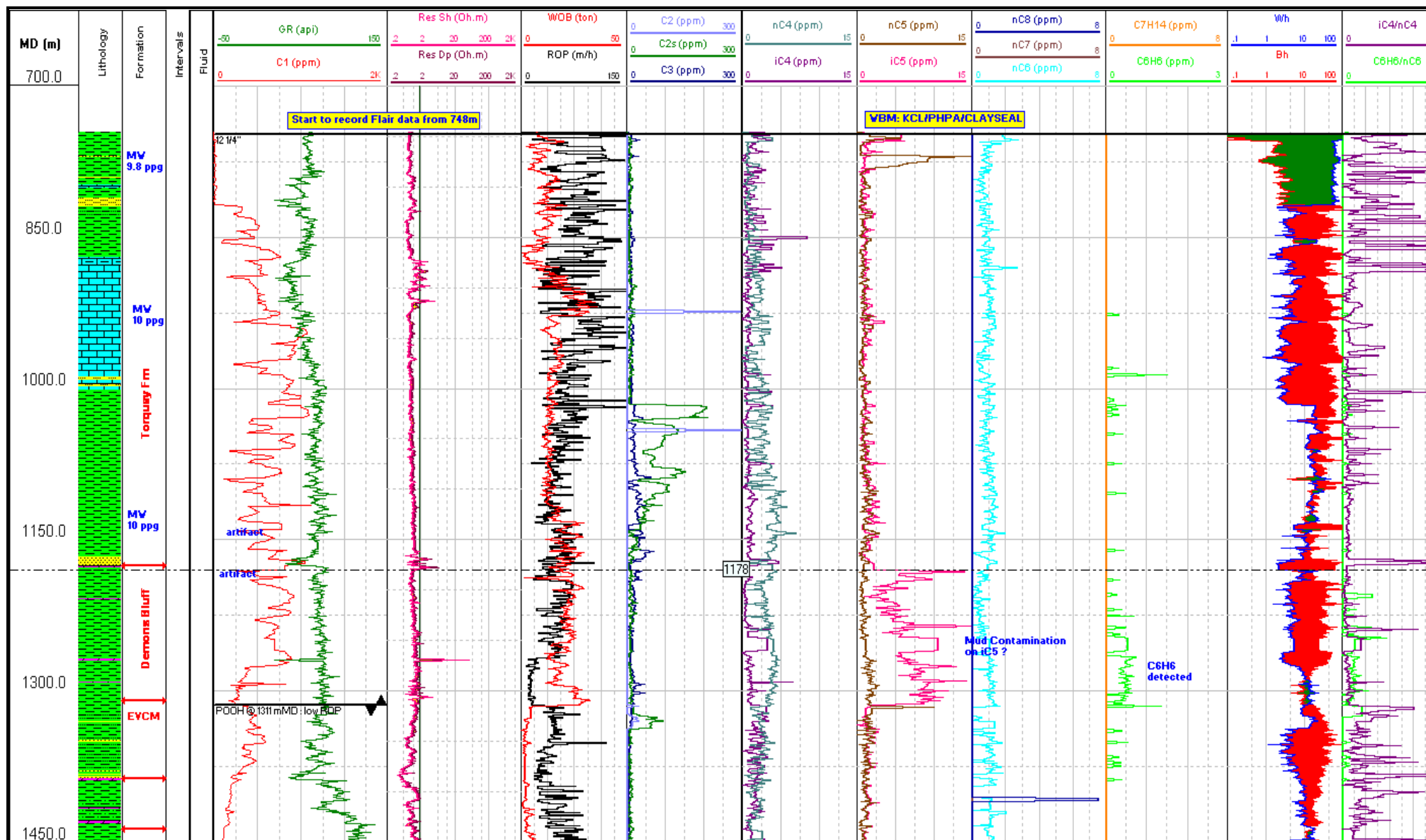


Fig. 2: Chromatolog of corrected Gas Data (748 mMD – 1450 mMD)

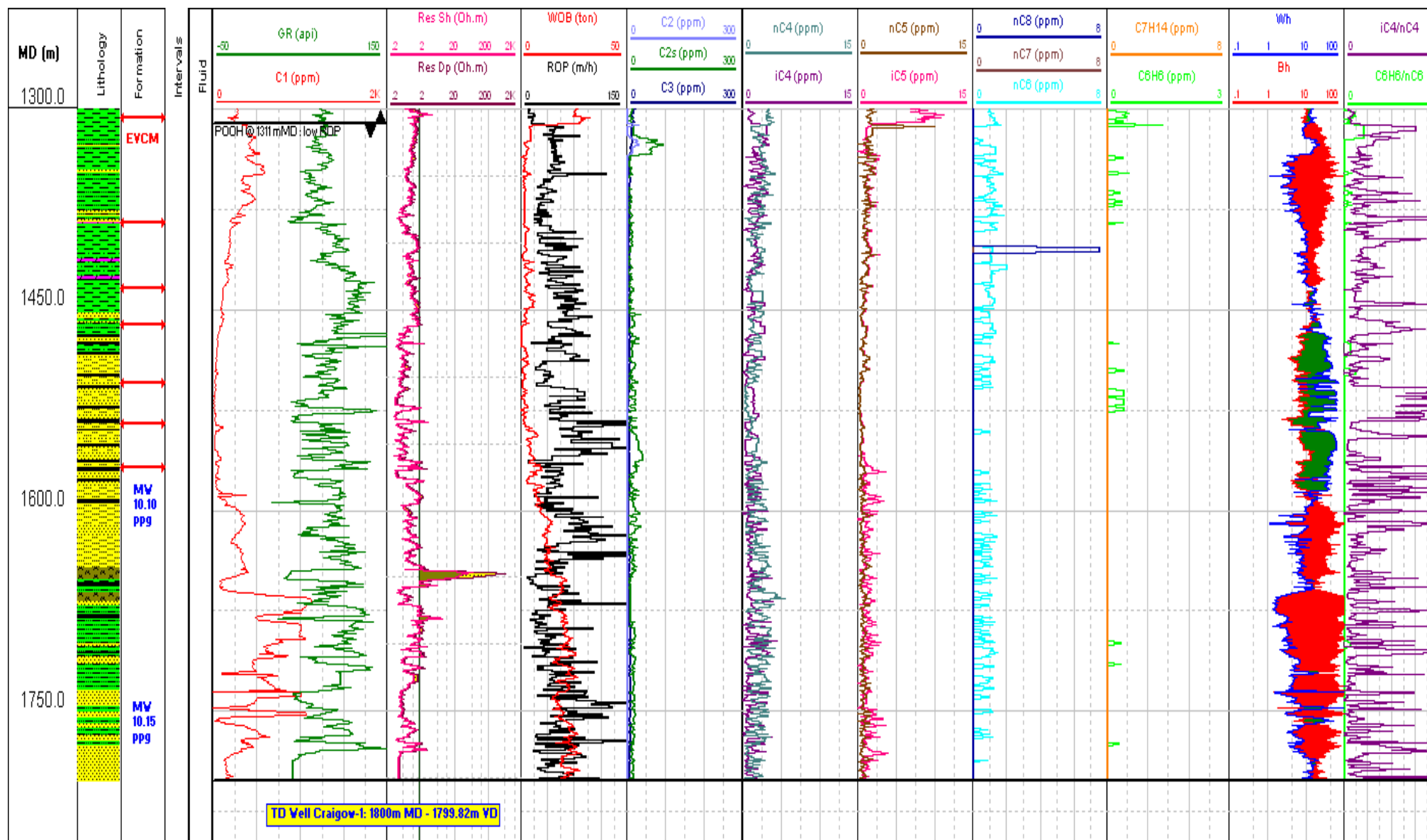


Fig. 3: Chromatolog of corrected Gas Data (1300 mMD – 1800 mMD)

4.3. FORMATION FLUID COMPOSITION (C1-C5, EEC CORRECTED)

Since the test to determine the EEC was not performed due to the very low level of gas, the readings cannot be corrected. The correlation between “gas in air” to “gas in mud” cannot be done and no conclusion can be given on quantitative contribution from the formations.

4.4. ETHENE WHILE DRILLING

Ethene (C_2H_4) is an artificial unsaturated hydrocarbon created during the drilling process. Even though the full processes (cracking process at bit, bit metamorphism etc) behind its creation remain unclear, it has been well defined as a contaminant from the point of view of the FLAIR analyses.

This molecule interferes in the readings of the ionic mass 26 by addition, which is created by ethane (C_2H_6) as well. To be able to evaluate this contamination, the FLAIR system is set to record the ionic mass 30, which records ethane only.

However, this presents some limitations, as this same mass 30 is unreliable below 300 ppm of ethane. In the results, mass 26 is presented as C2s (ethane + eventual ethene), and mass 30 as C2 (ethane only).

Finally, the assessment of the drilling artefacts, and the presence of ethene is done through two main observations:

- The level of the reading in the mass 30 that validates, or not, the use of these data
- The relative comparison between both readings of mass26 and mass30
 - If both masses are similar, no artefact is detected: C2s can be used to interpret ethane
 - If mass 26 (C2s) is higher than mass 30 (C2), ethene is detected: mass30 (C2 readings) is to be used to interpret ethane

While drilling Craigow-1, the readings recorded on mass 30 remained at a very low level, much lower than 300 ppm. As a conclusion, Ethene cannot be assessed and mass 26 (C2s) is interpreted to be un-contaminated.

5. LOCALISED EVENTS: 1167 – 1173 MMD SAND

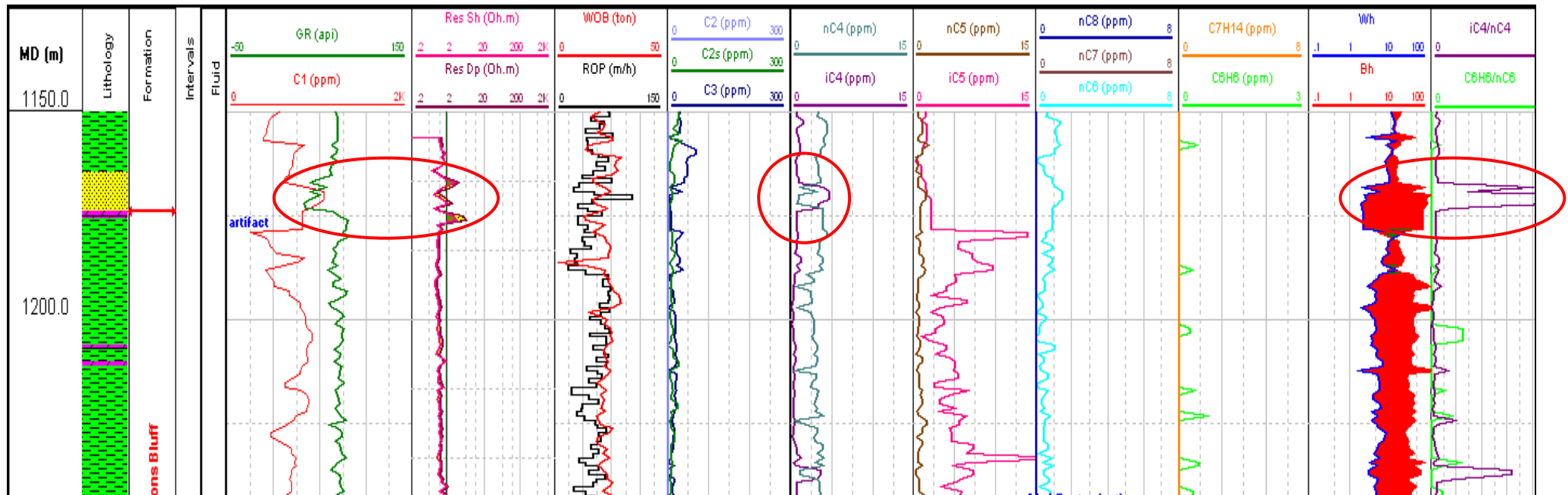


Fig. 4: Zoom on the sand. Some clue for traces fo HCs ?

The sand located here presents some noticeable characteristics:

- Increase of C1
- Noticeable increase of iC4 and drop of nC4
- Noticeable increase of iC4/nC4

This is interpreted as a possible presence of bio-degraded residual HC.

It has been seen in the wireline interpretation that the higher resistivity is due to the cement of the sand.

6. ISOTOPE

On Craigow-1, the Geoservices' Isotope logger was in use from 1311 mMD to 1800 mMD. However, due to organizational and technical issues, the data cannot be trusted.

The Isotope equipment was working fine, but several aspect of the quality control make it impossible to have a conclusive interpretation:

- Absence of calibration: the organizational issues made it impossible to start the Isotope equipment on time and in proper way. As a result, no calibration was performed.
- Inconsistencies between parameters emphasize the lack of proper calibration.
 - The Isotope logger is connected to the exhaust of the FLAIR gas chromatograph and the difference observed between the FLAIR gas readings and those from the isotope equipment cannot be explained other than by the lack of calibration.
 - The Ring down time (RDT), a parameter monitoring the behavior of the spectroscopic analyzer, is linked to the level of methane entering the module. This parameter correlates with the FLAIR gas level, but not with the Isotope (low level of gas implying low variations of RDT). This is another indication of the bad calibration.

Furthermore, the level of gas detected by FLAIR presents another issue in terms of interpretation. As a rule of thumb, the $\delta^{13}\text{C}$ is considered not valid below around 500 ppm of C1. The natural occurrence of ^{13}C being very low (^{12}C -98.93 %, ^{13}C -1.07 %), the precision of its detection drops dramatically if the concentration of gas diminishes.



Fig. 5: $\delta^{13}\text{C}$ without any filter (top part), and filtered with a limit of 200 ppm on C1 (lower part). This limit is determined from the logged section 1400 mMD to 1600 mMD, where the gas level in FLAIR drops.

Unfortunately, with the unreliable calibration and the gas level being very low, the $\delta^{13}\text{C}$ cannot be interpreted with confidence at all.

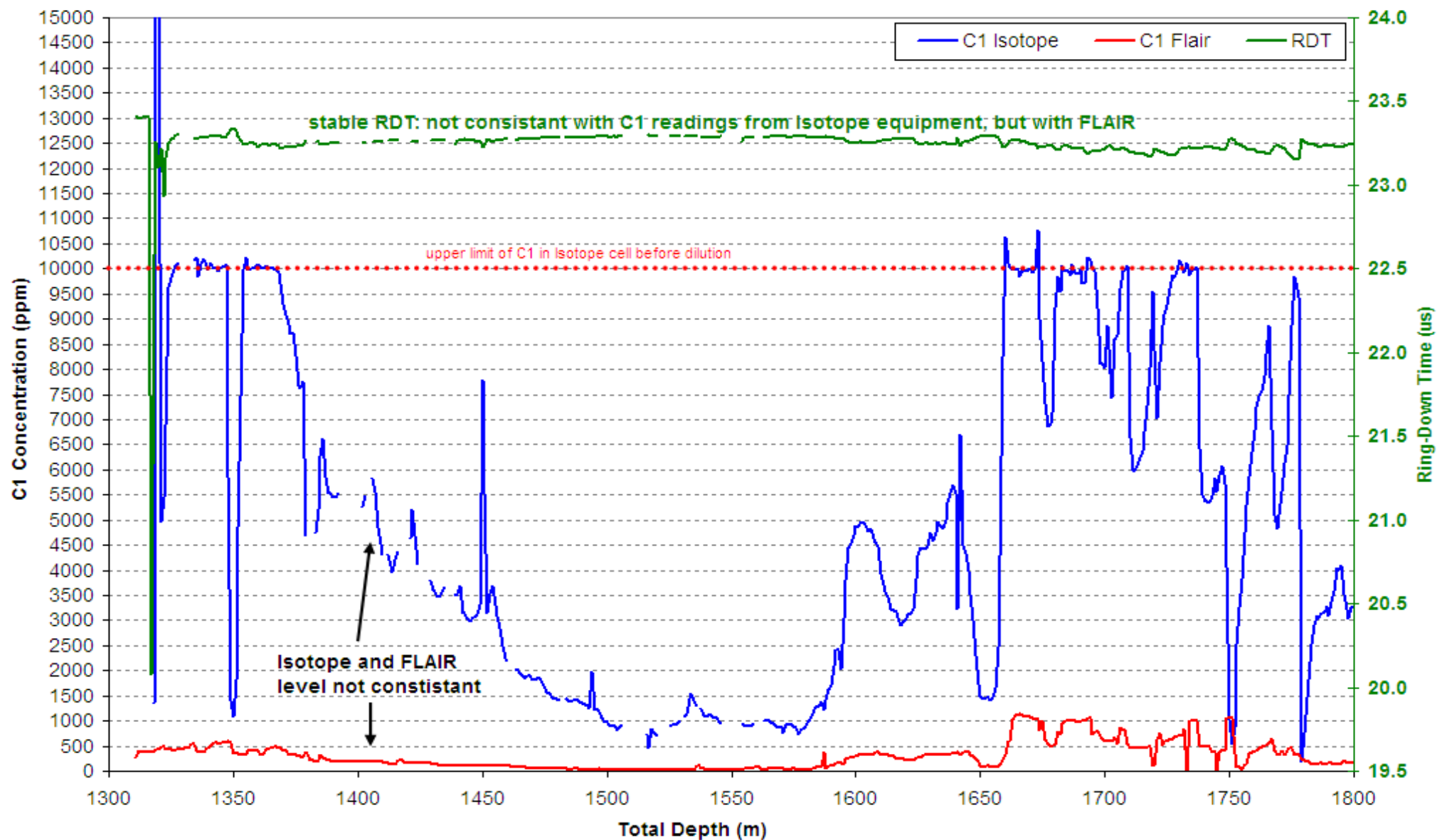


Fig. 6: Quality Control on Isotope data: inconsistency revealed in data set, proving issue with calibration

7. CONCLUSION

The FLAIR logging of the well Craigow-1 permitted gas observations to be made in quasi real-time. The principle aim of this study was to present the available FLEX/FLAIR gas data and to analyze various fluids encountered throughout the well.

However, the multiple issues encountered during the FLAIR logging, coupled with the lack of hydrocarbons in the well, could not allow any interpretation. The major issues are:

- FLEX IN: the lack of filtration assembly did not allow the FLEX to run. This made it impossible to correct the gas OUT reading of eventual readings.
- Extremely low level of gas: though this implied a negligible recycling of the gas, this leads to the absence of noticeable gas events that FLAIR could interpret.

The Isotope logging suffered some issues that lead to no interpretation as well:

- The Isotope logger was operational only from 1311 mMD to 1800 mMD, instead of the complete part of the section
- A lack of proper calibration made it impossible to interpret the data
- The very low gas level encountered in the well was another barrier to interpretation

APPENDICES

8.1. APPENDIX I: GCMS CALIBRATION

The calibration is done with the injection of a pre-calibrated bottle of gas mixtures. The resulting concentrations are recorded and then compared to the theoretical values. For each concentration mixtures, error and standard deviation are evaluated.

The error margin represents the accuracy of the measurement, comparing the measured (actual) value and the given (theoretical) value. It is calculated as follows:

$$= \frac{\text{Average of Actual Concentration} - \text{Theoretical Concentration}}{\text{Average of Actual Concentration}}$$

The standard deviation calculation represents the dispersion of the measurements, and the stability of the analyser, comparing a set of actual measurements. It is evaluated as follows:

$$\sqrt{\frac{\sum (\text{Actual} - \text{Average})^2}{n - 1}}$$

The calibration is then considered valid if:

1. For a 5 ppm concentration, error and standard deviation are within +/- 20 %
2. For a 10 ppm concentration, error and standard deviation are within +/- 10 %
3. For higher concentrations, error and standard deviation are within +/- 5 %

All calibrations performed during the drilling of Craigow-1 are shown in the following pages.

The tests were successfully performed:

- Before the start of the 12 ¼ " phase, on 28th – 29th December, 2010

A. GENERAL INFORMATION

CLIENT	TAPOIL	DATE:	28-29 Dec 2010
WELL	CRAIGOW-1	GC/MS NUMBERS:	1264423/1264277
RIG NAME:	KAN TAN IV	CALIBRATION FILE:	
PHASE	12.1/4"	MS HRS (LAST REVISION)	0
FLAIR OPERATORS	C.Chiron/Nasrul	CURRENT MS HRS:	371

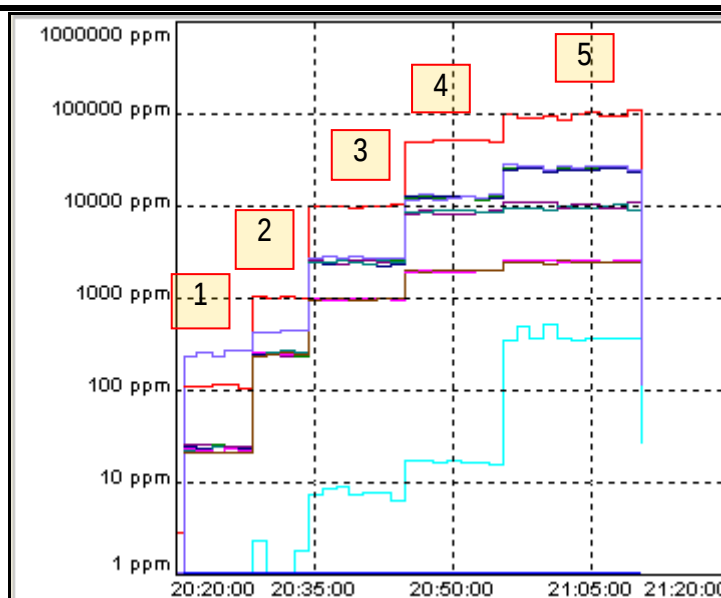
B. PROCEDURE INFORMATION

Prior to drilling Craigow-1, 12 ¼" section, a calibration check has been performed.

An analysis cycle of 91 sec, oven temperature at 82°C and air vector at 4.0 bars were used to calibrate from C1 to nC8, C₆H₆ and C₇H₁₄.

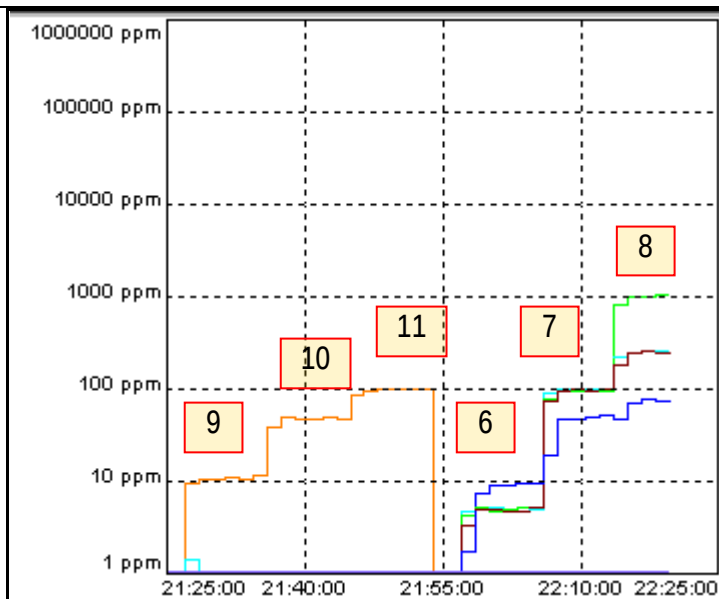
The results have been recorded and screenshots of the real-time displays and chromatograms taken.

C. REAL-TIME PLOT

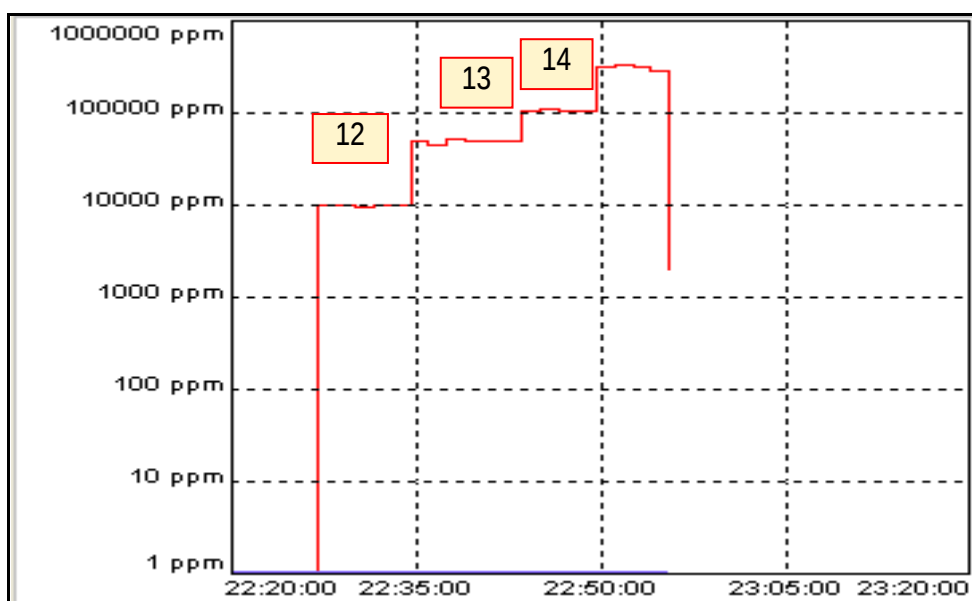


1. C1-C5 gas mixture, with 100 ppm of C1
2. C1-C5 gas mixture, with 1000 ppm of C1
3. C1-C5 gas mixture, with 1 % of C1
4. C1-C5 gas mixture, with 5 % of C1
5. C1-nC6 gas mixture, with 10% of C1

Fig A.1 Real time screenshot of C1 to C6 gas mixtures



- 6. C6H6 gas mixture, with 5 ppm of C6H6
- 7. C6H6 gas mixture, with 100 ppm of C6H6
- 8. C6H6 gas mixture, with 1000 ppm of C6H6
- 9. CO2 gas mixture with 100 ppm of CO2
- 10. CO2 gas mixture with 1 % of CO2
- 11. CO2 gas mixture with 10 % of CO2



- 12. C1-C5 gas mixture with 1 % of C1
- 13. C1-C5 gas mixture with 5 % of C1
- 14. C1-C5 gas mixture with 10 % of C1

D. RESULTS TABLE

* For 5ppm concentration, % Error margin and STD Deviation % are set at +/-20
 **For 10ppm concentration, % Error margin and STD Deviation % are set at +/-10
 For higher concentrations, % Error margin and STD Deviation % are set at +/- 5

100ppm C1-C5		Batch No: 591981				Validity date: Feb 11			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
C1	100	105.0	104.0	106.0	104.5	105	0.95	4.88%	0.81
C2s	25	24.0	26.0	25.5	26.0	25	0.99	1.50%	3.73
C3	25	23.0	24.0	25.0	24.0	24	1.04	-4.00%	3.40
iC4	25	26.7	26.1	24.6	24.9	26	0.98	2.30%	3.88
nC4	25	23.5	26.0	24.9	24.6	25	1.01	-1.39%	4.15
iC5	25	22.5	25.0	23.9	25.0	24	1.04	-3.60%	4.92
nC5	25	22.6	23.6	25.1	25.0	24	1.04	-3.70%	4.98

1000ppm C1-C5		Batch No: 101030				Validity date: Aug 11			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
C1	1000	1023	1025	1045	1053	1037	0.96	3.66%	1.42
C2s	250	249	248	240	237	244	1.03	-2.57%	2.47
C3	254	233	253	258	252	249	1.02	-1.93%	4.33
iC4	253	242	244	237	244	242	1.05	-4.50%	1.37
nC4	254	252	255	256	257	255	1.00	0.42%	0.79
iC5	253	248	249	247	254	250	1.01	-1.36%	1.23
nC5	254	246	258	259	265	257	0.99	1.21%	3.04

30

1% C1-C5		Batch No: 558678				Validity date: Dec 11			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
C1	10030	9986	9712	10004	9974	9919	1.01	-1.11%	1.40
C2s	2506	2368	2381	2591	2575	2479	1.01	-1.09%	4.87
C3	2504	2531	2342	2534	2456	2466	1.02	-1.53%	3.65
iC4	2499	2356	2422	2607	2558	2486	1.01	-0.53%	4.69
nC4	2517	2457	2512	2561	2416	2487	1.01	-1.21%	2.55
iC5	1021	1019	991	1013	1009	1008	1.01	-1.27%	1.20
nC5	1021	971	1016	1023	972	995	1.03	-2.51%	2.81

5% C1-C5		Batch No: 564487				Validity date: Feb 12			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
C1	50056	50848	50218	50402	51660	50782	0.99	1.45%	1.26

C2s	12503	11499	12639	12597	12687	12356	1.01	-1.18%	4.63
C3	12507	12386	12477	12901	12903	12667	0.99	1.28%	2.16
iC4	8530	8081	8081	8076	8458	8174	1.04	-4.17%	2.32
nC4	8524	8466	8353	8775	8546	8535	1.00	0.13%	2.09
iC5	2056	1956	2056	1938	1999	1987	1.03	-3.34%	2.64
nC5	2035	1974	2051	2028	2023	2019	1.01	-0.79%	1.60
10% C1-C6									
		Batch No: 104427				Validity date: July 11			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
C1	100005	99532	102559	97622	103501	100804	0.99	0.80%	2.69
C2s	25019	24470	24978	26224	25631	25326	0.99	1.23%	3.02
C3	25016	24483	24647	25140	26758	25257	0.99	0.96%	4.11
iC4	10009	9808	10472	10387	9786	10113	0.99	1.04%	3.63
nC4	10002	9936	9447	9958	10096	9859	1.01	-1.43%	2.88
iC5	2503	2436	2555	2566	2552	2527	0.99	0.97%	2.42
nC5	2502	2467	2436	2513	2518	2484	1.01	-0.74%	1.57
nC6	300	311	312	317	317	314	0.95	4.75%	1.02
1000ppm C1									
		Batch No:101030				Validity date: Feb 11			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
C1 M13	1000	960	972	973	961	966.5	1.03	-3.35%	0.72
1% C1									
		Batch No: 105533				Validity date: Nov 11			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
C1 M13	10010	9840	9672	9991	9872	9843.8	1.02	-1.66%	1.34
10% C1									
		Batch No: 96955				Validity date: Nov 11			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
C1 M13	100010	102238	104472	103828	104661	103799.8	0.96	3.79%	1.06
30% C1									
		Batch No: 94931A				Validity date: June 11			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
C1 M13	300050	307172	311149	313232	294715	306567.0	0.98	2.17%	2.70

5ppm C6H6									
Batch No: 94666A						Validity date: Apr 11			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
C6H6 *	5.3	5.26	4.89	4.96	5.26	5	1.04	-3.92%	3.84
nC6 *	5.3	5.15	5.27	5.11	5.20	5	1.02	-2.22%	1.33
nC7 *	5.3	4.94	5.09	4.87	4.87	5	1.07	-6.75%	2.10
nC8 **	10.6	9.60	9.55	9.38	9.81	10	1.11	-9.58%	1.85
C7H8 **	10.6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
He	15.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
100ppm C6H6									
Batch No: 94022A						Validity date: Mar 11			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
C6H6	101.0	103	98	98	101	100	1.01	-0.99%	2.45
nC6	102.0	98	102	102	103	101	1.01	-0.74%	2.19
nC7	101.0	96	97	102	99	99	1.03	-2.48%	2.69
nC8	50.8	47	51	52	51	50	1.01	-0.94%	4.48
C7H8	101.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
He	100.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1000ppm C6H6									
Batch No: 96964						Validity date: May 12			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
C6H6	1010	987	1010	1027	1028	1013	1.00	0.30%	1.90
nC6	254	248	256	256	255	254	1.00	-0.10%	1.52
nC7	254	243	255	253	255	252	1.01	-0.98%	2.28
nC8	76	74	78	76	79	77	0.99	0.99%	2.89
C7H8	255	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
He	1000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
100ppm CO2									
Batch No: 611404						Validity date: Feb 12			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
CO2	100	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
C7H14 *	10	10.40	10.60	10.50	10.40	10	0.94	6.89%	0.91
1% CO2									
Batch No: 611408						Validity date: May 12			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
CO2	9990	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
C7H14	51	51	52	49	49	50	1.02	-1.67%	2.97
10% CO2									
Batch No: 611509						Validity date: Nov 12			
	Theoretical	Actual				Average	Theo/Avg	% Error	Std Deviation %
		1	2	3	4				
CO2	100026	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
C7H14	103	98	101	101	100	100	1.03	-2.91%	1.41

8.2. APPENDIX II: LEAK DETECTION TEST

Before each section, a Leak Detection Test (LDT) is performed to ascertain the integrity of the FLEX filtration assembly, gas line, and GC used on the FLAIR system. This ensures that the system is leak-proof (no damaged or faulty parts) and that the acquired gas data are not affected by any dilution.

The test is performed in 2 steps:

1. 1st step is to ascertain the integrity of the GC, Gas Line and Flow restrictor only. This part is valid when the pressure build up does not exceed 50 mbar/h.
2. 2nd step is to ascertain the integrity of the Filtration Assembly. This part is valid when the pressure build up does not exceed 450 mbar/h.

The tests were successfully performed:

- Before the start of the 12 ¼ " phase, on 30th December, 2010

The test could not be performed with FLEX IN, as no filtration assembly was on board.

A. GENERAL INFORMATION

CLIENT	TAPOIL	DATE:	30-12-2010
WELL	CRAIGOW-1	GC/MS NUMBERS:	1264423 / 1264277
RIG NAME:	Kan Tan IV	CALIBRATION FILE:	
PHASE	12 1/4"	MS HRS (LAST REVISION)	0
FLAIR OPERATORS	CI Chiron	CURRENT MS HRS:	821

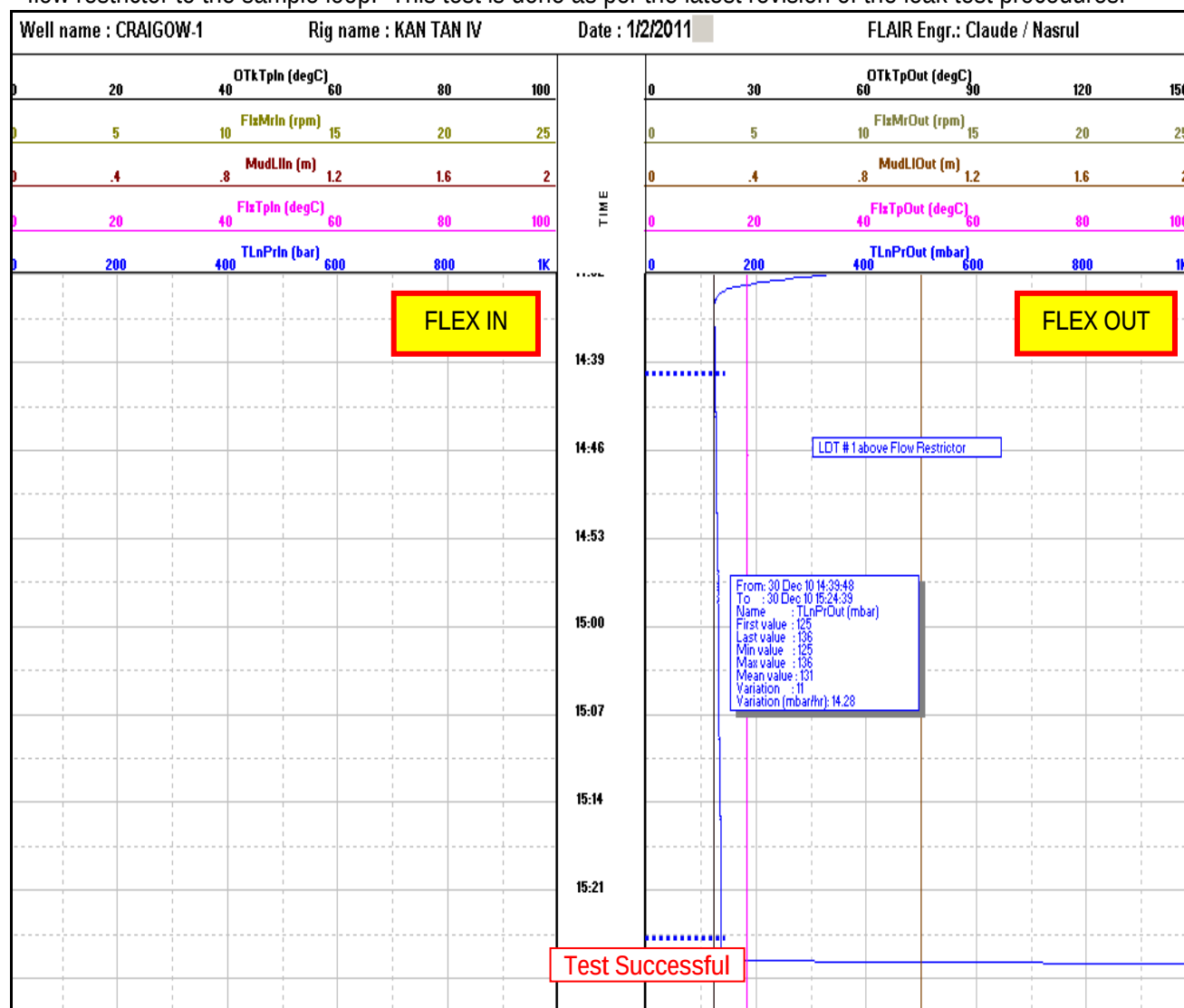
B. PROCEDURE INFORMATION

A leak detection test was performed on 30th Oct 2010 for the well Craigow-1 prior to continue drilling the 12 1/4" section.

The test is performed to ensure that the system is «leak proof» and the gas data acquired is not affected by an eventual leak due to a damaged or faulty part for each FLEX used on FLAIR system.

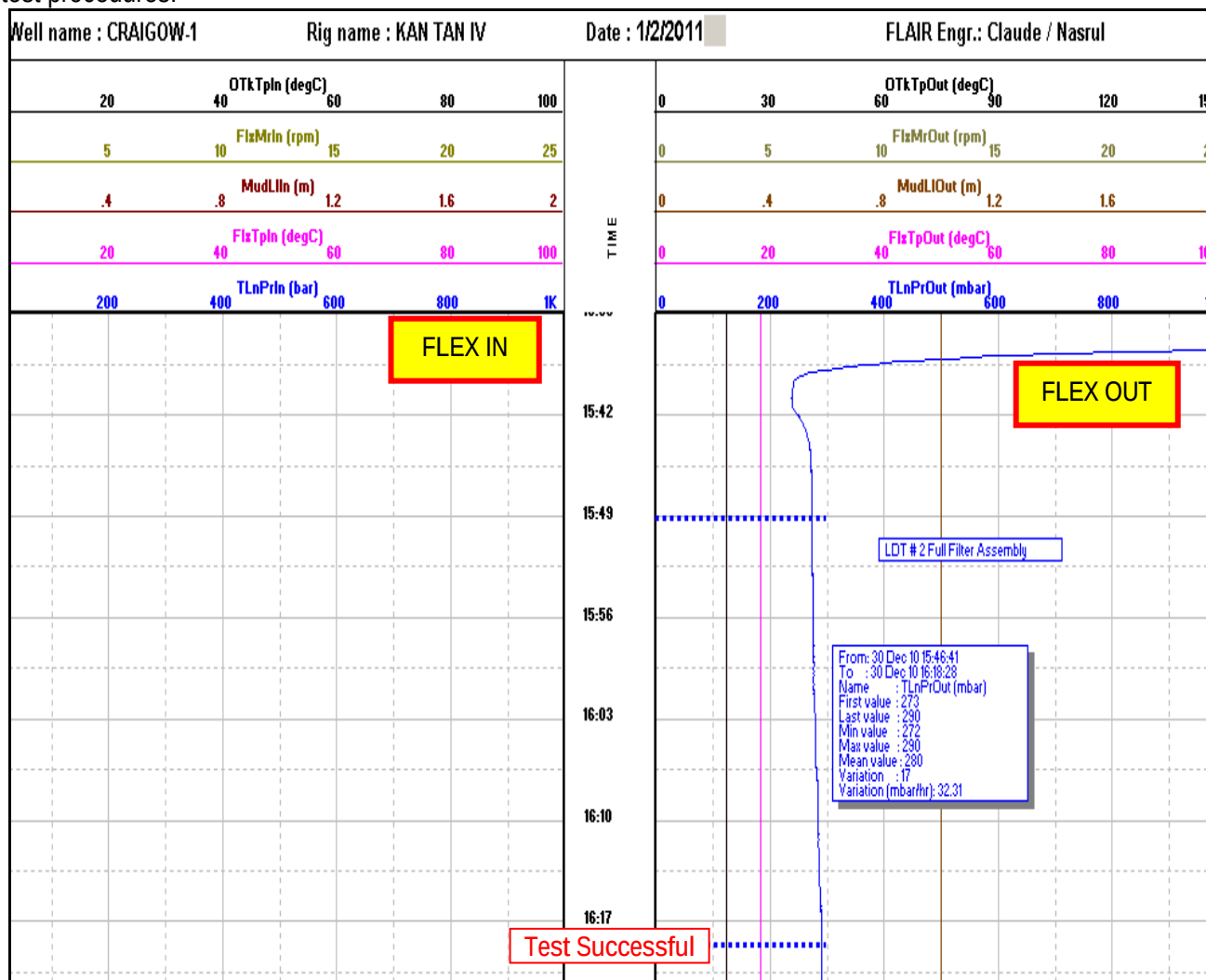
STEP#1

With the top of the Flow Restrictor plugged. i.e., Filtration assembly isolated. Vacuum test is done from the flow restrictor to the sample loop. This test is done as per the latest revision of the leak test procedures.



STEP#2

With the gas line at the end of Filtration assembly looped. i.e., leak test including the filtration assembly. Vacuum test is done from the filtration assembly to the sample loop. This test is done as per the latest revision of the leak test procedures.



STEP#3

Turn back the micrometric valves to achieve 260 mbar, 6.0 turns for Gas Out.
Flow at Exhaust 1 = 30 L/hr

8.3. APPENDIX III: RATIO INTEGRITY TEST REPORTS

This test is performed prior to drilling each phase, with the aim of checking the integration process between the FLEX and the FLAIR analyzer over a wide range of concentrations.

A jerrycan is connected before the flow restrictor at the filtration assembly of the FLEX. This jerrycan has a dilution port to displace the gas with air, and to maintain a constant pressure during the test. It is ensured first that the jerrycan is uncontaminated by checking that the MS records almost 0 ppm of gas. A bottle of gas mixture, with 10% of C1, is connected to the jerrycan entry and fully opened until the gas readings reach a maximum. The response of the MS is recorded for each component until very low values are reached.

This test insures the linearity of the calibration and the good integration of the gas peaks.

No Integrity test was performed, due to lack of time before the start of drilling the 12 ¼ " phase.

8.4. APPENDIX IV: GAS CHAIN COMPARISON TEST

The Gas IN and OUT chains should exhibit the same efficiency so that the correction of the recycling (i.e., subtraction of Gas IN from Gas OUT data) is valid and accurate.

A sample of mud is collected from the active pit, and analysed with the FLEX IN and FLEX OUT simultaneously. The test is performed as per normal drilling conditions (90°C-OBM, 70°C-WBM for the temperature and 280 mbar for the pressure maintained in the gas line) until stable readings were achieved.

No comparison was performed since the mud system was fresh and without any HC contamination allowing gas readings.

8.5. APPENDIX V: CONTRIBUTION OF WBM IN THE GAS READINGS

As a standard procedure, the analysis of a fresh mud sample (Mud Background Analysis) is performed prior to drilling each phase. This helps to determine the contribution in the gas readings of the chemicals found the mud (contamination from previous drilled section, components giving similar ionic masses in the MS, artificial hydrocarbons dues to chemical reactions etc).

This test was not performed, due to lack of time before the start of drilling the 12 ¼ " phase.

8.6. APPENDIX VI: EXTRACTION EFFICIENCY TEST

While drilling, the efficiency of the extraction process is not equal to 1. This means that the sampled mud is not fully degassed. Moreover, no components are extracted in the same manner. Many factors influence the extraction process, among them: hydrocarbon and mud chemistry, mud temperature, viscosity and shale content.

The aim of this procedure is to establish the extraction efficiency of the equipment and to correct the gas readings. This allows the operator to obtain the real composition of the gas in the mud.

EEC was not performed because of the very low level of gas monitored in the mud system.

8.7. APPENDIX VII: DAILY REPORTS WHILE DRILLING

This appendix is a compilation of the information sheet from FLAIR daily reports for drilling days only.

		REPORT No.		06
GENERAL INFORMATION				
OPERATOR : TAPOIL	SPUD DATE : 22 nd December 2010			
RIG NAME : Kan Tan IV	PHASE DIAMETER : 12.1/4"			
WELL NAME : Craigow-1	BIT TYPE : REED HYCALOG			
FIELD/BLOCK : T/47P	DEPTH / TVD 24:00 : 1301 MD / 1301 TVD			
LOCATION : offshore Bass Basin	HOLE ANGLE : no deviation			
COUNTRY : Australia	REPORT BY : Claude / Nasrul			
WATER DEPTH (m) : 75.4	REPORT DATE : 29th Dec 2010			
HYDRAULIC INFORMATION (@ midnight Depth)				
HOLE VOL	m3	120	SPP	psi 190-196
ANNULUS VOLUME	m3	389	BOTTOM UP TIME	min 24.5
INSIDE PIPE VOLUME	m3	44	TOTAL CIRCULATION TIME	min 29
PUMP CAPACITY	l/st	19.55	LAST LOT/FIT @DEPTH	- 14.9 ppg @ 748 m
FLOW RATE	l/min	3740-3780	CASING SHOE @DEPTH	- 13.3/8 Csg @ 738 m
MUD PROPERTIES				
MUD TYPE	KCL / PHPA (WBM)		R6/R3	rpm 9-8
MUD WEIGHT	sg	9.8 - 10	MUD TEMP IN	°C
PV	cP	60-57	MUD TEMP OUT	°C 50
YP	lb/100ft ²	13-23 / 29-23	ECD	ppg
Gels 10s / 10mn	lb/100ft ²	10-13-14 / 9-11-13	BOTTOM HOLE TEMP	°C
R600/300	rpm	63-43	OIL WATER RATIO	%/% -
R200/100	rpm	35-24	CORRECTED SOLIDS	% 6.1
FLEX PROPERTIES				
GC-MS CYCLE TIME	:	91 sec	FLEX TEMPERATURE	:
COMMENTS & REMARKS				
DRILLING SUMMARY & OPERATION REMARKS: (0000-2400 hrs) • Continue to drill out plugs and shoe track. Displace well to 9.8 ppg mud. Drill rat hole and 3m in formation to 748m. Perform LOT = 149 ppg EWG (640 psi). Drill 12.1/4" section to 1304 m				
FLAIR UNIT ACTIVITY & TROUBLESHOOTING: • Continue to check calibrations, ok. Test all equipment OUT before drilling • Need to install probe into flow line, as gumbo box not efficient • Missing equipment: : Pressure Filter Assembly IN. Isotopes'connections • Gas OUT recorded without trouble				

		REPORT No.		07	
GENERAL INFORMATION					
OPERATOR : TAPOIL	SPUD DATE : 22 nd December 2010				
RIG NAME : Kan Tan IV	PHASE DIAMETER : 12.1/4"				
WELL NAME : Craigow-1	BIT TYPE : REED HYCALOG				
FIELD/BLOCK : T/47P	DEPTH / TVD 24:00 : 1445 MD / 1444.9 TVD				
LOCATION : offshore Bass Basin	HOLE ANGLE : 1.2° @ 1401.2 m				
COUNTRY : Australia	REPORT BY : Claude / Nasrul				
WATER DEPTH (m) : 75.4	REPORT DATE : 29th Dec 2010				
HYDRAULIC INFORMATION (@ midnight Depth)					
HOLE VOL	m3	120	SPP	psi	190-196
ANNULUS VOLUME	m3	630	BOTTOM UP TIME	min	
INSIDE PIPE VOLUME	m3	84	TOTAL CIRCULATION TIME	min	
PUMP CAPACITY	l/st	19.55	LAST LOT/FIT @DEPTH	-	14.9 ppg @ 748 m
FLOW RATE	l/min	3740-3780	CASING SHOE @DEPTH	-	13.3/8 Csg @ 738 m
MUD PROPERTIES					
MUD TYPE	KCL / PHPA (WBM)		R6/R3	rpm	8-7
MUD WEIGHT	sg	10 – 10.2	MUD TEMP IN	°C	30.5
FV	sec	50	MUD TEMP OUT	°C	40.5
PV - YP	cP - lb/100ft ²	17-22 / 18-22	ECD	ppg	10.29 – 10.33
Gels 10s / 10mn	lb/100ft ²	8-10-11 / 7-9-10	BOTTOM HOLE TEMP	°C	
R600/300	rpm	58-40	OIL WATER RATIO	%/%	-
R200/100	rpm	32-23	CORRECTED SOLIDS	%	5.8
FLEX PROPERTIES					
GC-MS CYCLE TIME	:	91 sec	FLEX TEMPERATURE	:	70 °C
COMMENTS & REMARKS					
DRILLING SUMMARY & OPERATION REMARKS: (0000-2400 hrs) Continue drill 12.25" hole to 1311m. Pump Hi-Vis pill, Circulate well clean. Flow check static. POOH. Break off bir, rig maintenance. M/U new bir, ressume RIH.. Slip & cur drill line. RIH, break circulation and wash down from 1277m to 1311m. Tool SCR's and drill 12.25" hole to 1445m					
FLAIR UNIT ACTIVITY & TROUBLESHOOTING: - Clean Flex Out during trip – Purge gas line. - Perform Leak Detection Test during trip – ok. - Perform background gad from active pit (no gas recorded, no contamination) - Missing equipment: : Pressure Filter Assembly IN. Isotopes'connections - Gas OUT recorded without trouble					

Appendix 10: Wireline QA/QC Report

LQC Group

Craigow-1 Activity Report

Introduction

LQC Group Pty Ltd was contracted by TAP Oil Ltd to provide Wireline Logging technical support for the Craigow-1 well in December 2010, on the *Kan Tan IV* semi-submersible MODU. This report summarises the associated activities.

Executive Summary

Schlumberger Wireline were contracted to perform wireline logging in Craigow-1. The logging program was planned for a maximum of five runs including; PEX-HRLA-CMR.Plus-HNGS-SP-ECRD, MDT-Pump.Out-IFA-Quicksilver.Probe-PVT Chambers (Dual Packer Option), FMI-DSI-GR, VSI-4, MSCT-GR.

During the drilling of the 12-1/4" hole section the target reservoir was found to be water wet and so the logging program was cut to PEX-DSI-CAL-GR.

The logging operations took a total of 10.75 hours with no lost time.

Highlights of the operation: -

- 1) No NPT for the entire operation of 10.75 hours.
- 2) All data objectives met.

Lowlights of the operation: -

None

LQC Group

Craigow-1 Activity Report

Pre-Job Phase

Prior to the logging tools being loaded out to the rig, the LQC consultant, Bill Furber, visited the Schlumberger facility in Sale, Victoria on 27th December, 2010. The documentation for the tools was reviewed including calibrations, string checks, maintenance records and certifications.

Upon arrival at the base the tools were loaded and ready for QC. The documentation was nearly all complete and the remaining documentation was supplied when requested.

The tools were loaded out that evening and the crew and LQC consultant travelled to Melbourne on 28th December in preparation for the flight to the rig on 29th December.

Wireline Logging Operations

LQC Group consultant, Bill Furber, arrived on the rig on 29th December, 2010 along with five of the seven Schlumberger crew. The tools were already on the rig.

Unfortunately the two crew members that were not on the flight were the crew chief/seismic specialist and the MDT specialist. Originally the additional crew members were due to arrive on the 30th December but this flight was cancelled and they arrived on the 31st December. The lack of personnel meant that the MDT and seismic guns could not be checked until their arrival, however, all parties were aware of the situation and a special chopper would have been run on the 30th December if required.

All the tools and equipment were checked without issue.

LQC Group

Craigow-1 Activity Report

12-1/4" Hole Wireline Operations commenced at 21:45 on 31st December, 2010 and continued until rigging down at 08:30 on 1st January, 2011; 10.75 hours in total.

Issues from logging operation: -

- 1) During logging the power pack nearly ran out of diesel. The fuel gauge was faulty and showed a full tank. There was miscommunication between the two crews as it was thought that the day shift had refilled both the power pack and generator. Both tanks were filled in time for it not to cause any problems; thanks in part to Schlumberger already having the work permits in place.
- 2) The tools bridged off ~38m above TD. Multiple attempts were made to pass the bridge without success. There was no overpull when pulling up off bottom showing that it was a solid bridge or washout that the tools were standing up on.
- 3) The winch operator that was on shift during the main log did not seem to have a lot of experience in open hole logging. This could have been an issue if the hole had been sticky as he was not confident in what to do and had to be mentored through anything that was out of the ordinary.

LQC Group

Craigow-1 Activity Report

The following table shows the time breakdown for the Craigow-1 logging operations.

Tools	Op. Time	NPT	Total	Comments
12-1/4" Section				
PEX-DSI-CAL-GR	10.75	-	10.75	
Total	10.75	0	10.75	

Appendix I shows the projected times vs actual times for the 12-1/4" hole section.

It should be noted that the main difference was the rig up/down. As this is the last well in the rig contract the rig crew were not at their most energetic.

LQC Group

Appendix I – 12-1/4” Section Time Estimate

Time Estimate		
	Run 1.1	Run 1.1 Actual
Toolstring Description	PEX-DSI-CAL-GR	
Hole Size	12-1/4"	
Mud Line	75	
Input top logging interval/shoe (m)	750	
Input total depth (m)	1837	
TOC	75	
Logging Section (m)	1087	
Repeat sections length	-	
Safety Meeting/ JSA	15	15
Compensator Lines	45	35
R/U (mins)	60	135
Down Log from surface to CSG shoe	44	35
RIH to CSG shoe(mins)	-	-
Check tools at shoe (in + out)	10	-
Down Log - Open Hole	71	65
RIH to TD(mins)	-	-
Log repeat/Tie-in(mins)	-	-
Depth Correct	10	-
Log Open hole(mins)	165	160
Log thro' csg(mins)	89	95
POOH	1	5
R/D(mins)	60	100
Total	570	645
	PEX-DSI-CAL-GR	
Estimated logging time (hrs)	9.50	10.75

LQC Group

Appendix II – Opportunities for Improvement

Description	Cost to Customer	Root Cause	Resolution
Running out of diesel in the unit power pack	Rig time as fuel lines are burped	Faulty fuel gauge that shows a full tank Miscommunication between the two crews	<i>Schlumberger to advise</i>
Personnel for the offshore tool checkout not capable of checking all services	Tools not checked	Planning	It may have been better to send the MDT specialist instead of an operator as he could have performed the operator's duties if needed
Winch personnel not experienced in open hole logging operations	Tools becoming stuck whilst operator waits for instruction	Lack of planning and training	Need at least one crew member on each shift that has the relevant winching experience

Enclosures

Enclosure 1: Mudlogs

FORMATION EVALUATION LOG

CRAIGOW 1

FROM : (m) 80

TO : (m) 1850

SCALE : 1/ 500

Client: TAP OIL

Field : CRAIGOW

Rig Name : KAN TAN IV

RT ELEV (m) : 26

Final TD (m) : 1800.00

Well : CRAIGOW 1

Country : AUSTRALIA

Rig Type : SEMI SUB

MSL-RT (m) : 74

Final TVD (m): 1799.92



Breccia large



Breccia Small



Gravel



Conglomerate



Breccia



Sand



Siltstone



Silt



Calc and dol clay-sh



claystone



Slightly sandy clay-



Pelletoids



Siderite



Carbonaceous



Sidewall core

BG Background Gas

DG Drilled Gas

CG Connection Gas

SCG Simulated Connection Gas

POG Pump Off Gas

FC Flow Check Gas

TG Trip Gas

SG Swabbed Gas

RG Recycled Gas

KG Kick Gas



FIT or LOT



Core



Carbonaceous



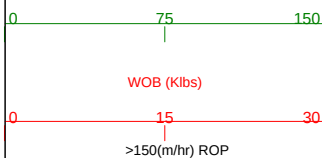
Sidewall core



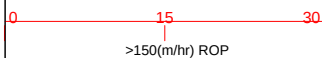
Deviation survey

DATE (dd/mm/yyyy)

GR (API Units)



WOB (Klbs)



>150(m/hr) ROP

DEPTH

TVD

80

CUTTINGS

LITHOLOGY

(%)

0 50 100

OIL

SHOWS

TRACE

FAIR

GOOD

LITHOLOGY

INTERPRETIVE

Total Gas (%)

RESISTIVITY

0 300

.01 .1 1 10 100

ppm

Methane (C1)

Ethane (C2)

Propane (C3)

i-Butane (iC4)

n-Butane (nC4)

i-Pentane (iC5)

n-Pentane (nC5)

LITHOLOGY DESCRIPTION

AND REMARKS

BIT # 1: 914mm(26")
SMITH XR-VCPS
JETS: 3 x 22
IN: 100 OUT: 159.0
RUN: 59.0 HRS:1.20
COND:2-2-WT-A-E-I-NO-TD

24-12-2010

WOB: 3.10
RPM: 40-100
FLW: 600-830gpm
SPP: 544-680psi

CRAIGOW-1 SPUDDED ON
24-12-2010 @ 0300 HRS
914mm(36") SECTION

SEABED @ 100.0m

DRILL WITH SEA WATER
& HI VIS SWEEPS
RETURNS TO SEABED

BIT # 2: 445mm(17.5")
SMITH MILL TOOTH
JETS: 3 x 13, 3 x 16
IN: 159.0 OUT: 745.0
RUN: 586 HRS: 11.12
COND: 2-2-WT-A-E-I-CT-TD

25-12-2010

WOB: 1-10
RPM: 80-100
FLW: 320-355gpm
SPP: 570-630psi

30" CONDUCTOR
SET @ 157.0m

26" x 36" SURFACE HOLE
DRILLED TO 159.0m REACHED
SECTION TD @ 0430 HRS ON
24-12-2010

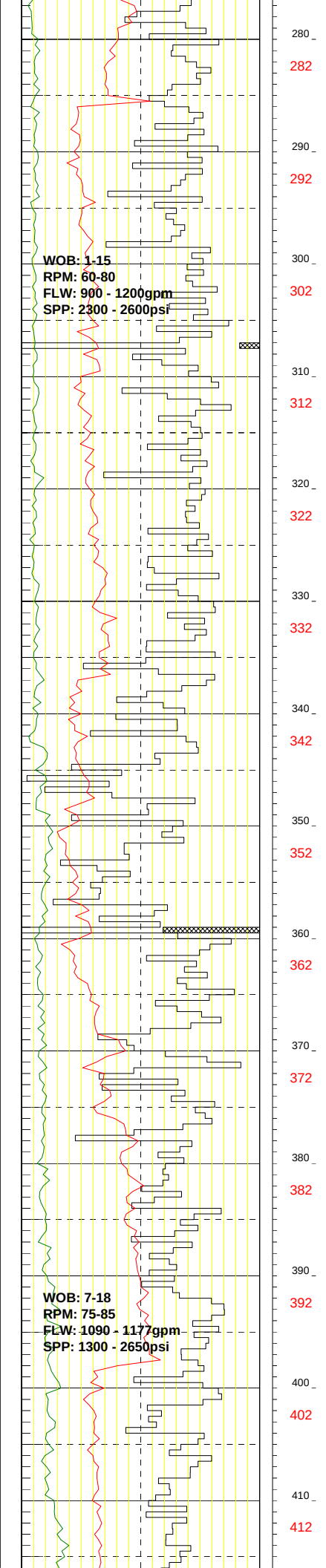
START 17.5" SECTION
@ 0400 HRS ON
25-12-2010

SURVEY @ 176.22m
INC: 0.15° AZI: 218.73°
TVD: 176.22m

DRILL WITH SEA WATER
& HI VIS SWEEPS
RETURNS TO SEABED

SURVEY @ 204.25m
INC: 0.32° AZI: 233.37°
TVD: 204.25m

SURVEY @ 235.96m
INC: 0.33° AZI: 219.33°
TVD: 235.96m



280
282
290
292
300
302
310
312
320
322
330
332
340
342
350
352
360
362
370
372
380
382
390
392
400
402
410
412

SURVEY @ 297.00m
INC: 0.40° AZI: 91.96°
TVD: 297.00m

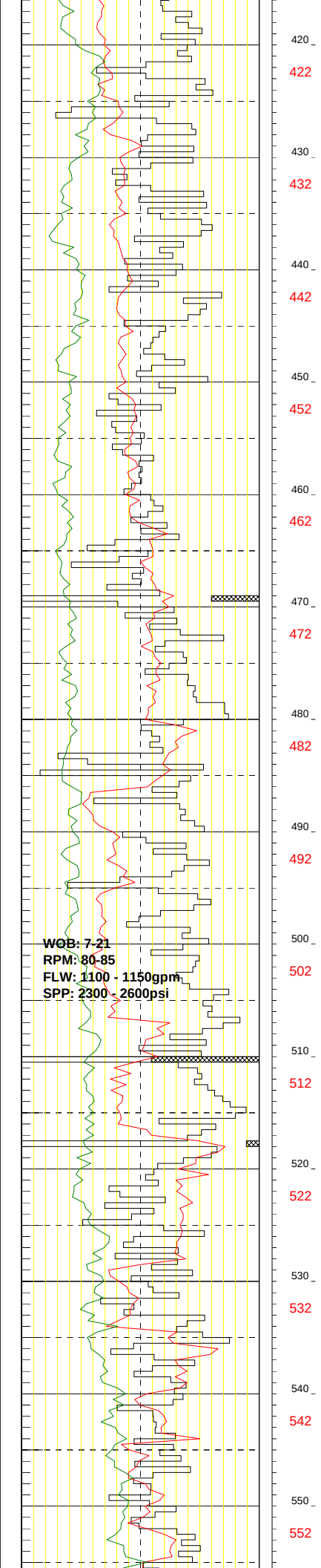
DRILL WITH SEA WATER
& HI VIS SWEEPS
RETURNS TO SEABED

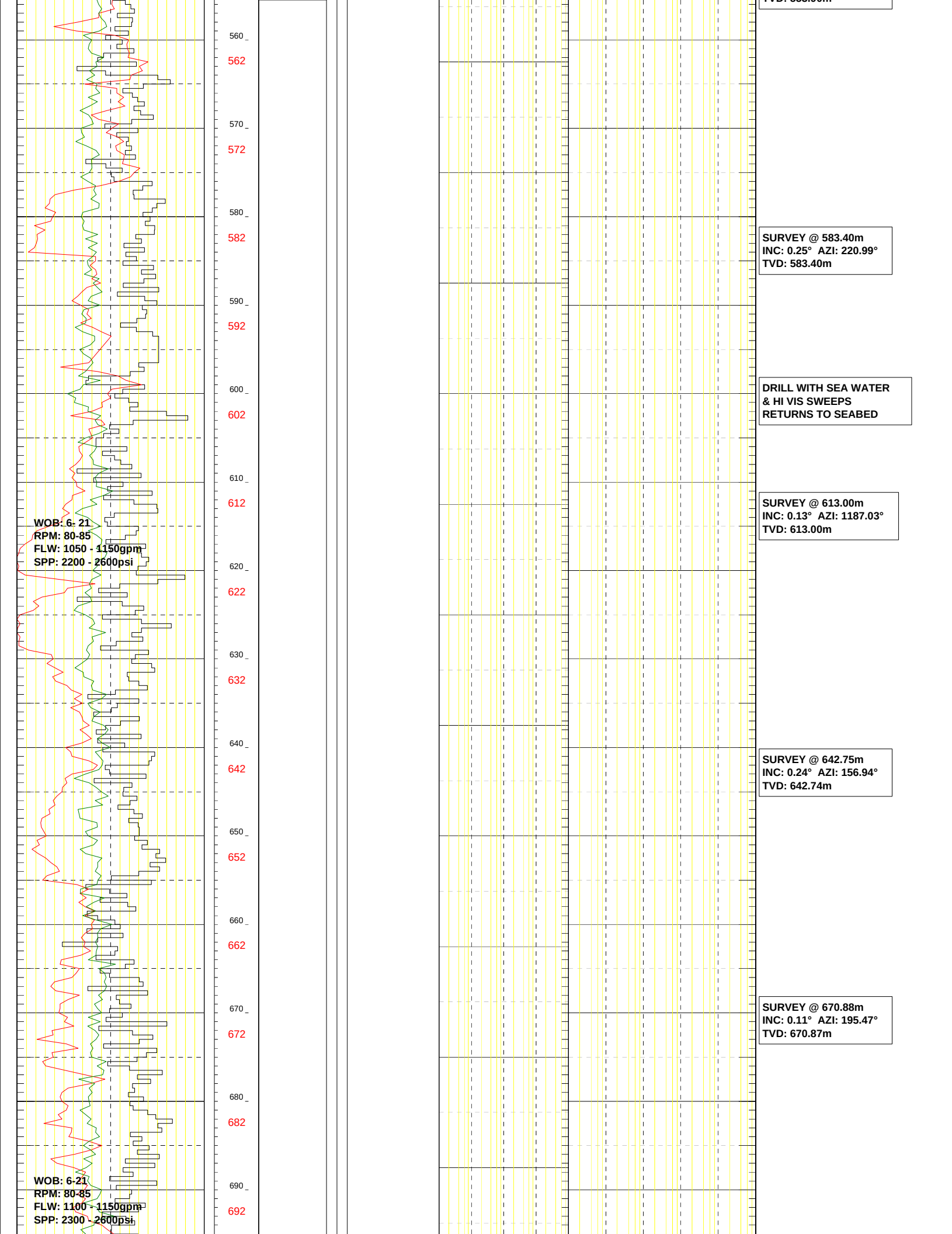
SURVEY @ 323.33m
INC: 0.18° AZI: 99.51°
TVD: 323.33m

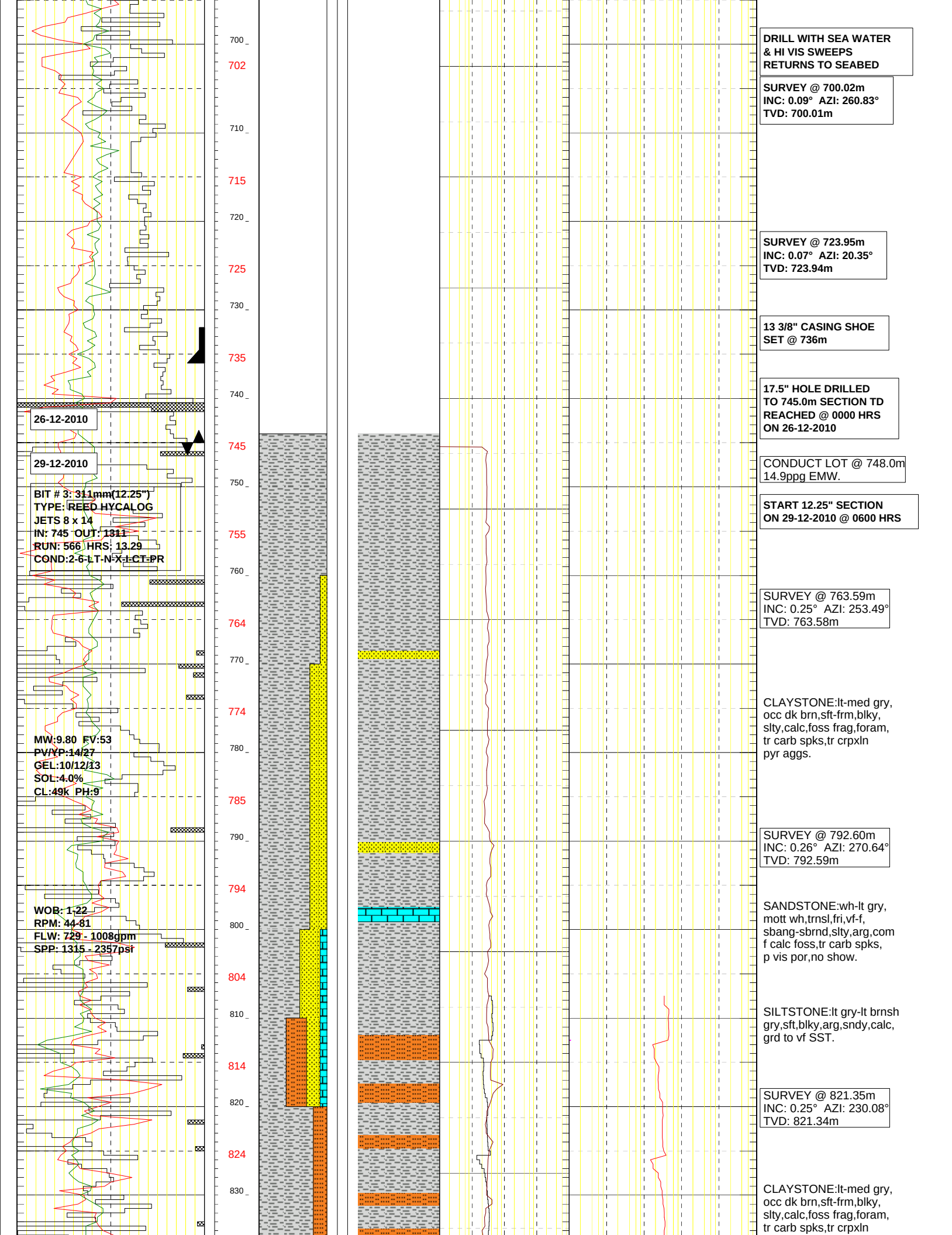
SURVEY @ 351.47m
INC: 0.49° AZI: 238.19°
TVD: 351.47m

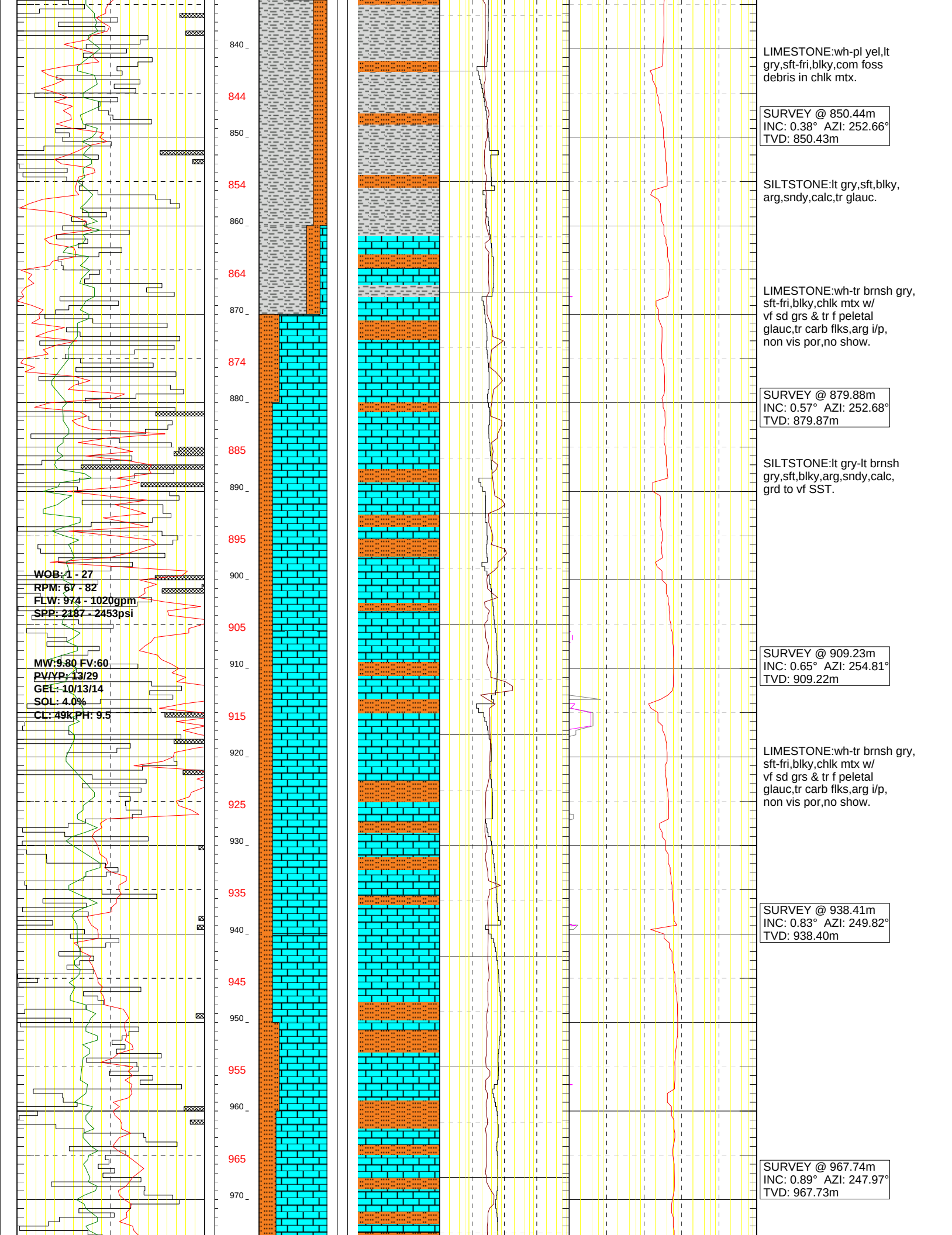
SURVEY @ 379.67m
INC: 0.50° AZI: 200.42°
TVD: 379.67m

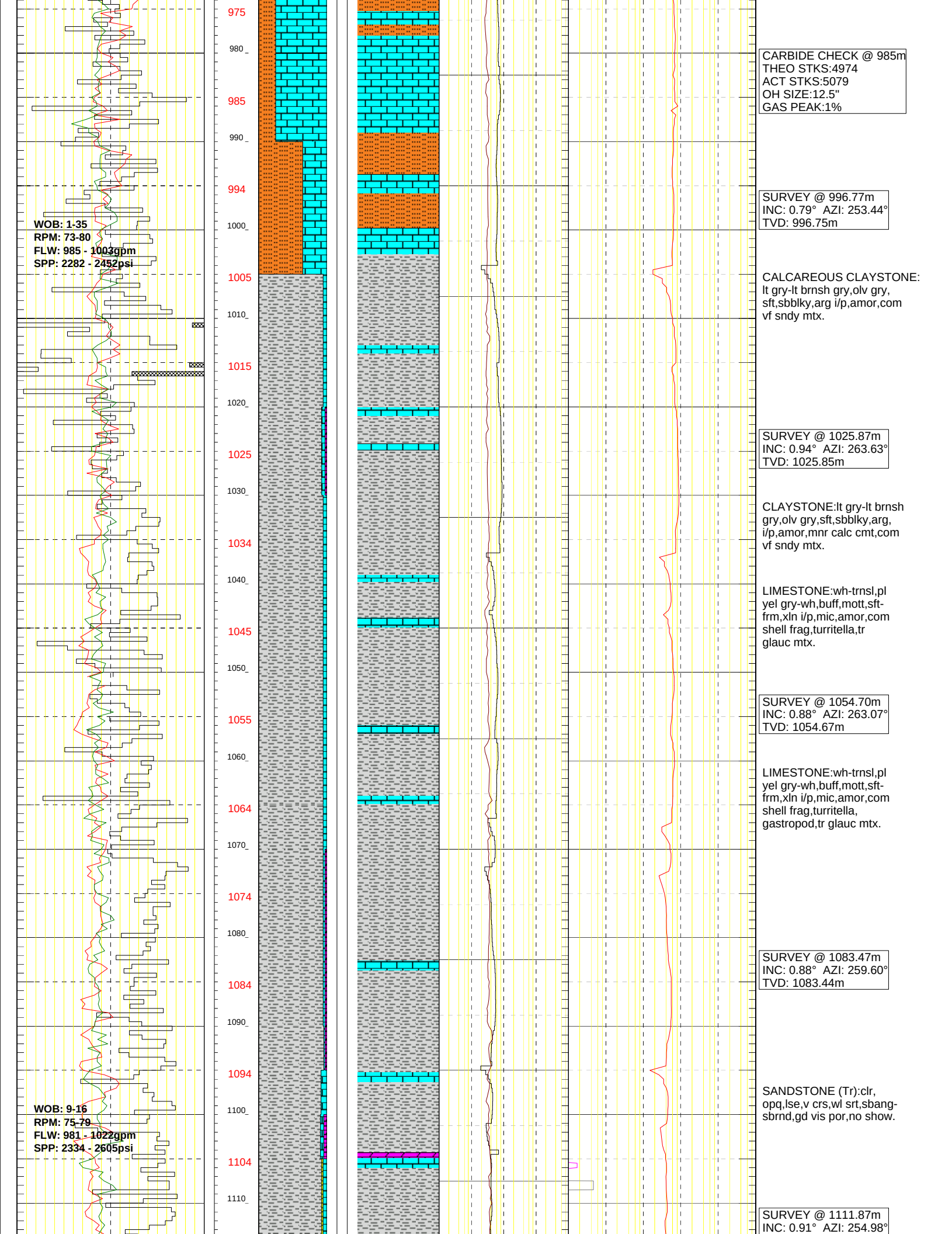
DRILL WITH SEA WATER
& HI VIS SWEEPS
RETURNS TO SEABED

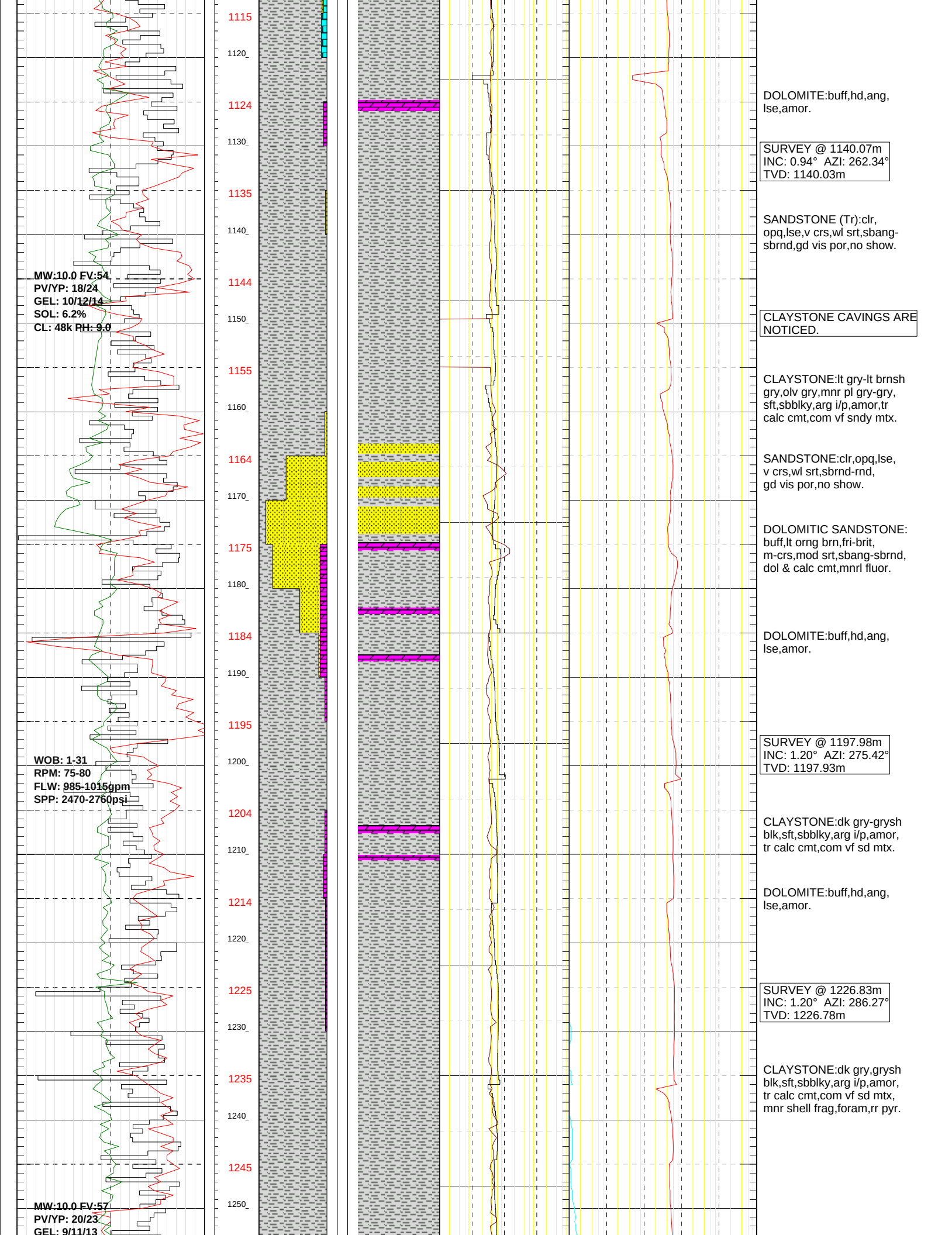


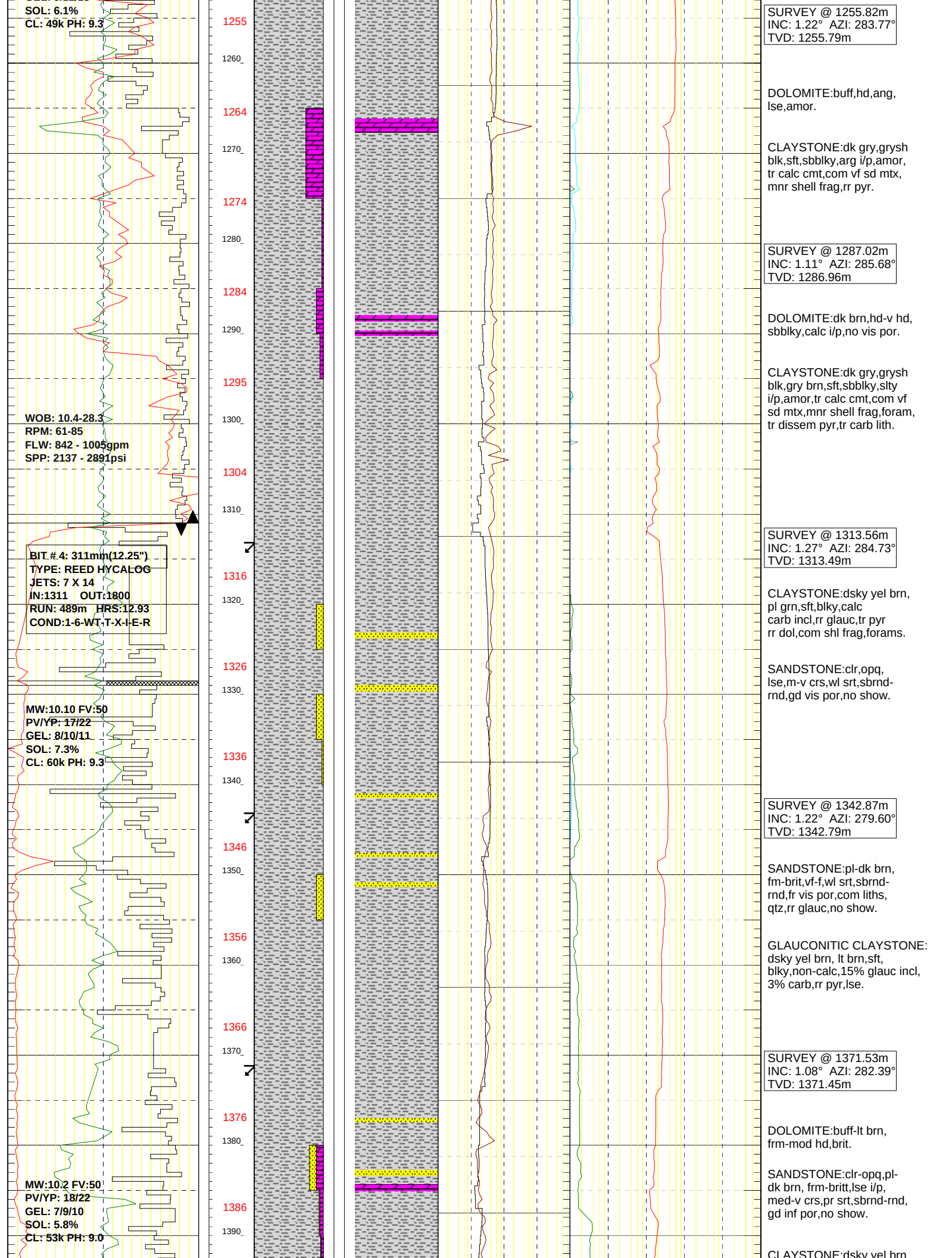


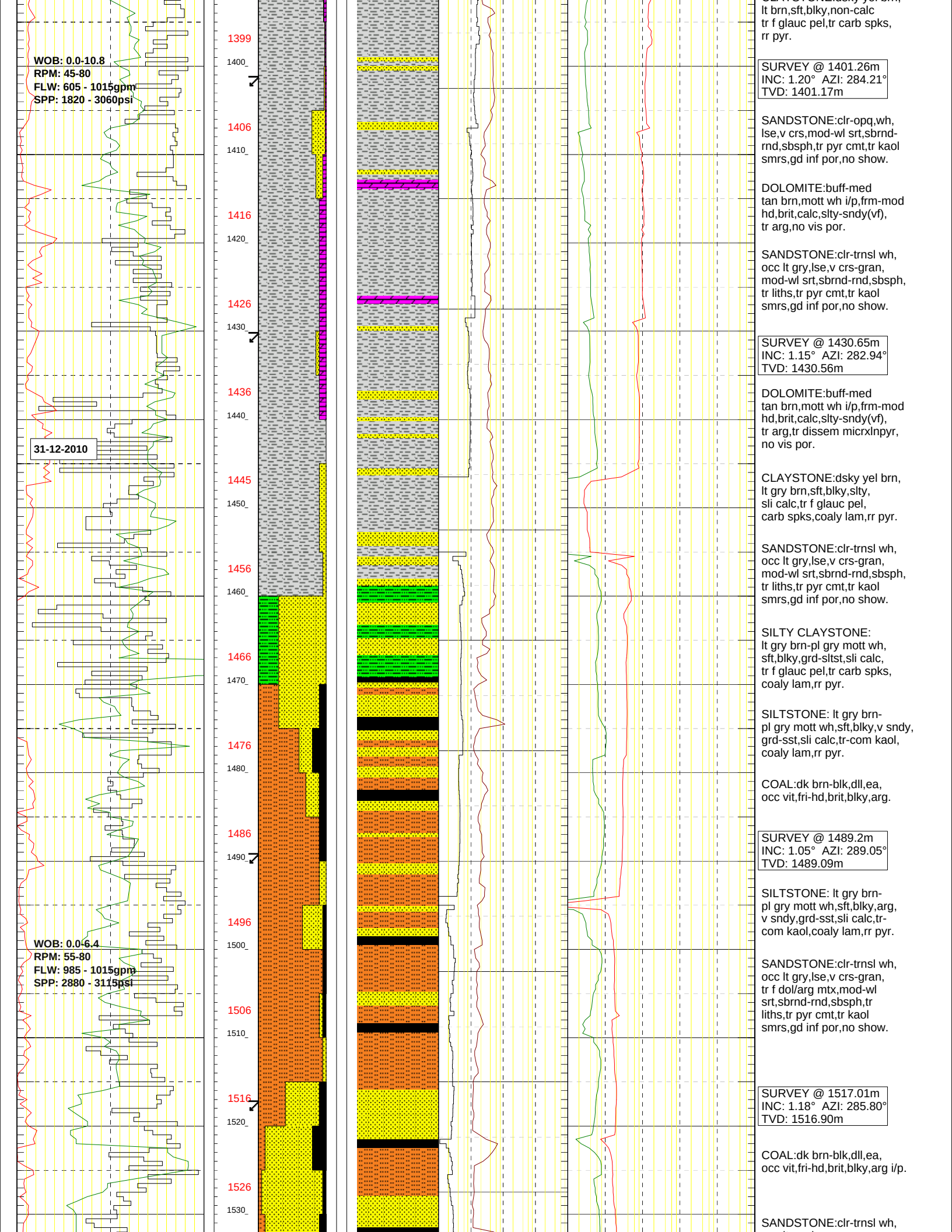


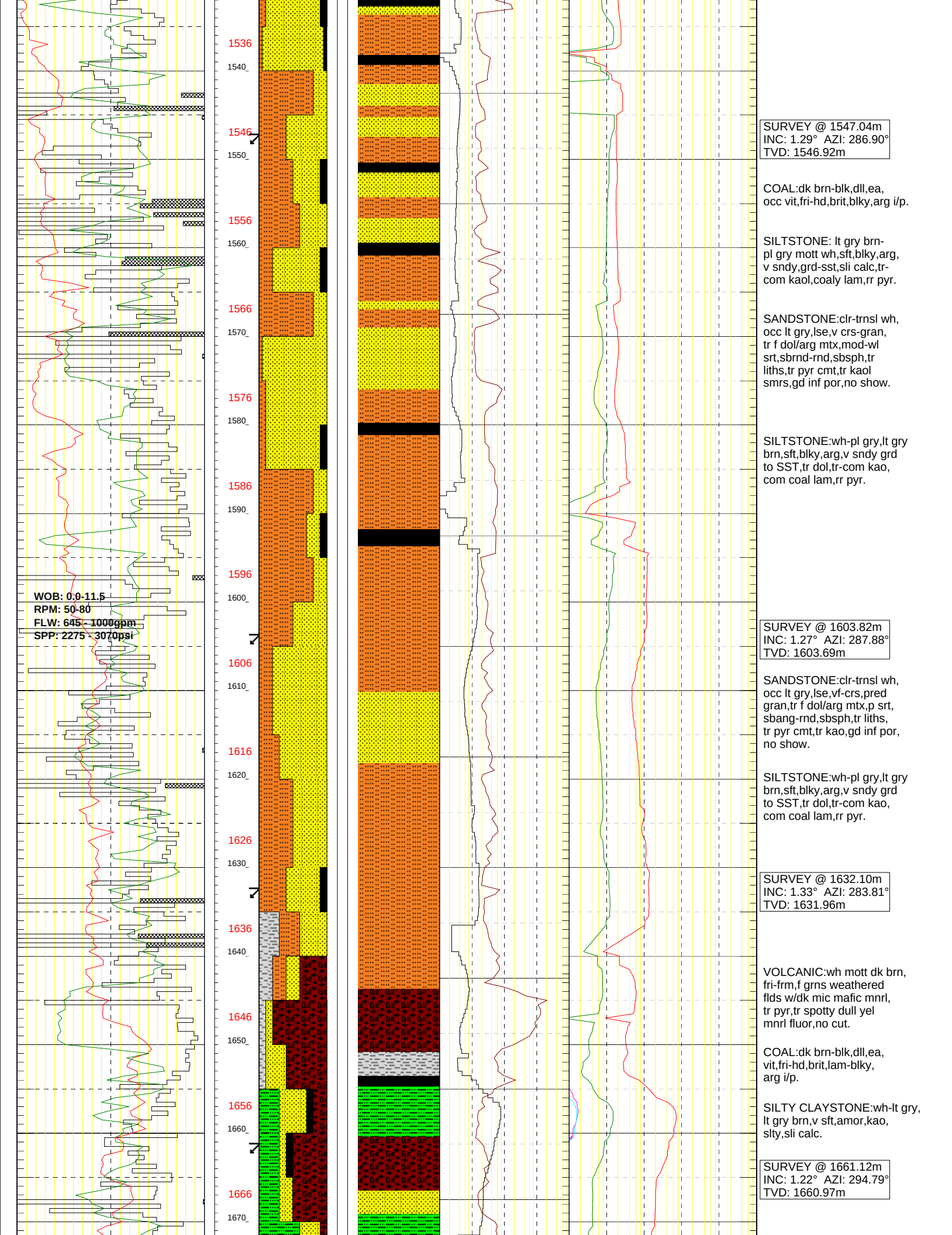


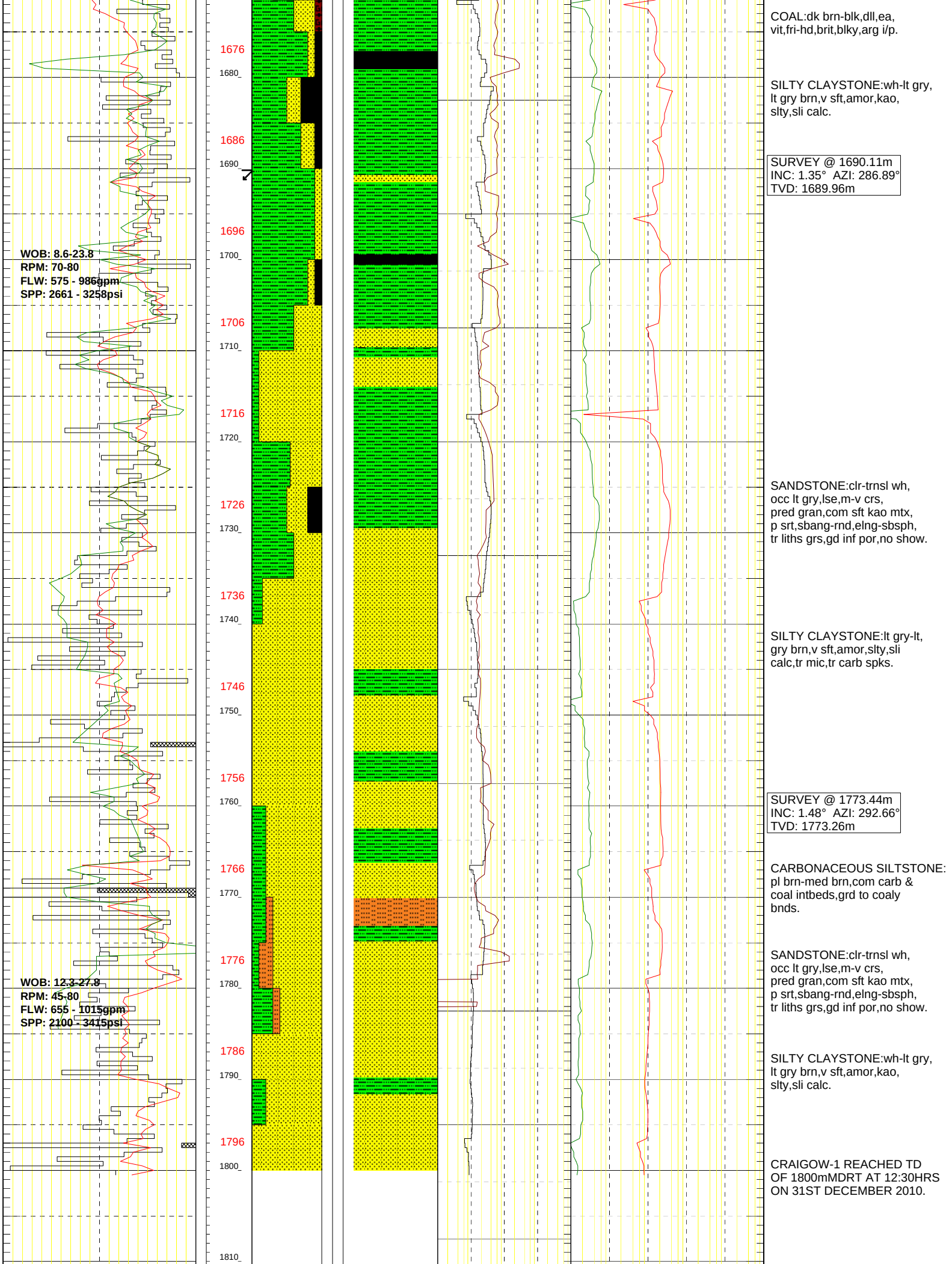












Enclosure 2: Gas Ratio Logs

GAS RATIOS LOG

CRAIGOW 1

FROM : (mt) 720

TO : (mt) 1850

SCALE : 1/ 500

Client: TAP OIL

Field : CRAIGOW

Rig Name : KAN TAN IV

RT-ELEV (m) : 26

Final TD (m) : 1800.0

Well : CRAIGOW 1

Country : AUSTRALIA

Rig Type : SEMI SUB

MSL-RT (m) : 74

Final TVD (m): 1799.86



Breccia large



Breccia Small



Gravel



Conglomerate



Breccia



sand



Siltstone



Silt



Calc and dol clay-sh



claystone



Slightly sandy clay-



Pelletoids



Siderite



Carbonaceous



Sidewall core

BG Background Gas

DG Drilled Gas

CG Connection Gas

SCG Simulated Connection Gas

PSG Pump Stoppage Gas

FC Flow Check Gas

TG Trip Gas

SG Swabbed Gas

RG Recycled Gas

KG Kick Gas



FIT or LOT



Core



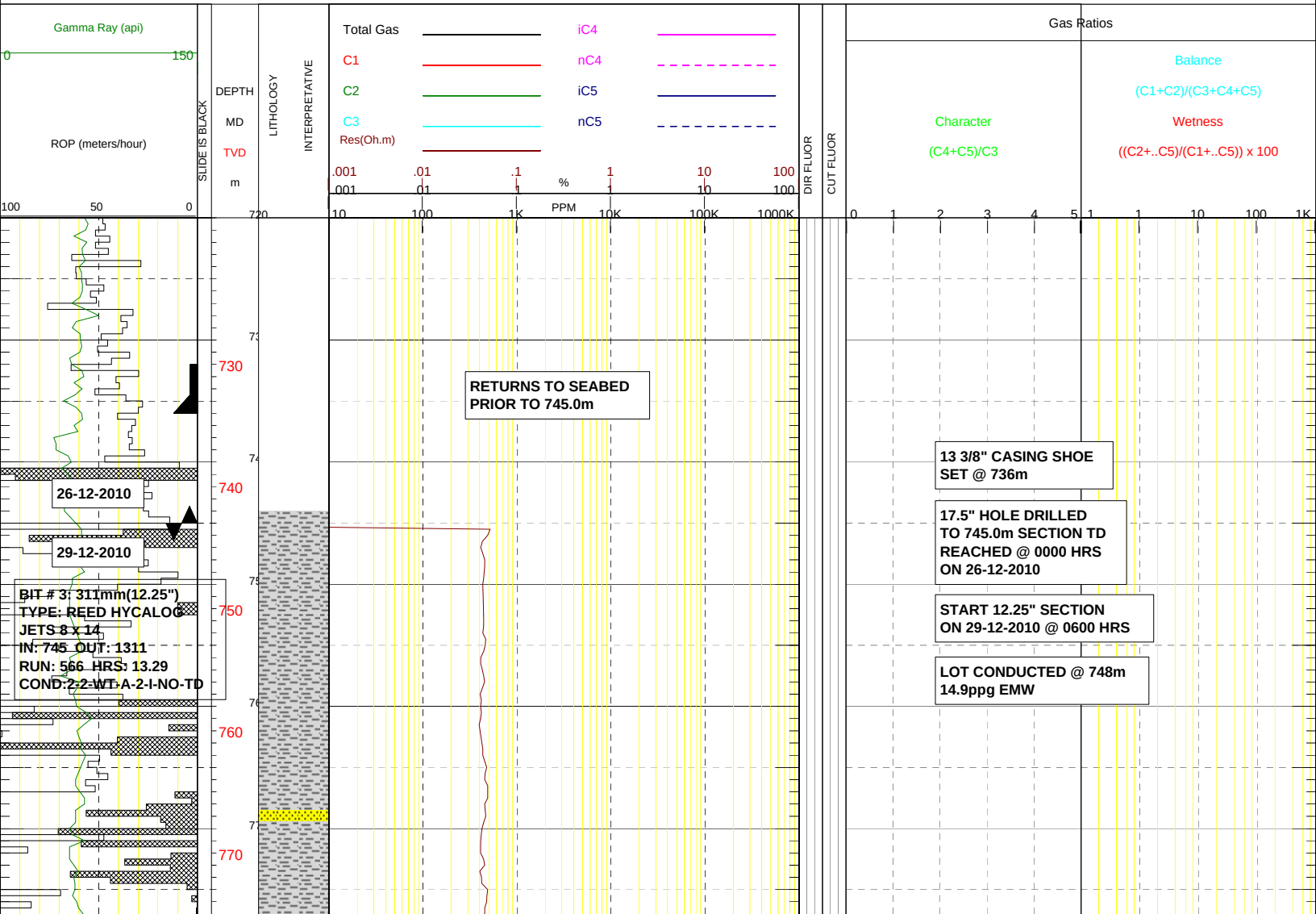
Carbonaceous

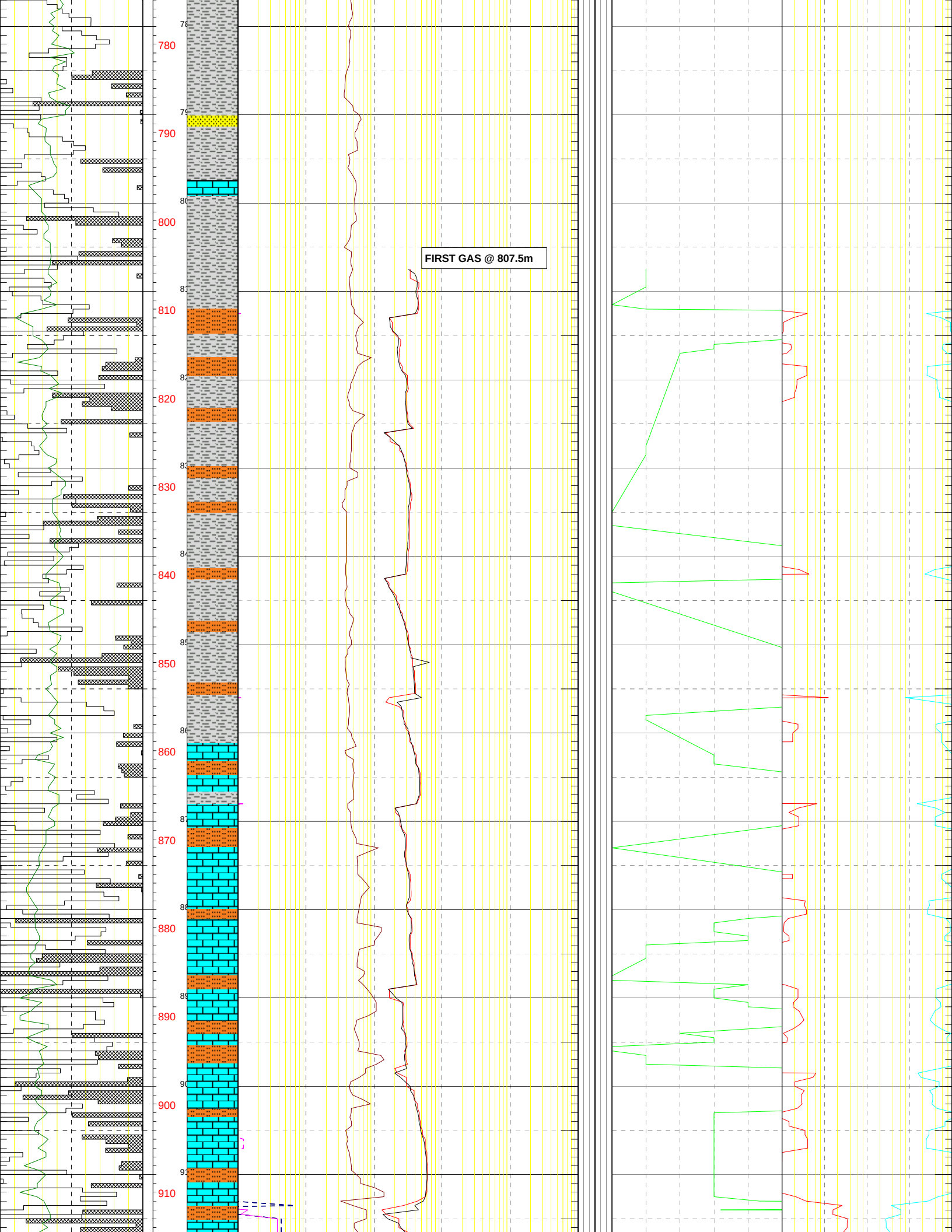


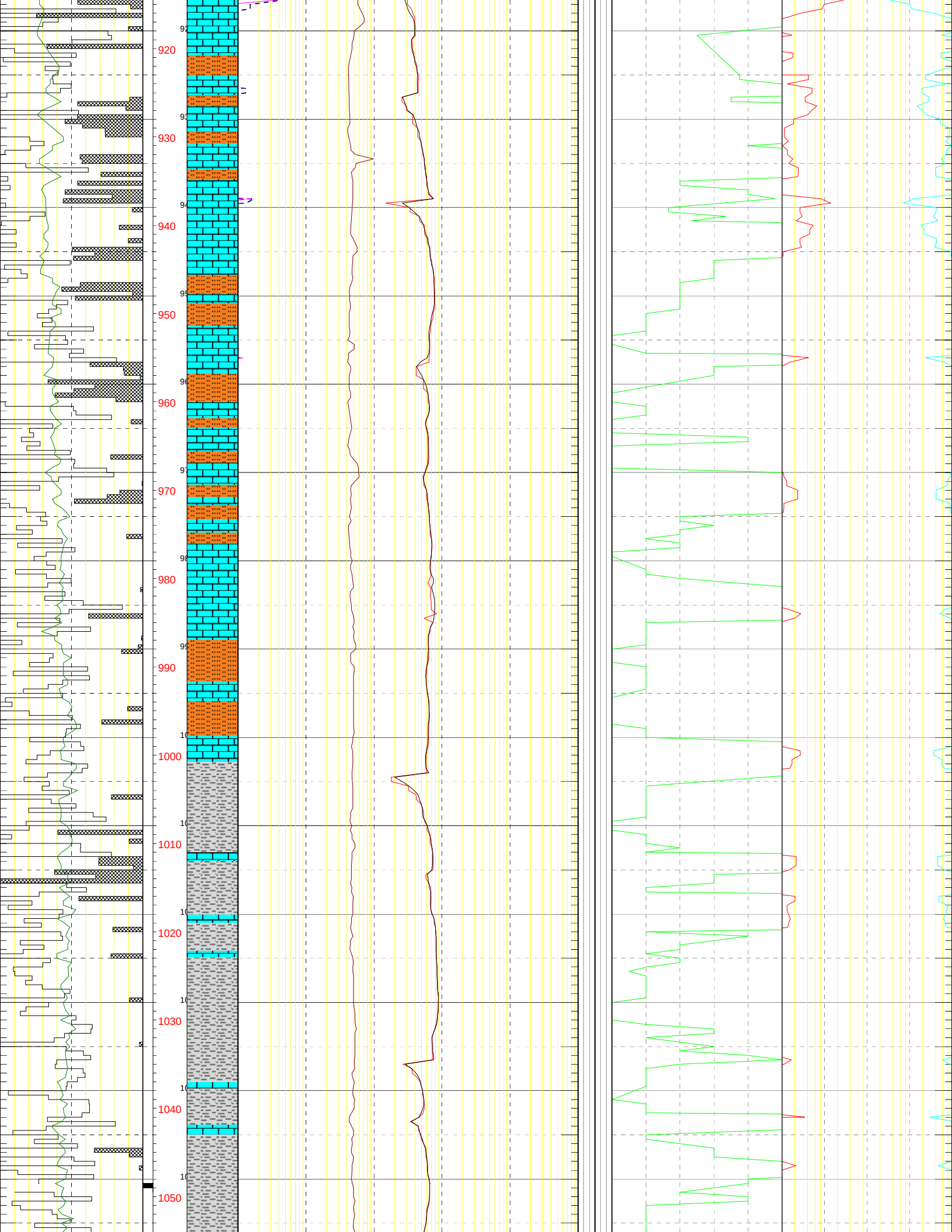
Sidewall core

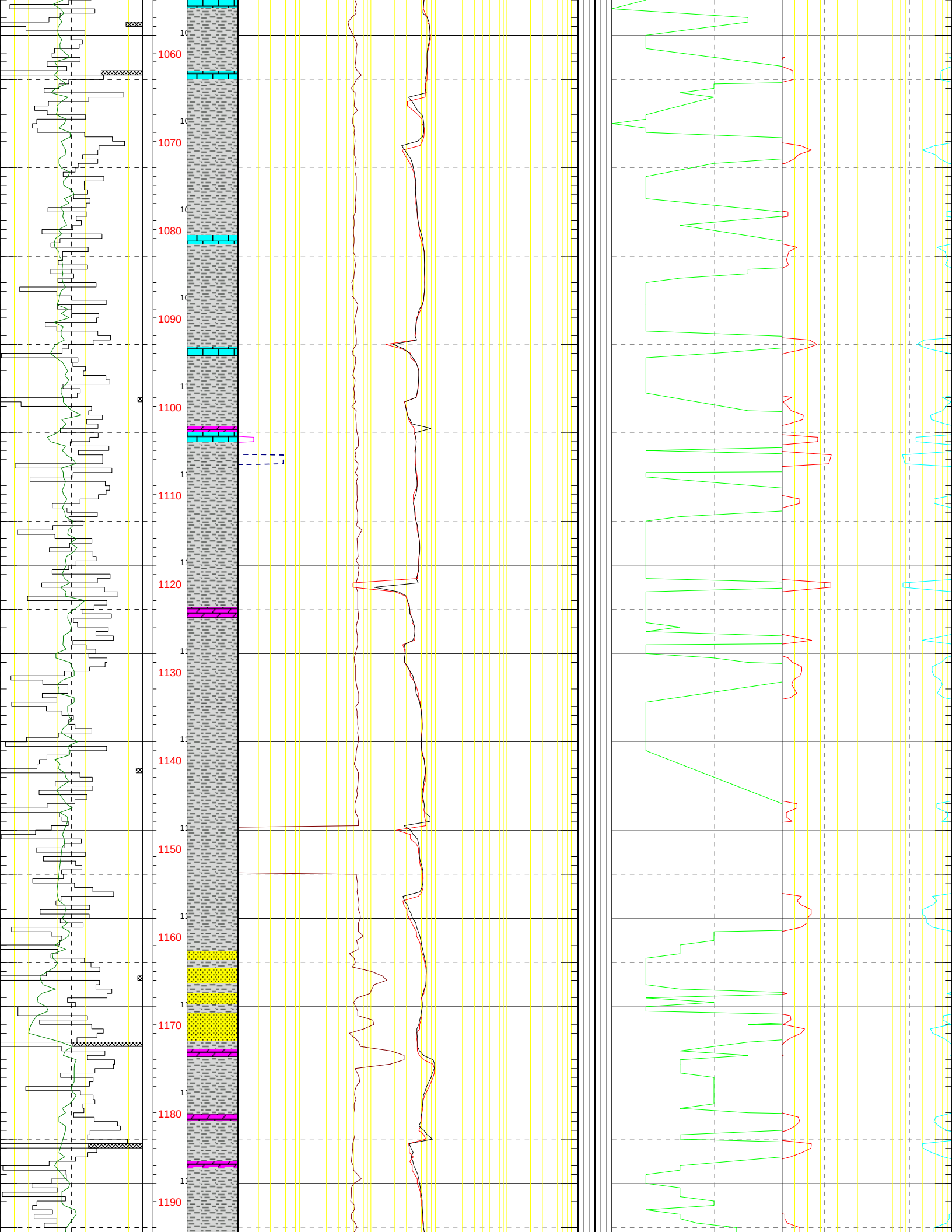


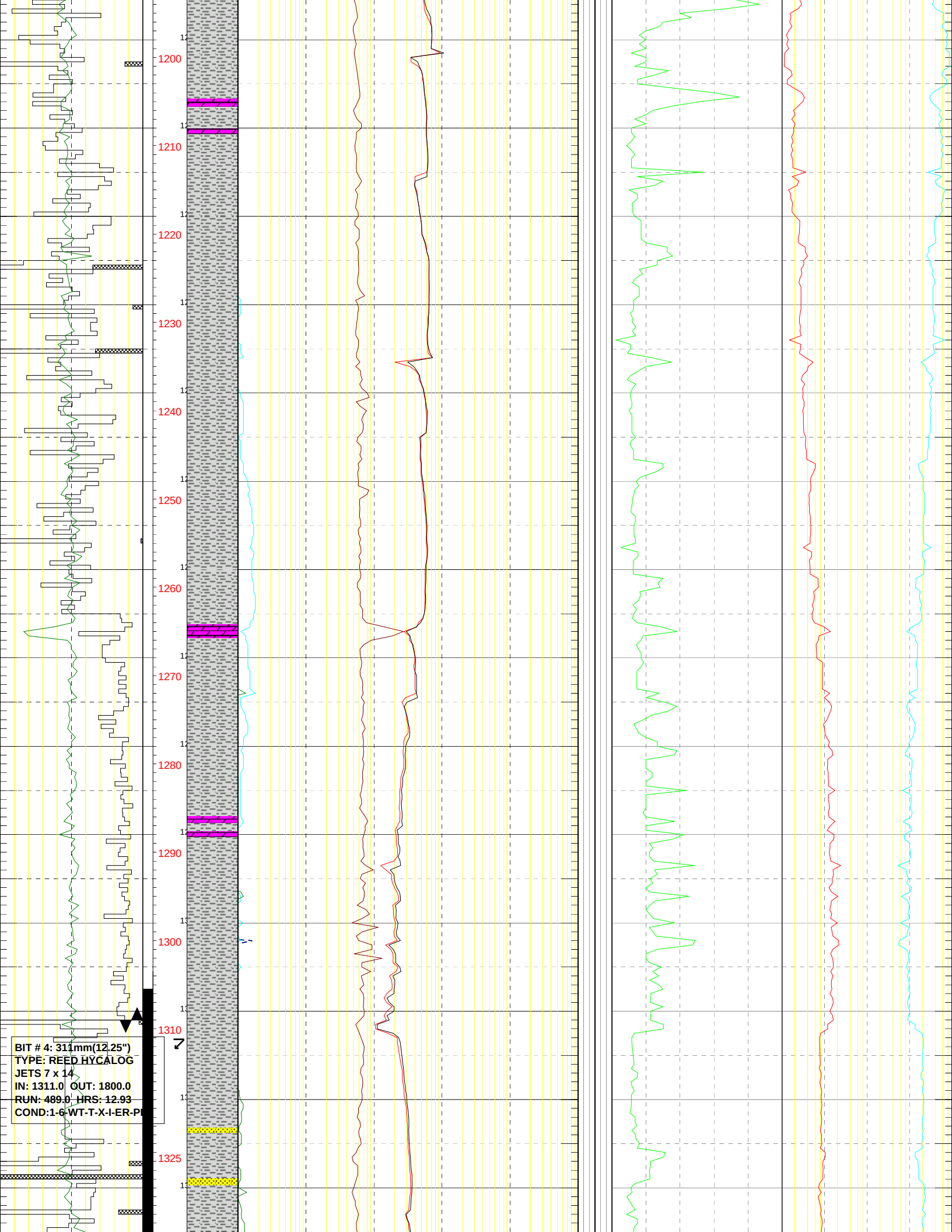
Deviation survey

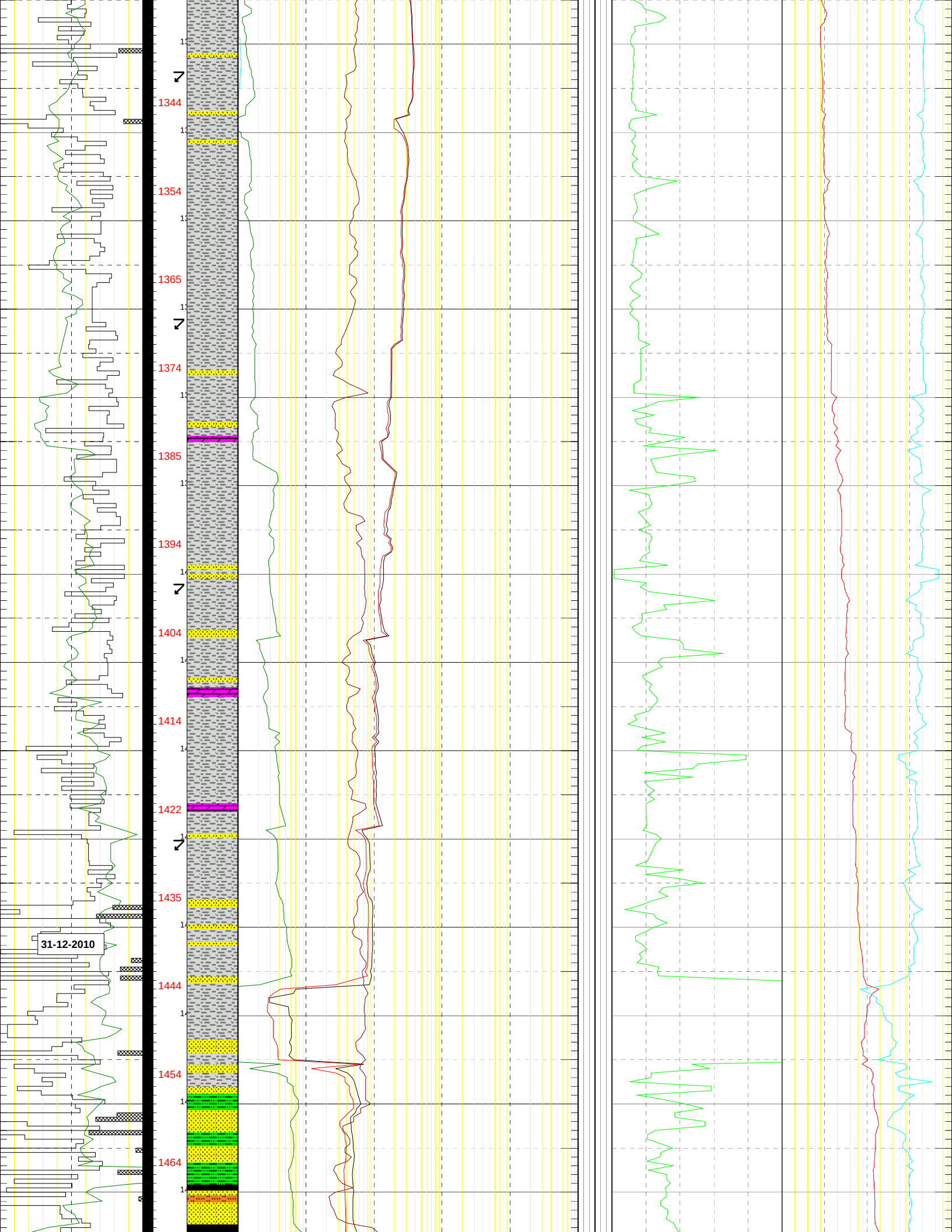


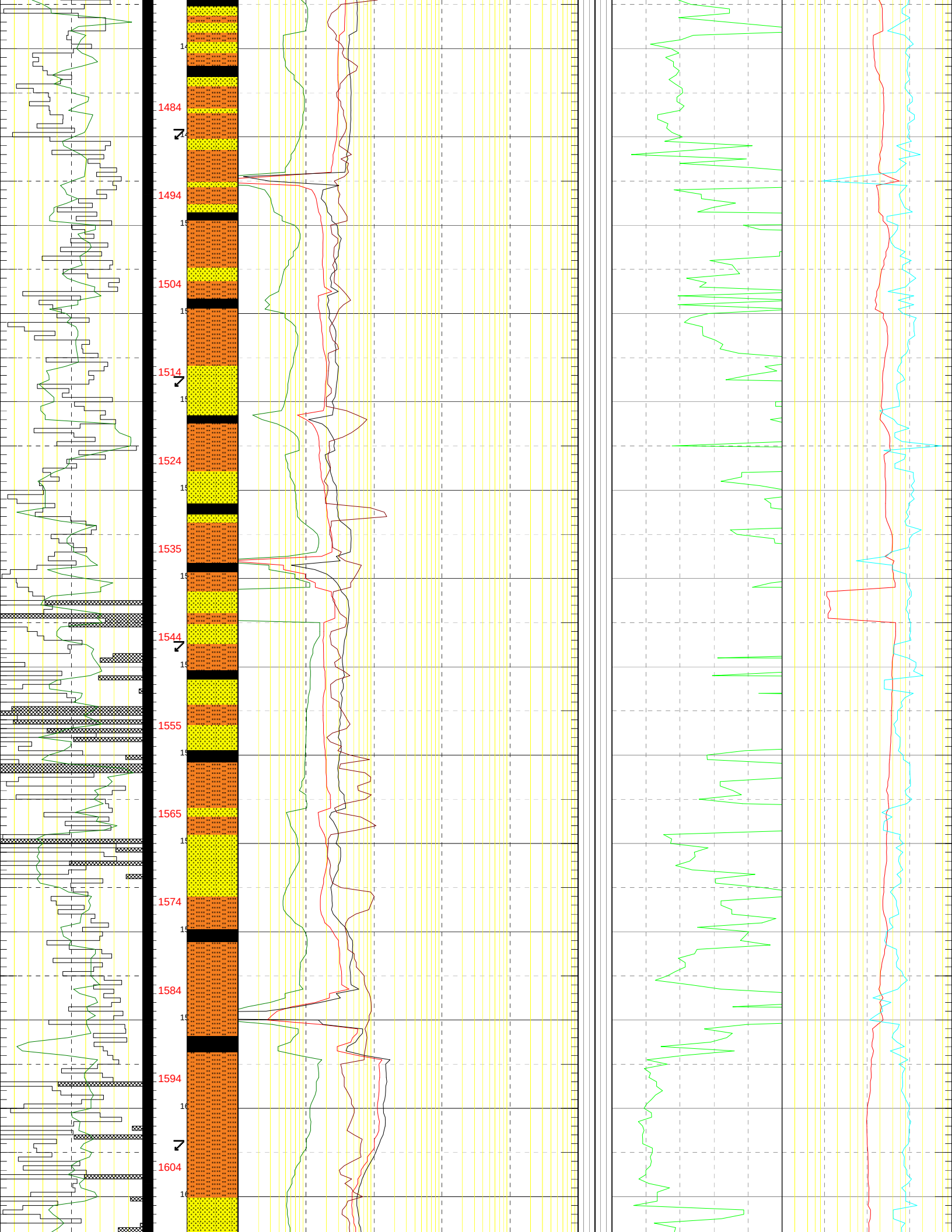


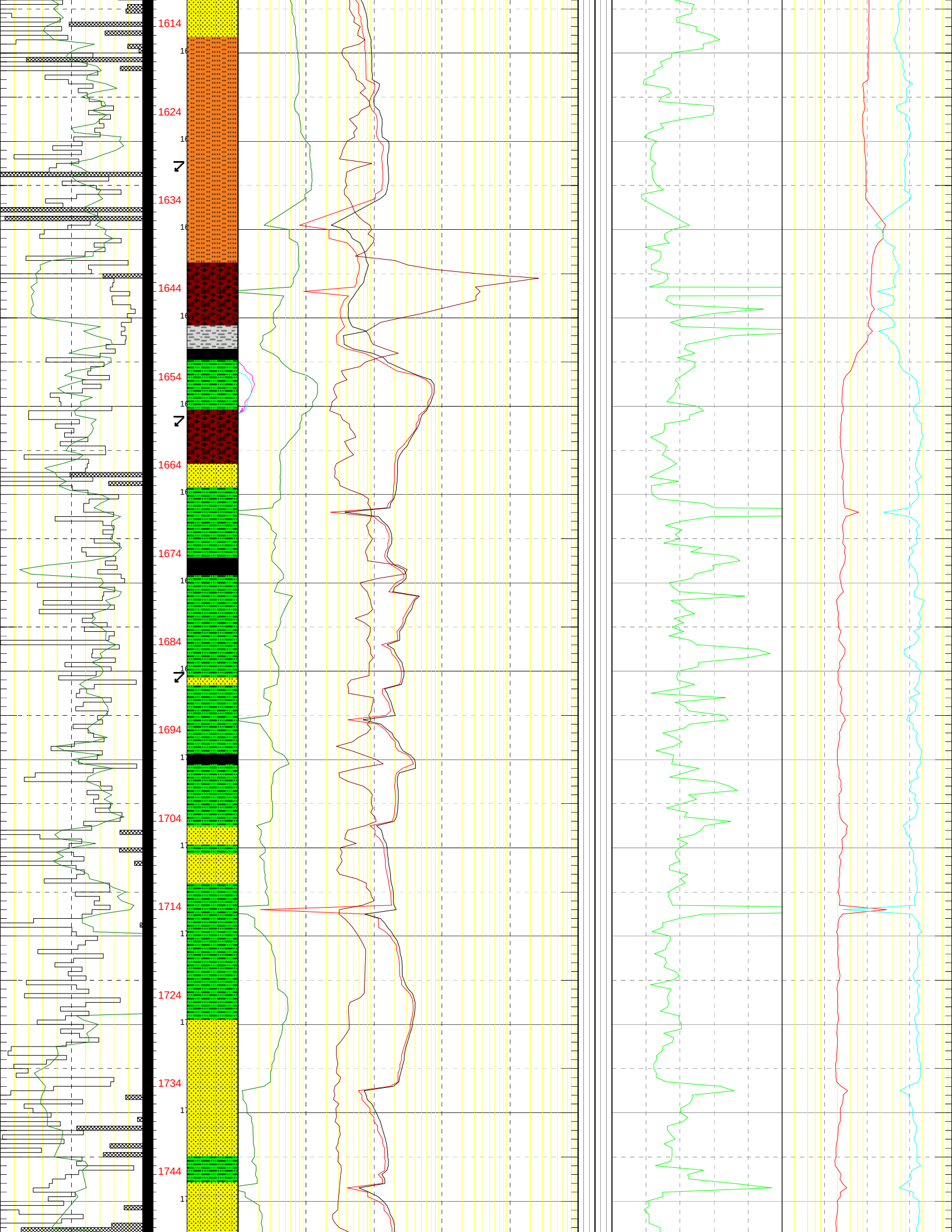


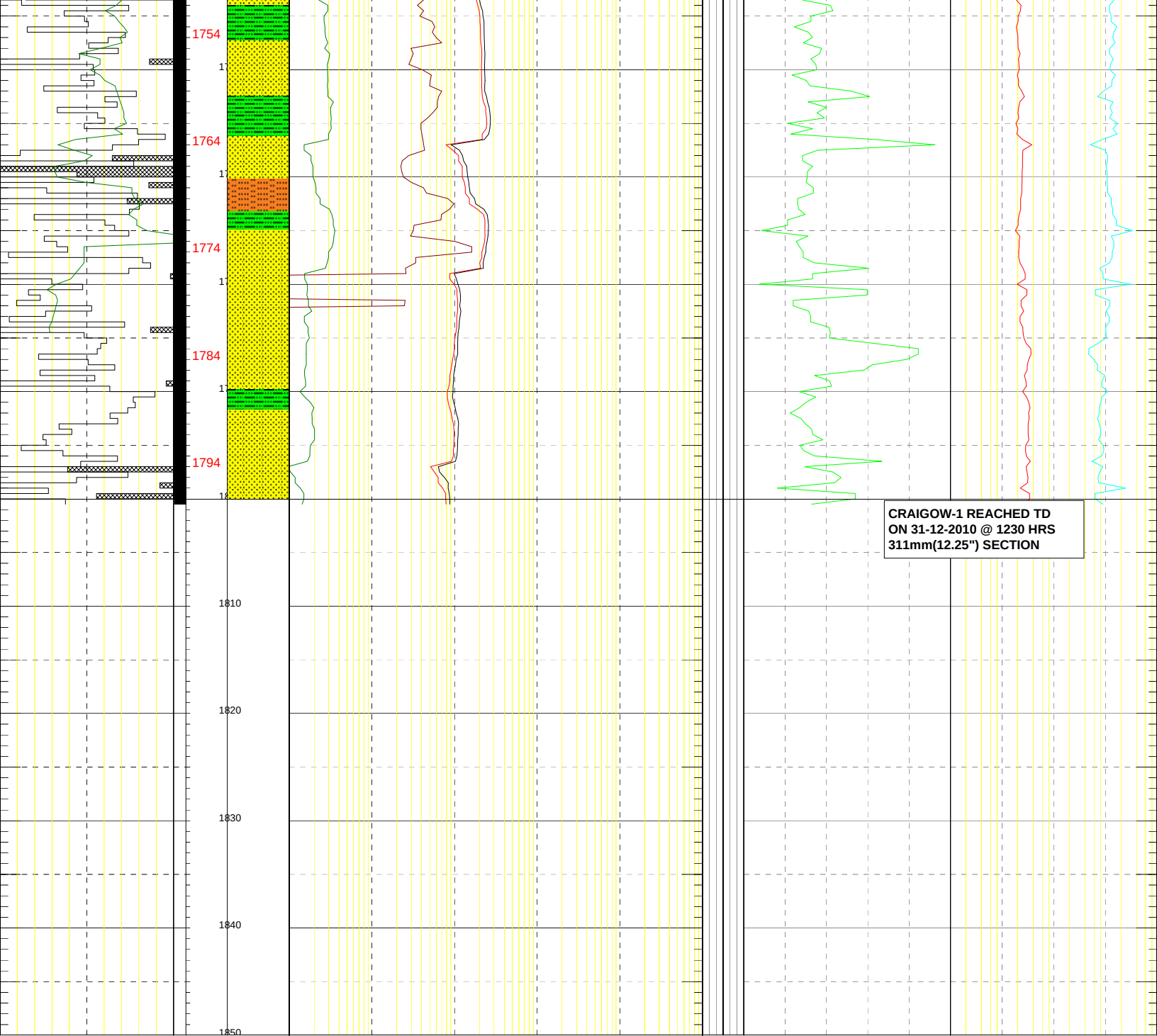












Enclosure 3: Drill Logs

DRILLING LOG

CRAIGOW 1

FROM : (mt) 80

TO : (mt) 1850

SCALE : 1/ 500

Client: TAP OIL

Field : CRAIGOW

Rig Name : KAN TAN IV

RT-ELEV (m) : 26

Final TD (m) : 1800.0

Well : CRAIGOW 1

Country : AUSTRALIA

Rig Type : SEMI SUB

MSL-RT (m) : 74

Final TVD (m): 1799.86



Breccia large



Breccia Small



Gravel



Conglomerate



Breccia



sand



Siltstone



Silt



Calc and dol clay-sh



claystone



Slightly sandy clay-



Pelletoids



Siderite



Carbonaceous



Sidewall core

BG Background Gas

DG Drilled Gas

CG Connection Gas

SCG Simulated Connection Gas

PSG Pump Stoppage Gas

FC Flow Check Gas

TG Trip Gas

SG Swabbed Gas

RG Recycled Gas

KG Kick Gas



FIT or LOT



Core



Carbonaceous



Sidewall core



Deviation survey

GR

0 150

ROP (mn/m)

0 100

SLIDE IS BLACK

DEPTH
MD
TVD
m

LITHOLOGY
INTERPRETIVE

Total Gas %

.1 1 10 100

(gas in air)

WOH (klbs)

0 40 80 120 160 200

WOB (klbs)

0 10 20 30 40 50

Torque (ft*klbs)

10K 20K 30K 40K

Flow In (gpm)

0 1K 2K 3K 4K 5K

MW IN (ppg)

0 20 40 60 80 100

MW OUT (ppg)

0 20 40 60 80 100

RPM

100 200 300 400

SPP (psi)

0 5K 10K 15K 20K 25K

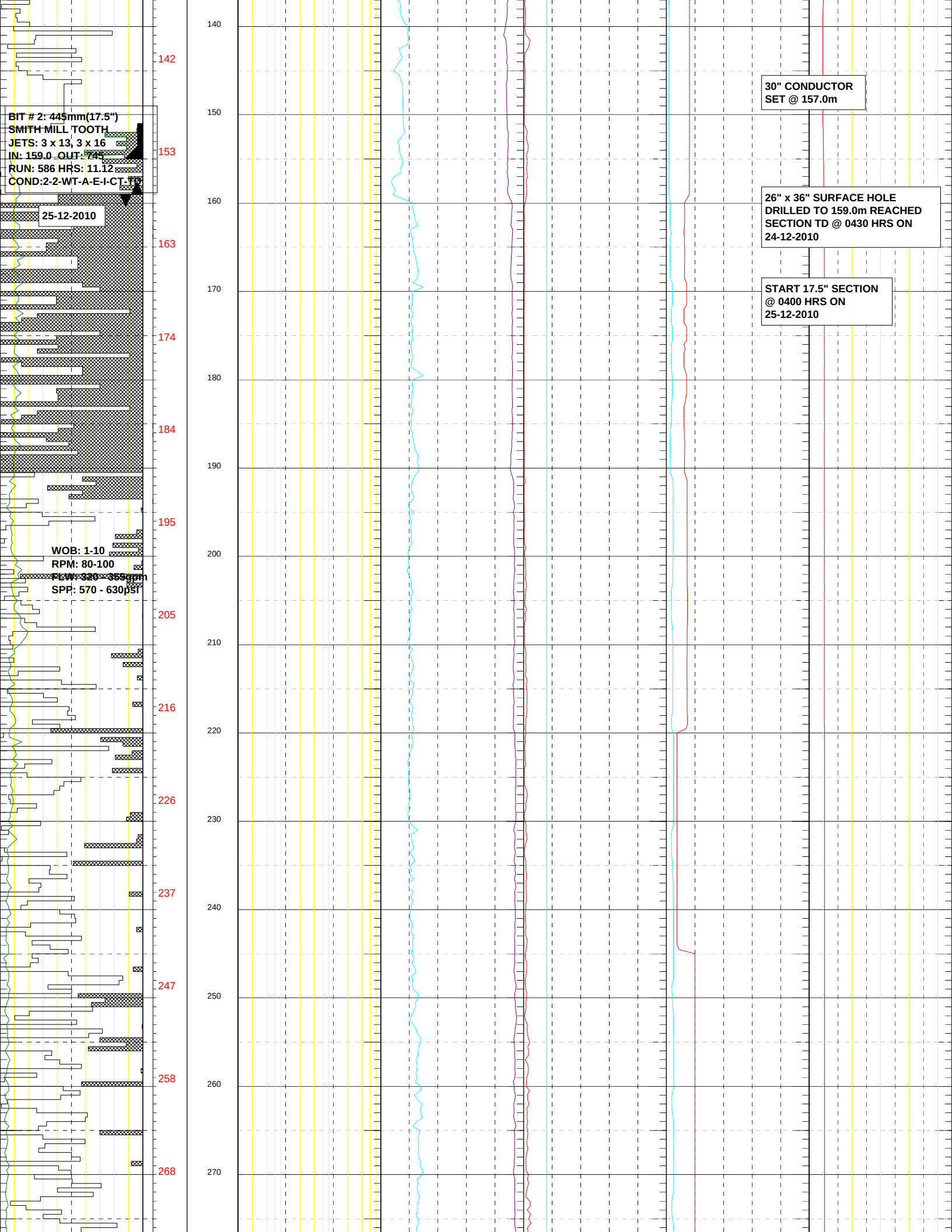
BIT # 1: 914mm(26")
SMITH XR-VCPS
JETS: 3 x 22
IN: 100 OUT: 159.0
RUN: 59.0 HRS:1.20
COND:2-2-WT-A-2-I-NO-TD

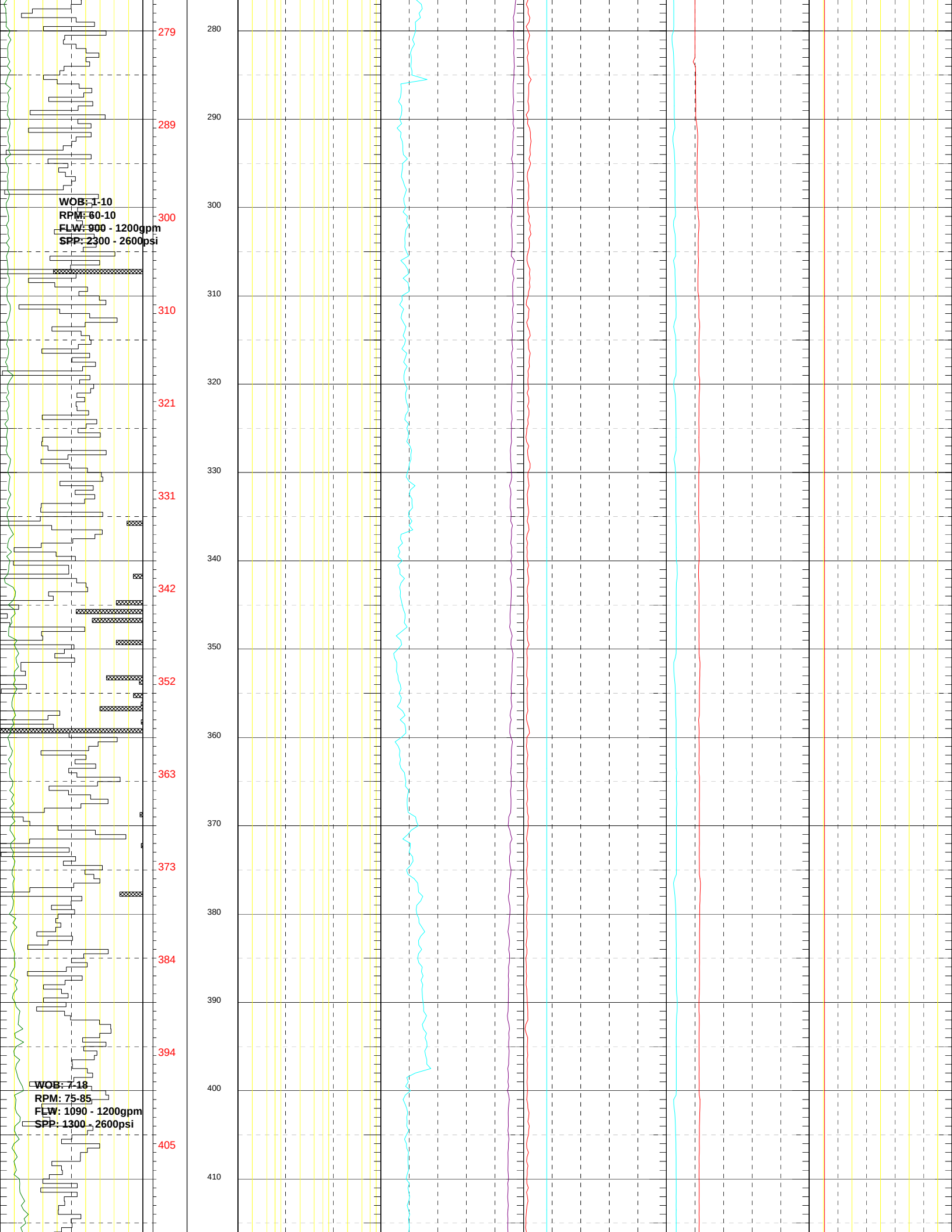
24-12-2010

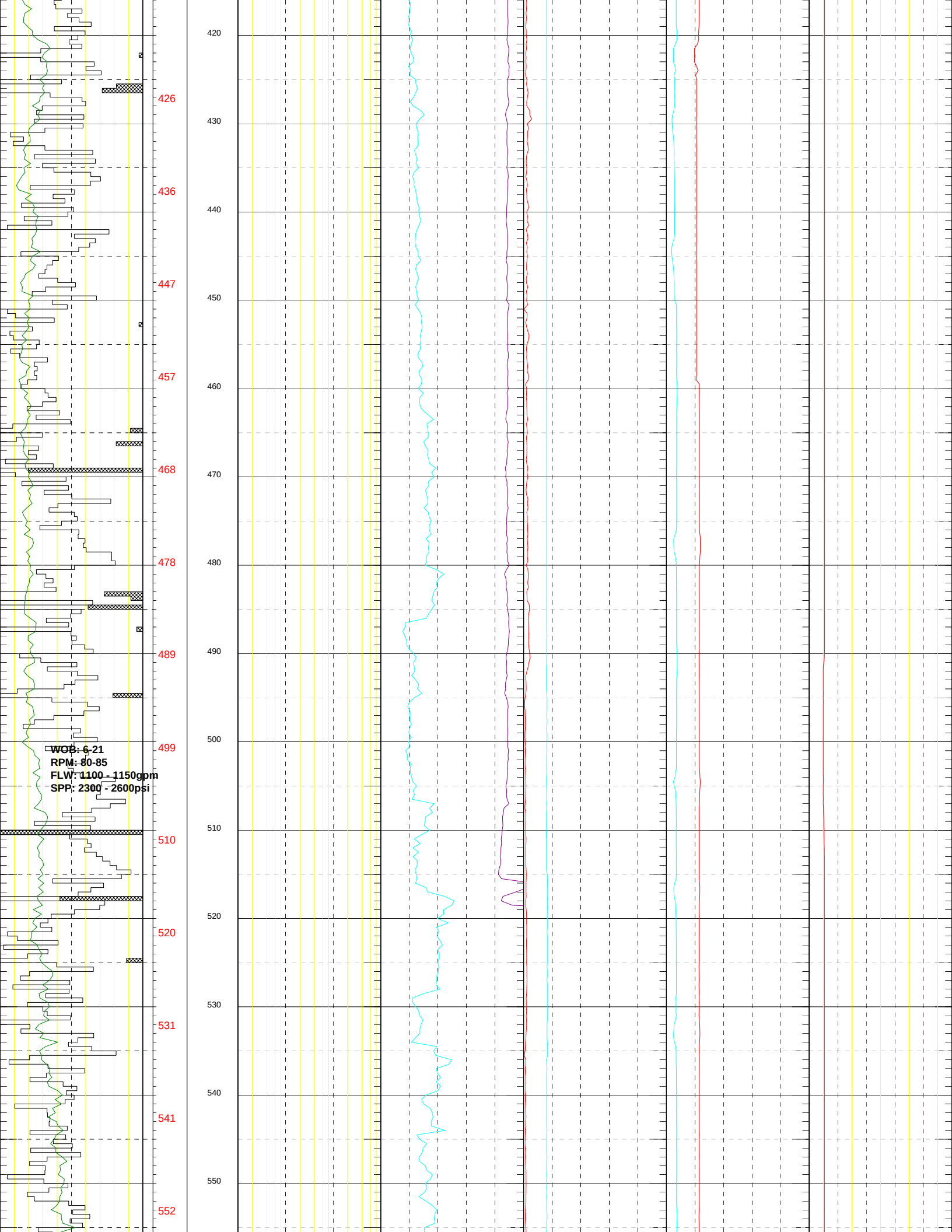
WOB: 1-10
RPM: 40-90
FLW: 610 - 810gpm
SPP: 545 - 630psi

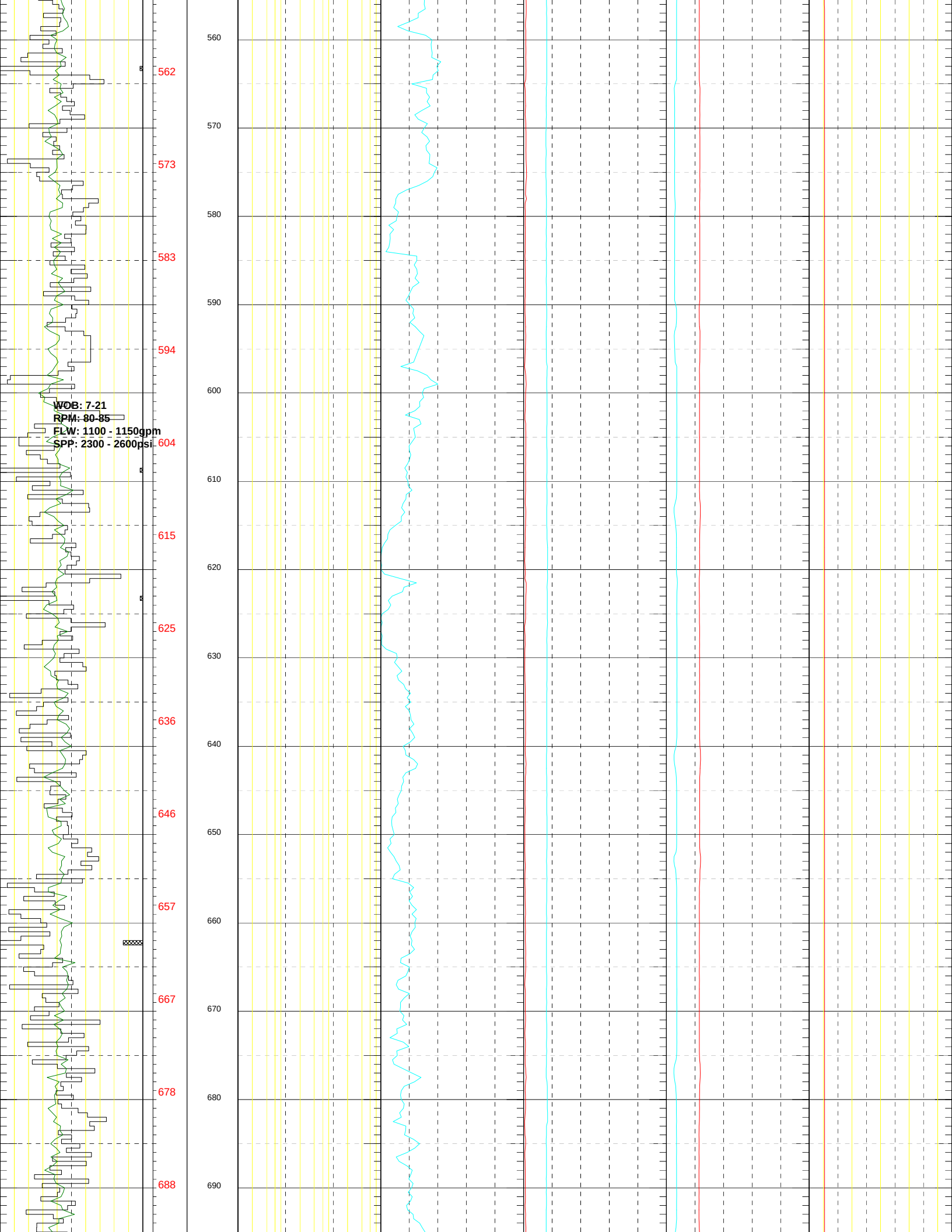
CRAIGOW-1 SPUDED ON
24-12-2010 @ 0300 HRS
914mm(36") SECTION

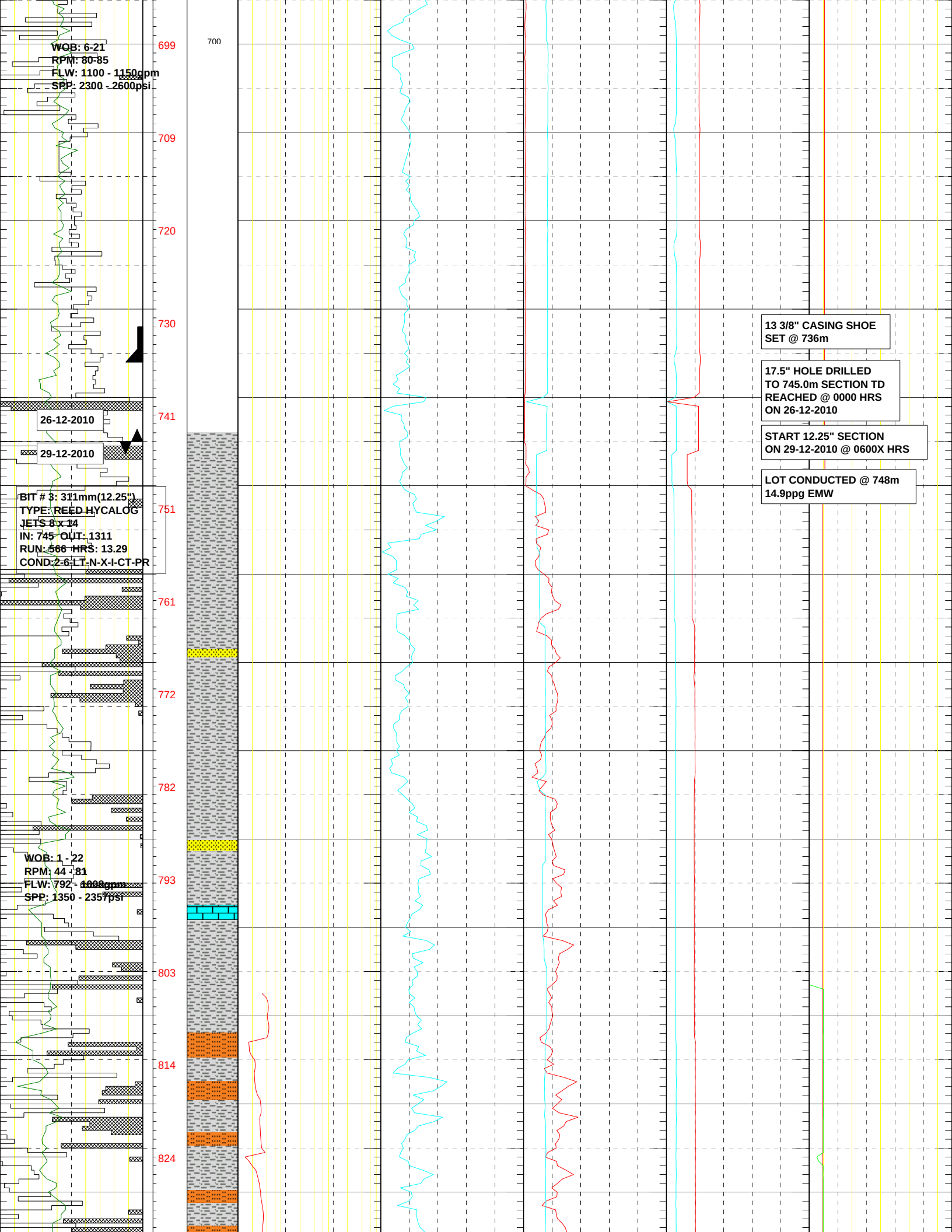
SEABED @ 100.0m

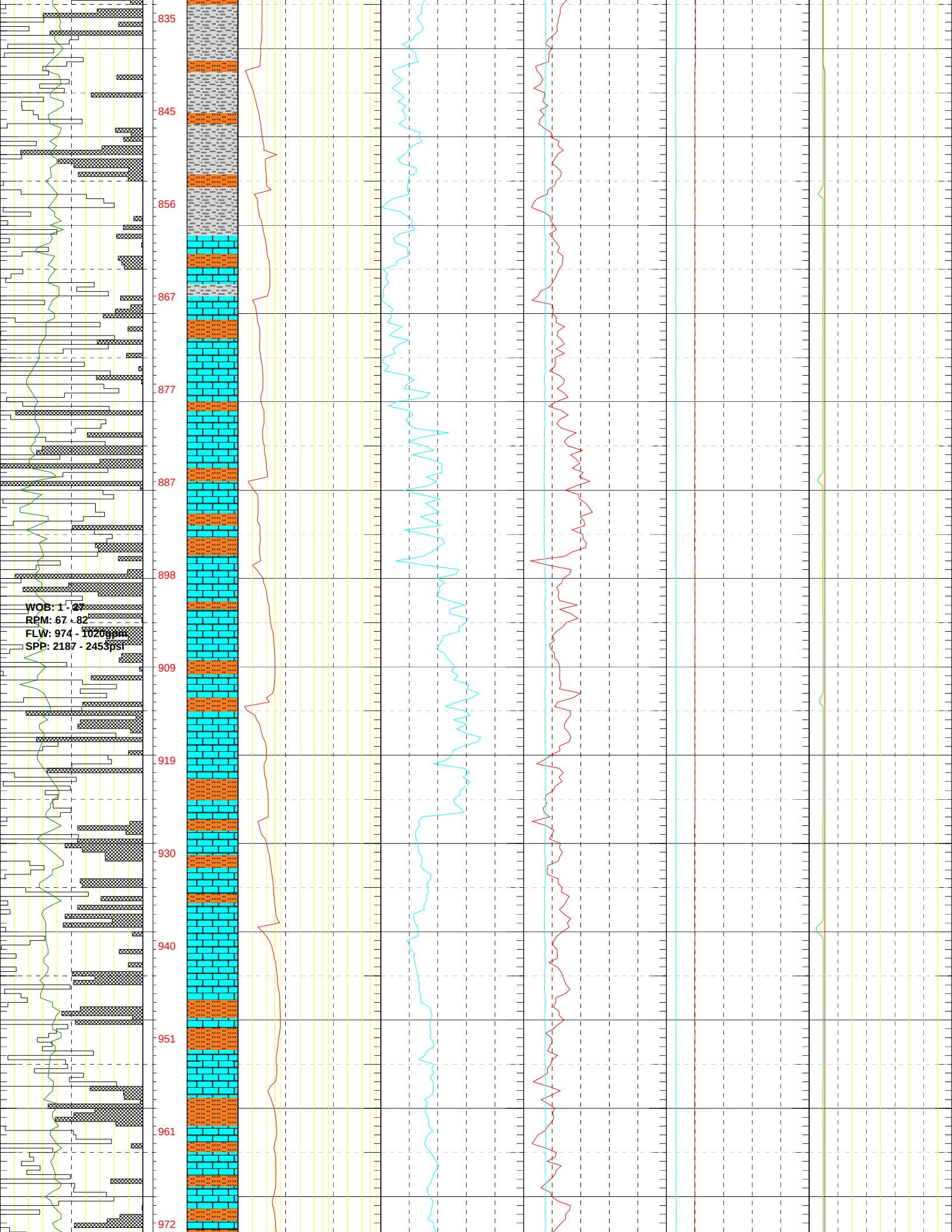


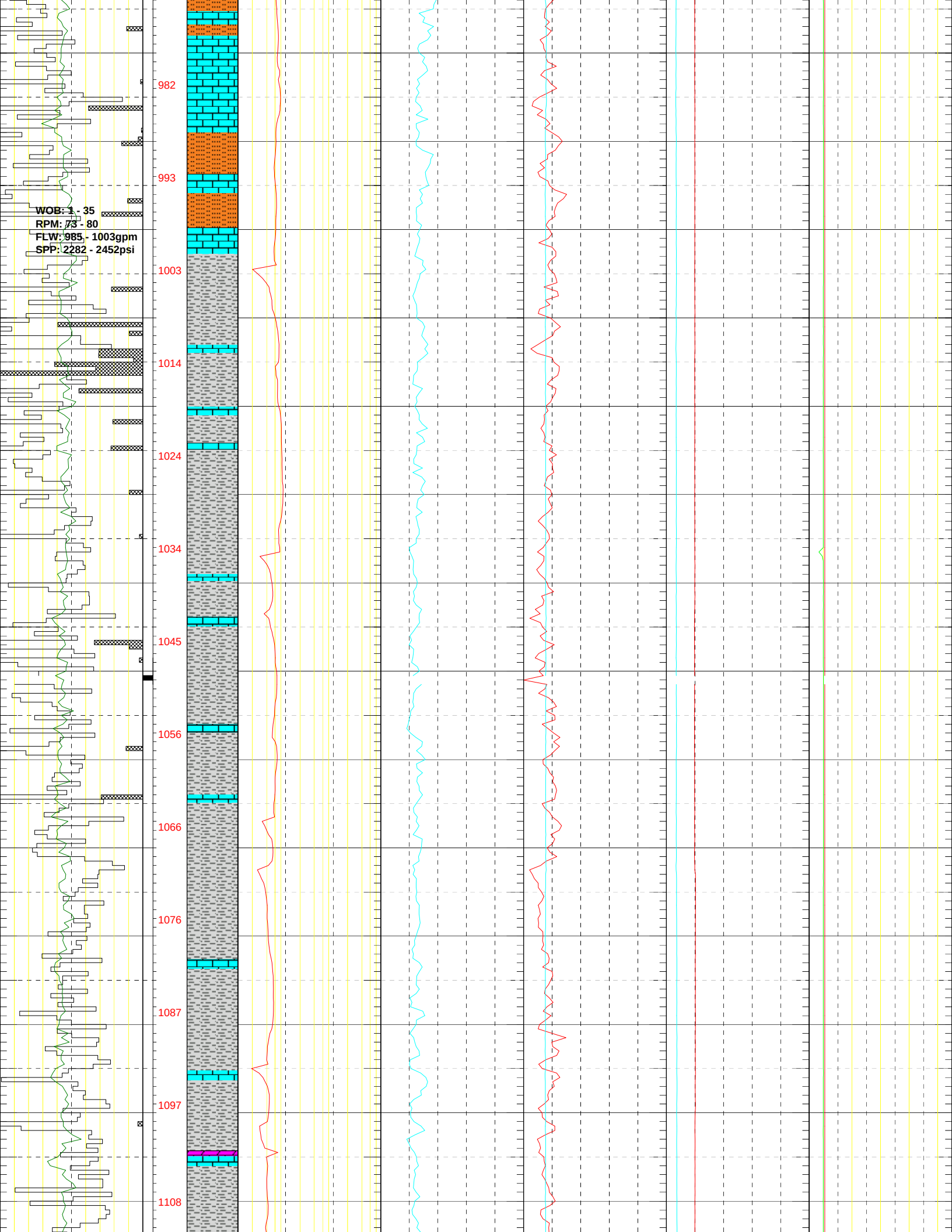


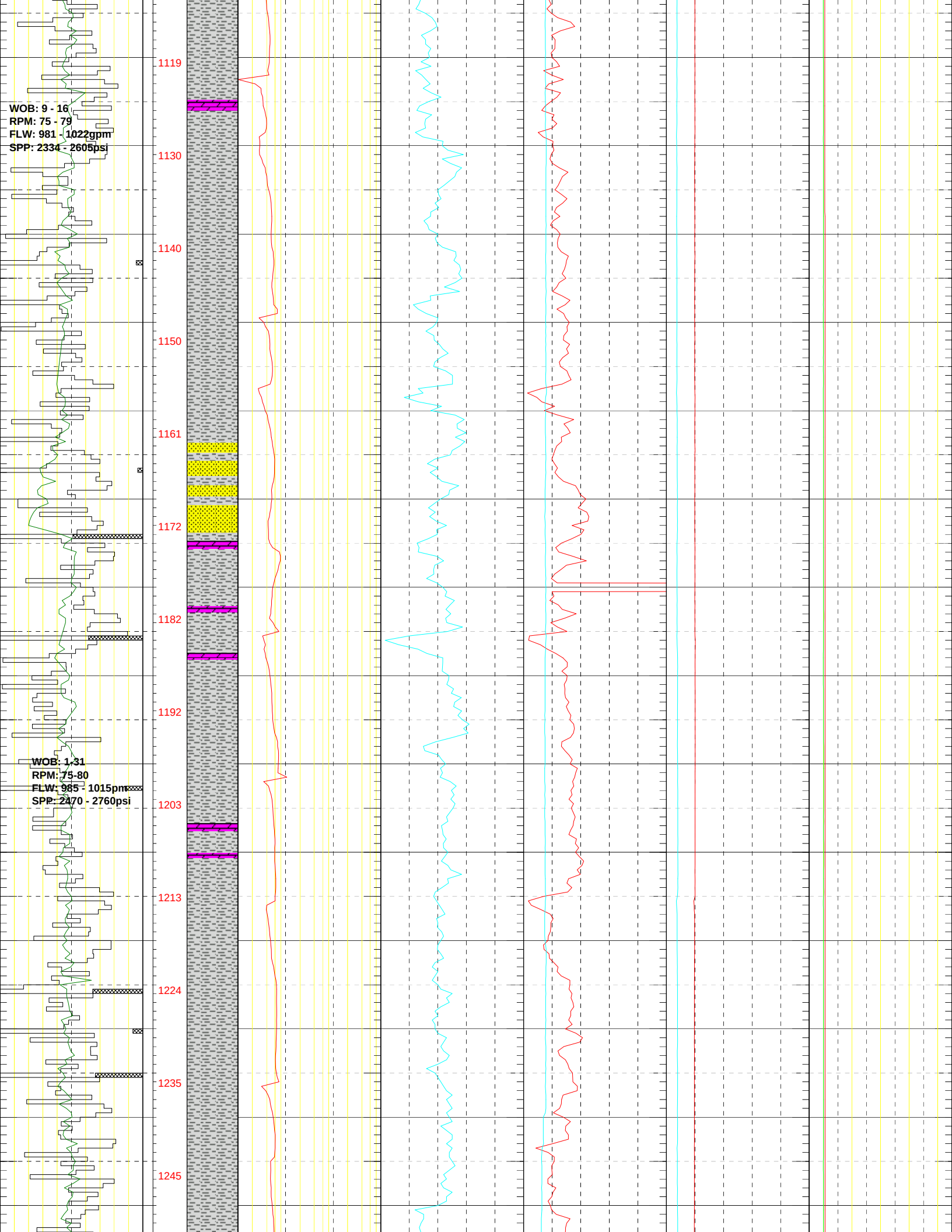


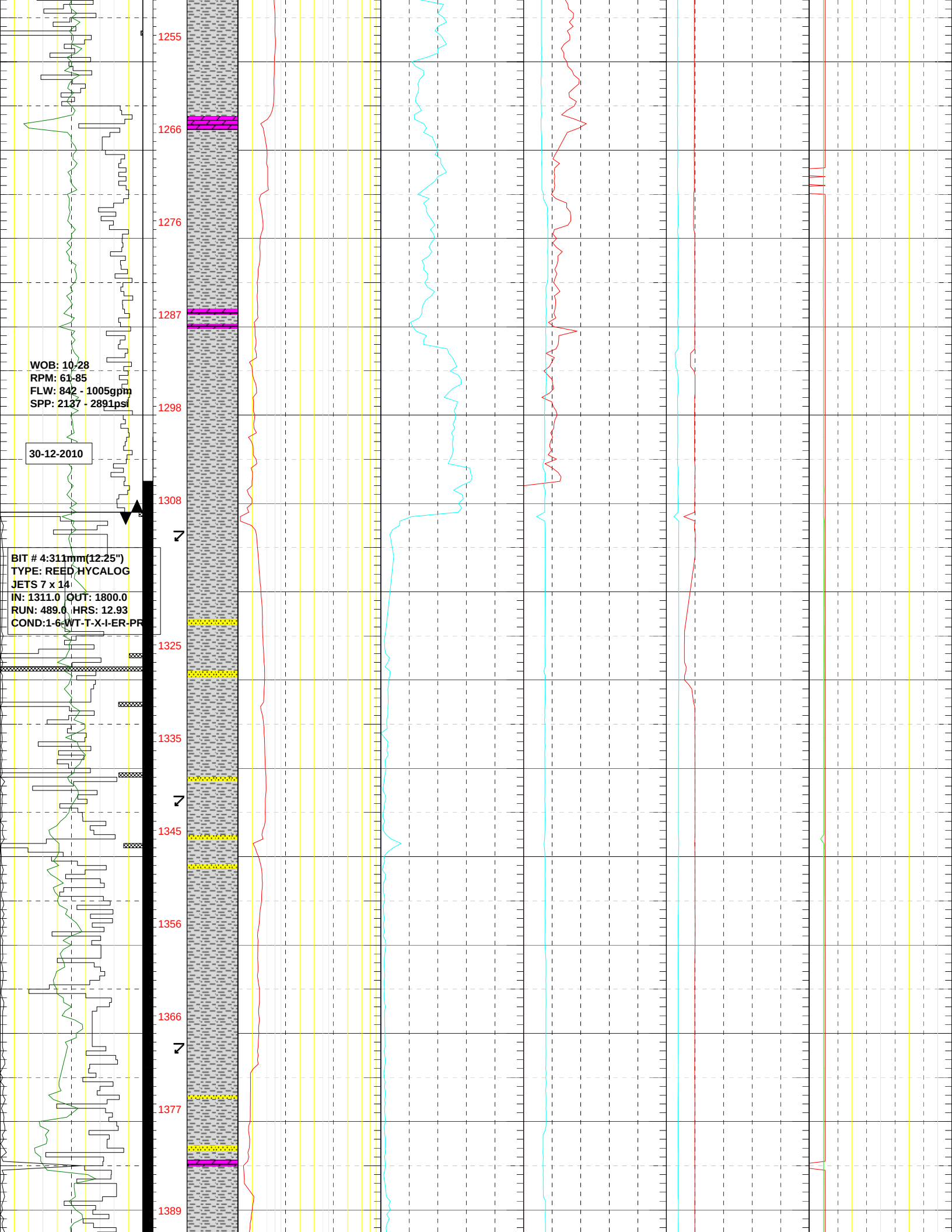












WOB: 0 - 10
RPM: 45 - 80
FLW: 605 - 1015gpm
SPP: 1820 - 3060psi

31-12-2010

WOB: 0 - 6
RPM: 55 - 80
FLW: 985 - 1015gpm
SPP: 2880 - 3115psi

1399

1410

1420

1430

1441

1452

1463

1474

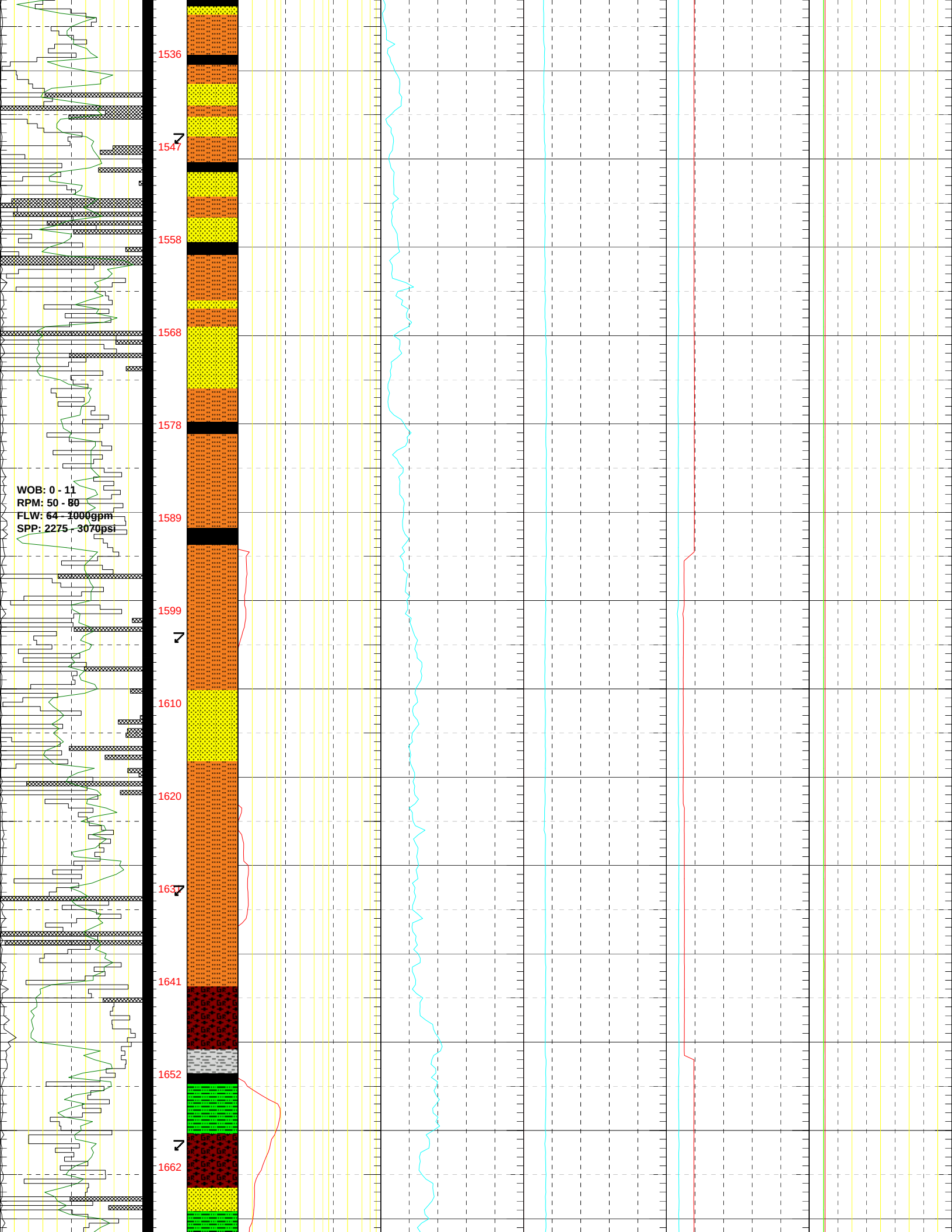
1484

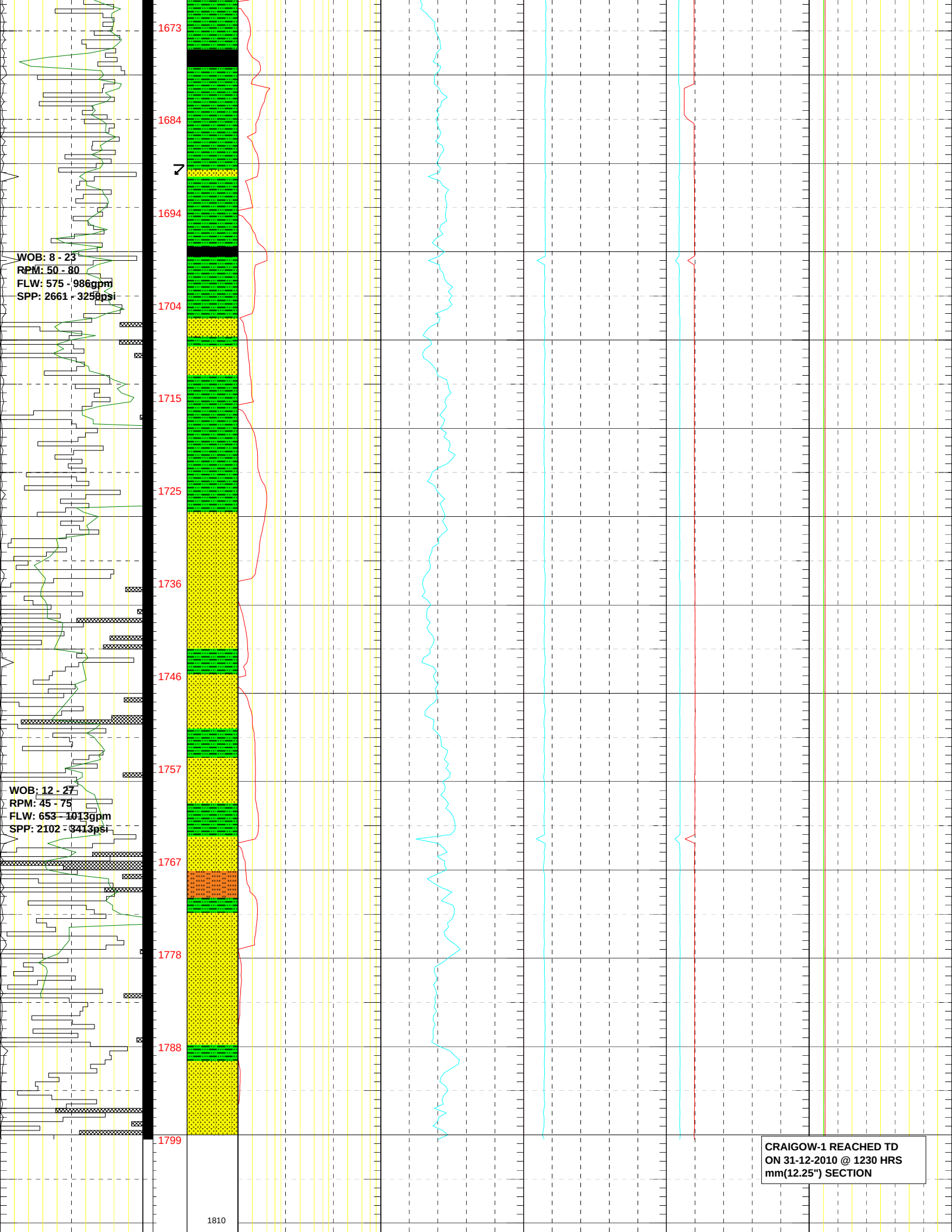
1494

1505

1515

1526





Enclosure 4: Pressure Logs

PRESSURE LOG
CRAIGOW 1

FROM : (mt) 70 TO : (mt) 1850 SCALE : 1/ 500

Client: TAP OIL Field : CRAIGOW Rig Name : KAN TAN IV DFE-BCD (m) : 74 Final TD (m) : 1800.0
Well : CRAIGOW 1 Country : AUSTRALIA Rig Type : SEMI SUB DFE-Sea Bed (m) : 100 Final TVD (m): 1799.86

 Breccia large

 Breccia Small

 Gravel

 Conglomerate

 Breccia

 sand

 Siltstone

 Silt

 Calc and dol clay-sh

 claystone

 Slightly sandy clay-

 Pelletoids

 Siderite

 Carbonaceous

 Sidewall core

 FIT or LOT

 Core

 Carbonaceous

 Sidewall core

 Deviation survey

BG Background Gas

DG Drilled Gas

CG Connection Gas

SCG Simulated Connection Gas

POG Pump Off Gas

FC Flow Check Gas

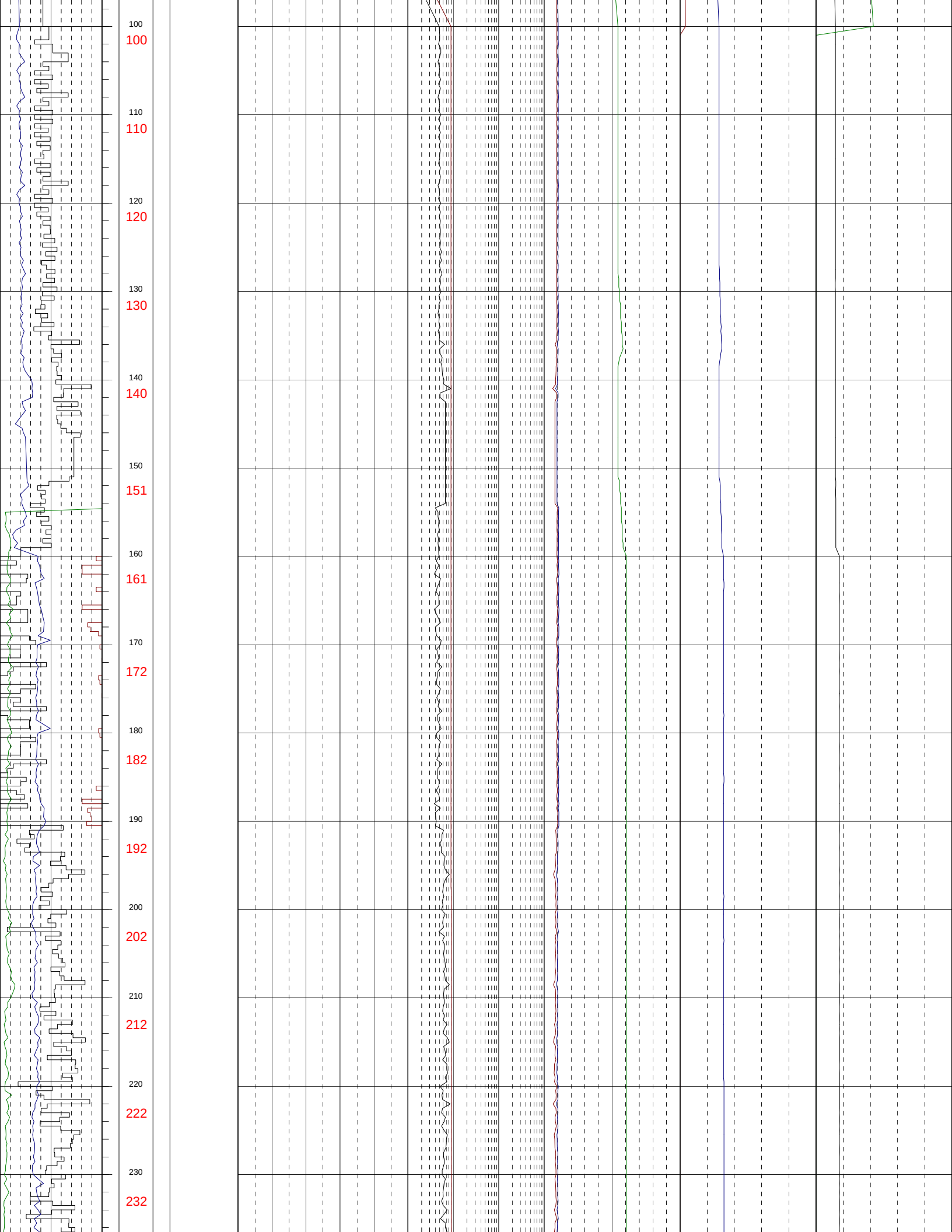
TG Trip Gas

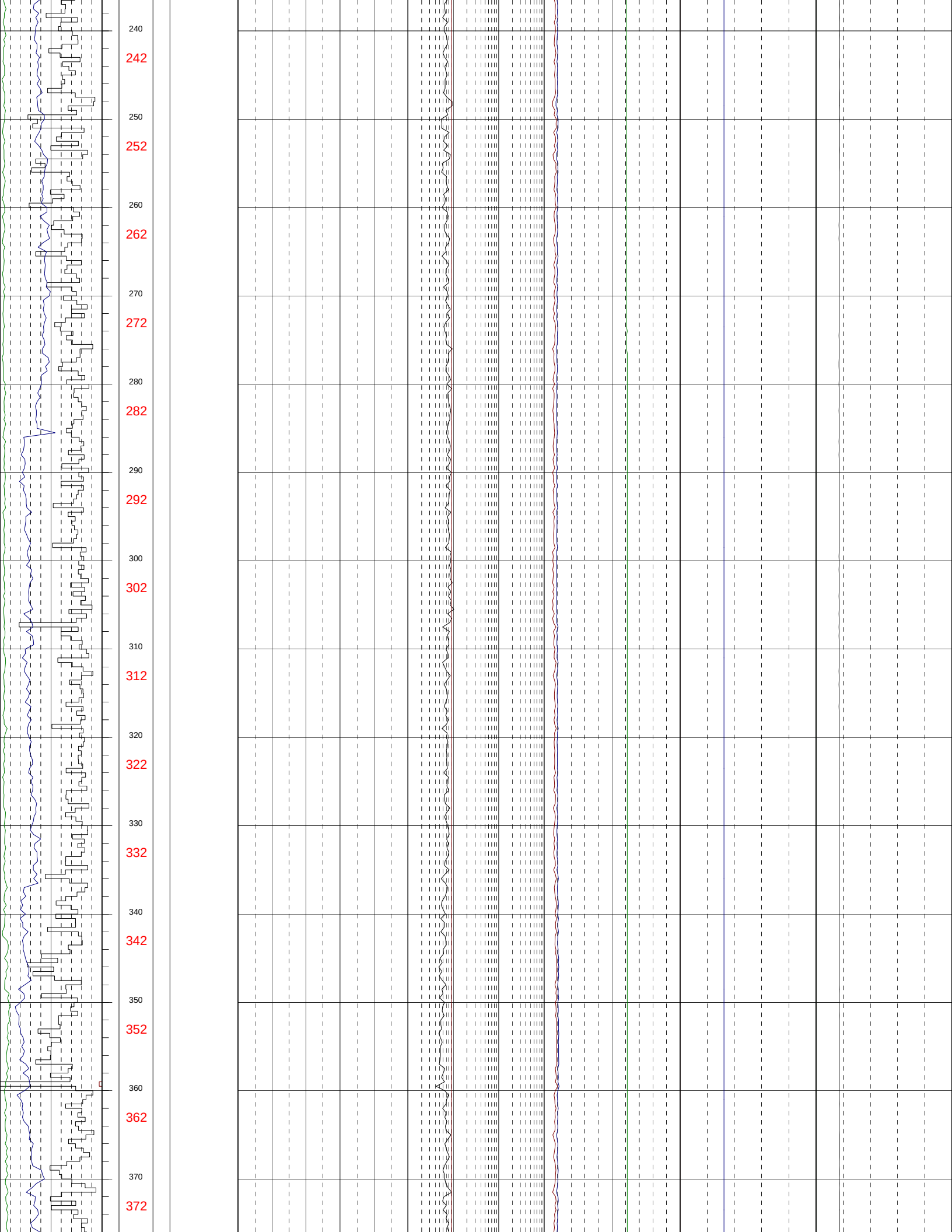
SG Swabbed Gas

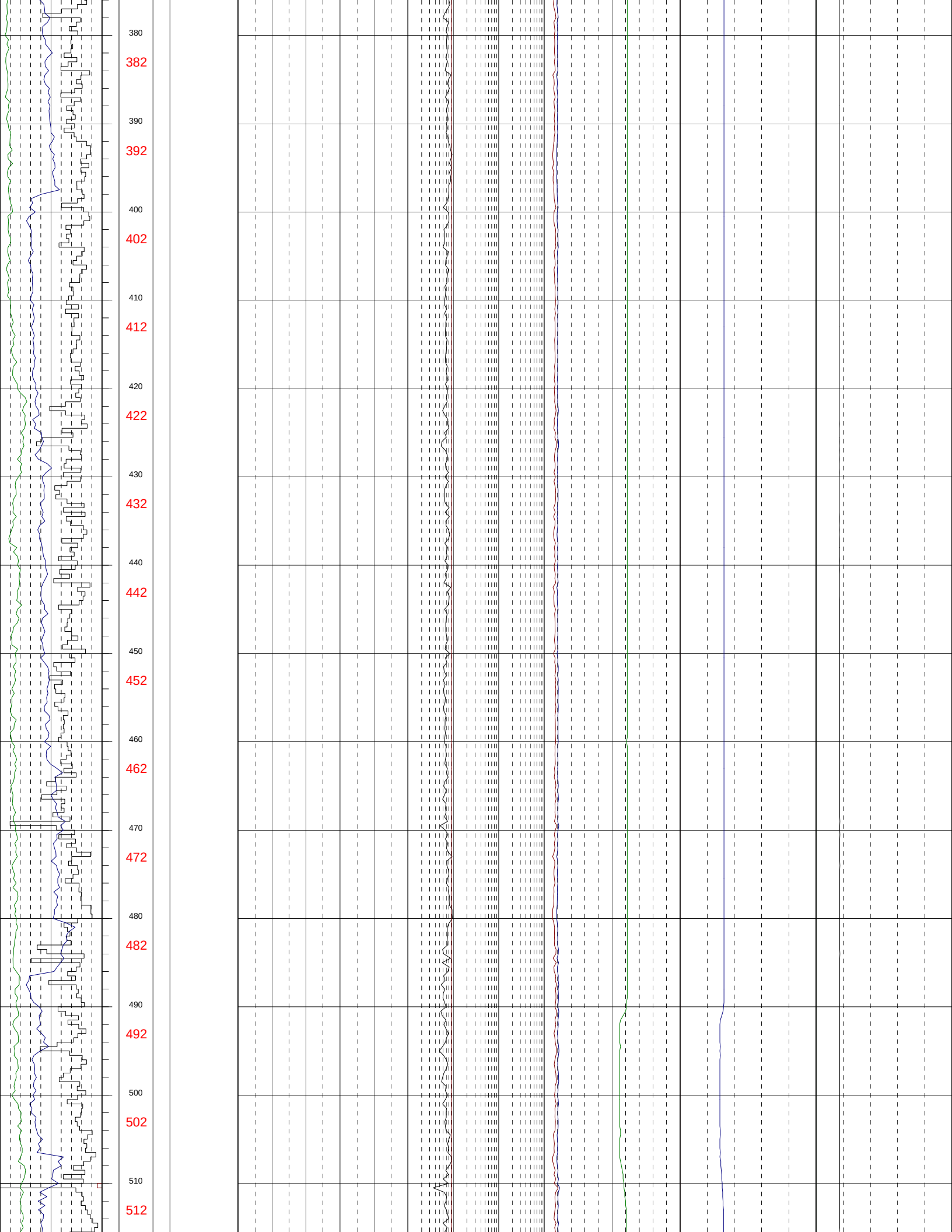
RG Recycled Gas

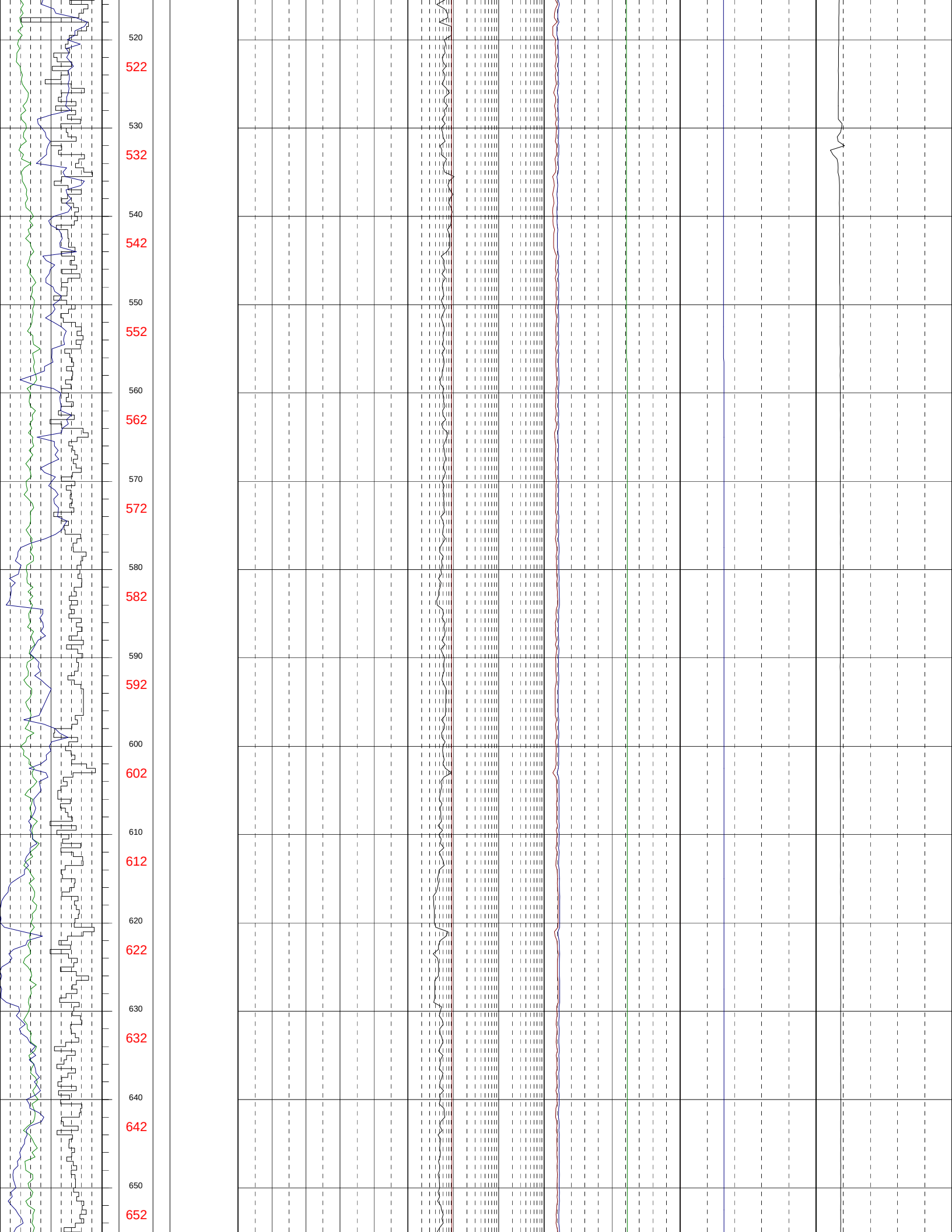
KG Kick Gas

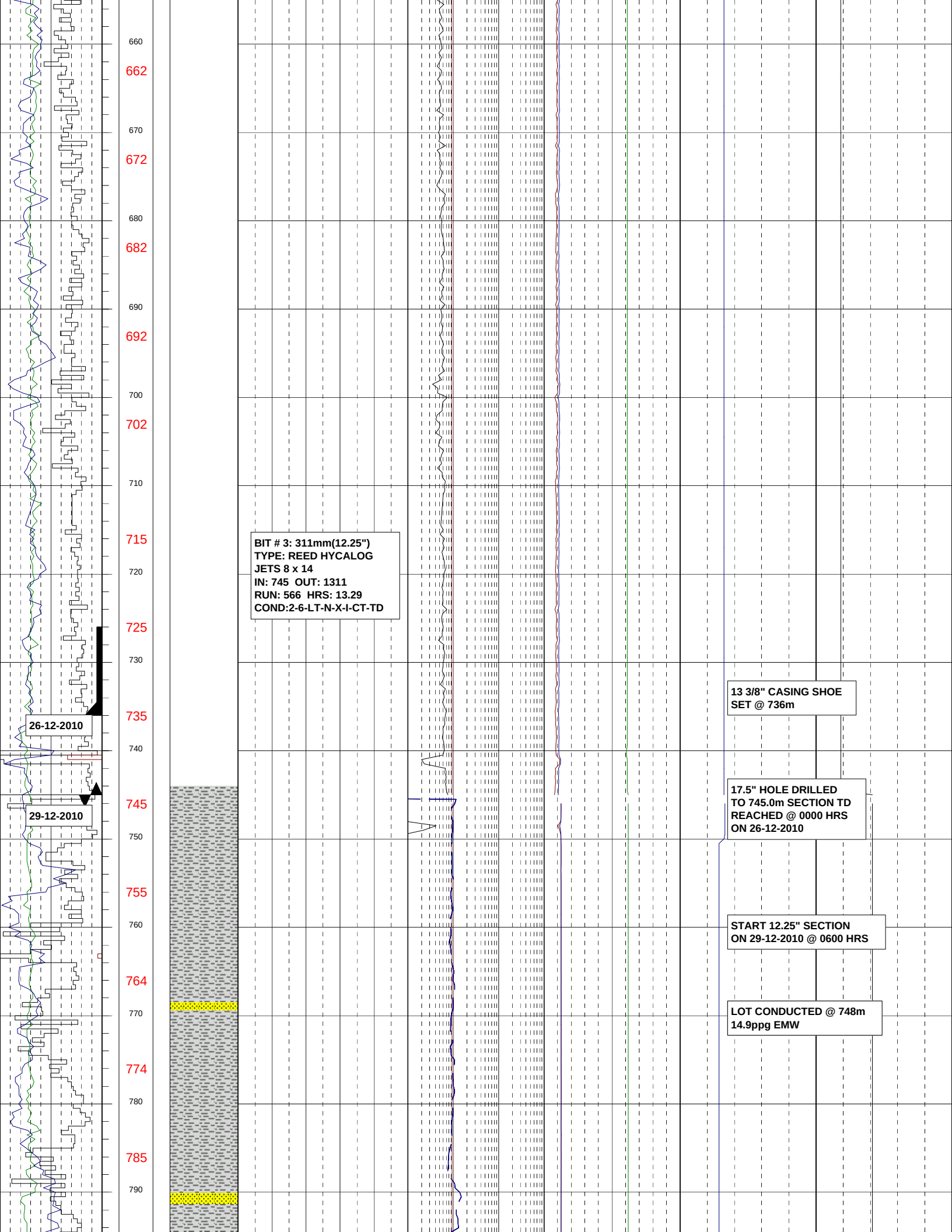
PENETRATION	DEPTH	LITHOLOGY	TOTAL GAS	D-EXPONENT	GRADIENT	MUD	TEMPERATURE
GR (API) Weight on Bit B/U ROP ROP (m/hr)	DEPTH (m)	INTERPRETED LITHOLOGY	Total Gas (%) B/U TOTAL GAS	Dxc DcN RESISTIVITY (ohm.m)	EST. PORE PRESS FRACTURE ECD at Bit (ppg)	MW In MW Out (ppg)	TEMP In TEMP Out (deg C)
	80						
	90						

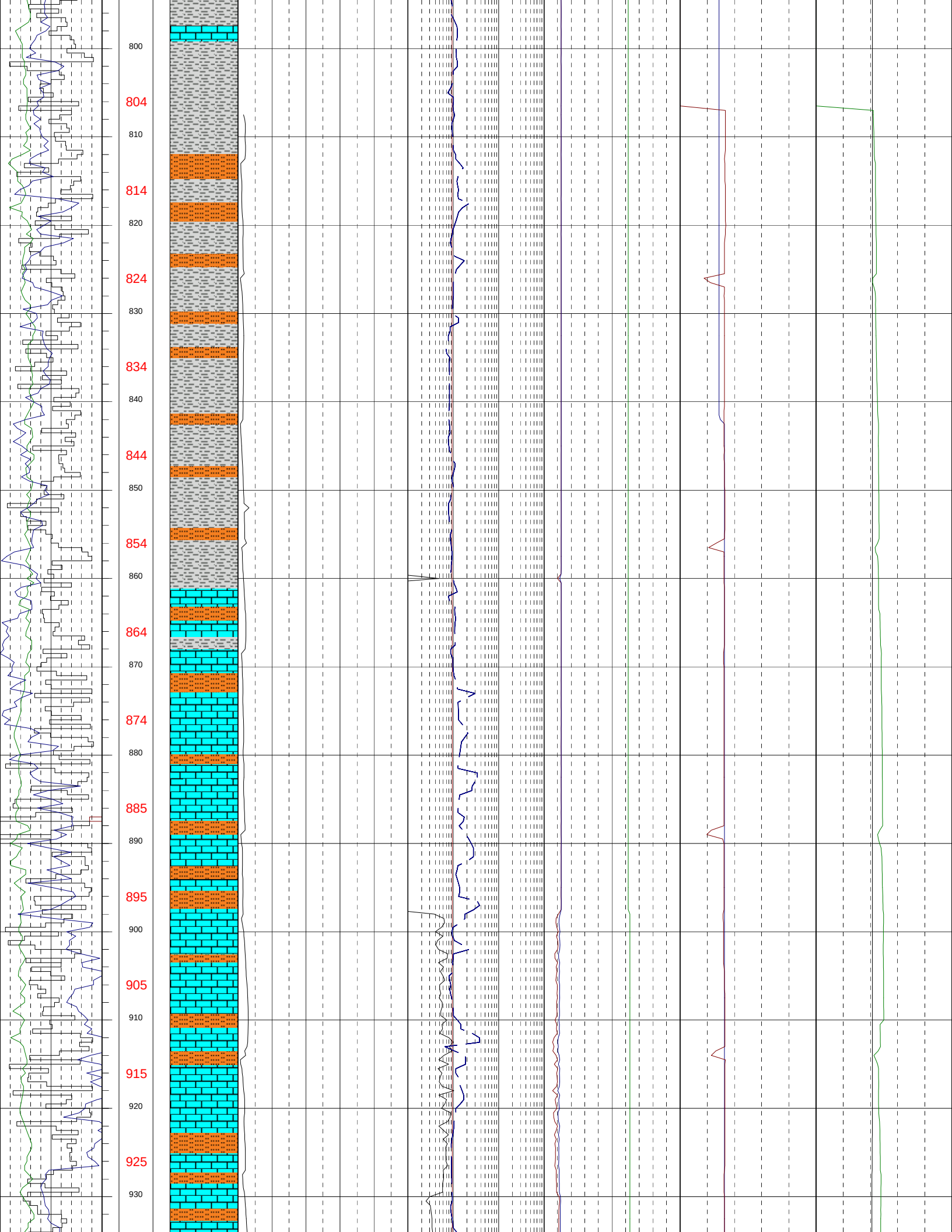


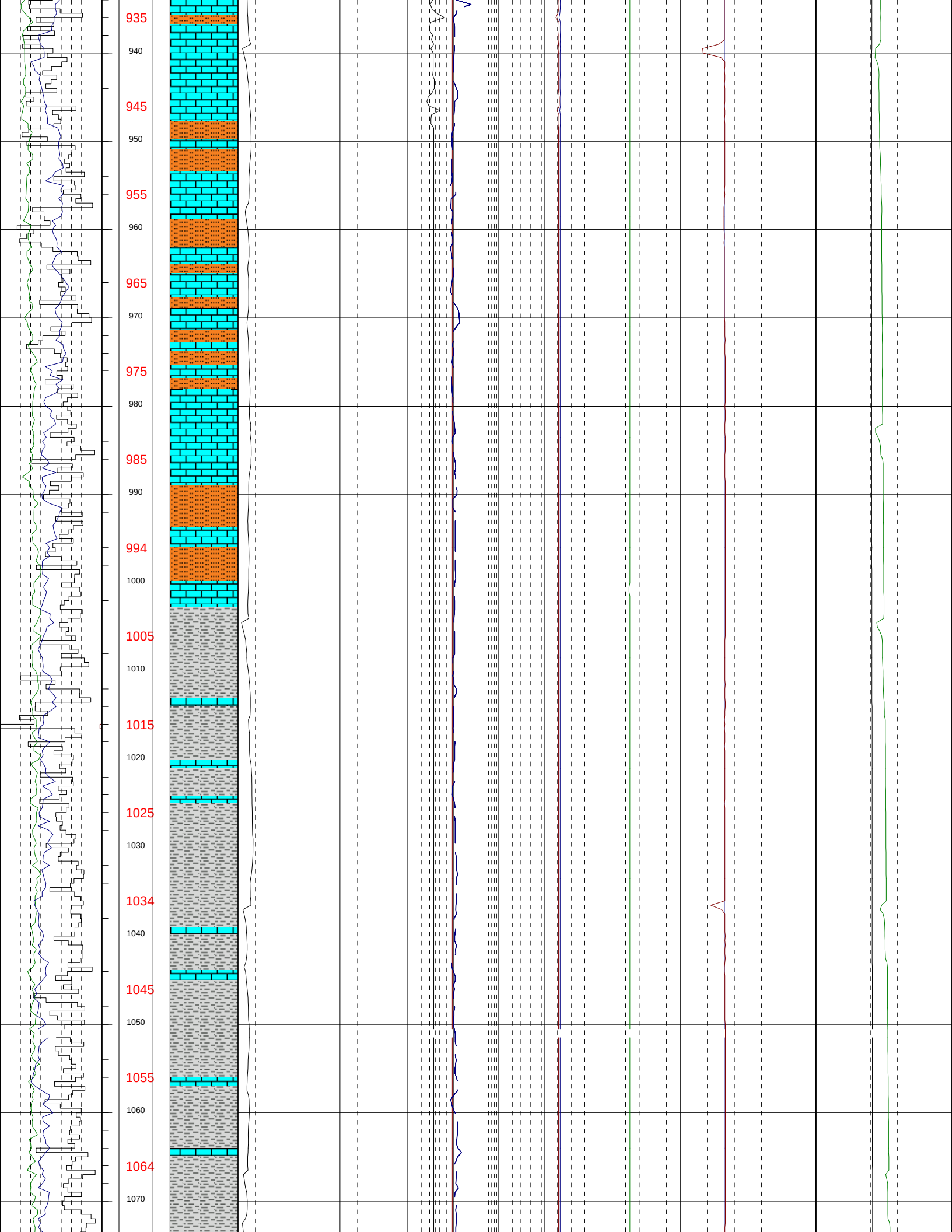


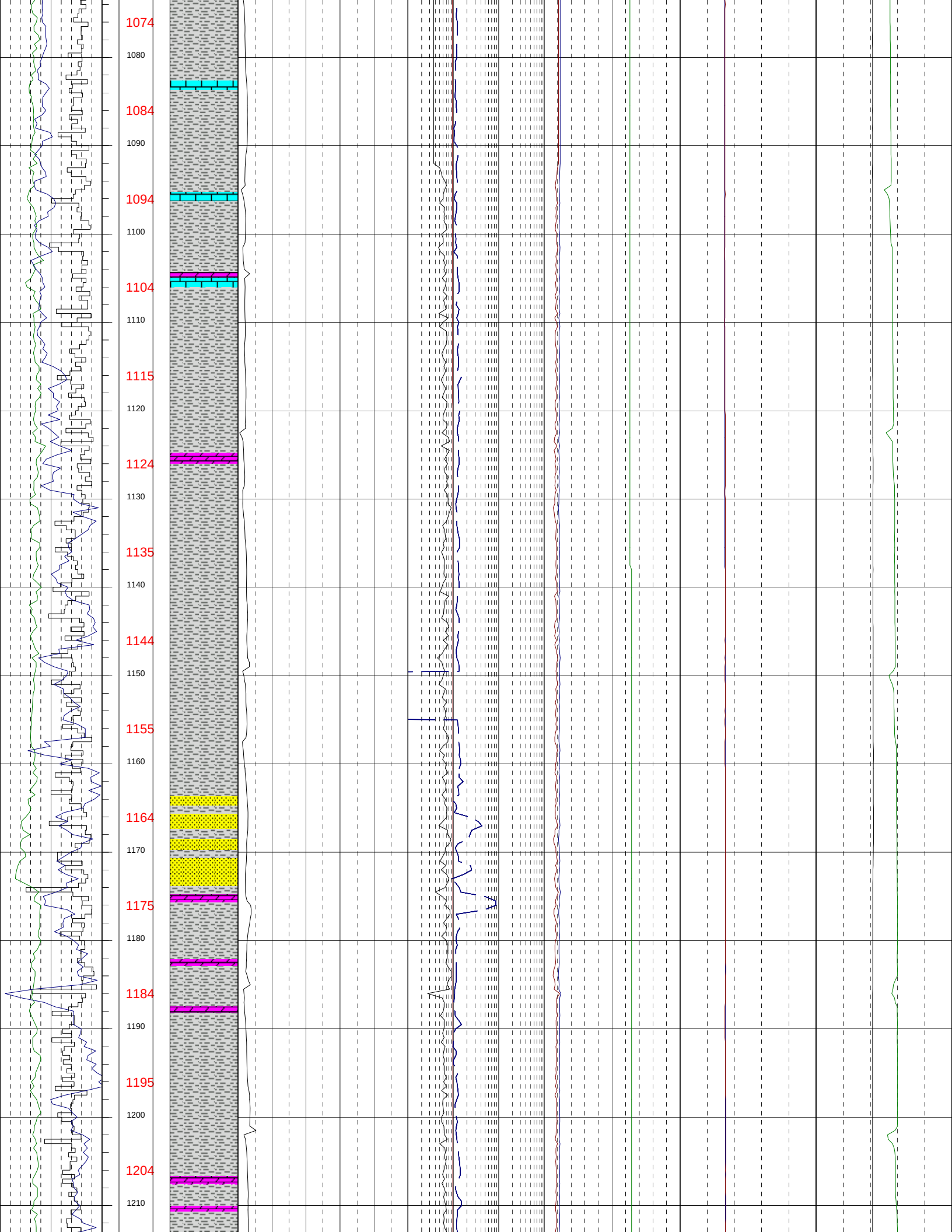


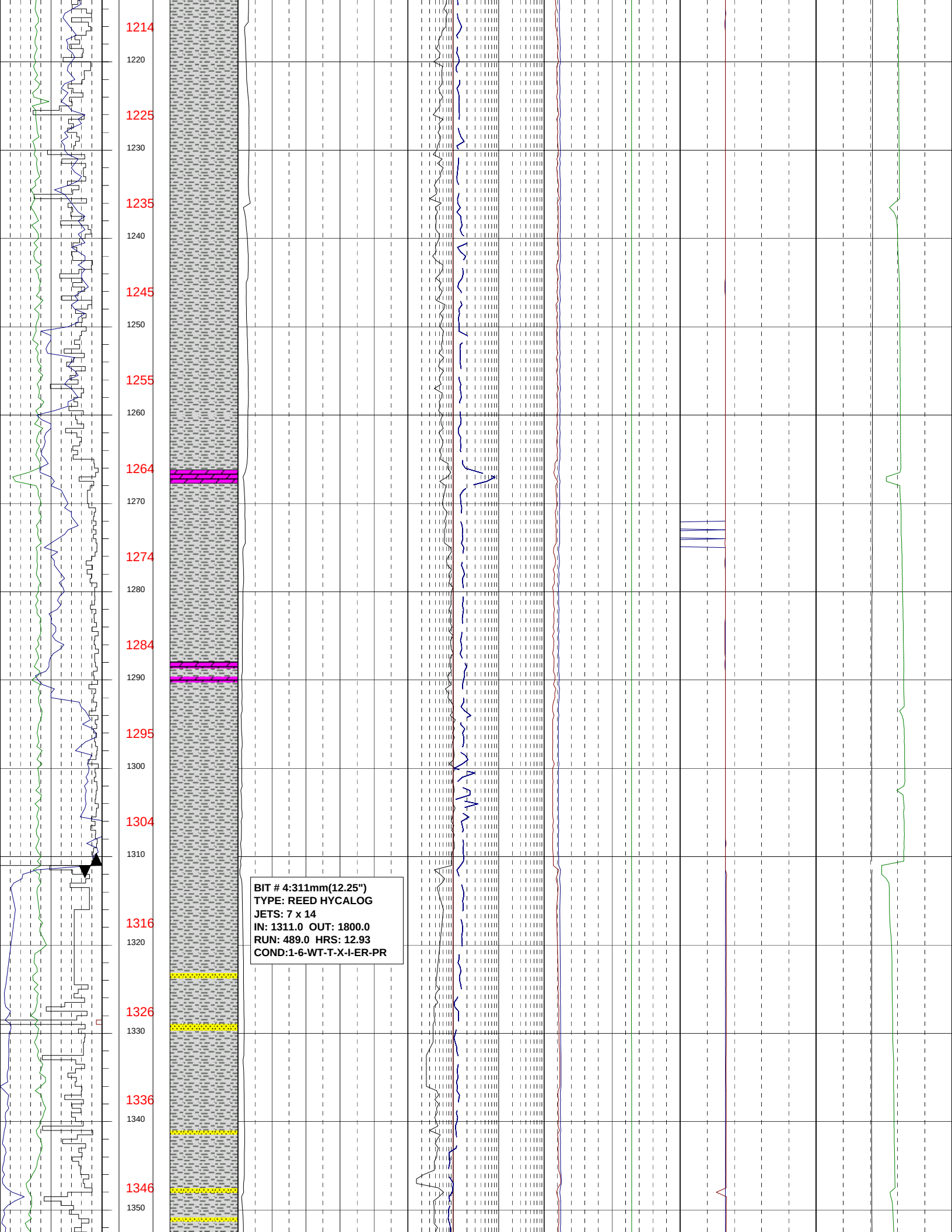


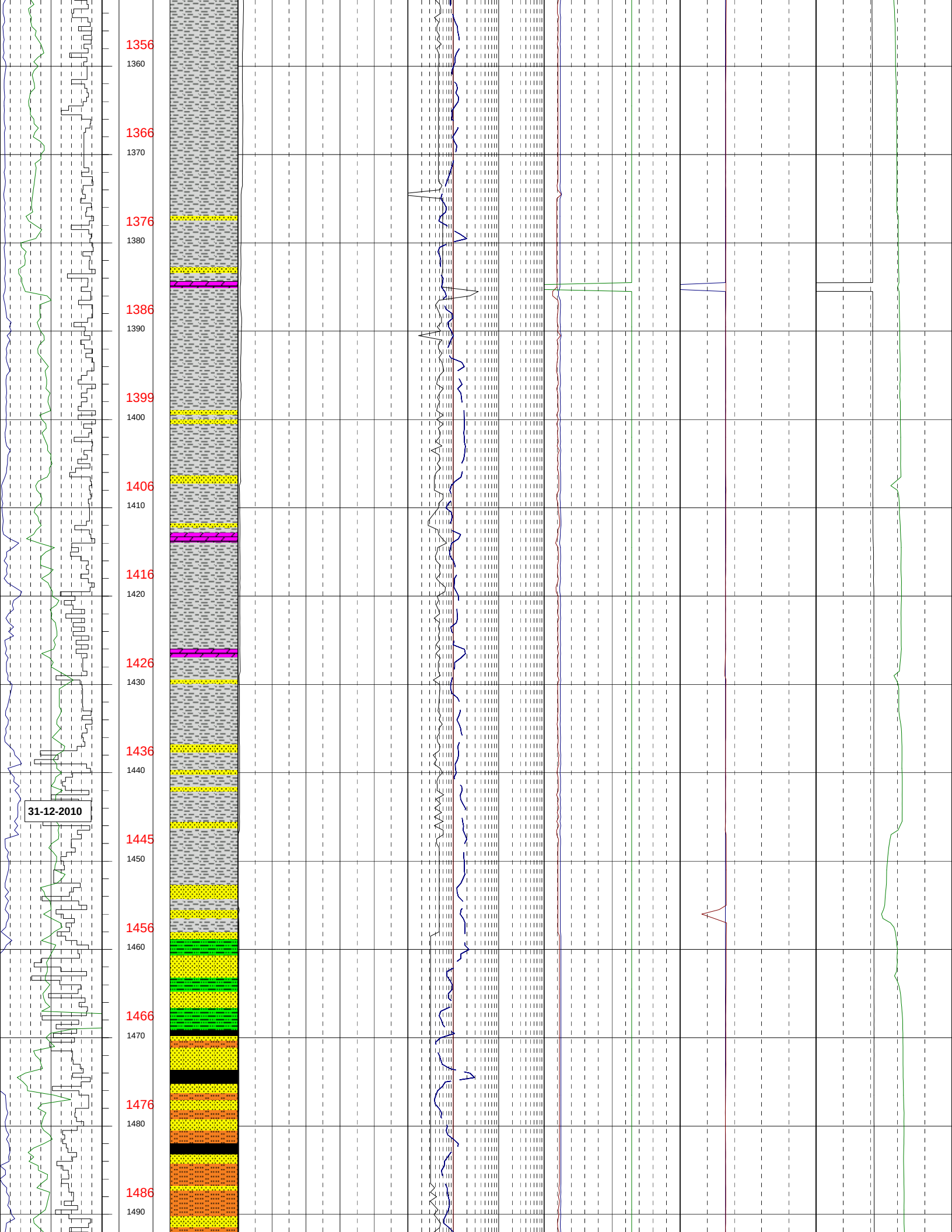


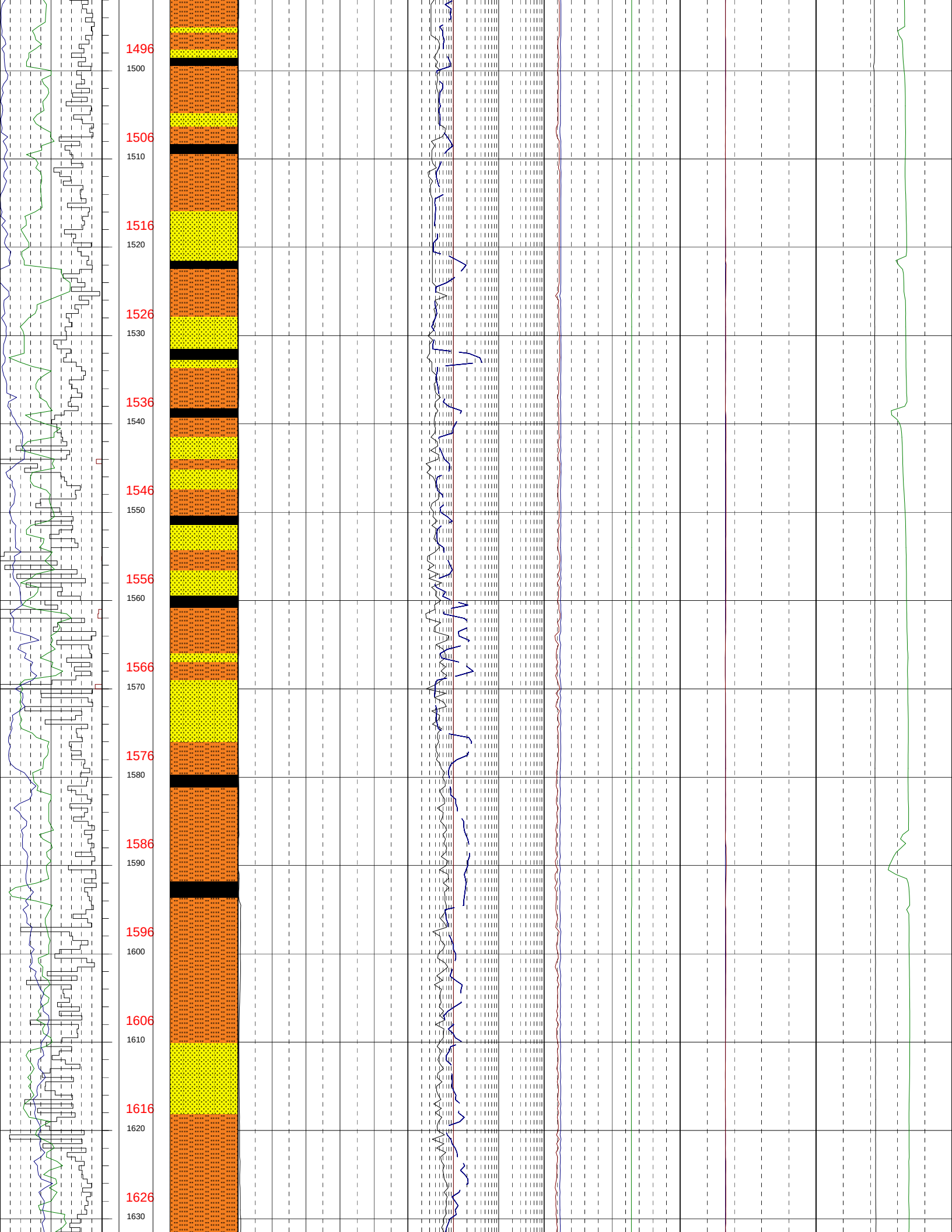


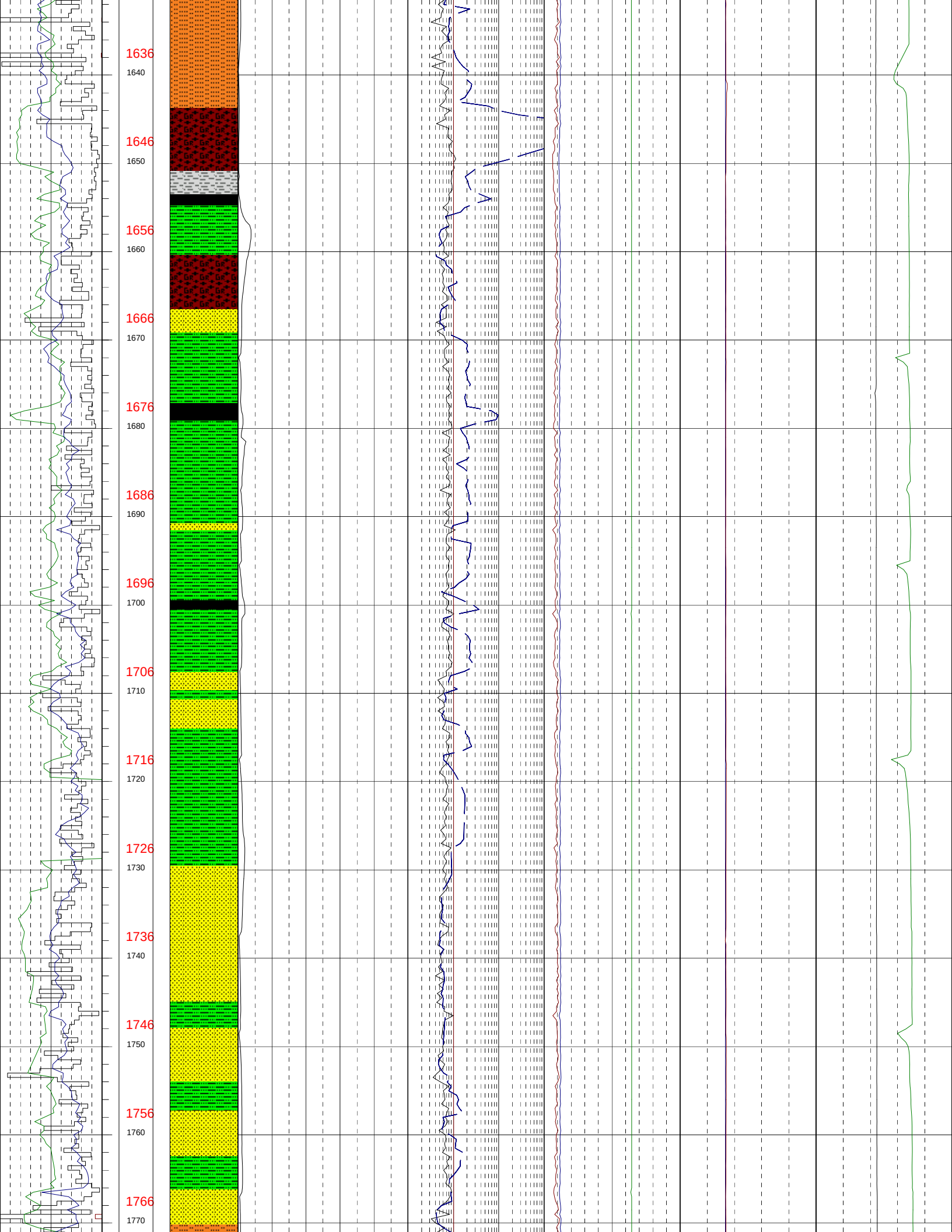


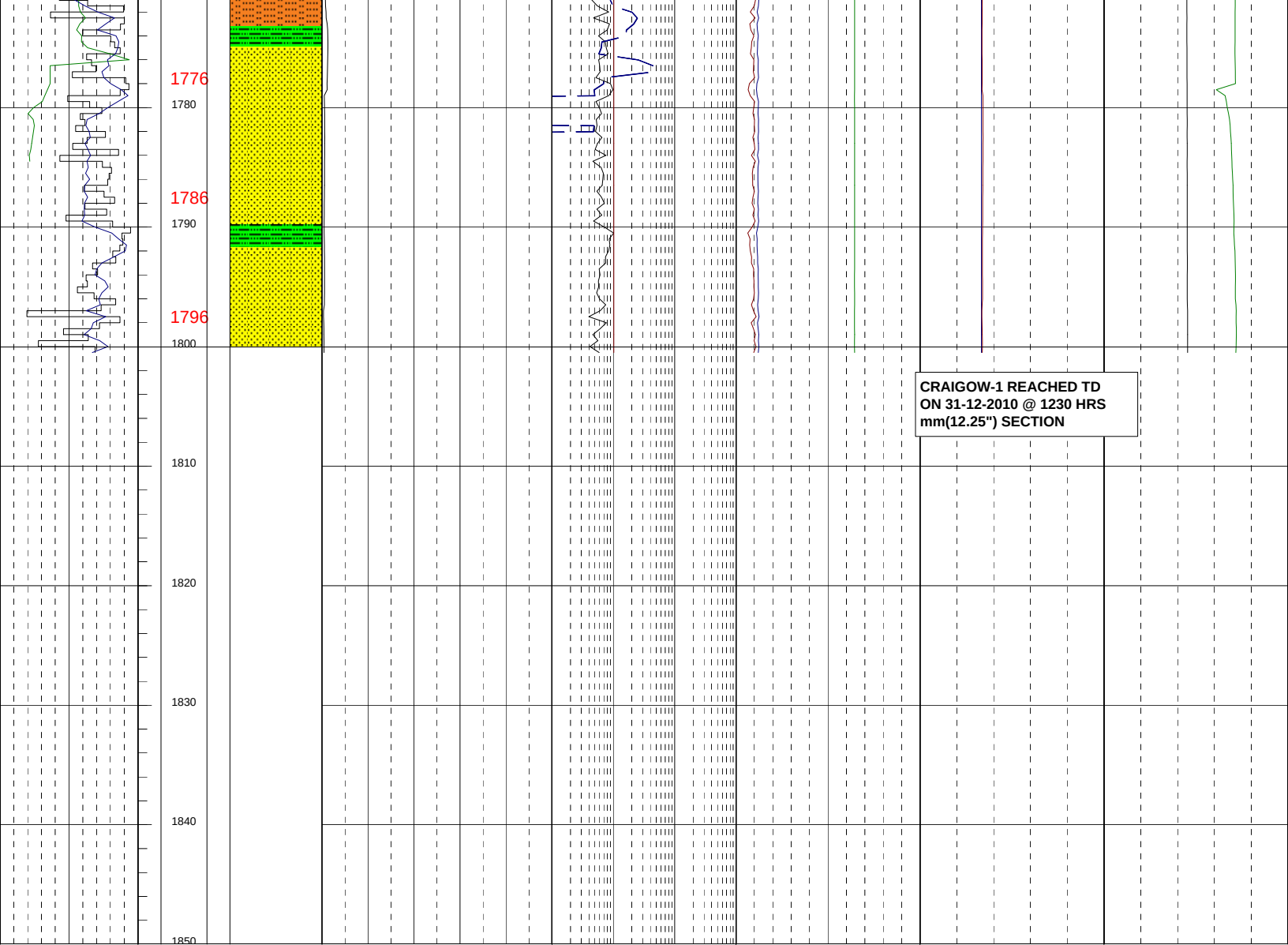












Enclosure 5: FLAIR Log



FLAIR QC LOG (WBM)



FROM (m) : 720

TO (m) : 1811

SCALE : 1/ 500

WELL NAME : CRAIGOW-1
OPERATOR : TAPOIL

COUNTRY : AUSTRALIA
PERMIT : T/44P

FIELD : CRAIGOW
LOCATION : BASS BASIN

SEA BED-MSL (m) : 74
MSL-RT (m) : 26

FINAL TD (m) : 1800
FINAL TVD (m) : 1799.8

RIG NAME : KAN TAN IV
RIG TYPE : Semi-Sub

LATITUDE : 039°35'31.69" S
LONGITUDE : 145°38'34.59" E

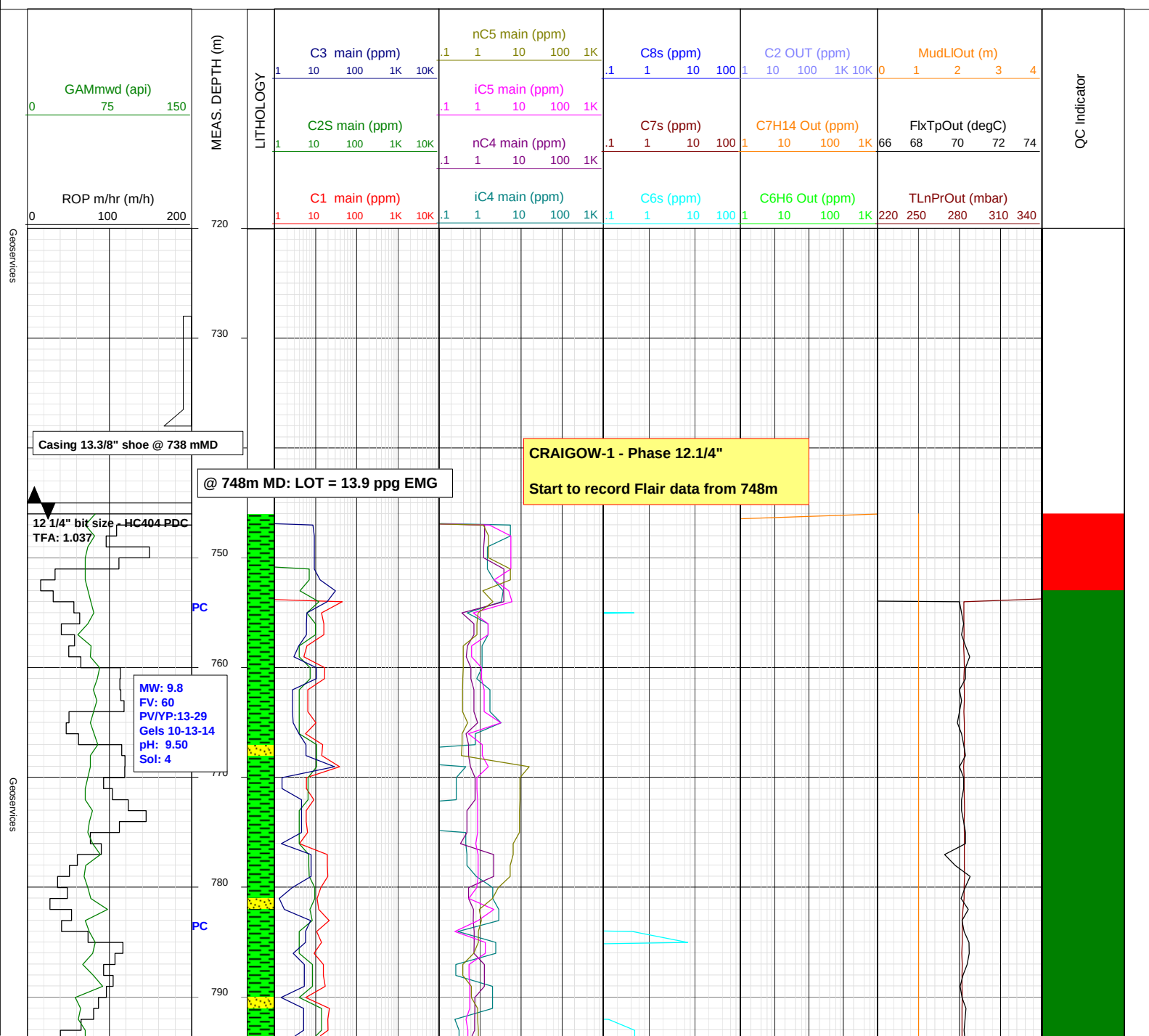
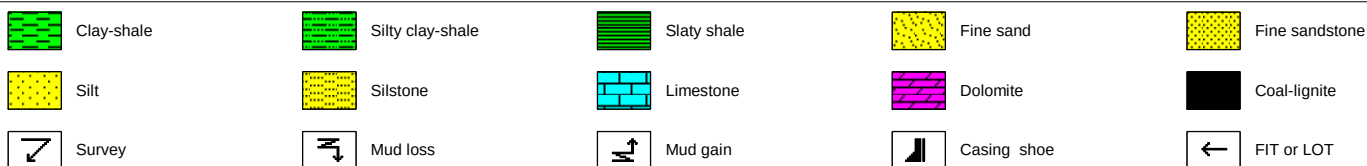
X COORD (m) : 383473.5
Y COORD (m) : 5616630.6

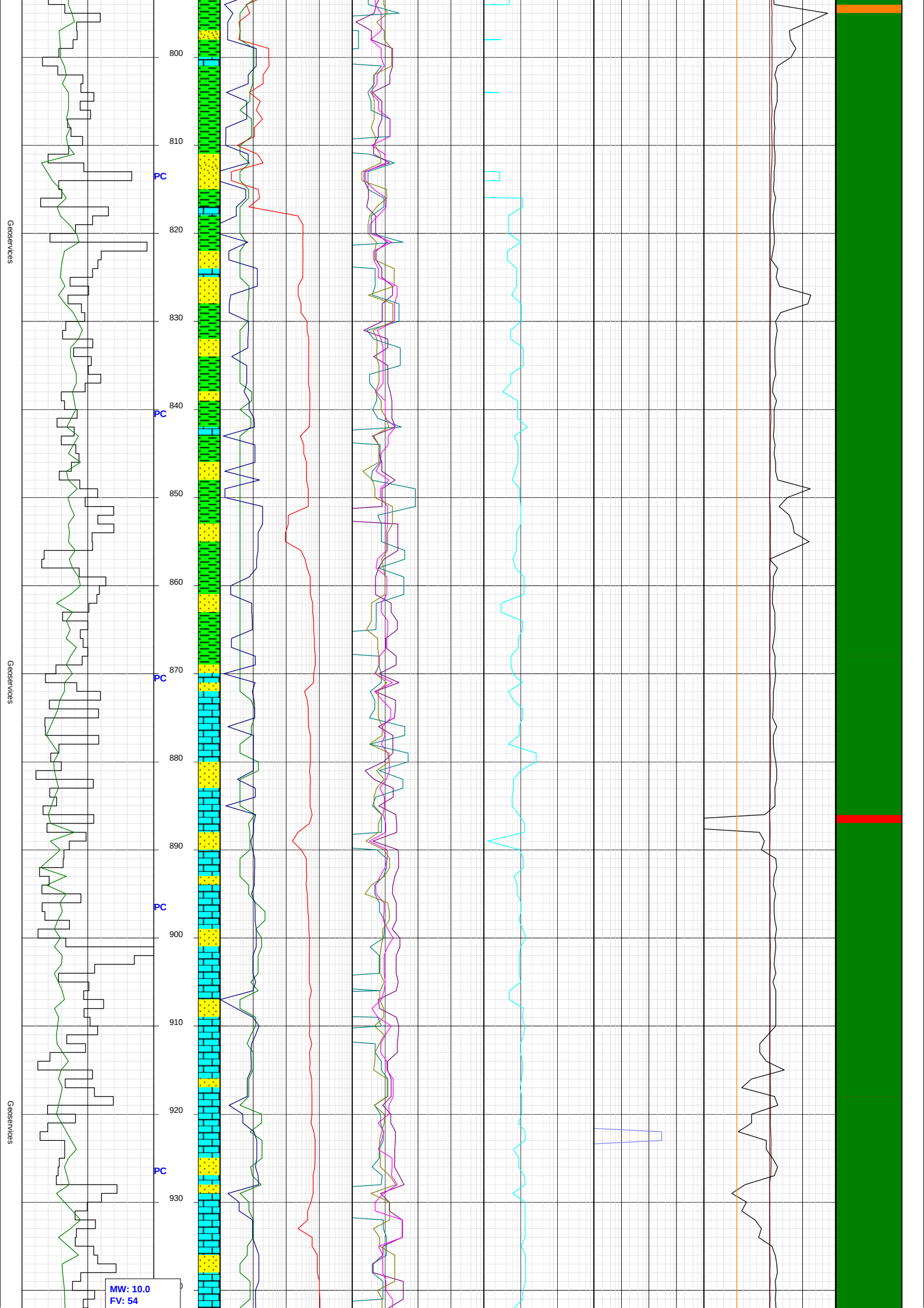
SPUD DATE : 24 Dec 2010
FINAL TD DATE : 31 Dec 2010

Sr. FLAIR ENGINEERS : Claude CHIRON
Jr. FLAIR ENGINEERS : Mohammad NASRUL

MUD LOGGING : GEOSERVICES

PRINTING DATE : 09 Mar 2011





PV/YP:18-24
Gels 10-12-14
pH: 9.00
Sol: 6.2
Chl: 48 k

950

PC

960

970

980

PC

990

1000

1010

PC

1020

1030

1040

PC

1050

1060

1070

PC

1080

1090

Geoservices

Geoservices

Geoservices

