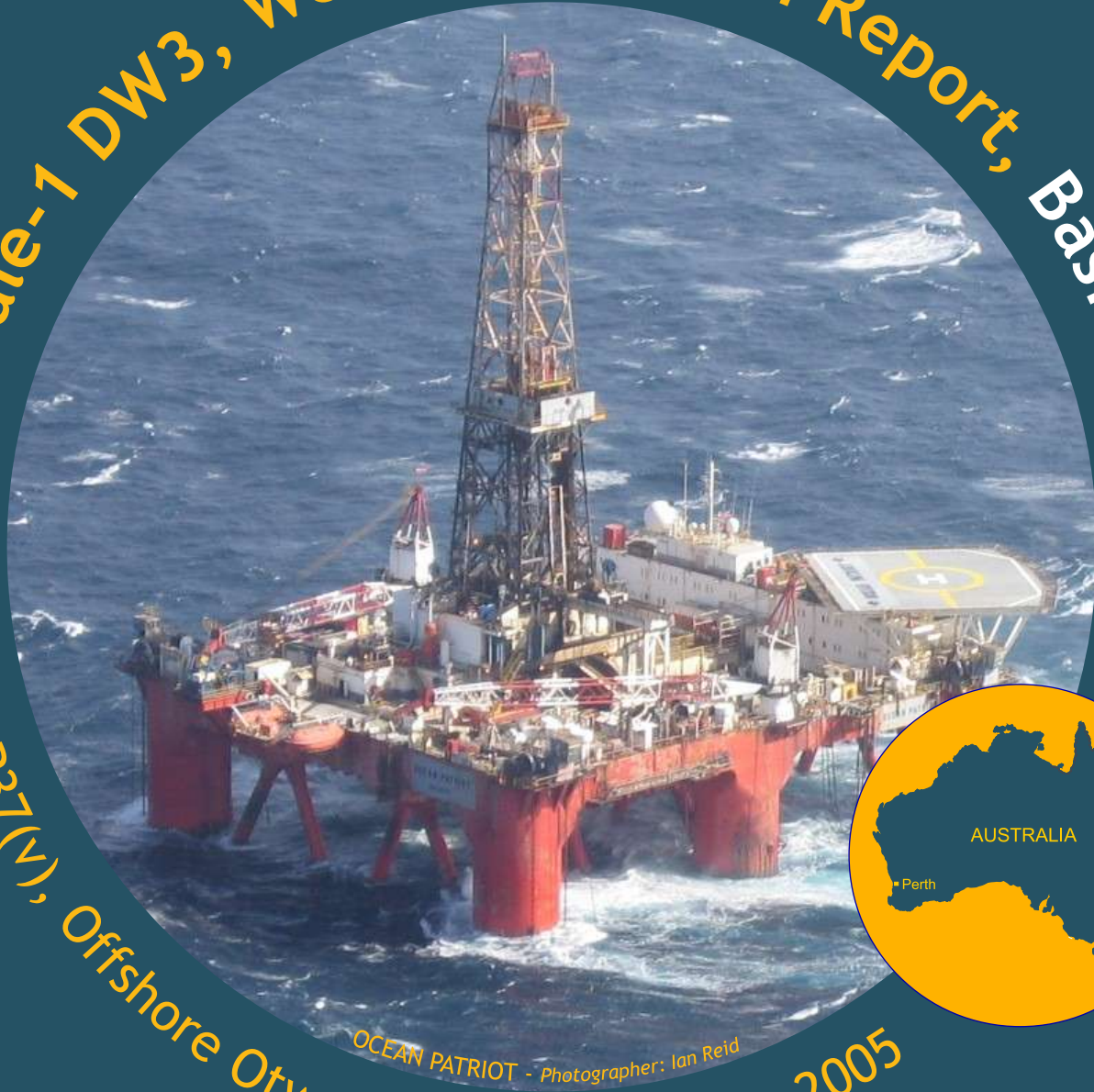




Halladale-1 DW3, Well Completion Report, Basic Data



VIC/P31(V), Offshore Otway Basin, December 2005

OCEAN PATRIOT - Photographer: Ian Reid



WELL COMPLETION REPORT

Basic Data

Halladale-1 DW3

(VIC/P37(v) Offshore Otway Basin)

Document Control No. A6300RG2222512
CONFIDENTIAL

Revision: 0
Date: November 2005

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Halladale-1 DW3 Well Completion Report (Basic Data)



A.B.N. 63 005 482 986

CONTROLLED DOCUMENT

Title: HALLADALE-1 DW3 WELL COMPLETION REPORT
BASIC DATA.

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Date: 17/11/05

Signature:

CONCURRENCE

Name

Group

Date

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Drawing No.

DRIMS #2218668
n/a
n/a

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1 INTRODUCTION

The Halladale-1 DW3 exploration well was drilled by Diamond Offshore's semi-submersible drilling unit Ocean Patriot in Exploration Permit VIC/P37(v) ([Figure 1](#)) within the Otway Basin, some 120 km southeast of Portland, South Australia. Halladale-1 DW3 was drilled by Woodside Energy Ltd. on behalf of the Permit operator, Origin Energy Resources Ltd.

Halladale-1 DW3 was the third well to be drilled from the Halladale-1 tophole location. Water depth at the Halladale-1 location was 44.8 metres at lowest astronomical tide (LAT). The rotary table elevation was 21.5 metres. Depth measurements in this report are with reference to the rotary table and indicated by mRT.

The Ocean Patriot arrived on location on 21 March 2005 and Halladale-1 DW1 was spudded the next day. Halladale-1 DW1 reached a total depth of 1918 mRT on 04 April 2005 and was then plugged back to the 244mm casing shoe. Halladale-1 DW2 commenced on 10 April 2005, sidetracking from Halladale-1 DW1 at 853 mRT and reaching a total depth of 1941 mRT. Halladale-1 DW2 was plugged back to below the 244mm casing shoe. Halladale-1 DW3 commenced on 21 April 2005, successfully sidetracking from the Halladale-1 DW2 216mm hole at a depth of 1197 mRT.

Halladale-1 DW3 was drilled to a total depth of 1969 mRT and was the well then finally plugged and abandoned and the rig was released from contract on 02 May 2005.

The total time spent on the Halladale-1 location was 44.5 days with an estimated final cost of A\$21.9MM.

Halladale-1 DW3 Well Completion Report (Basic Data)

Table 1: Well Data Sheet, Halladale-1 DW3

| | |
|---|---|
| Well: | Halladale-1 DW3 |
| Permit: | VIC/P37(v), Otway Basin |
| Name and Address of Permit Operator: | Origin Energy Resources Ltd South Tower John Oxley Centre 339 Coronation Drive MILTON QLD 4001 |
| Name and Address of Well Operator: | Woodside Energy Ltd. 240 St Georges Terrace PERTH WA 6000 |
| Name and Address of Joint Venturers: | Woodside Energy Ltd. 240 St Georges Terrace PERTH WA 6000 |
| | Origin Energy Resources Ltd South Tower John Oxley Centre 339 Coronation Drive MILTON QLD 4001 |
| Final Well Co-ordinates: | Latitude: 038° 34' 45.54" S Longitude: 142° 43' 50.95" E GDA 94 Easting: 650 763.2 m Northing: 5 728 485.2 m MGA Zone 54, CM 141°E |
| Seismic Reference: | Antares 3D Marine Seismic Survey (2003) Inline 1938 Crossline 1115 |
| Drilling Rig: | Ocean Patriot |
| Water Depth: | 44.8 metres LAT |
| Rotary Table: | 21.5 metres |
| Date Rig Contract Commenced: | 17:30 hrs 18 March 2005 |
| Rig on Location: | 05:15 hrs 21 March 2005 |
| Spud Date: | 12:30 hrs 22 March 2005 |
| Halladale-1 DW3 Commenced: | 15:00 hrs 21 April 2005 |
| Kick-off Depth: | 1197 mRT |
| Total Depth: | 1969 mRT |
| Date Total Depth Reached: | 15:00 hrs 24 April 2005 |
| Date Rig Released: | 05:30 hrs 02 May 2005 |
| Well Status: | P & A |
| Total Time on Location: | Halladale-1 DW1, DW2 & DW3 44.5 days |
| Estimated Final Cost: | A\$21.9MM |

2 OPERATIONS SUMMARY

Halladale-1 DW3 was the third exploration well to be drilled from the Halladale-1 tophole location. Three 211mm legs were drilled out of a single top hole section (344mm casing). The three wellbores, Halladale-1 DW-1 (Black Watch Location), DW-2 and DW-3, were drilled in a total time of 44.5 days. The estimated well cost (from cost tracker) was A\$21.9M.

The rig was handed over from BSOC's Zane Grey-1 location in the Bass Strait, and towed 283.7nm to the Halladale-1 Location in the Otway Basin ([Figure 1](#)).

Anchoring operations were successfully completed and all anchors were successfully pre-tensioned to 440 kips.

A drill-ahead Temporary Guide Base (DA-TGB) was run with a 914mm (36") bit, and the seabed was tagged at 66.3mRT (44.8m LAT water depth). On two occasions the bottom hole assembly (BHA) became entangled in the guidewires while spudding on the firm seabed. On the third attempt, a 914mm hole opener was used with a 445mm (17.5") bit, and no TGB was run. The section was drilled to 101 mRT and the 762 x 508mm (30" x 20") conductor successfully run and cemented with the shoe at 99.5 mRT ([Figure 2](#)).

The 445mm hole was drilled riserless with a rotary assembly and mill tooth bit to 427 mRT and the 340mm (13.375") casing was run and cemented at 421 mRT. The top plug did not bump while cementing the casing, which resulted in a wet shoe. After running and testing the Blow Out Preventors (BOP) a DLT packer was run to test the casing and a Leak Off Test (LOT) was performed to 1.50sg equivalent mudweight (EMW).

The 311mm (12.25") hole was drilled with steerable motor and insert bit down to 839 mRT with a 1.10 to 1.18sg AquaDrill mud system. The motor was run to allow a small nudge to be put in at the base of the interval to aid with the kickoff in the following section with the Geopilot Rotary Steering Tool (RST). The 244mm (9.625") casing was run to 834 mRT and cemented. Again the top plug did not bump while cementing, but the displacement did not exceed the shoetrack volume. The shoetrack was drilled out with 1.16sg Aquadrill mud, three metres of new formation drilled to 842 mRT, and a LOT conducted to 2.13sg EMW. The 216mm (8.5") hole was then drilled to the total depth (TD) of 1918 mRT. A single core was cut in the 216mm hole.

The Halladale-1 DW-1 well was abandoned by setting 2 cement plugs with a kickoff plug set up into the 244mm shoe. The Geopilot assembly was again picked up and run in the hole (RIH) to kickoff the Halladale-1 DW-2 well ([Figure 2](#)).

Halladale-1 DW2 was successfully kicked off at 853 mRT and the 216mm hole drilled to 1941 mRT with a single core again being cut. Halladale-1 DW-2 was abandoned by setting 3 cement plugs with a kickoff plug set at ± 1200 mRT.

Halladale-1 DW3 was kicked off at 1197 mRT with no problems and inclination built to the required tangent angle of $\pm 30^\circ$. The 216mm hole section was drilled to TD at 1969 mRT. Overall, the drilling of this section was slower than seen on Halladale-1 DW-1, but improved compared to Halladale-1 DW-2 with no bit balling and less vibration. The string became mechanically stuck while backreaming out of the hole at 1373 mRT. The string was freed by jarring down, and a wiper trip was conducted back to bottom. The mud weight was increased from 1.25 to 1.28sg after seeing 7 metres of fill on bottom. A single wireline run (RCI-GR) was conducted.

The final abandonment of the Halladale-1 DW1, DW2 and DW3 wells was commenced after the completion of the Halladale-2 DW 3. A shallow cement plug was set in the 244mm casing before cutting and pulling the 244mm casing from 150 mRT. A 340mm bridge plug was set on top of the 244mm stub and a further 50 metres of cement was placed on top of the bridge plug ([Figure 3](#)).

The Permanent Guide Base (PGB), wellhead, and casing were then cut and recovered on the fourth attempt. The problems recovering the wellhead were most likely due to a combination of the following: hard consolidated seabed, good cement jobs to surface in both the 30" and 340mm casing, and the lack of overpull available with the shallow water depth (max 175 kips).

After 12.25 hours waiting on weather (WOW), the anchors were recovered without problems and the rig was handed over to Santos at 05:30 hrs on 02 May 2005.

The [Daily Drilling Reports](#), [Bit Record](#) and [Mud Properties Report](#) are contained in [Appendices 1 to 4](#). Casing and Cementing details can be found on the [Daily Drilling Reports](#).

3 FORMATION SAMPLING

3.1 Ditch Cuttings

A total of 2000g of ditch cuttings was collected at 1 to 10 metre intervals from 427 to 860 mRT in Halladale-1 DW1, at 10 metre intervals from 860 to 1200 mRT in Halladale-1 DW2 and at 4 to 10 metre intervals from 1200 to 1969 mRT in Halladale-1 DW3. One set of 500g unwashed and air-dried samples was collected. The remaining 1500g of washed and air-dried samples were split into five sets of approximately 200 g samples, one set of 100g samples and one set of 30g samples for FIS analysis, and placed in plastic sample bags. Two set of cuttings samples were collected in "samplex" trays.

All samples were despatched to Core Laboratories Australia Pty. Ltd., 44 Belmont Avenue, Kewdale, WA. for distribution ([Appendix 8](#)).

3.2 Sidewall Cores

No sidewall cores were cut in Halladale-1 DW3.

3.3 Conventional Cores

No coring was conducted in Halladale-1 DW3.

3.4 Mud Gas Samples

Eighteen Mud Gas Isotope Logging (MGIL) samples were collected from 1250.2 to 1969 mRT in Halladale-1 DW3. The samples were sent to Isotech Laboratories, Champaign, Illinois. The results are given in [Appendix 10](#).

4 FORMATION EVALUATION

4.1 Mudlogging

Sperry Drilling Services (Halliburton) provided mudlogging services for the drilling of Halladale-1 DW3. This included conventional mudlogging, formation evaluation, real time data monitoring, pressure and drilling analyses. Sperry Drilling Services' End of Well report, Drilling Log, Formation Evaluation Log and Pressure Log for Halladale-1 DW3 are contained in [Appendix 8](#). The digital mudlogging data are also included in [Appendix 8](#).

4.2 Lithological Logging

Lithology and hydrocarbon shows are described in the Daily Geological Reports ([Appendix 5](#)). Cuttings were described by the wellsite geologists from 427 to 860 mRT in Halladale-1 DW1 and from 855 to 1200 mRT in Halladale-1 DW2 and from 1200 to 1969 mRT in Halladale-1 DW3, and recorded on the [Wellsite Lithology Log \(Appendix 6\)](#).

4.3 Hydrocarbon Indications

Chromatographic breakdown of the ditch gas, total gas and trip gas was recorded from 427 to 860 mRT in Halladale-1 DW1, from 860 to 1200 mRT in Halladale-1 DW2 and from 1200 to 1969 mRT in Halladale-1 DW3 ([Appendix 8](#)).

Table 2 Halladale-1 DW1/Halladale-1 DW2/**Halladale-1 DW3** Gas Summary

| Gas | Depth Interval (mRT) | Range (%) | Depth Max Gas (mRT) |
|------------|----------------------|-----------|---------------------|
| CI | 854-1969 | 0-2.78 | 1440.5 |
| C2 | 1240-1969 | 0-0.09 | 1440.5 |
| C3 | 1407.5-1953 | 0-0.02 | 1875-1877 |
| nC4 | - | - | - |
| iC4 | - | - | - |
| nC5 | - | - | - |
| iC5 | - | - | - |
| TG | 427-1969 | 0-2.97 | 1441 |

No hydrocarbon fluorescence was described from cuttings samples in Halladale-1 DW3.

4.4 Measurements While Drilling (MWD)

Measurements while drilling (MWD) logging was performed by Sperry Drilling Services in Halladale-1 DW1, DW2 and DW3 (Table 4). Sperry's Rotary Steerable Tool, Geopilot with At Bit Inclination (ABI) was also run in the 216mm hole. All real time and recorded data was recovered.

Table 3 FEWD Runs

| Well | Hole Size | FEWD Log | Interval (mRT) |
|------|-----------|---|----------------|
| DW1 | 445mm | EMS | 427 |
| DW1 | 311mm | DGR-DM | 427-839 |
| DW2 | 216mm | DGR- EWR-P4 –PWD-SLD-CTN-BAT Sonic-DM-ABI | 853-1514 |
| DW3 | 216mm | DGR- EWR-P4 –PWD-SLD-CTN-BAT Sonic-DM-ABI | 1197-1969 |

Full details of the MWD operations are contained in Sperry's End of Well Reports ([Appendix 9](#)).

4.5 Wireline Logging

Baker Atlas performed a single wireline log in Halladale-1 DW3 as detailed below.

Table 4 Wireline Logs and Bottom Hole Temperature Data.

| Suite/Run | Wireline Log | Interval (mRT) | Circulation Time | Circulation Stopped | Logger on Bottom | Max. Rec. Temp. (°C) |
|-----------|--------------|----------------|------------------|-----------------------|-----------------------|----------------------|
| 1/1 | RCI-GR | 1871.7-1094.2 | 110 mins | 08:45 hrs 25-04-05 | 22:15 hrs 25-04-05 | 83.8 |

4.6 Velocity Survey

No velocity data was obtained in Halladale-1 DW3. Velocity data covering the interval 120 to 860 mRT was obtained during the logging of Halladale-1 DW1 (Run 1/4: MLR-GR) and is contained in the Halladale-1 DW1 Well Completion Report.

4.7 Biostratigraphy

No biostratigraphic analyses were performed on samples from Halladale-1 DW3.

4.8 Geochemistry

No geochemical analysis was performed on samples from Halladale-1 DW3.

4.9 Petrology

No petrological analyses were performed on samples from Halladale-1 DW3.

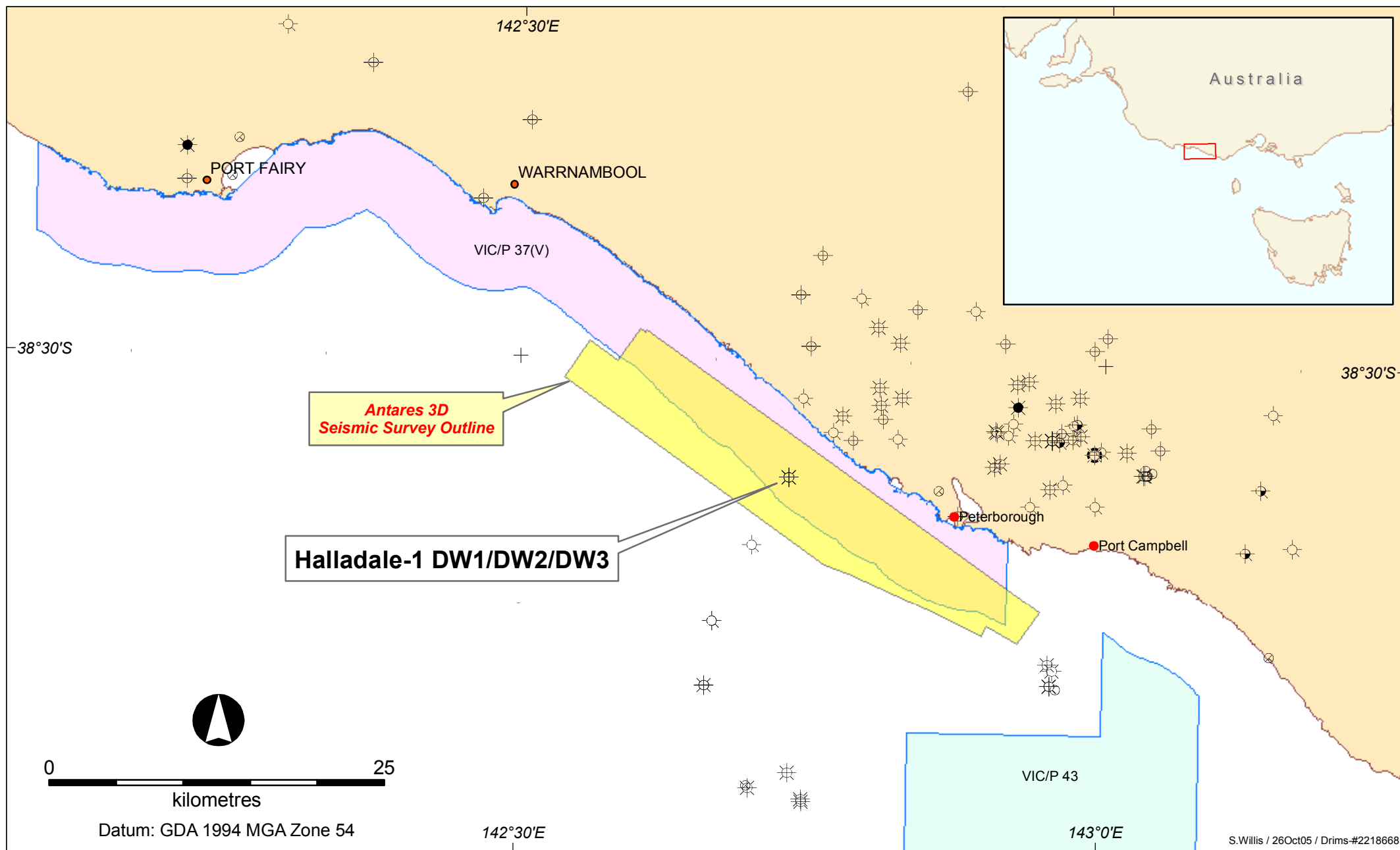
5 TESTING

5.1 Pressure Testing and Fluid Sampling

Baker Atlas carried out a single run with the Reservoir Characterisation Tool (RCI) in Halladale-1 DW3. Ten pressures were successfully obtained from ten attempts between 1871.7 to 1904.2 mRT. No samples were attempted ([Appendix 7](#)).

5.2 Production Testing

No production tests were carried out in Halladale-1 DW3.



HALLADALE-1 DW1/DW2/DW3 LOCATION MAP

Halladale-1 DW1 (Location Black Watch), DW2 and DW3 Time versus Depth

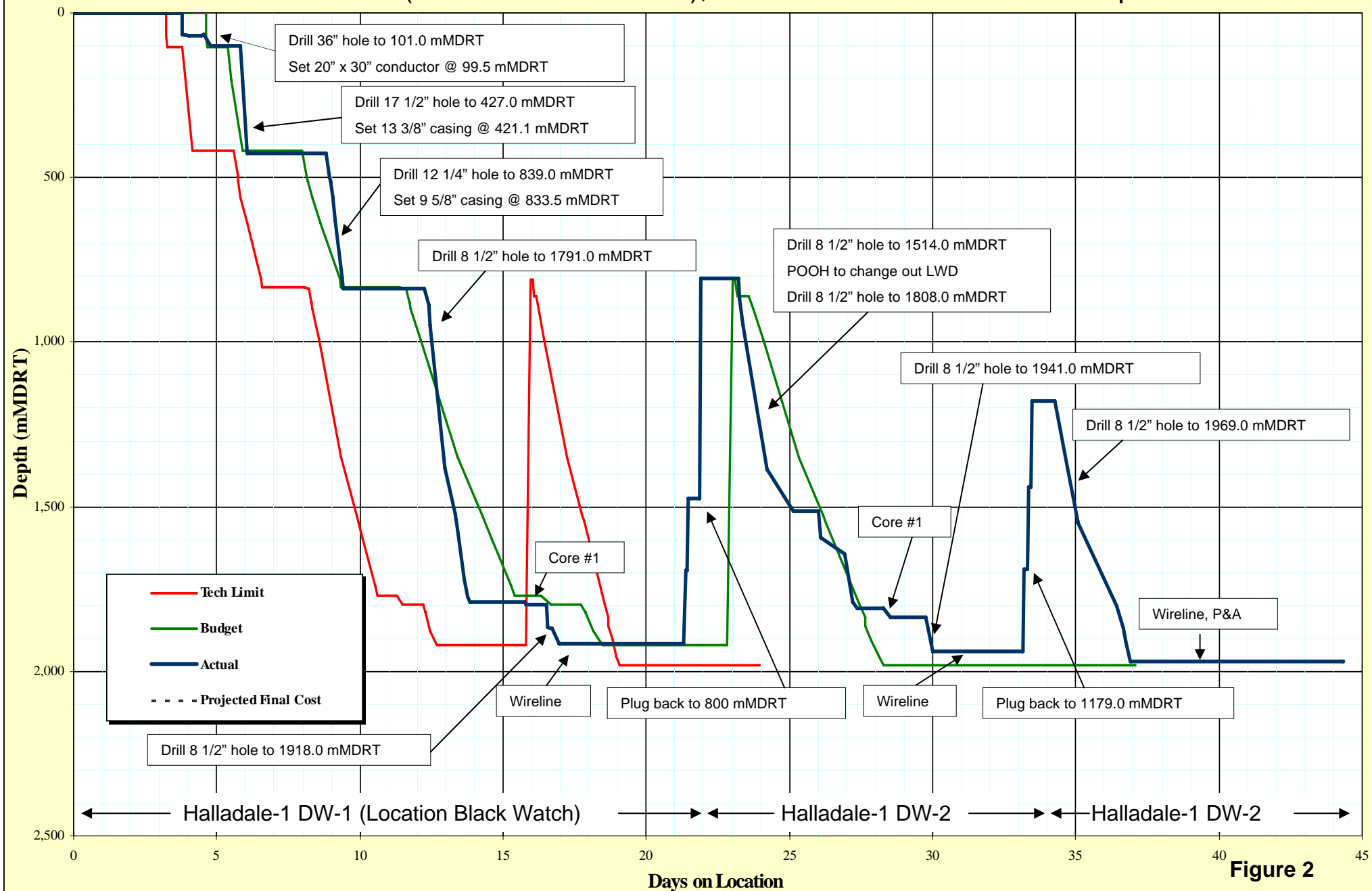


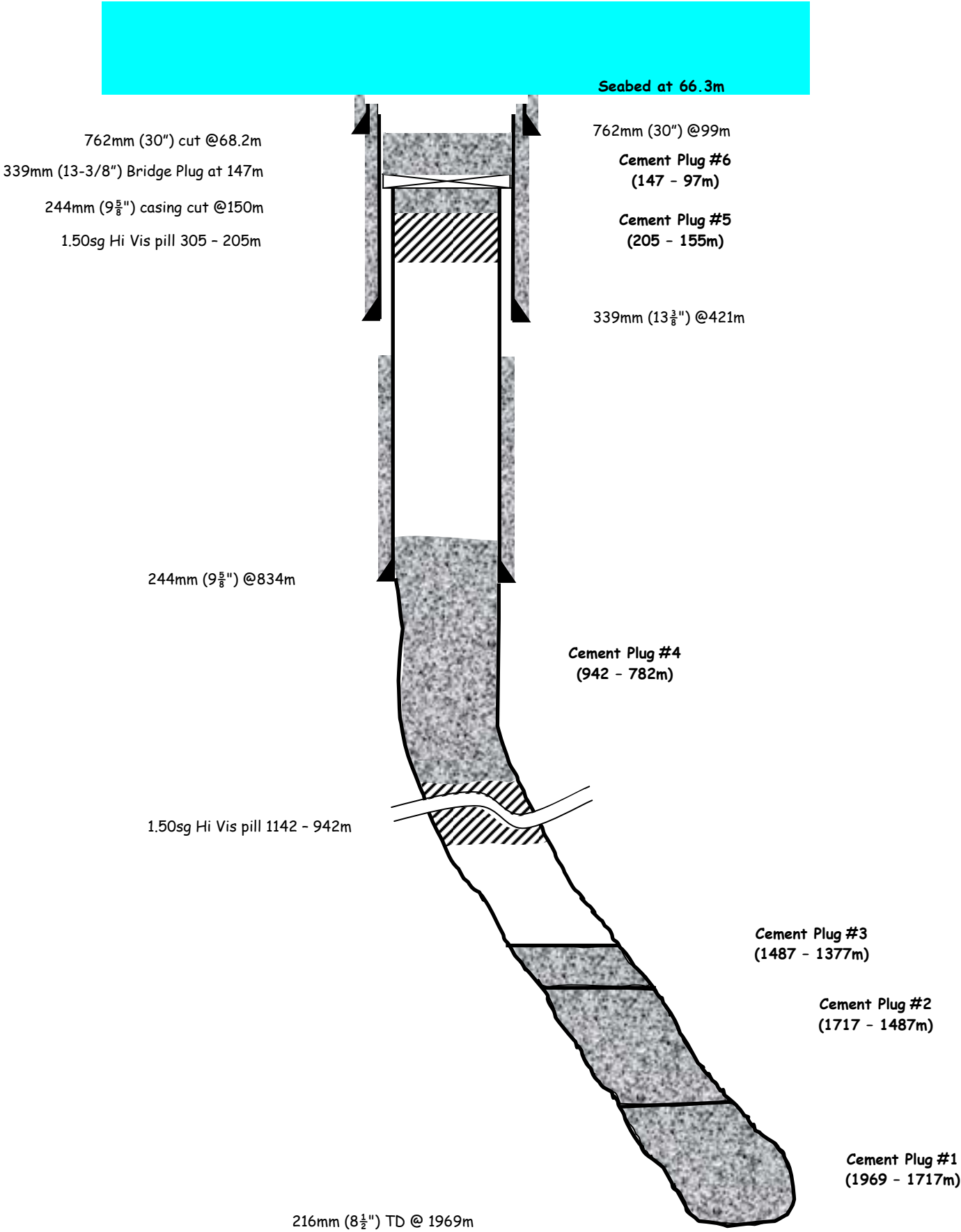
Figure 2

HALLADALE-1 DW3 FINAL ABANDONMENT SCHEMATIC

Figure 3

All Depths are
measured depths
relative to RT

RT 21.5m above SL

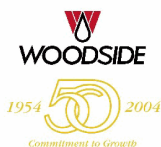


Daily Drilling Reports

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 1

Report Date: 18/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 0.27 | MD (m): | 45.90 | Supervisor: | S Job |
| DFS: | 0.00 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 45.90 | Rig OIM: | S Defreitas |
| Progress Days: | 0.27 | Progress (m): | 0.00 | RT-SL (m): | 45.90 |
| AFE Cost: | 18,351,000.00 (\$) | | | | |
| Cumulative Total: | 3,685,998.00 (\$) | | | | |

Ops 00:00 to 06:00: Continued tow to Halladale-1 DW-1 (Black Watch) location.

Ops Summary (24 Hrs): Rig handover from BSOC at 17:30hrs. Commenced tow with the Pacific Wrangler on tow bridle. Average speed 8.7km/hr (4.7 kts). Total distance travelled 21.2nm. Distance remaining 262.5nm. ETA at current speed 21-3-05 , 08:00 hrs.

Ops Lookahead: Continue tow. Run primary and secondary anchors. Ballast rig. Spud 36" hole.

| From | Dur. | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|---|
| 17:30 | (hr) 1.75 | RM | RMV | P | Rig handed over from BSOC at 17:30hrs. Adjusted last anchor bolstered time for inspection of windward anchors on work boat deck. During recovery of anchors at BSOC location, anchors #3, #4, #7 were decked for inspection and changeout of jewelery. The decking of anchor #5 required 1.75 hours of critical path time as the main anchor swivel was replaced. |
| 19:15 | 4.75 | RM | RMV | P | Commenced tow to Halladale-1 DW-1 (Black Watch) location with the Pacific Wrangler on the tow bridle. Average speed 8.7km/hr (4.7 kts). Position at 24:00 38deg 43.9'S, 147deg 35.3'E. Total distance travelled 21.2nm. Distance remaining 262.5nm. ETA at current speed 21-3-05 , 08:00 hrs. Work while on tow: 1. Commenced retermination of faulty ROV umbilical 2. Conducted planned maintenance on TDS 3. Openned bonnets and inspected BOP 4. Continued MPI inspection of drill collars, HWDP and crossovers 5. Commenced preparation of 340mm (13 3/8") casing 6. Setup WEL communications and computers 7. Cleaned mud tanks and drill floor drains |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|---------|------------|-------------|----------------------|-------------------------|------------|--------------|------------------------------|
|---------|------------|-------------|----------------------|-------------------------|------------|--------------|------------------------------|

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|----------|-----------------|------------|---------|----------|------------------|
|----------|-----------------|------------|---------|----------|------------------|

CASING

| Last Casing: | Next Casing: | Last BOP: |
|--------------|--------------|-----------|
|--------------|--------------|-----------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------|-----------|------------|-----------------|
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------|-----------|------------|-----------------|

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |

OHSE Report

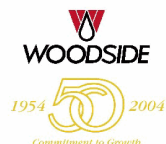
| Daily | | | | Cumulative | | | |
|--------|---|------------------|------|------------|--|--|--|
| LTI's: | 0 | Incident Reports | 0.00 | 0.00 | | | |
| TRCs: | 0 | Stop/Start Cards | 4.00 | 4.00 | | | |
| DSLTI | 0 | Stop/Start Tours | 0.00 | 0.00 | | | |

Safety Comments

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 1

Report Date: 18/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

PERSONNEL DATA

| Company | No. People | Company | No. People |
|------------------|------------|------------------|------------|
| DRILQUIP | 1 | FUGRO | 2 |
| BAKER ATLAS | 2 | WOODSIDE | 8 |
| DIAMOND Offshore | 67 | BHI | 2 |
| FUGRO | 4 | DOWELL | 2 |
| | | Total POB | 88 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|----------------|-----------|-------|--------------|-----------------|-----------|-------|--------------|
| WATER, POTABLE | m3 | | 251.7 | BRINE | m3 | | 0.0 |
| FUEL | m3 | | 394.1 | GEL, FRESH | t | | 9.4 |
| HELI FUEL | lt | | 0.0 | CEMENT | t | | 29.4 |
| BLEND CEMENT | t | | 0.0 | WATER, DRILLING | m3 | | 328.8 |
| BARITE BULK | t | | 55.4 | | | | |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|--------------------|--------------|----------------|
| Far Grip | Halladale Location | 18/03/2005 | |
| Pacific Wrangler | On Tow Bridle | 18/03/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 245.00 | 7.72 | 2.000 | 5.000 | 0.30 | 0.30 | 0.30 | 16.00 |

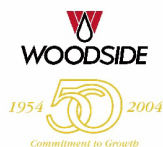
REMARKS

1. Far Grip sailing in close vicinity to rig to ensure safe passage past Wilsons Promontary. Vessel will then sail ahead to assess Halladale-1 DW-1 (Black Watch) location on Sunday during daylight, prior to rig arrival. 2. Drill Collar inspections condemned 3x 8" collars and 2x 9.5" collars. 3. During equipment checks, Drilquip hydraulic oil and HAC test tools found to be missing. Equipment to be delivered to rig on 19-3-05 helicopter. 4. Scheduled WEL inductions with rig personnel. 5. SurveySpec inspector on rig for rig electrical survey of TDS, mudpumps and anchor winches. 6. Cumulative cost includes lump sum mobilisation fee of A\$2,142,857. 7. POB reporting list does not allow entry of extra company names. Marcom (1) and BSOC (1) included in Woodside POB. SurveySpec (1), MO47 (8) and Westcoast Pipe inspection (1) included in Diamond POB Fugro Survey (2) and Fugro ROV (4).

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 2 **Report Date: 19/03/2005**

Block: VicP37(v) Rig: Ocean Patriot Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 1.27 | MD (m): | 45.90 | Supervisor: | S Job |
| Dfs: | 0.00 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 45.90 | Rig OIM: | S Defreitas |
| Progress Days: | 1.40 | Progress (m): | | RT-SL (m): | 45.90 |
| AFE Cost: | 18,351,000.00 (\$) | | | | |
| Cumulative Total: | 3,982,013.00 (\$) | | | | |

Ops 00:00 to 06:00: Continued tow to Halladale-1 DW-1 (Black Watch) location.

Ops Summary (24 Hrs): Continued tow to Halladale-1 DW-1 (Black Watch) location with Pacific Wrangler on tow bridle. Average speed 9.6km/hr (5.2kts). Total distance travelled 145.5nm. Distance remaining 138.2nm. ETA at current speed 21-3-05, 03:00hrs.

Ops Lookahead: Continue tow. Run primary and secondary anchors. Ballast rig. Spud 36" hole.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|---|
| 0:00 | 6.00 | RM | RMV | P | Continued tow to Halladale-1 DW-1 (Black Watch) location with Pacific Wrangler on tow bridle. Average speed 10.0km/hr (5.4kts). Position 06:00hrs: 38deg 53.1'S, 147deg 57.9'E. Total distance travelled 53.7nm. Distance remaining 230.0nm. ETA at current speed 21-3-05, 03:05hrs. |
| 6:00 | 6.00 | RM | RMV | P | Continued tow to Halladale-1 DW-1 (Black Watch) location with Pacific Wrangler on tow bridle. Average speed 9.3km/hr (5.0kts). Position at 12:00hrs: 39deg 10.7'S, 146deg 22.2'E. Total distance travelled 83.7nm. Distance remaining 200.0nm. ETA at current speed 21-3-05, 04:00hrs. |
| 12:00 | 6.00 | RM | RMV | P | Continued tow to Halladale-1 DW-1 (Black Watch) location with Pacific Wrangler on tow bridle. Average speed 9.4km/hr (5.2kts). Position at 18:00hrs: 39deg 12.1'S, 145deg 42.3'E. Total distance travelled 114.5nm. Distance remaining 169.2nm. ETA at current speed 21-3-05, 03:10hrs. |
| 18:00 | 6.00 | RM | RMV | P | Continued tow to Halladale-1 DW-1 (Black Watch) location with Pacific Wrangler on tow bridle. Average speed 9.6km/hr (5.2kts). Position at 24:00hrs: 39deg 12.0'S, 145deg 3.7'E. Total distance travelled 145.5nm. Distance remaining 138.2nm. ETA at current speed 21-3-05, 03:00hrs. Spud preparation: 1. Completed drifting and rabbiting 340mm (13 3/8" casing). 2. Pressure tested Drilquip 30" HAC system. 3. Terminated moonpool guidelines using bulldog clamps. Attached Drilquip PGB mousetraps slings. Work while on tow: 1. Completed retermination of faulty ROV umbilical 2. Completed planned maintenance on TDS. 3. Continued inspection of BOP 4. Continued MPI inspection of drill collars, HWDP and crossovers. Passed 4x 9.5"DC and 6x 8" DCs 5. Completed setup of WEL communications and computer equipment. 6. Continued to clean mud tanks and drill floor drains 7. Serviced mud pump fluid ends 8. Commenced repair of burst high speed clutch bladder on draw works 9. Commenced replacement of old pad-eyes in moonpool 10. Conducted service on No.2 main engine and generator 11. Conducted dropped object survey in derrick 12. Repaired doghouse camera system. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|----------|--------------------|---------------|------------|-------------|---------------------|
|----------|--------------------|---------------|------------|-------------|---------------------|

CASING

| Last Casing: | Next Casing: | Last BOP: |
|--------------|--------------|-----------|
|--------------|--------------|-----------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|---------------|--------------|--------------|----------|-------|-----------|-----------|--------------|--------------|---------------|-----------------|
|---------------|--------------|--------------|----------|-------|-----------|-----------|--------------|--------------|---------------|-----------------|

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 2

Report Date: 19/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| | | | Daily | Cumulative |
|--------|---|------------------|-------|------------|
| LTI's: | 0 | Incident Reports | 0.00 | 0.00 |
| TRCs: | 0 | Stop/Start Cards | 8.00 | 12.00 |
| DSLTI | 1 | Stop/Start Tours | 0.00 | 0.00 |

Safety Comments

PERSONNEL DATA

| Company | No. People | Company | No. People |
|------------------|------------|------------------|------------|
| FUGRO | 2 | FUGRO | 4 |
| DIAMOND Offshore | 68 | BAKER ATLAS | 2 |
| DRILQUIP | 1 | DOWELL | 2 |
| WOODSIDE | 9 | BHI | 2 |
| | | Total POB | 90 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|----------------|-----------|-------|--------------|
| HELI FUEL | lt | 0.0 | 0.0 | CEMENT | t | 0.0 | 29.4 |
| GEL, FRESH | t | 0.0 | 9.4 | WATER, POTABLE | m3 | 5.6 | 246.1 |
| FUEL | m3 | 10.5 | 383.6 | BLEND CEMENT | t | 0.0 | 0.0 |
| WATER, DRILLING | m3 | 63.9 | 264.9 | BARITE BULK | t | 0.0 | 55.4 |
| BRINE | m3 | 0.0 | 0.0 | | | | |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|--------------------|--------------|----------------|
| Far Grip | Halladale Location | 18/03/2005 | |
| Pacific Wrangler | On Tow Bridle | 18/03/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 270.00 | 6.17 | 2.000 | 5.000 | 0.20 | 0.30 | 0.30 | 16.00 |

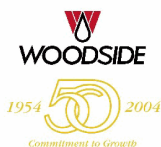
REMARKS

1. Far Grip sailed ahead to Halladale-1 DW-1 (Black Watch) location to assess tow route and weather conditions prior to rig arrival 2. Held inductions and pre-spud meetings with most personnel at 10:00hrs and 13:00hrs. 3. Assessment of Drilquip PGB mousetrap operation showed potential for hammerlock and spelter socket assembly to catch inside mousetrap when PGB is run. Revised plan is to terminate rig guide lines using loop at end of guilddines fastened with bulldog clamps instead of using spelter socket and hammerlock system, to reduce chance of hang-up inside PGB. 4. Two SurveySpec inspectors on rig for electrical and mechanical survey. 5. Tubular NDT inspection condemned 4 out of 7 9.5" DCs and 13 out of 21 8" DCs. Four 8" DCs to be delivered to Portland from Darwin for 12.25" BHA. 6. POB reporting list does not allow entry of extra company names. Marcom (1) included in Woodside POB. SurveySpec (3), MO47 (8) and Westcoast Pipe inspection (1) included in Diamond POB. Fugro Survey (2) and Fugro ROV (4).

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 3

Report Date: 20/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 2.27 | MD (m): | 45.90 | Supervisor: | S Job |
| DFS: | 0.00 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 45.90 | Rig OIM: | S Defreitas |
| Progress Days: | 2.70 | Progress (m): | | RT-SL (m): | 45.90 |
| AFE Cost: | 18,351,000.00 (\$) | | | | |
| Cumulative Total: | 4,317,351.00 (\$) | | | | |

Ops 00:00 to 06:00: Continued tow to Halladale-1 DW-1 (Black Watch). Made final approach to location. Passed anchor #4 PCC to Far Grip. Paid out on #4 anchor chain and continued run-in. Ran #4 anchor to bottom.

Ops Summary (24 Hrs): Continued tow to Halladale-1 DW-1 (Black Watch) location with Pacific Wrangler on tow bridle. Average speed 9.0km/hr (4.9kts). Total distance travelled 262.3nm. Distance remaining 21.4nm. ETA at current speed 21-3-05, 04:30hrs.

Ops Lookahead: Run primary and secondary anchors. Ballast rig. Spud 36" hole.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|--|
| 0:00 | 6.00 | RM | RMV | P | Continued tow to Halladale-1 DW-1 (Black Watch) location with Pacific Wrangler on tow bridle. Average speed 9.1km/hr (4.9kts). Position 06:00hrs: 39deg 12.1'S, 144deg 25.7'E. Total distance travelled 174.7nm. Distance remaining 109.0nm. ETA at current speed 21-3-05, 03:20hrs. |
| 6:00 | 6.00 | RM | RMV | P | Continued tow to Halladale-1 DW-1 (Black Watch) location with Pacific Wrangler on tow bridle. Average speed 9.3km/hr (5.0kts). Position 12:00hrs: 39deg 12.0'S, 143deg 45.9'E. Total distance travelled 205.2nm. Distance remaining 78.5nm. ETA at current speed 21-3-05, 03:30hrs. |
| 12:00 | 6.00 | RM | RMV | P | Continued tow to Halladale-1 DW-1 (Black Watch) location with Pacific Wrangler on tow bridle. Average speed 8.5km/hr (4.6kts). Position 18:00hrs: 39deg 8.8'S, 143deg 11.2'E. Total distance travelled 232.9nm. Distance remaining 50.8nm. ETA at current speed 21-3-05, 04:10hrs. |
| 18:00 | 6.00 | RM | RMV | P | Continued tow to Halladale-1 DW-1 (Black Watch) location with Pacific Wrangler on tow bridle. Average speed 9.1km/hr (4.9kts). Position 24:00hrs: 38deg 52.3'S, 142deg 40.7'E. Total distance travelled 262.3nm. Distance remaining 21.4nm. ETA at current speed 21-3-05, 04:30hrs. Spud preparation: 1. Moved TGB to moonpool. Added barite and installed recovery chains. Installed inclinometer beacon to PGB. 2. Installed wear bushing in 476mm (18-3/4") wellhead and made up wellhead handling tool. 3. Moved 914mm (36") and 444mm (17.5") BHA components to pipedeck. 4. Removed pad-eyes from 914mm (30") conductor. Work while on tow: 1. Changed out dolly rollers on TDS. 2. Continued inspection of BOP 3. Continued MPI inspection of HWDP passed 11 joints of 24. 4. Completed cleaning of mud tanks and drill floor drains. 5. Completed repair of burst high speed clutch bladder on draw works 6. Completed replacement of old pad-eyes in moonpool 11. Continued dropped object survey in derrick. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|----------|--------------------|---------------|------------|-------------|---------------------|
|----------|--------------------|---------------|------------|-------------|---------------------|

CASING

| Last Casing: | Next Casing: | Last BOP: |
|--------------|--------------|-----------|
|--------------|--------------|-----------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|---------------|--------------|--------------|----------|-------|-----------|-----------|--------------|--------------|---------------|-----------------|
|---------------|--------------|--------------|----------|-------|-----------|-----------|--------------|--------------|---------------|-----------------|

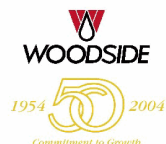
BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|---------------------|-------------------------|--------------------------|--------------|----------------|---------|-------------|---------------|----------------|---------------|----------------------|--------------------|----------------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 3

Report Date: 20/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

OHSE Report

| | | | Daily | Cumulative |
|--------|---|------------------|-------|------------|
| LTI's: | 0 | Incident Reports | 0.00 | 0.00 |
| TRCs: | 0 | Stop/Start Cards | 11.00 | 23.00 |
| DSLTI | 2 | Stop/Start Tours | 0.00 | 0.00 |

Safety Comments

PERSONNEL DATA

| Company | No. People | Company | No. People |
|------------------|------------|------------------|------------|
| FUGRO | 4 | WOODSIDE | 9 |
| DOWELL | 2 | BHI | 2 |
| DIAMOND Offshore | 68 | BAKER ATLAS | 2 |
| FUGRO | 2 | DRILQUIP | 1 |
| | | Total POB | 90 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|----------------|-----------|-------|--------------|-----------------|-----------|-------|--------------|
| HELI FUEL | lt | 0.0 | 0.0 | GEL, FRESH | t | 0.0 | 9.4 |
| BRINE | m3 | 0.0 | 0.0 | WATER, DRILLING | m3 | 30.2 | 234.7 |
| WATER, POTABLE | m3 | 0.0 | 282.1 | FUEL | m3 | 9.1 | 374.5 |
| CEMENT | t | 0.0 | 29.4 | BLEND CEMENT | t | 0.0 | 0.0 |
| BARITE BULK | t | 0.0 | 55.4 | | | | |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|--------------------|--------------|----------------|
| Far Grip | Halladale Location | 18/03/2005 | |
| Pacific Wrangler | On Tow Bridle | 18/03/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 299.00 | 6.17 | 2.000 | 5.000 | 0.20 | 0.30 | 0.30 | 16.00 |

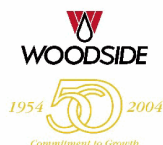
REMARKS

1. Far Grip arrived at Halladale-1 DW-1 (Location Black Watch) location at 00:00hrs. Tow route and weather conditions found to be acceptable for rig arrival 2. Conducted weekly fire and abandon rig drill. Held weekly safety meetings with all personnel 3. Two Surveyspec inspectors on rig for electrical and mechanical survey. 4. Four 8" DCs and xx HWDP to be delivered to Portland on 22 March from Darwin for 12.25" BHA 5. POB reporting list does not allow entry of extra company names. Marcom (1) included in Woodside POB. SurveySpec (3), MO47 (8) and Westcoast Pipe inspection (1) included in Diamond POB. Fugro Survey (2) and Fugro ROV (4). 6. Two whale sightings from rig observed.

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 4 **Report Date: 21/03/2005**

Block: VicP37(v) Rig: Ocean Patriot Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 3.27 | MD (m): | 45.90 | Supervisor: | S Job |
| DFS: | 0.00 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 45.90 | Rig OIM: | S Defreitas |
| Progress Days: | 4.07 | Progress (m): | | RT-SL (m): | 45.90 |
| AFE Cost: | 18,351,000.00 (\$) | | | | |
| Cumulative Total: | 4,630,877.00 (\$) | | | | |

Ops 00:00 to 06:00: Ballasted rig to drilling draft. While ballasting picked up drillpipe and made up running tool to 476mm (18-3/4") wellhead and laid out. Pressure tested standpipe and two IBOPs. Commenced mixing gel mud.

Ops Summary (24 Hrs): Continued tow to Halladale-1 DW-1 (Black Watch). Made final approach to location. Passed anchor #4 PCC to Far Grip. Paid out on #4 anchor chain and continued run-in. Ran primary and secondary anchors. Commenced ballasting to drilling draft.

Ops Lookahead: Run drillahead TGB to seabed. Drill 914mm (36") hole. Run and cement 762mm (30") x 508mm (20") conductor.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|---|
| 0:00 | 4.00 | RM | RMV | P | Continued tow to Halladale-1 DW-1 (Black Watch) location with Pacific Wrangler on tow bridle. Shortened tow wire and reduced speed on final approach to location. |
| 4:00 | 1.25 | RM | RMV | P | Passed anchor #4 PCC to Far Grip. Continued run in to location while paying-out #4 anchor chain. Far Grip lowered anchor #4 to bottom - First anchor down 05:15hrs. Towed rig 283.7nm from Zane Grey-1 to Halladale-1 DW-1 (Black Watch) location in 2 days 10.75hrs at average tow speed of 8.9km/hr (4.8knots). |
| 5:15 | 6.00 | RM | RMV | P | Ran primary anchors. Passed anchor #4 PCC to rig at 06:15hrs. Passed #8 PCC to Far Grip at 06:30hrs. Anchor #8 on bottom 07:05hrs. Passed anchor #8 PCC to rig at 07:40hrs. Passed #1 PCC to Far Grip at 07:50hrs. Anchor #1 on bottom 08:20hrs. Passed anchor #1 PCC to rig at 08:55hrs. Passed #5 PCC to Far Grip at 09:05hrs. Anchor #5 on bottom 09:35hrs. Passed anchor #5 PCC to rig at 10:10hrs. Cross tensioned primary anchors to 200t (440kips) for 10 minutes. Anchor #5 slipping. Anchors #4, #8 and #1 holding. During anchoring operations moved TGB to moonpool frame and attached mousetrap slings. Picked up cementing stand, 762mm (30") running tool, 3 stands HWD. |
| 11:15 | 2.75 | RM | RMV | D | Re-ran anchor #5. Passed #5 PCC to Far Grip at 11:30hrs. Anchor recovered and found to be upsidedown. Reset #5 anchor. Passed anchor #5 PCC to rig at 13:15hrs. Cross tensioned anchor#5 to 200t (440kips) for 10 minutes - anchor holding. |
| 14:00 | 7.25 | RM | RMV | P | Passed tow bridle back to rig from Pacific Wrangler. Ran secondary anchors. Passed #6 PCC to Far Grip at 14:06hrs. Anchor #6 on bottom 14:33hrs. Passed anchor #6 PCC to rig at 15:15hrs. Passed #2 PCC to Far Grip at 15:25hrs. Passed #7 PCC to Pacific Wrangler at 15:26hrs. Anchor #7 on bottom 16:17hrs. Anchor #2 on bottom 16:45hrs but not holding. Far Grip re-ran #2 anchor. Passed anchor #7 PCC to rig at 17:45hrs. Anchor#2 back on bottom 17:50hrs. Anchor #3 on bottom 18:10hrs. Passed anchor #2 PCC to rig at 18:35hrs. Passed anchor #3 PCC to rig at 18:41hrs. Cross tensioned secondary anchors to 200t (440kips) for 10 minutes. Anchor #6 slipping. Anchors #2, #3 and #7 holding. During anchoring operations picked up 914mm (36") x 444mm (17.5") BHA. |
| 21:15 | 2.25 | RM | RMV | D | Re-ran anchor #6. Passed #6 PCC to Pacific Wrangler at 21:12hrs. Anchor recovered and found to be upsidedown. Reset #6 anchor. Passed anchor #6 PCC to rig at 22:30hrs. Cross tensioned anchor#2 and #6 to 200t (440kips) for 10 minutes - anchors holding. Positioned rig over location. During anchoring operations picked up 36 stands 127mm (5") DP. Conducted BOP accumulator depletion test. |
| 23:30 | 0.50 | RM | RMV | P | Commenced ballasting rig to drilling draft (23.5m). |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|----------|--------------------|---------------|------------|-------------|---------------------|
|----------|--------------------|---------------|------------|-------------|---------------------|

CASING

| Last Casing: | Next Casing: | Last BOP: |
|--------------|--------------|-----------|
|--------------|--------------|-----------|

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 4

Report Date: 21/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------|-----------|------------|-----------------------|
| 1 | 914.40 | VAREL | L3A | N | 1-1-1 | 16HC10144 | 6X21.4 | 65.00 | 100.00 | 0.-0.-NO-A-0- I-NO-TD |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| | | Daily | Cumulative |
|--------|---|------------------|------------|
| LTI's: | 0 | Incident Reports | 0.00 |
| TRCs: | 0 | Stop/Start Cards | 32.00 |
| DSLTI | 3 | Stop/Start Tours | 0.00 |

Safety Comments

PERSONNEL DATA

| Company | No. People | Company | No. People |
|------------|------------|------------------|------------|
| FUGRO ROV | 6 | BAKER ATLAS | 2 |
| BHI | 2 | DIAMOND Offshore | 58 |
| FUGRO | 2 | DRILQUIP | 1 |
| WOODSIDE | 7 | DOWELL | 2 |
| SPERRY SUN | 5 | WEATHERFORD | 2 |
| | | Total POB | 87 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|----------------|-----------|-------|--------------|
| WATER, DRILLING | m3 | 0.0 | 234.7 | GEL, FRESH | t | 0.0 | 9.4 |
| FUEL | m3 | 6.5 | 368.0 | WATER, POTABLE | m3 | 22.4 | 294.7 |
| BARITE BULK | t | 0.0 | 55.4 | CEMENT | t | 0.0 | 29.4 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Standby | 18/03/2005 | |
| Pacific Wrangler | Standby | 18/03/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 68.00 | 11.32 | 2.000 | 1.400 | 0.20 | 0.30 | 0.30 | 16.00 |

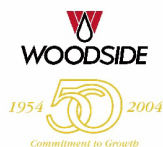
REMARKS

1. Loaded Dowell darts into cement head. Loaded cement plug into launch basket. 2. Surveyspec inspector on rig for mechanical survey. 3. Four 8" DCs and 10jts HWDP to be delivered to Portland on 22 March from Darwin for 12.25" BHA 4. POB reporting list does not allow entry of extra company names. SurveySpec (1) included in Woodside POB. Westcoast Pipe inspection (1) included in Diamond POB 5. Replaced faulty rig navigation lights 6. Refurbished H-4 BOP connector after finding clamping fingers worn above acceptable tolerance. 7. Held induction and prespud meeting with remainder of personnel at 20:00hrs. 8. Closed three car items 75, 54 and 31.

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 5

Report Date: 22/03/2005

Block: VicP37(v) Rig: Ocean Patriot Water Depth(m): 44.80 Start Date: 18/03/2005

| | | | | | |
|-------------------------------------|-------|--------------------|----------|-------------|-------------|
| DOL: | 4.27 | MD (m): | 69.00 | Supervisor: | S Job |
| DFS: | 0.48 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 69.00 | Rig OIM: | S Defreitas |
| Progress Days: | 4.59 | Progress (m): | 2.70 | RT-SL (m): | 21.50 |
| AFE Cost: 18,351,000.00 (\$) | | | | | |
| Cumulative Total: 5,002,635.00 (\$) | | | | | |

Ops 00:00 to 06:00: Pulled out of hole with 36" BHA and untwisted guidelines. Broke out 36" bit. Recovered TGB and skidded aside on moonpool dolly. Skidded rig back over original location. Made up BHA with 444mm (17.5") bit and 914mm (36") hole opener.

Ops Summary (24 Hrs): Continued to ballast rig to drilling draft. Ran TGB and drilled 914mm (36") hole from 66.3m to 69m. Guidelines twisted around BHA. Pulled out of hole. Recovered TGB and skidded rig. Drilled 914mm (36") hole to 69m. Guidelines twisted around BHA again.

Ops Lookahead: Drill 444mm (17.5") x 914mm (36") hole without using TGB. Run and cement 762mm (30") x 508mm (20") conductor. Drill 444mm (17.5") hole.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|--|
| 0:00 | 6.00 | RM | RMV | P | Continued ballasting rig to drilling draft of 23.5m (21.5m airgap). During ballasting operations made up stand 127mm (5") DP. Made up 476mm (18-3/4") running tool to 476mm (18-3/4") wellhead and laid out. Commenced mixing gel mud. Commenced offloading drillwater and prehydrated gel from Far Grip. |
| 6:00 | 4.75 | PR | PSI | P | Continued mixing gel mud and offloading drillwater and prehydrated gel from Far Grip. Pressure tested standpipe and upper and lower IBOP to 2.1/34.5MPa (300/5000psi). Changed out lower IBOP due to leak and re-tested - OK. |
| 10:45 | 1.50 | D36 | TRP | P | Engaged 914mm (36") bit into drillahead TGB. Ran to seabed with 914mm (36") bit and TGB. Continued mixing gel mud. |
| 12:15 | 0.25 | D36 | TRP | P | Released bit from drill ahead TGB using ROV and tagged seabed at 66.3mRT (water depth 44.8m LAT). TGB bullseye reading 1° aft. Preliminary location 6m NE from the planned location. |
| 12:30 | 0.50 | D36 | DRR | P | Spudded well and drilled 914mm (36") hole from 66.3m to 69m. Formation hard limestone. |
| 13:00 | 2.00 | D36 | DRR | D | Observed guideline movement in moonpool and stopped drilling. ROV observed guidelines twisted around BHA. Applied left hand rotation - no success. Slacked off guidelines. Pulled out of hole with 914mm (36") BHA and untwisted guidelines in moonpool. Pickup TGB and untwisted guidelines. |
| 15:00 | 3.00 | D36 | DRR | D | Made up TGB running tool. Ran in hole and latched TGB under ROV observation. Recovered TGB to moonpool. Skidded rig 6.8m stbd-aft. Re-ran TGB to seabed and unlatched running tool. TGB bullseye reading 3° port aft. Commenced pulling out of hole with TGB running tool. |
| 18:00 | 3.00 | D36 | DRR | D | Stopped job to investigate high potential dropped object incident. A clevis bracket (approx 0.5kg) dropped to the drillfloor while breaking out a stand of 5" drillpipe after releasing the TGB running tool from the TGB. The part was confirmed to be from the compensator lock bar actuator piston. A JSA was held and the piston was removed. The lock bar was secured to allow drilling operations to resume with compensator open, until the piston is repaired. |
| 21:00 | 2.00 | D36 | DRR | D | Pulled out of hole with TGB running tool. Laid out two 444mm (17.5") string stabilisers from 914mm (36") BHA to avoid catching guidelines. Ran 914mm (36") BHA to seabed tagged at 66.3mRT. |
| 23:00 | 1.00 | D36 | DRR | D | Drilled 914mm (36") hole from 66.3m to 69m. Formation hard limestone. Again observed guideline movement in moonpool and stopped drilling. ROV observed guidelines twisted around BHA and TGB rotated 180°. Slacked off guidelines. Applied left hand rotation - guidelines not freed. Pulled out of hole with 914mm (36") hole and untwisted guidelines in moonpool. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
| 36" | 66.30 | 69.00 | | | | Open Hole | |

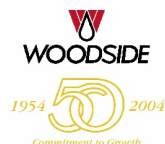
DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------------|--------------------|---------------|------------|-------------|---------------------|
| PREHYDRATED GEL | 1060 | 25.0 | 28.73 | 10.00 | |

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 5

Report Date: 22/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Water Depth(m): 44.80 Start Date: 18/03/2005

CASING

Last Casing:

Next Casing:

Last BOP:

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------|-----------|------------|------------------------|
| 1 | 914.40 | VAREL | L3A | N | 1-1-1 | I6HC10144 | 7X21.4 | 41.90 | 44.60 | 0.-0.-NO-A-0- I-NO-BHA |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| 44.60 | 4.4/31.1 | | 1.8927 | 1,379.0 | 91.7 | 6.6 | 2.89 | 0.50 | 2.70 | 5.40 | 0.50 | 2.70 | 1.65 |
| | 8.9/31.1 | 60 | 1.8927 | 1,379.0 | 91.7 | 6.6 | 2.89 | 0.75 | | 0.00 | 0.75 | 0.00 | 0.00 |

OHSE Report

| Daily | | | | Cumulative | |
|--------|---|------------------|-------|------------|--|
| LTI's: | 0 | Incident Reports | 1.00 | 1.00 | |
| TRCs: | 0 | Stop/Start Cards | 11.00 | 43.00 | |
| DSLTI | 4 | Stop/Start Tours | 0.00 | 0.00 | |

Safety Comments

Incident - dropped object from derrick (0.5kg clevis bracket from DSC)
Conducted Emergency communications exercise

PERSONNEL DATA

| Company | No. People | Company | No. People |
|-------------|------------|------------------|------------|
| WOODSIDE | 7 | DIAMOND Offshore | 60 |
| BAKER ATLAS | 2 | BHI | 2 |
| WEATHERFORD | 4 | FUGRO ROV | 6 |
| DOWELL | 2 | SPERRY SUN | 6 |
| FUGRO | 1 | DRILQUIP | 1 |
| | | Total POB | 91 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|--------------|-----------|-------|--------------|-----------------|-----------|-------|--------------|
| FUEL | m3 | 17.3 | 350.7 | WATER, POTABLE | m3 | 32.6 | 296.1 |
| CEMENT | t | | 149.4 | GEL, FRESH | t | | 60.3 |
| BARITE BULK | t | | 89.3 | WATER, DRILLING | m3 | | 1,058.2 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Portland | 18/03/2005 | |
| Pacific Wrangler | Standby | 18/03/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 68.00 | 7.72 | 1.372 | 1.524 | 0.20 | 0.30 | 0.30 | 15.00 |

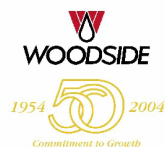
REMARKS

1. Twisted guidelines suspected to be caused by TGB rotation from contact with near-bit stabiliser while drilling the hard limestone seabed. The inside surface of the TGB and j-slot lugs showed damage due to contact with the bit and near-bit stabiliser. Forward plan is to drill ahead without using TGB in 444mm (17.5") x 914mm (36") hole 2. Four 8" DCs and 10jts HWDP to be delivered to Portland on 22 March from Darwin for 12.25" BHA.

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 6 **Report Date: 23/03/2005**

Block: VicP37(v) Rig: Ocean Patriot Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 5.27 | MD (m): | 101.00 | Supervisor: | S Job |
| DFS: | 1.48 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 101.00 | Rig OIM: | S Defreitas |
| Progress Days: | 5.13 | Progress (m): | 32.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 18,351,000.00 (\$) | | | | |
| Cumulative Total: | 5,580,449.00 (\$) | | | | |

Ops 00:00 to 06:00: Waited on cement. Released 762mm (30") running tool. Checked PGB angle - no change (0.1° stbd up, 0.5° bow up). Pulled out of hole and laid out running tool. Commenced repair of drill string compensator lock bar actuator piston.

Ops Summary (24 Hrs): Recovered TGB. Skidded rig over original location. Made up BHA. Stabbed into original hole and drilled 444mm (17.5") bit x 914mm (36") hole from 69m to 101m. Pulled out of hole. Ran and cemented 762mm x 508mm (30"x20") conductor.

Ops Lookahead: Make up 444mm (17.5") BHA. Drill 444mm (17.5") hole. Run 340mm (13 3/8") casing.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|--|
| 0:00 | 1.50 | D36 | DRR | D | Continued to free guidelines from 914mm (36") bit in moonpool. Broke out 914mm (36") bit. Laid out 444mm (17.5") string stabilisers. |
| 1:30 | 3.00 | D36 | DRR | D | Made up TGB running tool. Ran in hole and latched TGB under ROV observation. Recovered TGB to moonpool and skidded aside on moonpool dolly. Laid out TGB running tool. Skidded rig back to original hole location. |
| 4:30 | 2.50 | D36 | DRR | P | Made up 444mm (17.5") x 914mm (36") BHA with 444mm (17.5") Hughes MX-1 bit and 914mm (36") Grant Mod hole opener. Stabbed BHA into original hole and tagged bottom of hole at 69m. |
| 7:00 | 5.00 | D36 | DRR | P | Drilled 444mm (17.5") x 914mm (36") hole from 69m to 101m. Average ROP 6.4m/hr. First 10m took 2.5hrs to drill due to hard formation. |
| 12:00 | 1.00 | D36 | PCD | P | Pumped 23.8m3 (150bbl) sweep and displaced hole with 39.8m3 (250bbl) gel. Pulled out of hole with 444mm (17.5") x 914mm (36") BHA. |
| 13:00 | 0.50 | C36 | COI | P | Held JSA and rigged up to run 762mm (30") conductor. Moved PGB to moonpool. |
| 13:30 | 3.25 | C36 | COI | P | Picked up and ran 762x508mm (30"x20") shoe joint, 762mm (30") intermediate joint and 762mm (30") wellhead housing. Made up cement stinger below 762mm (30") running tool using C-plate. Made up running tool to 762mm (30") housing and checked tool operation. Engaged housing into PGB and connected HAC lines. Lowered PGB to sea level. Filled conductor with seawater and closed fill up valves. |
| 16:45 | 0.75 | C36 | COI | P | Ran 762x508mm (30"x20") conductor and PGB on 127mm (5") DP and stabbed 508mm (20") shoe into 914mm (36") hole. Ran in hole with conductor to 99.5m. Washed and worked conductor down from 90m to 99.5m. (4920 lt/min, 15.9t). PGB bullseye reading 1° stbd. Acoustic inclinometer reading 0.1° stbd up, 0.5° bow up. Wellhead housing 1.6m above seabed. Top of housing 64.7mRT. |
| 17:30 | 2.50 | C36 | COI | P | Circulated seawater at 4.160 lt/min. Held JSA for cement job. Rigged up cement hose and pressure tested surface lines to 6895kPa. Pumped 1.6m3 seawater with fluoreseene dye. Mixed and pumped 26.7m3, 1.9sg Class G cement slurry (792sx cement with 15.9m3 mix fluids and 1% BWOC CaCl2 in mixwater). Displaced cement with 2.22m3 seawater. Observed no backflow - floats held. Re-checked PGB bullseye and Fugro inclinometer - no change. ROV observed cement returns at seabed after 20.7m3 cement pumped. |
| 20:00 | 4.00 | C36 | COI | U | Waited on cement. Monitored PGB bullseyes and Fugro inclinometer - no change to either. While waiting on cement, conducted hazard hunt on racking arm and cherry picker. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|-------------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
| 36" x 17.5" | 66.30 | 101.00 | | | | Open Hole | |

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------------|--------------------|---------------|------------|-------------|---------------------|
| PREHYDRATED GEL | 1070 | 22.0 | 30.16 | 48.00 | |

CASING

| | | |
|--------------|--------------|-----------|
| Last Casing: | Next Casing: | Last BOP: |
|--------------|--------------|-----------|

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 6

Report Date: 23/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------|-----------|------------|------------------------|
| 1 | 914.40 | VAREL | L3A | N | 1-1-1 | 16HC10144 | 7X21.4 | 66.30 | 101.00 | 0.-0.-NO-A-0- I-NO-BHA |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| 101.00 | 22.2/53.4 | 0 | 3.7854 | 3,447.4 | 0.0 | 0.0 | 0.00 | 5.00 | 32.00 | 6.40 | 5.00 | 32.00 | 1.95 |

OHSE Report

| | | | Daily | Cumulative |
|--------|---|------------------|-------|------------|
| LTI's: | 0 | Incident Reports | 0.00 | 1.00 |
| TRCs: | 0 | Stop/Start Cards | 15.00 | 58.00 |
| DSLTI | 5 | Stop/Start Tours | 0.00 | 0.00 |

Safety Comments

PERSONNEL DATA

| Company | No. People | Company | No. People |
|------------------|------------|------------------|------------|
| FUGRO ROV | 6 | FUGRO | 1 |
| DOWELL | 2 | SPERRY SUN | 6 |
| BAKER ATLAS | 2 | DRILQUIP | 1 |
| DIAMOND Offshore | 60 | BHI | 2 |
| WEATHERFORD | 4 | WOODSIDE | 7 |
| | | Total POB | 91 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|--------------|-----------|-------|--------------|
| WATER, POTABLE | m3 | 28.5 | 301.6 | FUEL | m3 | 13.2 | 337.5 |
| GEL, FRESH | t | 1.7 | 58.5 | HELI FUEL | lt | | 0.0 |
| WATER, DRILLING | m3 | 135.8 | 922.4 | BARITE BULK | t | 13.0 | 76.3 |
| CEMENT | t | 38.2 | 111.2 | | | | |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------------------|--------------|----------------|
| Far Grip | Standby | 18/03/2005 | |
| Pacific Wrangler | En route to Portland | 18/03/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 68.00 | 9.26 | 1.000 | 1.524 | 0.20 | 0.30 | 0.30 | 15.00 |

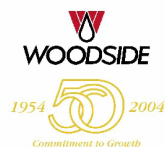
REMARKS

1. Preliminary well location 5.3m at a bearing of 36.9° grid from the design. 2. Padeyes inspected in moonpool as per CAR item #3. 3. Deck cleared in preparation for offloading Far Grip 4. Conducted hazard hunt in derrick 5. STOP tour conducted by HSE coach with Weatherford. 5. Diamond issued flash alert on drill string compensator locking arm actuator piston incident.

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 7

Report Date: 24/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 6.27 | MD (m): | 427.00 | Supervisor: | S Job |
| Dfs: | 2.48 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 427.00 | Rig OIM: | S Defreitas |
| Progress Days: | 6.20 | Progress (m): | 326.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 18,351,000.00 (\$) | | | | |
| Cumulative Total: | 5,972,171.00 (\$) | | | | |

Ops 00:00 to 06:00: Made up Deepsea Express cement head. Held JSA. Rigged up to run 340mm (13 3/8") casing. Ran shoetrack joint and 13 joints 340mm (13 3/8") casing, installing centralisers per programme.

Ops Summary (24 Hrs): Waited on cement until samples hard. Unlatched 762mm (30") running tool and pulled out of hole. Made up 444mm (17.5") BHA. Drilled 444mm (17.5") hole from 101m to 427m. Displaced hole to gel and weighted pill. Pulled out of hole. Jetted wellhead clear.

Ops Lookahead: Run 340mm (13 3/8") casing. Makeup 476mm (18-3/4") wellhead. Land and cement casing. Run BOP's.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|---|
| 0:00 | 3.00 | C36 | COI | U | Continued to wait on cement until samples hard. Monitored PGB bullseyes and Fugro inclinometer - no change: 0.05° stbd up, 0.48° bow up. Completed hazard hunt on racking arm, cherry picker and RBS. |
| 3:00 | 1.50 | C36 | COI | P | Rigged down cement line. Slacked off on conductor to neutral weight and monitored conductor and PGB for movement with ROV - ok. Re-checked PGB bullseye - no change. Released 762mm (30") running tool. Pulled out of hole with 762mm (30") running tool. Laid out running tool and cement stand. Re-checked PGB bullseye and Fugro inclinometer - no change. |
| 4:30 | 4.00 | C36 | REP | D | Repaired drillstring compensator. Re-installed locking arm actuator piston. |
| 8:30 | 0.50 | C36 | REP | P | Serviced TDS. |
| 9:00 | 1.50 | C17 | RUD | U | Picked up Tam packer, broke connection and laid out tool to allow redress on deck for running 340mm (13 3/8") casing on deck. Broke out 444mm (17-1/2") bit (Hughes MX-1) and 914mm (36") hole opener. |
| 10:30 | 2.00 | D17 | DRR | P | Made up 340mm (17.5") BHA. Installed guideropes above bit and ran in hole. Hughes MX-1 bit, NB stab, NMDC, String Stab, 241mm DC, String stab, 3x241mm DC, XO, 2x203mm DC, Jars, 2x203mm DC, XO, HWDP. Tagged cement at 98m. |
| 12:30 | 0.50 | D17 | DRR | P | Drilled out shoe and rathole. |
| 13:00 | 6.50 | D17 | DRR | P | Drilled 444mm (17.5") hole from 101m to 427m. Average ROP 50.1m/hr. Conducted drilloff testing in Gellibrand Marl from 150m. Observed ROP variation in 2.3t increments. |
| 19:30 | 1.00 | D17 | DRR | P | Circulated hole clean with 31.8m3 gel sweep. Displaced hole with 23.8m3 gel and 40m3 weighted 1.15sg inhibited pill. |
| 20:30 | 2.00 | D17 | DRR | P | Dropped EMS survey tool. Pulled out of 444mm (17.5") hole from 427m to 190m. Observed maximum 13.6t (30klb) overpull from 418m to 336m. Wiped tight spots clean. Racked back BHA. Recovered EMS survey tool. ROV observed formation buildup around PGB and 762mm (30") well head housing. |
| 22:30 | 1.50 | D17 | PCD | U | Made up wellhead jetting tool. Ran in hole to 99m with 127mm (5") DP. Circulated conductor clean with 12m3 gel sweep. Pulled above wellhead housing and jetted clear with seawater at 4500 lt/min. Pulled out of hole and laid out jetting tool. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|-------------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
| 36" | 66.30 | 69.00 | | | | Open Hole | |
| 36" | 66.30 | 69.00 | | | | Casing | 914.40 |
| 36" x 17.5" | 69.00 | 101.00 | | | | Casing | |
| 17.5" | 101.00 | 427.00 | 762.00 | 99.50 | | Casing | |

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------------|--------------------|---------------|------------|-------------|---------------------|
| PREHYDRATED GEL | 1070 | 20.0 | 31.12 | 46.00 | |

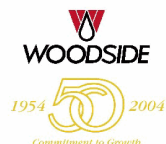
CASING

| | | |
|--------------|--------------|-----------|
| Last Casing: | Next Casing: | Last BOP: |
|--------------|--------------|-----------|

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 7

Report Date: 24/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------------------------|-----------|------------|------------------------|
| 3 | 444.50 | HUGHES | MX-1 | N | 1-1-5 | 6031400 | 1X14.3, 2X15.9 7X21.4 | 101.00 | 427.00 | 1.-1.-WT-A-1- I-NO-TD |
| 1 | 914.40 | VAREL | L3A | N | 1-1-1 | 16HC10144 | | 41.90 | 44.60 | 0.-0.-NO-A-0- I-NO-BHA |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| 427.00 | 22.2/66.7 | 130 | 4.5425 | 21,718.5 | 10,883.6 | 50.1 | 824.31 | 6.50 | 326.00 | 50.15 | 6.50 | 326.00 | 15.29 |

OHSE Report

| Daily | | | | | Cumulative | | | | |
|--------|---|------------------|--|-------|------------|-------|--|--|--|
| LTI's: | 0 | Incident Reports | | 0.00 | | 1.00 | | | |
| TRCs: | 0 | Stop/Start Cards | | 15.00 | | 73.00 | | | |
| DSLTI | 6 | Stop/Start Tours | | 1.00 | | 1.00 | | | |

Safety Comments

PERSONNEL DATA

| Company | No. People | Company | No. People |
|------------------|------------|------------------|------------|
| BAKER ATLAS | 2 | SPERRY SUN | 9 |
| DRILQUIP | 1 | BHI | 2 |
| DOWELL | 2 | WEATHERFORD | 4 |
| DIAMOND Offshore | 58 | FUGRO ROV | 5 |
| WOODSIDE | 6 | | |
| | | Total POB | 89 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|----------------|-----------|-------|--------------|-----------------|-----------|-------|--------------|
| WATER, POTABLE | m3 | 23.5 | 305.1 | GEL, FRESH | t | 31.8 | 26.7 |
| BARITE BULK | t | 4.6 | 154.7 | WATER, DRILLING | m3 | 250.9 | 771.5 |
| FUEL | m3 | 19.1 | 518.4 | CEMENT | t | | 111.2 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------------------|--------------|----------------|
| Far Grip | En Route to Portland | 23/03/2005 | |
| Pacific Wrangler | Standby | 26/03/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 68.00 | 7.72 | 1.000 | 1.000 | 0.20 | 0.30 | 0.30 | 17.00 |

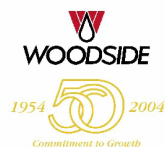
REMARKS

1. GDA94 preliminary well location 38°34'45.54"S, 142°43'50.95"E, 650 763.2E, 5728 485.2N (5.3m at a bearing of 36.9° grid from the design). 2. Conducted 200m3 fuel transfer to rig from Far Grip with WEL supervision as per HSE plan commitment. 3. Hazard hunt in derrick: Racking arm: 2 worn safety slings, bumper parts worn. Cherry picker: Missing pin in shackle - replaced. RBS: ok. 4. Conducted stop tour with HSE coach and Sperry Sun.

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 8

Report Date: 25/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 7.27 | MD (m): | 427.00 | Supervisor: | S Job |
| DFS: | 3.48 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 427.00 | Rig OIM: | S Defreitas |
| Progress Days: | 7.30 | Progress (m): | 0.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 18,351,000.00 (\$) | | | | |
| Cumulative Total: | 6,496,116.00 (\$) | | | | |

Ops 00:00 to 06:00: Continued to run BOP. Pressure tested choke and kill lines. Landed BOP and confirmed latch. Commenced rigging up storm loops.

Ops Summary (24 Hrs): Picked up Dowell cement head. Rigged up and ran 340mm (13-3/8") casing. Made up 476mm (18-3/4") wellhead. Ran and landed 476mm (18.75") wellhead. Cemented 340mm (13-3/8") casing. Top plug did not bump. Rigged up and commenced running BOP.

Ops Lookahead: Run diverter. Conduct wellhead connector and casing pressure test. Make up 311mm (12.25") BHA. Function test BOP. Drill 311mm (12.25") hole.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|--|
| 0:00 | 1.00 | C17 | CLR | P | Made up Dowell cement head. |
| 1:00 | 1.00 | C17 | CLR | P | Held JSA. Rigged up to run casing. |
| 2:00 | 1.00 | C17 | CLR | P | Picked up and ran single joint shoetrack. Tested float -ok. Installed guideropes in moonpool. |
| 3:00 | 1.00 | C17 | CLR | P | Made up Tam packer and 350t side door elevators. |
| 4:00 | 2.50 | C17 | CLR | P | Ran 6 joints 340mm (13-3/8") casing. Stabbed shoe into 762mm (30") housing with ROV guidance. Ran a further 20 joints 340mm (13-3/8") casing. Installed solid body centralisers as per program. Ran a total of 25 joints at 10 jt/hr. |
| 6:30 | 1.00 | C17 | CLR | P | Rigged down 340mm casing handling equipment. Laid out Tam packer. Rigged up 127mm (5") DP handling equipment. |
| 7:30 | 1.00 | C17 | CLR | P | Made up 476mm (18-3/4") wellhead to no-cross coupling. Unlatched running tool and installed Dowell cement plug basket assembly. |
| 8:30 | 1.25 | C17 | CLR | P | Ran 340mm (13-3/8") casing and 476mm (18-3/4") wellhead on 127mm (5") DP. Precautionary washed down last stand. Observed 9.1t drag and 4.5t overpull at bottom of last stand. Made up Dowell cement head. Circulated casing to bottom - no fill. Shoe at 421m. Landed out 476mm (18-3/4") wellhead and confirmed latch with 22.7t (50klb) overpull. |
| 9:45 | 0.75 | C17 | CLR | P | Rigged up cement line. Circulated casing with 40m3 seawater at incremental flowrates of 757lt/min, 1510lt/min, 2270lt/min, 3030lt/min. Meanwhile held JSA for cement job. |
| 10:30 | 2.00 | C17 | CLC | P | Pressure tested surface lines to 20.7MPa (3000psi). Released lower dart and sheared out bottom plug with 0.95m3 seawater. Observed bottom plug release with 15.2Mpa (2200psi). Mixed and pumped 30.4m3 lead cement slurry at 1.5sg [481sx Class 'G' cement with 23.2m3 seawater, 765lt D075 extender and 19lt D047 antifoam]. Mixed and pumped 22.3m3 tail cement slurry at 1.9sg [666sx Class 'G' cement with 13.4m3 seawater and 26lt antifoam]. |
| 12:30 | 1.00 | C17 | CLC | P | Released top dart and pumped seawater to shear out top plug. Observed plug release with 16.5Mpa (2400 psi) after 0.95m3 seawater. Continued displacement of cement with seawater using Dowell unit. Pumped a total of 28.9m3 (182bbl) seawater. Top plug did not bump at planned displacement of 26.5m3 (166.5bbl). ROV observed returns at seabed - difficult to confirm due to poor visibility. Observed pressure increase from 0.69 to 2.75MPa (100 to 400psi) during displacement indicating cement column to seabed in annulus. |
| 13:30 | 2.00 | C17 | CLC | P | Rigged down cement line and cement head control lines. Released 476mm (18-3/4") running tool and pulled out of hole. Laid out cement head and running tool |
| 15:30 | 1.00 | C17 | BPR | P | Rigged up to run BOP. |
| 16:30 | 1.00 | C17 | BPR | P | Made pup 2 riser pup joints and one riser joint. |
| 17:30 | 1.50 | C17 | BPR | D | Changed out damaged riser joint. Unable to stab riser joint due to bent booster line connection. |
| 19:00 | 2.00 | C17 | BPR | P | Skidded BOP below rotary table. Made up riser. Installed guideline's and pod hoses. |
| 21:00 | 1.00 | C17 | BPR | P | Skidded BOP carriage. Installed BOP beacon and ran BOP. |
| 22:00 | 1.00 | C17 | BPR | P | Pressure tested choke and kill lines to 1.3MPa/ 5min and 34.5Mpa /10min. |
| 23:00 | 1.00 | C17 | BPR | P | Picked up slip joint. |

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 8

Report Date: 25/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|-------------|------------|-------------|----------------------|-------------------------|------------|--------------|------------------------------|
| 36" | 66.30 | 69.00 | | | | Open Hole | |
| 36" | 66.30 | 69.00 | | | | Casing | 914.40 |
| 36" x 17.5" | 69.00 | 101.00 | | | | Casing | |
| 17.5" | 101.00 | 427.00 | 762.00 | 99.50 | | Casing | |

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|----------|-----------------|------------|---------|----------|------------------|
| | | | | | |

CASING

| | | |
|--------------|--------------|---------------------------------|
| Last Casing: | Next Casing: | Last BOP: 25/03/2005 12:05:29AM |
|--------------|--------------|---------------------------------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|----------------|-----------|------------|------------------------|
| 3 | 444.50 | HUGHES | MX-1 | N | 1-1-5 | 6031400 | 1X14.3, 2X15.9 | 101.00 | 427.00 | 1.-1.-WT-A-1- I-NO-TD |
| 1 | 914.40 | VAREL | L3A | N | 1-1-1 | 16HC10144 | 7X21.4 | 41.90 | 44.60 | 0.-0.-NO-A-0- I-NO-BHA |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| Daily | | | | Cumulative | | | |
|--------|---|------------------|-------|------------|--|--|--|
| LTI's: | 0 | Incident Reports | 0.00 | 1.00 | | | |
| TRCs: | 0 | Stop/Start Cards | 13.00 | 86.00 | | | |
| DSLTI | 7 | Stop/Start Tours | 0.00 | 1.00 | | | |

Safety Comments

PERSONNEL DATA

| Company | No. People | Company | No. People |
|-------------|------------|------------------|------------|
| WOODSIDE | 6 | DIAMOND Offshore | 59 |
| FUGRO ROV | 5 | BHI | 2 |
| WEATHERFORD | 4 | DRILQUIP | 1 |
| DOWELL | 2 | BAKER ATLAS | 2 |
| SPERRY SUN | 9 | | |
| | | Total POB | 90 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|----------------|-----------|-------|--------------|-----------------|-----------|-------|--------------|
| GEL, FRESH | t | 0.0 | 26.7 | CEMENT | t | 47.2 | 149.0 |
| BARITE BULK | t | 0.0 | 154.7 | WATER, DRILLING | m3 | 90.5 | 681.0 |
| WATER, POTABLE | m3 | 34.5 | 301.6 | FUEL | m3 | 13.4 | 505.0 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------------------|--------------|----------------|
| Far Grip | En Route to Portland | 23/03/2005 | |
| Pacific Wrangler | Standby | 26/03/2005 | |

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)**Report No#: 8****Report Date: 25/03/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|--------------------|-----------------------|-------------|--------------|--------------|--------------|-------------|---------------------|
| 68.00 | 10.29 | 2.499 | 2.499 | 0.20 | 0.30 | 0.30 | 14.00 |

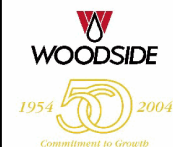
REMARKS

1. 444mm (17.5") EMS survey: 413.76m, 0.70°inc, 346.34°az. 2. Commenced preparations for installation of Sperry Geo-pilot skid on drillfloor. 3. Repaired air compressor No.2 and closed out CAR items #33, 34 and 35. 3. Reviewed campaign hazard sheet on dropped casing during 13-3/8" casing JSA. 4. Offloaded 79.5m3 (500bbl) KCl brine and commenced mud preparations. 5. Completed pressure testing of choke and kill manifold to 2.1/34.5MPa (300/5000psi).

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 9

Report Date: 26/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 8.27 | MD (m): | 427.00 | Supervisor: | S Job |
| DFS: | 4.48 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 427.00 | Rig OIM: | S Defreitas |
| Progress Days: | 7.76 | Progress (m): | | RT-SL (m): | 21.50 |
| AFE Cost: | 18,351,000.00 (\$) | | | | |
| Cumulative Total: | 6,886,888.00 (\$) | | | | |

Ops 00:00 to 06:00: Laid out 444mm (17.5") BHA. Made up 311mm (12.25") bit and mud motor with 1.15° bend. Made up FEWD and ran in hole to 22m.

Ops Summary (24 Hrs): Landed and latched BOP. Made up 244mm (9 5/8") casing hanger to running tool. Attempted to pressure test casing - no test. Made up and ran in hole with retrievable packer. Set packer and pressure tested casing to 6.9MPa (1000psi). Function tested BOP.

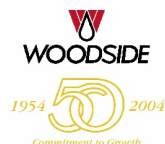
Ops Lookahead: Drill out floats with reduced drilling parameters to ensure shoetrack does not back-out. Drill 311mm (12 1/4") hole. Run 244mm (9 5/8") casing.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|---|
| 0:00 | 0.50 | C17 | BPR | P | Made up landing joint to slip joint. |
| 0:30 | 2.50 | C17 | BPR | P | Made up choke, kill and booster line goosenecks to slip joint. |
| 3:00 | 0.50 | C17 | BPR | P | Pressure tested choke and kill lines to 1.3MPa/ 5min and 34.5MPa /10min. Test ok. |
| 3:30 | 1.50 | C17 | BPR | P | Locked in SDL ring to slip joint. ROV conducted visual check of connector. Landed BOP and confirmed latch with 22.7t (50klb) overpull. |
| 5:00 | 3.00 | C17 | BPR | P | Unpinned and stroked out slip joint. Attached pod line saddles to guidelines. Laid out landing joint. |
| 8:00 | 0.75 | C17 | BPR | P | Installed diverter. |
| 8:45 | 0.25 | C17 | BPR | P | Closed shear rams and attempted pressure test of casing and wellhead connector to 6.8MPa (1000psi). No test. Formation leaked off at 1.93MPa (280psi) after pumping 0.21m3 (1.36bbl). Conducted repeat test with same result. Effective leak-off test of 1.50sg EMW using seawater. During 340mm (13 3/8") cement job, suspect bottom cement plug did not seal on float collar. Subsequently cement was overdisplaced by 2.46m3 (15.5bbl). Theoretical bottom of cement column in annulus 22m above shoe assuming gauge hole. |
| 9:00 | 1.00 | C17 | BPR | P | Rigged down BOP handling equipment. |
| 10:00 | 1.50 | C17 | CLR | P | Made up 244mm (9 5/8") casing hanger to running tool with drillpipe pup and Dowell crossover below. Laid out on pipedeck. |
| 11:30 | 3.00 | C17 | PRE | D | Made up 340mm (13 3/8") DLT retrievable packer and unloader valve. Ran in hole to 400m on 6 stands HWDP and 127m (5") DP. |
| 14:30 | 1.50 | C17 | PRE | D | Set DLT packer with 1 turn right and 11.3t (25klb) down weight. Closed lower pipe ram and pressure tested casing and wellhead connector. Made three attempts at pressure test. No test - DLT packer not sealing annulus. Observed pressure on standpipe during test. Unloader valve not closing or valve closed, and elements not set. |
| 16:00 | 2.00 | C17 | PRE | D | Pulled out of hole with DLT packer from 400m to 360m and made fourth attempt to set packer. Closed lower pipe ram and pressure tested casing and wellhead connector. No test - again DLT packer not sealing annulus. |
| 18:00 | 3.50 | C17 | PRE | D | Pulled out of hole with DLT packer. Dowell advised DLT packer string requires 15.9t (35klb) instead of 11.3t (25klb) to seal annulus. Removed unloader valve. Ran in hole with DLT packer on 8 stands HWDP and 127mm (5") DP to 305m. Set packer with 1 turn and 15.9t (35klb) weight down. Closed lower pipe ram and pressure tested casing and wellhead connector to 6.9MPa (1000psi) /5min - ok. Opened lower pipe ram, released packer and ran in hole from 305m to 385m. Set packer, closed lower pipe ram and pressure tested casing and wellhead connector to 6.9MPa (1000psi) /60min - ok. Released DLT packer. |
| 21:30 | 1.00 | C17 | BPT | P | Function tested BOP on blue and yellow pod. |
| 22:30 | 1.50 | C17 | PRE | D | Pulled out of hole and laid out DLT packer. |

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 9

Report Date: 26/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|-------------|------------|-------------|----------------------|-------------------------|------------|--------------|------------------------------|
| 36" | 66.30 | 69.00 | | | | Open Hole | |
| 36" | 66.30 | 69.00 | | | | Casing | 914.40 |
| 36" x 17.5" | 69.00 | 101.00 | | | | Casing | |
| 17.5" | 101.00 | 427.00 | 762.00 | 99.50 | | Casing | |

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|----------|-----------------|------------|---------|----------|------------------|
| | | | | | |

CASING

| | | |
|--------------|--------------|---------------------------------|
| Last Casing: | Next Casing: | Last BOP: 25/03/2005 10:53:12PM |
|--------------|--------------|---------------------------------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|----------------|-----------|------------|------------------------|
| 3 | 444.50 | HUGHES | MX-1 | N | 1-1-5 | 6031400 | 1X14.3, 2X15.9 | 101.00 | 427.00 | 1.-1.-WT-A-1- I-NO-TD |
| 1 | 914.40 | VAREL | L3A | N | 1-1-1 | 16HC10144 | 7X21.4 | 41.90 | 44.60 | 0.-0.-NO-A-0- I-NO-BHA |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| Daily | | | | Cumulative | |
|--------|---|------------------|-------|------------|--|
| LTI's: | 0 | Incident Reports | 1.00 | 2.00 | |
| TRCs: | 0 | Stop/Start Cards | 11.00 | 97.00 | |
| DSLTI | 8 | Stop/Start Tours | 1.00 | 2.00 | |

Safety Comments

Incident: Top drive contacted automatic racking arm when racking back stand of 127mm (5") DP. Derrickman did not retract racking arm in time and broke shear pins on racking arm. Replaced shear pins. Nothing fell from derrick (preliminary E3).

PERSONNEL DATA

| Company | No. People | Company | No. People |
|------------------|------------|------------------|------------|
| DOWELL | 2 | BAKER ATLAS | 2 |
| DRILQUIP | 1 | FUGRO ROV | 3 |
| WEATHERFORD | 4 | SPERRY SUN | 12 |
| DIAMOND Offshore | 59 | WOODSIDE | 6 |
| BHI | 2 | | |
| | | Total POB | 91 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|--------------|-----------|-------|--------------|
| FUEL | m3 | 16.9 | 488.1 | BARITE BULK | t | 36.9 | 190.8 |
| WATER, DRILLING | m3 | 80.3 | 1,000.7 | GEL, FRESH | t | 0.0 | 26.7 |
| CEMENT | t | 0.0 | 149.0 | BLEND CEMENT | t | | 0.0 |
| WATER, POTABLE | m3 | 36.4 | 300.2 | | | | |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------------------|--------------|----------------|
| Far Grip | En Route to Portland | 23/03/2005 | |
| Pacific Wrangler | Standby | 26/03/2005 | |

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)**Report No#: 9****Report Date: 26/03/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|--------------------|-----------------------|-------------|--------------|--------------|--------------|-------------|---------------------|
| 68.00 | 5.14 | 2.987 | 2.987 | 0.20 | 0.30 | 0.30 | 12.00 |

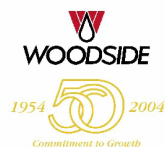
REMARKS

1) Incident: Top drive contacted automatic racking arm when racking back stand of 127mm (5") DP. Derrickman did not retract racking arm in time and broke shear pins on racking arm. Replaced shear pins. Nothing fell from derrick. 2) Crew member precautionarily evacuated from rig to Albert Hospital, Melbourne for observation after suffering a brief period of unexplained chest pain. MediVac helicopter on deck 00:30hrs. 3) Fabricated mounting frame for Geospan module. 4) WSM conducted 'E' stop tour.

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 10 **Report Date: 27/03/2005**

Block: VicP37(v) Rig: Ocean Patriot Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 9.31 | MD (m): | 754.00 | Supervisor: | S Job |
| DFS: | 5.52 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 754.00 | Rig OIM: | S Defreitas |
| Progress Days: | 9.17 | Progress (m): | 327.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 18,351,000.00 (\$) | | | | |
| Cumulative Total: | 7,358,685.00 (\$) | | | | |

Ops 00:00 to 06:00: Continued drilling 311mm (12 1/4") hole from 754m to 839m. Average ROP 24.3m/hr. Circulated hole clean. Pulled out of hole with 311mm (12 1/4") BHA from 839m to 810m.

Ops Summary (24 Hrs): Laid out 444mm (17 1/2") BHA. Made up and ran in hole with 311mm (12 1/4") BHA. Tagged top plug at 407m. Drilled plugs and float. Cleaned out shoetrack and rathole - no cement present. Drilled 311mm (12 1/4") BHA from 427m to 754m. Average ROP 33m/hr.

Ops Lookahead: Pull out of hole with 311mm (12 1/4") BHA to shoe. Conduct wiper trip. Pull out of hole. Run and cement 244mm (9 5/8") casing.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|--|
| 0:00 | 2.50 | D17 | DRT | P | Laid out 444mm (17.5") BHA. Broke out bit [Hughes MX-1 graded 1-1-WT-A-1-I-NO-TD]. |
| 2:30 | 6.50 | D12 | DRM | P | Made up 311mm (12 1/4") BHA. Made up 6/7 lobe mud motor with 1.15° bend. Made up MWD. Shallow tested MWD and motor. **Additional hour for day light savings**. |
| 9:00 | 1.00 | D12 | DRM | D | Laid out two 8" DC's. DC's did not drift due to internal rust & scale buildup. |
| 10:00 | 0.50 | D12 | DRM | P | Ran in hole with 311mm (12 1/4") BHA from 255m. Tagged top plug on float collar at 407m with 2.3t (5klb). Depth of float collar 407.5m. Plug landed on float collar and did not seal. |
| 10:30 | 0.50 | D12 | DRM | P | Displaced well to 1.10sg Aquadril mud. |
| 11:00 | 2.00 | D12 | DRM | P | Drilled out plugs from 407m to 408m (60minutes). Cleaned out shoetrack. Drilled shoe at 421m and cleaned out rathole to 427m. No cement located in shoetrack or rathole. |
| 13:00 | 1.00 | D12 | DRM | P | Slide drilled 311mm (12 1/4") hole from 427m to 460m using reduced parameters to minimise risk of backing off uncemented 340mm (13 3/8") shoe and float joints. [WOB 1.0 - 2.3t (2-5klb), Flow 2270lt/min (600gpm)]. Rotated drillpipe 50° every 15minutes to prevent milling casing or kicking off. Average ROP 22m/hr. |
| 14:00 | 3.00 | D12 | DRM | P | Drilled 311mm (12 1/4") hole from 460m to 538m. Average ROP 19.5m/hr [WOB 4.5-8.2t (10-18klb), Surface rpm 100, TQ 0.27-0.54kdaNm (2-4kft.lb), SPP 20.0MPa (2900psi), Flow 3.0m3/min (800gpm)]. |
| 17:00 | 1.00 | D12 | DRM | P | Observed 18.2t (40klb) overpull on connection at 538m. Increased flow rate to 3.78m3/m (1000gpm) and circulated hole clean. Observed buildup of cuttings in header box causing losses at shakers. The increased flow rate reduced cuttings buildup in header box. |
| 18:00 | 6.00 | D12 | DRM | P | Drilled 311mm (12 1/4") hole from 538m to 754m. Slide drilled a single from 724m. Average ROP 36m/hr [WOB 4.5-8.2t (10-18klb), Surface rpm 100, TQ 0.27-0.54kdaNm (2-4kft.lb), SPP 20.0MPa (2900psi), Flow 3.8m3/min (1000gpm)]. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|-------------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
| 36" | 66.30 | 69.00 | | | | Open Hole | |
| 36" | 66.30 | 69.00 | | | | Casing | 914.40 |
| 36" x 17.5" | 69.00 | 101.00 | | | | Casing | |
| 17.5" | 101.00 | 427.00 | 762.00 | 99.50 | | Casing | |
| 12.25" | 427.00 | 839.00 | 244.47 | | | Casing | 311.15 |

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------|--------------------|---------------|------------|-------------|---------------------|
| AQUADRILL | 1150 | 26.0 | 20.11 | 10.00 | |

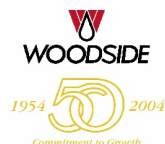
CASING

| | | |
|--------------|--------------|-----------|
| Last Casing: | Next Casing: | Last BOP: |
|--------------|--------------|-----------|

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 10

Report Date: 27/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------------------------|-----------|------------|------------------------|
| 3 | 444.50 | HUGHES | MX-1 | N | 1-1-5 | 6031400 | 1X14.3, 2X15.9 7X21.4 | 101.00 | 427.00 | 1.-1.-WT-A-1- I-NO-TD |
| 1 | 914.40 | VAREL | L3A | N | 1-1-1 | 16HC10144 | | 41.90 | 44.60 | 0.-0.-NO-A-0- I-NO-BHA |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| 427.00 | 44.5/66.7 | 230 | 3.7854 | 19,994.8 | 8,199.8 | 41.0 | 517.53 | 11.00 | 327.00 | 29.73 | 11.00 | 327.00 | 9.06 |

OHSE Report

| Daily | | | | Cumulative | | | |
|--------|---|------------------|-------|------------|--|--|--|
| LTI's: | 0 | Incident Reports | 1.00 | 3.00 | | | |
| TRCs: | | Stop/Start Cards | 13.00 | 110.00 | | | |
| DSLTI | 9 | Stop/Start Tours | 0.00 | 2.00 | | | |

Safety Comments

Incident raised to determine cause of 340mm (13-3/8") cement job failure - top plug did not bump.

PERSONNEL DATA

| Company | No. People | Company | No. People |
|-------------|------------|------------------|------------|
| WOODSIDE | 6 | FUGRO ROV | 3 |
| DOWELL | 2 | BHI | 2 |
| DRILQUIP | 1 | DIAMOND Offshore | 59 |
| WEATHERFORD | 4 | BAKER ATLAS | 2 |
| SPERRY SUN | 12 | | |
| | | Total POB | 91 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|----------------|-----------|-------|--------------|
| WATER, DRILLING | m3 | 66.4 | 934.3 | GEL, FRESH | t | 0.0 | 26.7 |
| BARITE BULK | t | 17.8 | 173.0 | FUEL | m3 | 25.3 | 462.8 |
| CEMENT | t | 0.0 | 149.0 | WATER, POTABLE | m3 | 28.6 | 302.6 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------------------|--------------|----------------|
| Far Grip | En Route to Portland | 23/03/2005 | |
| Pacific Wrangler | Standby | 26/03/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 68.00 | 7.72 | 0.610 | 0.610 | 0.30 | 0.30 | 0.30 | 12.00 |

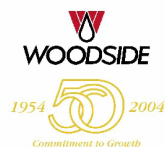
REMARKS

1. Incident raised to determine cause of 340mm (13-3/8") cement job failure - top plug did not bump. Preliminary classification D3. 2. Kick drill held when drilling 311mm (12.25") hole. Detected by mud loggers and driller. Well shut in with simulated 3.8m3 (24bbl) gain. 3. Conducted weekly safety meeting and abandon rig drill with all personnel. 4. Held WEL inductions with remaining personnel 11:30, 07:30hrs. 5. Drilquip completed all prejob checklists for running 9-5/8" hanger. 6. Preliminary classification for pipe racking arm incident E3. 7. Additional hour for today's report due to end of daylight saving in Victoria ie: 25hour day. 8. Survey 752.64m, 2.88°inc, 218.67°az. 9. Dowell dart and plugs and checklist 50% complete. 10. Weatherford checklist complete.

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 11

Report Date: 28/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 10.31 | MD (m): | 839.00 | Supervisor: | S Job |
| DFS: | 6.52 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 839.00 | Rig OIM: | S Defreitas |
| Progress Days: | 10.35 | Progress (m): | 85.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 18,351,000.00 (\$) | | | | |
| Cumulative Total: | 7,932,754.00 (\$) | | | | |

Ops 00:00 to 06:00: Circulated casing to bottom and landed hanger in 476mm (18 3/4") wellhead - no fill. 244mm (9 5/8") shoe at 834m. Circulated casing at incremental flow rates. Cemented casing - top plug did not bump. Pulled out of hole with 244mm (9 5/8") running tool.

Ops Summary (24 Hrs): Drilled 311mm (12 1/4") hole from 754m to 839m. Average ROP 24m/hr. Pulled out of hole with 311mm (12 1/4") BHA to shoe. Conducted wiper trip. Pulled out of hole. Ran 244mm (9 5/8") casing. Made up hanger and ran in hole with 244mm (9 5/8") casing on HWDP.

Ops Lookahead: Run mill and flush tool. Run seal assembly. Pressure test BOP and casing. Run wearbushing. Layout 311mm (12 1/4") hole. Make up 127mm (5") DP. Make up 216mm (8 1/2") BHA.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|--|
| 0:00 | 1.25 | D12 | DRR | P | Drilled 311mm (12 1/4") hole from 754m to 798m. Average ROP 35m/hr [WOB 4.5-8.2t (10-18klb), Surface rpm 100, TQ 0.27-0.54kdaNm (2-4kft.lb), SPP 20.0MPa (2900psi), Flow 3.8m3/min (1000gpm)]. |
| 1:15 | 0.75 | D12 | DRR | U | Driller detected anomolous increase in flow and pit gain. Shut in well on lower annular and monitored casing and drillpipe pressure (15min). No pressure observed. Opened choke and monitored flow (10min)- no flow. Opened lower annular and conducted flow check (10min) - well static. Suspected flow and pit gain caused by change in rig pitch. |
| 2:00 | 2.25 | D12 | DRR | P | Drilled 311mm (12 1/4") hole from 798m to 839m. Average ROP 18m/hr [WOB 4.5-8.2t (10-18klb), Surface rpm 100, TQ 0.27-0.54kdaNm (2-4kft.lb), SPP 20.0MPa (2900psi), Flow 3.8m3/min (1000gpm)]. Instantaneous ROP decreased from 60m/hr to 25m/hr at 802m due to change in formation. |
| 4:15 | 1.50 | D12 | DRR | P | Circulated hole clean with 3780lt/min (1000gpm) until shakers clean. Boosted riser. Circulated total of five times bottoms up. |
| 5:45 | 2.75 | D12 | DRR | P | Conducted flow check - well static. Pulled out of hole from 839m to 409m. Wiped through several tight spots with up to 15.9t (35klb) overpull. |
| 8:30 | 1.50 | D12 | DRR | P | Ran in hole with 311mm (12 1/4") hole from 409m to 839m for wiper trip. Maximum drag 4.5t (10klb). 10m fill on bottom. |
| 10:00 | 0.50 | D12 | DRR | P | Circulated hole clean with 3780lt/min (1000gpm) until shakers clean. Circulated total of 2.5 times bottoms up. |
| 10:30 | 3.00 | D12 | DRR | P | Pulled out of hole from 839m. Flow checked well at casing shoe - well static. Maximum overpull 4.5t (10klb) overpull. Racked back BHA. Downloaded MWD. |
| 13:30 | 2.00 | C12 | CLR | P | Made up wear bushing running tool. Ran in hole and unlatched wearbushing with 27.3t (60klb). Pulled out of hole and laid out wear bushing and running tool. No new wear. |
| 15:30 | 0.50 | C12 | CLR | P | Made up Dowell cement head below double of HWDP. |
| 16:00 | 1.00 | C12 | CLR | P | Held JSA. Rigged up to run casing. |
| 17:00 | 0.50 | C12 | CLR | P | Picked up and ran 244mm (9 5/8") shoe and float joint. Tested float - OK. |
| 17:30 | 0.50 | C12 | CLR | P | Made up Tam packer and rigged up 350t side door elevators. |
| 18:00 | 4.00 | C12 | CLR | P | Ran 59 joints of 244mm (9 5/8") casing at 15jt/hr. Installed 12 rigid spoolisers as per programme. No hole problems. Decreased running speed to 60sec per joint to reduce surge effects. Total losses during casing run 3.2m3 (20bbl). Circulated casing at 380lt/min (100gpm) - no dynamic losses observed. |
| 22:00 | 0.50 | C12 | CLR | P | |
| 22:30 | 0.50 | C12 | CLR | P | Rigged down 244mm (9 5/8") casing handling equipment. Laid out Tam packer. Rigged up 127mm (5") DP handling equipment. |
| 23:00 | 0.50 | C12 | CLR | P | Made up 244mm (9 5/8") casing hanger and running tool. Unlatched running tool and installed Dowell cement plug basket assembly. |
| 23:30 | 0.50 | C12 | CLR | P | Ran 244mm (9 5/8") casing and hanger on HWDP. Precautionary washed down last stand. No drag observed. Made up Dowell cement head. |

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 11

Report Date: 28/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|-------------|------------|-------------|----------------------|-------------------------|------------|--------------|------------------------------|
| 36" | 66.30 | 69.00 | | | | Open Hole | |
| 36" | 66.30 | 69.00 | | | | Casing | 914.40 |
| 36" x 17.5" | 69.00 | 101.00 | | | | Casing | |
| 17.5" | 101.00 | 427.00 | 762.00 | 99.50 | | Casing | |
| 12.25" | 427.00 | 839.00 | 244.47 | | | Casing | 311.15 |

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------|-----------------|------------|---------|----------|------------------|
| AQUADRILL | 1160 | 26.0 | 15.80 | | |

CASING

| | | |
|--------------|--------------|--------------------------------|
| Last Casing: | Next Casing: | Last BOP: 26/03/2005 4:12:49AM |
|--------------|--------------|--------------------------------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|----------------|-----------|------------|------------------------|
| 3 | 444.50 | HUGHES | MX-1 | N | 1-1-5 | 6031400 | 1X14.3, 2X15.9 | 101.00 | 427.00 | 1.-1.-WT-A-1- I-NO-TD |
| 1 | 914.40 | VAREL | L3A | N | 1-1-1 | 16HC10144 | 7X21.4 | 41.90 | 44.60 | 0.-0.-NO-A-0- I-NO-BHA |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| Daily | | | | Cumulative | | | |
|--------|----|------------------|-------|------------|--|--|--|
| LTI's: | 0 | Incident Reports | 0.00 | 3.00 | | | |
| TRCs: | 0 | Stop/Start Cards | 10.00 | 120.00 | | | |
| DSLTI | 10 | Stop/Start Tours | 0.00 | 2.00 | | | |

Safety Comments

PERSONNEL DATA

| Company | No. People | Company | No. People |
|------------------|------------|----------------------|------------|
| BHI | 2 | FUGRO ROV | 3 |
| BAKER ATLAS | 2 | WEATHERFORD | 4 |
| SPERRY SUN | 12 | HALLIBURTON SERVICES | 1 |
| DIAMOND Offshore | 58 | DOWELL | 2 |
| WOODSIDE | 5 | DRILQUIP | 1 |
| | | Total POB | 90 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|----------------|-----------|-------|--------------|
| GEL, FRESH | t | 0.0 | 26.7 | WATER, POTABLE | m3 | 27.2 | 301.4 |
| FUEL | m3 | 17.3 | 645.5 | BARITE BULK | t | 61.0 | 112.0 |
| WATER, DRILLING | m3 | 67.4 | 976.9 | CEMENT | t | 0.0 | 149.0 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------------------|--------------|----------------|
| Far Grip | En Route to Portland | 23/03/2005 | |
| Pacific Wrangler | Standby | 26/03/2005 | |



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)

Report No#: 11
Report Date: 28/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|--------------------|-----------------------|-------------|--------------|--------------|--------------|-------------|---------------------|
| 68.00 | 5.14 | 1.372 | 1.372 | 1.80 | 0.30 | 0.30 | 13.00 |

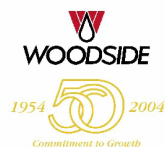
REMARKS

1. Survey: 810.51m, 4.59°inc, 213.32°az 2. Conducted oil spill drill in sack room. 3. Changed out washed-out module on Pump #3. 4. Transferred 220m3 fuel with WEL supervision.

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 12

Report Date: 29/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 11.31 | MD (m): | 839.00 | Supervisor: | S Job |
| DFS: | 7.52 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 839.00 | Rig OIM: | S Defreitas |
| Progress Days: | 11.20 | Progress (m): | 0.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 18,351,000.00 (\$) | | | | |
| Cumulative Total: | 8,353,201.00 (\$) | | | | |

Ops 00:00 to 06:00: Picked up 20 stands 127m (5") DP. Pressure tested 244mm (9 5/8") casing to 17.2MPa (2500psi) -ok. Made up 8 1/2" BHA.

Ops Summary (24 Hrs): Landed 244mm (9-5/8") hanger. Cemented casing. Laid out running tool and cement head. Ran mill and flush tool. Set seal assembly and pressure tested. Pressure tested BOP. Ran wear bushing. Pressure tested surface eqt. Laid out 311mm (12-1/4")BHA.

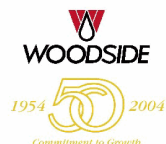
Ops Lookahead: Make up 216mm (8 1/2") BHA. Run in hole. Drill plugs, shoetrack and rathole. Drill 216mm (8 1/2") hole.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|--|
| 0:00 | 0.50 | C12 | CLR | P | Landed out 244mm (9 5/8") hanger in 476mm (18 3/4") wellhead. Precautionary washed down. 4.5t (10klb) drag observed. 244mm (9 5/8") casing shoe at 834m. |
| 0:30 | 0.50 | C12 | CLR | P | Circulated casing with 32m3 (200bbl) mud at incremental flow rates up to 1510 lt/min (400gpm). No hole-pack off observed. |
| 1:00 | 0.50 | C12 | NGI | D | Rig experienced loss of power. Main engines #1 and #4 tripped out due to high temperature alarm. Inlet strainers for seawater cooling system found partially blocked by large mussels. Cleared inlet strainers and restarted generators. |
| 1:30 | 0.50 | C12 | CLR | P | Broke circulation and re-established circulation at incremental flow rates up to 1510 lt/min (400gpm). No hole pack-off observed. Meanwhile held JSA for cement job. |
| 2:00 | 1.00 | C12 | CLR | P | Rigged up cement line and cement head control lines. Freed jammed lo-torque valve. Re-established circulation - no pack off observed. |
| 3:00 | 0.75 | C12 | CLR | P | Pressure tested surface lines to 20.7MPa (3000psi). Released lower dart and sheared out bottom plug with 0.43m3 (2.75bbl) seawater. Observed bottom plug release with 11.0MPa (1600psi). Pumped 7.9m3 (50bbl) seawater spacer. Mixed and pumped 7.9m3 (50bbl) lead cement slurry at 1.5sg [127sx Class 'G' cement with 6.0m3 (38bbl) seawater, 200lt D075 extender and 11lt D047 antifoam]. Mixed and pumped 10.0m3 (63bbl) tail cement slurry at 1.9sg [305sx Class 'G' cement with 5.7m3 (36bbl) drillwater, 174lt D193 fluid loss additive and 23lt D047 antifoam.] |
| 3:45 | 1.25 | C12 | CLR | P | Released top dart and pumped drillwater to shear out top plug. Observed plug release with 12.4MPa (1800psi) after 0.8m3 (5bbl) drillwater. [Theoretical volume of 0.43m3 (2.8bbl)]. Continued displacement of cement with mud using Dowell unit. Pumped a total of 29.2m3 (183.5bbl) mud. Top plug did not bump. Theoretical displacement 28.6m3 (180bbl) mud (caliper). Shoetrack volume 0.75m3 (4.7bbl). Observed pressure increase from 2.1 to 4.5MPa (300 to 650psi) during displacement indicating cement column with top @450m. Final circulating pressure 3.3MPa (480psi). Mudloggers observed total of 0.8m3 (5bbl) losses during cement job. Checked floats holding - ok. |
| 5:00 | 1.50 | C12 | CLR | P | Rigged down cement line and cement head control lines. Pulled out of hole with 244mm (9 5/8") casing hanger running tool. Laid out cement plug basket and running tool. Laid out Dowell cement head. |
| 6:30 | 1.00 | C12 | CLR | P | |
| 7:30 | 1.00 | C12 | CLR | P | Ran in hole with mill and flush tool to top of hanger at 64.8m. Flushed hanger seal area. Pulled out of hole and laid out mill and flush tool. |
| 8:30 | 2.00 | C12 | CLR | P | Ran in hole with seal assembly and running tool. Set seal assembly. Pressure tested seal assembly to 34.5MPa (5000psi) -ok. |
| 10:30 | 3.00 | C12 | BPT | P | Pressure tested lower, middle and variable pipe rams to 2.1MPa (300psi) / 5min and 17.2MPa (2500psi) / 10min. Pressure tested upper and lower annular to 2.1MPa (300psi) / 5min and 17.2MPa (2500psi) / 10min. |
| 13:30 | 0.50 | C12 | BPT | P | Pulled out of hole with seal assembly running tool and laid out. |
| 14:00 | 1.00 | C12 | BPT | P | Ran 244mm (9 5/8") wear bushing. |
| 15:00 | 0.50 | C12 | BPT | P | Made up emergency drillpipe hang off tool. |
| 15:30 | 2.50 | C12 | BPT | P | Pressure tested standpipe, mud hose, swivel packing, IBOPs and Geospan equipment to 17.2MPa (2500psi) / 10min and 1.7MPa (250psi) / 5min. |
| 18:00 | 4.50 | C12 | CLR | P | Laid out 311mm (12 1/4") BHA. Broke out bit [Hughes MX-1 graded 1-2-WT-G-E-I-NO-TD]. Laid out mud motor and MWD. |
| 22:30 | 0.50 | D09 | DRT | P | Cleared rig floor. Picked up 5 stands 127mm (5") DP. |

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 12

Report Date: 29/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|-------------|------------|-------------|----------------------|-------------------------|------------|--------------|------------------------------|
| 36" | 66.30 | 69.00 | | | | Open Hole | |
| 36" | 66.30 | 69.00 | | | | Casing | 914.40 |
| 36" x 17.5" | 69.00 | 101.00 | | | | Casing | |
| 17.5" | 101.00 | 427.00 | 762.00 | 99.50 | | Casing | |
| 12.25" | 427.00 | 839.00 | 339.73 | | | Casing | 311.15 |

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------|-----------------|------------|---------|----------|------------------|
| AQUADRILL | 1160 | 23.0 | 11.49 | 5.00 | |

CASING

| | | |
|--------------|--------------|-------------------------------|
| Last Casing: | Next Casing: | Last BOP: 29/03/2005 23:30:52 |
|--------------|--------------|-------------------------------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|----------------|-----------|------------|------------------------|
| 3 | 444.50 | HUGHES | MX-1 | N | 1-1-5 | 6031400 | 1X14.3, 2X15.9 | 101.00 | 427.00 | 1.-1.-WT-A-1- I-NO-TD |
| 1 | 914.40 | VAREL | L3A | N | 1-1-1 | 16HC10144 | 7X21.4 | 41.90 | 44.60 | 0.-0.-NO-A-0- I-NO-BHA |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | 0.0 | | 0.00 | | | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | | 0.0 | | 0.00 | | | 0.00 | 6.50 | 326.00 | 15.29 |

OHSE Report

| Daily | | | | Cumulative | | | |
|--------|----|------------------|-------|------------|--|--|--|
| LTI's: | 0 | Incident Reports | 1.00 | 5.00 | | | |
| TRCs: | 0 | Stop/Start Cards | 16.00 | 136.00 | | | |
| DSLTI | 11 | Stop/Start Tours | 0.00 | 2.00 | | | |

Safety Comments

Incident raised to determine cause of top top plug not bumping on 244mm (9 5/8") cement job.

PERSONNEL DATA

| Company | No. People | Company | No. People |
|----------------------|------------|------------------|------------|
| DOWELL | 2 | BHI | 2 |
| FUGRO ROV | 3 | WEATHERFORD | 4 |
| HALLIBURTON SERVICES | 1 | SPERRY SUN | 12 |
| DIAMOND Offshore | 58 | DRILQUIP | 1 |
| BAKER ATLAS | 2 | WOODSIDE | 5 |
| | | Total POB | 90 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|--------------|-----------|-------|--------------|-----------------|-----------|-------|--------------|
| GEL, FRESH | t | 0.0 | 26.7 | WATER, DRILLING | m3 | 36.1 | 940.8 |
| CEMENT | t | 20.6 | 128.4 | BARITE BULK | t | 0.0 | 173.0 |
| FUEL | m3 | 15.9 | 629.6 | WATER, POTABLE | m3 | 31.2 | 299.2 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Portland | 29/03/2005 | |
| Pacific Wrangler | Standby | 26/03/2005 | |



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)

Report No#: 12
Report Date: 29/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|--------------------|-----------------------|-------------|--------------|--------------|--------------|-------------|---------------------|
| 68.00 | 5.14 | 0.610 | 0.610 | 0.50 | 0.30 | 0.30 | 13.00 |

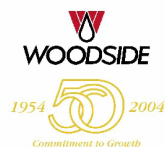
REMARKS

1. Incident raised to determine cause of top top plug not bumping on 244mm (9 5/8") cement job. 2. CAR progress: completed 78 of 102 actions. 3. Award vouchers given to driller for shutting in well, and Drilquip hand for proactive use of equipment checklist. 4. Completed rig up and pressure testing of Geospan unit.

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 13 **Report Date: 30/03/2005**

Block: VicP37(v) Rig: Ocean Patriot Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 12.31 | MD (m): | 863.00 | Supervisor: | S Job |
| DFS: | 8.52 | Planned Depth (m): | 1,920.00 | Engineer: | D Clarke |
| Budget Days: | 31.95 | TVD (m): | 862.50 | Rig OIM: | S Defreitas |
| Progress Days: | 12.00 | Progress (m): | 24.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 18,351,000.00 (\$) | | | | |
| Cumulative Total: | 8,805,425.00 (\$) | | | | |

Ops 00:00 to 06:00: Repaired TDS oil leak at oil filter hose connection. Drilled 216mm (8 1/2") hole from 842m to 1064m. Kicked off at 890m. Average ROP 49m/hr.

Ops Summary (24 Hrs): Picked up 20 stands 127mm (5") DP. Made up 216mm (8 1/2") BHA. Ran in hole. Tagged top plug at 814m. Drilled plugs and shoetrack. Cleaned out rathole. Drilled 3m of new formation. Conducted LOT to 2.13sg EMW. Drilled 216mm (8 1/2") hole from 842m to 863m.

Ops Lookahead: Drill 216mm (8 1/2") hole to core point. Pull out of hole. Run in hole with coring assembly.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|---|
| 0:00 | 4.00 | D09 | DRT | P | Picked up 5 stands 127mm (5") DP. |
| 4:00 | 3.00 | D09 | DRT | P | Made up 216mm (8 1/2") BHA. Made up 3 stands 165mm (6 1/2") DC's and stand of jars. While making up BHA, pressure tested 244mm (9 5/8") casing against shear rams to 17.2MPa (2500psi) for 1 hour - ok. As there was the possibility of a wet shoe, increased pressure to 2500psi incrementally at 16lt/min (0.1bpm) so as not to potentially damage formation. |
| 7:00 | 0.25 | D09 | DRT | D | Helicopter on deck. Waited on crane. |
| 7:15 | 5.75 | D09 | DRT | P | Continued to make up 216mm (8 1/2") BHA. Made up bit [Security DBS FMF 553, 5x17 nozzles] and Geopilot rotary steerable tool. Made up MWD/FEWD. Loaded radioactive source. Made up PBL sub. Surface tested MWD/FEWD - ok. |
| 13:00 | 1.00 | D09 | DRT | P | Ran in hole with 216mm (8 1/2") BHA on DP from 291m. Washed down and tagged top plug at 814m. Top plug located on float collar - did not seal during 244mm (9 5/8") cement job. |
| 14:00 | 3.00 | D09 | DRS | P | Drilled out plugs from 814m to 815m and float collar. Experienced pack-off around Geopilot during drilling plugs. Cleaned out shoetrack. Tagged cement inside shoetrack at 833m. Drilled firm cement from 833m to 834m. Cleaned out rathole from 834m to 839m. |
| 17:00 | 1.50 | D09 | DRS | P | Drilled 3m of new formation from 839m to 842m. |
| 18:30 | 1.50 | D09 | PRE | P | Conducted leak off test below 244mm (9 5/8") casing shoe to 2.13sg EMW using 1.16sg mud. Final pressure 7.9MPa (1145psi), pumped 190lt (1.2bbl), bled back 190lt (1.2bbl). |
| 20:00 | 3.00 | D09 | DRS | P | Drilled 216mm (8 1/2") hole from 842m to 863m. Average ROP 7m/hr [WOB 2.3-3.6t (5-8klb), rpm 60-110, TQ 0.27-0.54kdaNm (2-4kft.lb), SPP 18.3MPa (2650psi), Flow 2.8m3/min (720gpm)]. Drilled with reduced parameters until stabilisers clear of 244mm (9 5/8") shoe. |
| 23:00 | 1.00 | D09 | REP | D | Pulled out of hole from 863m to 834m to repair top drive oil leak. Tightened top drive oil filter hose fitting. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|-------------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
| 36" | 66.30 | 69.00 | | | | Open Hole | |
| 36" | 66.30 | 69.00 | | | | Casing | 914.40 |
| 36" x 17.5" | 69.00 | 101.00 | | | | Casing | |
| 17.5" | 101.00 | 427.00 | 762.00 | 99.50 | | Casing | |
| 12.25" | 427.00 | 839.00 | 339.73 | | | Casing | 311.15 |

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------|--------------------|---------------|------------|-------------|---------------------|
| AQUADRILL | 1230 | 23.0 | 11.49 | 8.00 | |

CASING

| | | |
|--------------|--------------|-------------------------------|
| Last Casing: | Next Casing: | Last BOP: 29/03/2005 01:19:38 |
|--------------|--------------|-------------------------------|

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-1 (Black Watch)



Report No#: 13

Report Date: 30/03/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------------------------|-----------|------------|------------------------|
| 3 | 444.50 | HUGHES | MX-1 | N | 1-1-5 | 6031400 | 1X14.3, 2X15.9 7X21.4 | 101.00 | 427.00 | 1.-1.-WT-A-1- I-NO-TD |
| 1 | 914.40 | VAREL | L3A | N | 1-1-1 | 16HC10144 | | 41.90 | 44.60 | 0.-0.-NO-A-0- I-NO-BHA |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| 863.00 | 17.8/44.5 | 120 | 2.7634 | 18,615.8 | 2,873.8 | 15.4 | 132.41 | 5.50 | 54.00 | 9.82 | 5.50 | 54.00 | 2.99 |

OHSE Report

| | Daily | | Cumulative | |
|--------|-------|------------------|------------|--------|
| LTI's: | 0 | Incident Reports | 0.00 | 5.00 |
| TRCs: | 0 | Stop/Start Cards | 8.00 | 144.00 |
| DSLTI | 11 | Stop/Start Tours | 0.00 | 2.00 |

Safety Comments

PERSONNEL DATA

| Company | No. People | Company | No. People |
|-------------|------------|----------------------|------------|
| SPERRY SUN | 12 | DRILQUIP | 0 |
| WEATHERFORD | 0 | WOODSIDE | 7 |
| FUGRO ROV | 3 | DIAMOND Offshore | 58 |
| BHI | 2 | HALLIBURTON SERVICES | 2 |
| DOWELL | 2 | BAKER ATLAS | 3 |
| | | Total POB | 89 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|----------------|-----------|-------|--------------|-----------------|-----------|-------|--------------|
| BARITE BULK | t | 10.3 | 162.7 | WATER, DRILLING | m3 | 11.4 | 1,025.4 |
| WATER, POTABLE | m3 | 32.4 | 300.7 | GEL, FRESH | t | 0.0 | 26.7 |
| FUEL | m3 | 4.0 | 625.6 | CEMENT | t | 0.0 | 128.4 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------------------|--------------|----------------|
| Far Grip | En route to Portland | 29/03/2005 | |
| Pacific Wrangler | Standby | 26/03/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 68.00 | 5.14 | 1.219 | 1.219 | 0.30 | 0.30 | 0.30 | 14.00 |

REMARKS

1. Survey: 851.51m, 5.10°inc, 204.41°az. 2. Proximity sensors being added to pipe racking arm to address incident #2. 3. Commenced weighting up to 1.25sg prior to entering Pebble Point formation. 4. AAR's for 36"/30", BOP running, 13-3/8" and 9-5/8" casing completed. 5. Reviewed well control and stuck pipe response with drill crews, mudloggers and FEWD. 6. Security DBS completed coring equipment checklist.

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-2

Report No#: 24**Report Date: 10/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot/

Start Date: 18/03/2005

| | | | | | |
|--------------------------------------|-------|--------------------|--------|-------------|-------------|
| DOL: | 23.31 | MD (m): | 889.00 | Supervisor: | D Thorpe |
| DFS: | 19.52 | Planned Depth (m): | | Engineer: | A Clennett |
| Budget Days: | 37.07 | TVD (m): | 889.00 | Rig OIM: | S Defreitas |
| Progress Days: | 24.08 | Progress (m): | 82.00 | RT-SL (m): | 21.50 |
| AFE Cost: 21,489,000.00 (\$) | | | | | |
| Cumulative Total: 13,383,466.00 (\$) | | | | | |

Ops 00:00 to 06:00: Directionally drilled 216mm (8.5in) hole from 889m to 1059m [ROP 28m/hr, 110rpm, 1-4 Mt (2-10klbs), 22,060kPa (3200psi), 0.3-0.6 daNm (2-4kft.lbs)]. Last survey at 1055.56m, 12.32deg az, 353.37deg az, 1053.96mTVD.

Ops Summary (24 Hrs): POOH and racked back 89mm (3.5in) stinger. Pressure tested standpipe manifold, IBOP's, Geospan unit. Made up 216mm (8.5in) rotary steerable BHA, RIH and tagged cement at 808m. Drilled out cement and sidetracked to DW2 well at 853m. Drilled to 889m.

Ops Lookahead: RIH with 216mm (8.5in) rotary steerable BHA and sidetrack to DW2 well.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|---|
| 0:00 | 1.00 | AH | CSR | P | POOH and racked back 89mm (3.5in) PH6 tubing stinger. Laid out mule shoe. Tubing racked fwd side of derrick in front of 127mm (5in) drillpipe due to BHA blocking aft side. |
| 1:00 | 1.00 | AH | RUD | P | Changed handling equipment from 89mm (3.5in) air operated elevators to manual elevators. Broke out and laid down cement head assembly. |
| 2:00 | 2.00 | AH | BPT | P | Pressure tested surface lines, FOSV, swivel packing, mud hose and standpipe manifold to 2,070/34,500kPa (300/5000psi) for 5/10minutes. |
| 4:00 | 0.50 | AH | BPT | D | Upper IBOP not testing. Nipped down test line / sub assembly and lowered pipe handler to floor level to eliminate the need for manrider operation. Greased and functioned IBOP. |
| 4:30 | 0.50 | AH | BPT | P | Pressure tested surface lines and 2 x topdrive IBOP valves to 2,070/34,500kPa (300/5000psi) for 5/10 minutes. |
| 5:00 | 1.50 | AH | BPT | D | Attempted to pressure test new Geospan unit via standpipe manifold. #1 standpipe manifold valve body seal failed. Attempted to repair. |
| 6:30 | 1.00 | AH | PRE | P | Isolated standpipe valve #1 and pressure tested new Geospan unit valve assembly to 2,070/34,500kPa (300/5000psi) for 5/10minutes. |
| 7:30 | 3.00 | PS | DRT | P | Commenced Halladale-1 DW2 Operations. ----- ----- Laid out FEWD assembly from derrick and made up new 216mm (8.5in) Geopilot rotary steerable BHA - PDC bit (Smith MA89BCTVPX), Geopilot and FEWD assembly. |
| 10:30 | 2.00 | PS | DRT | P | Downloaded and initialised FEWD and loaded radioactive sources. |
| 12:30 | 1.50 | PS | DRT | P | RIH with 216mm (8.5in) BHA to 293m. Changed out jars. Shallow tested MWD and Geopilot. Tested OK. |
| 14:00 | 1.00 | PS | CSR | D | Rigged up 89mm (3.5in) air actuated elevators and moved 89mm (3.5in) PH6 tubing from fwd to aft side of derrick. Rigged down 89mm (3.5in) air actuated elevators |
| 15:00 | 1.50 | PS | DRT | P | Continued to RIH with 216mm (8.5in) BHA on 127mm (5in) drillpipe to above theoretical TOC. Washed down with 1.9m3/min (500gpm) and tagged TOC at 808m. |
| 16:30 | 0.50 | PS | DRT | P | Staged up pumps to break in Geopilot seals. |
| 17:00 | 0.50 | D09 | DCP | P | Established parameters, washed down at 2.8m3/min (600gpm), 50rpm and drilled cement from 808m to 818m 2.3-2.8m3/min (600-750gpm). Packed off, picked up 2m off bottom to clear. |
| 17:30 | 0.50 | D09 | REP | D | Loss of 6900kPa (1000psi) pressure. Trouble shot cause. Identified pump # 3 pop-off failed and pump #1 SCRs shutdown. Fixed pumps. |
| 18:00 | 2.50 | D09 | DCP | P | Drilled out cement in 244mm (9.625in) casing shoe and rathole. Hard cement. Drilled cement from 808m to 818m [5-8m/hr, 2.3-2.8m3/min (600-750gpm), WOB 4-8Mt (10-20klbs), 13,800kPa (2000psi), TQ 2000ft.lbs]. Picked up 2m off bottom when packing off occurred. |
| 20:30 | 2.00 | D09 | DRS | P | Continued to drill cement attempting to follow DW1 wellbore geometry to 864m. Hard cement. Confirmed sidetrack to DW2 with survey at 853m and 100% formation in cuttings. |
| 22:30 | 1.50 | D09 | DRS | P | Directionally drilled DW2 to 889m. [ROP 22m/hr, WOB 1.4-6.8 Mt (3-15 klbs), 110rpm, 20,000kPa (2900psi)]. Survey at 881m 3.31deg inc, 227.59 deg azimuth, 881m TVD, 0.84m from planned wellpath. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (in) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (in) |
|------------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
| 8.5in hole | 853.00 | 889.00 | 9.625 | 834.00 | | Open Hole | 8.500 |

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-2

Report No#: 24
Report Date: 10/04/2005

Block: VicP37(v)

Rig: Ocean Patriot/

Start Date: 18/03/2005

DRILLING FLUIDS

| Mud Type | Density (sg) | PV (cp) | YP (lbf/100ft ²) | 6RPM (°) | Pump Liners (in) |
|-----------|--------------|---------|------------------------------|----------|------------------|
| AQUADRILL | 1.250 | 34.0 | 27.0 | 6.00 | |

CASING

| | | |
|--------------|--------------|-------------------------------|
| Last Casing: | Next Casing: | Last BOP: 9/04/2005 7:40:08PM |
|--------------|--------------|-------------------------------|

BITS TODAY

| Bit Number | Size (in) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (32nd") | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|--------------|-----------|------------|-----------------|
| | | | | | | | | | | |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|-------------------|-------------------|-----------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kip) | Current RPM (rpm) | Flow Rate (gpm) | SPP (psi) | P Bit (psi) | % @ Bit | HHP (hp) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| Daily | | | | | Cumulative | | | |
|--------|----|------------------|--|-------|------------|--------|--|--|
| LTI's: | 0 | Incident Reports | | 0.00 | | 6.00 | | |
| TRCs: | 0 | Stop/Start Cards | | 18.00 | | 252.00 | | |
| DSLTI | 24 | Stop/Start Tours | | 1.00 | | 14.00 | | |

Safety Comments

PERSONNEL DATA

| Company | No. People | Company | No. People |
|------------------|------------|----------------------|------------|
| DIAMOND Offshore | 59 | DFE | 0 |
| BHI | 2 | BAKER ATLAS | 5 |
| WOODSIDE | 6 | FUGRO ROV | 2 |
| DOWELL | 3 | UPSTREAM | 1 |
| DRILQUIP | 0 | HALLIBURTON SERVICES | 0 |
| SPERRY SUN | 12 | WEATHERFORD | 0 |
| | | Total POB | 90 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|--------------|-----------|-------|--------------|
| WATER, POTABLE | m3 | 29.8 | 271.0 | GEL, FRESH | t | 0.0 | 26.7 |
| FUEL | m3 | 12.4 | 486.7 | BARITE BULK | t | 0.0 | 145.6 |
| WATER, DRILLING | m3 | 41.7 | 607.9 | CEMENT | t | 0.0 | 90.9 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Pacific Wrangler | Standby | 8/03/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (knots) | Wave (ft) | Swell (ft) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|----------------------|-----------|------------|-----------|-----------|----------|------------------|
| 70.00 | 12.0 | 0.70 | 6.50 | 0.30 | 0.50 | 0.50 | 14.00 |

REMARKS

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-2**Report No#: 24****Report Date: 10/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot/

Start Date: 18/03/2005

HSE Remarks:

1. Held weekly muster drill: Fire in cement unit, injured party requiring rescue. Good response, used scribe (recommendation from earlier Cat C exercise), identified required improvement in area - modification implemented within 12 hours.
2. Held weekly safety meetings. Topics included: Time Out for Safety (Presented by Woodside Day and Night WSMs), Fire Drill, Fixed Fire Fighting Systems, MSDS sheets.
3. During troubleshooting of topdrive IBOP valve lowered the pipe handler to floor level to avoid manrider operations.
2. Closed out additional item on CAR, 8 of 103 items remain.

General remarks:

1. MW increased from 1.25sg to 1.26sg after addition of KCl.
2. Baker Atlas continued to service RCI tools. Plan to string test primary tool 11/4/05.



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-2

Report No#: 25

Report Date: 11/04/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|-------------|
| DOL: | 24.31 | MD (m): | 1,393.00 | Supervisor: | D Thorpe |
| DFS: | 20.52 | Planned Depth (m): | 1,926.00 | Engineer: | A Clennett |
| Budget Days: | 37.07 | TVD (m): | 1,370.60 | Rig OIM: | S Defreitas |
| Progress Days: | 25.35 | Progress (m): | 504.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 13,974,815.00 (\$) | | | | |

Ops 00:00 to 06:00: Continued drilling 216mm (8.5in) hole from 1393m to 1401m, varying parameters to improve ROP. Spotted 20bbl caustic pill (3ppb) to clear possible bit balling. ROP improvement. Drilled to 1410m. Repaired loose bolts from elevators while working stand.

Ops Summary (24 Hrs): Directionally drilled 216mm (8.5in) hole from 889m to 1393m.

Ops Lookahead: Drill 216mm (8.5in) hole to core point. POOH. RIH with coring BHA. Cut core and POOH. RIH with rotary assembly and drill to TD. POOH. Rig up and run wireline logs.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|---|
| 0:00 | 12.50 | D09 | DRS | P | Directionally drilled 216mm (8.5in) hole from 889m to 1190m [ROPs 5-130m/hr, average ROP 24m/hr, 80-150 rpm, WOB 3-18Mt (7-40 klbs), TQ 2.3-11.0 kNm, 17.1-21.2 MPa (2470-3200psi), 2.3-2.8m ³ /min (600-750gpm)]. Evidence of bit and BHA encountering ledges. Blocked nozzle at 1170m. |
| 12:30 | 0.50 | D09 | REM | P | Pack-off at 1190m. Cleared pack-off, pressure reduced, indicating blocked nozzle had cleared. |
| 13:00 | 11.00 | D09 | DRS | P | Continued drilling from 1190m to 1393m [ROPs 5-130m/hr, average ROP 18m/hr, 80-150 rpm, WOB 3-18Mt (7-40 klbs), TQ 2.3-11.0 kNm, 17.1-20.8 MPa (2470-3050psi), 2.3-2.8m ³ /min (600-750gpm)]. Hard drilling encountered from 1386m varied parameters to improve ROP. Last survey: 1368.83m 22.99inc 346.35az 1347.86mTVD Wellpath 1.4m right and 5m behind planned wellpath. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|------------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
| 8.5in hole | 853.00 | 1,393.00 | 244.47 | 834.00 | | Open Hole | 215.90 |

DRILLING FLUIDS

| Mud Type | Density (kg/m ³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------|---------------------------------|---------------|------------|-------------|---------------------|
| AQUADRILL | 1250 | 41.0 | 19.15 | 8.00 | |

CASING

| | | |
|-----------------------------------|--------------|------------------------------|
| Last Casing: 244.47 mm @ 834.00 m | Next Casing: | Last BOP: 9/04/2005 19:11:46 |
|-----------------------------------|--------------|------------------------------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|---------------|--------------|--------------|----------|-------|-----------|-----------|--------------|--------------|---------------|-----------------|
| | | | | | | | | | | |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|---------------------|-------------------------|---------------------------------------|--------------|----------------|---------|-------------|---------------|----------------|---------------|----------------------|--------------------|----------------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m ³ /min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| Daily | | | | Cumulative | | | |
|--------|----|------------------|-------|------------|--|--|--|
| LTI's: | 0 | Incident Reports | 0.00 | 6.00 | | | |
| TRCs: | | Stop/Start Cards | 16.00 | 268.00 | | | |
| DSLTI | 25 | Stop/Start Tours | 1.00 | 15.00 | | | |

Safety Comments



Woodside Energy
Daily Offshore Report
Well: Halladale-1 DW-2

Report No#: 25**Report Date: 11/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

PERSONNEL DATA

| Company | No. People | Company | No. People |
|----------------------|------------|------------------|------------|
| DIAMOND Offshore | 59 | FUGRO ROV | 2 |
| BAKER ATLAS | 5 | UPSTREAM | 0 |
| SPERRY SUN | 12 | DRILQUIP | 0 |
| HALLIBURTON SERVICES | 2 | DFE | 0 |
| WEATHERFORD | 0 | WOODSIDE | 7 |
| BHI | 2 | DOWELL | 1 |
| | | Total POB | 90 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|--------------|-----------|-------|--------------|
| BRINE | m3 | | 0.0 | CEMENT | t | | 90.9 |
| WATER, DRILLING | m3 | 49.4 | 558.5 | GEL, FRESH | t | 0.0 | 26.7 |
| BARITE BULK | t | 0.0 | 145.6 | FUEL | m3 | 14.0 | 472.7 |
| WATER, POTABLE | m3 | 25.6 | 280.4 | | | | |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|--|--------------|----------------|
| Pacific Wrangler | Standby | 8/03/2005 | |
| Far Grip | Arrived 18:00 from Thylacine location. | 11/04/2005 | |

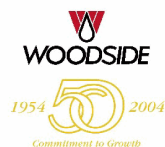
WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|--------------------|-----------------------|-------------|--------------|--------------|--------------|-------------|---------------------|
| 70.00 | 5.14 | 0.030 | 1.981 | 0.30 | 0.50 | 0.60 | 15.00 |

REMARKS

HSE Remarks: 1. Installed additional tugger line sheave in derrick to improve clearance (action item from tugger line incident report) 2. 16 stop cards, 1 WEL, 1 TPC, 14 DODI. 3. Stop tour: mixing and pumping and dumping of Caustic pill - correct PPE being used (rubber gloves, face shield, apron) 4. Permit to work audit on welding of a 4in line in cement room. 5. Pacific Wrangler reported a hairline fracture on fast rescue craft onload release hook.

General Remarks: 1. Completed string test of primary RCI tool. PMs ongoing for backup tool. 2. Far Grip retrieved weather buoy from Thylacine location and returned to running standby. 3. Fugro conducted Bullseye dive: Flex Joint: mobile between 0.25 and 0.75 deg at -30 deg. 4. Smith MA89BCTVPX drilling with reduced ROP's 21m/hr in comparison to DW1 offset where a Security FMF3553 drilled the equivalent section at an average ROP of 35m/hr. 5. 8.5in Geopilot BHA consisting of: 8.5in PDC Bit MA89BCTVPX (6x16 nozzles) 6.75in Geo-Pilot 7600 NM Flex Pony collar 8.375in Feed Thru NM Stab 6.75in RLL w DGR +EWR 6.75in XHCIM 6.75in SLD + CNP 6.75in BAT Sonic 6.75in P4M 6.75in Float sub with ported float 8.375in 3-Point roller reamer PBL Circulating Sub 6.5in Drill Collars 6.5in Jar 6 x 6.5in Drill Collars 5" HWDP 5" DP S135, 19.5ppf Stabilisers located: 4.63m, 10.74m, 17.92m, 21.95m behind bit Roller reamer located 40m behind bit.



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3

Report No#: 35**Report Date: 21/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

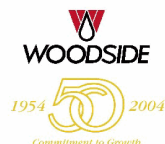
| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|------------|
| DOL: | 34.31 | MD (m): | 1,180.00 | Supervisor: | D Thorpe |
| DFS: | 30.52 | Planned Depth (m): | 1,960.00 | Engineer: | A Clennett |
| Budget Days: | 37.07 | TVD (m): | 1,173.00 | Rig OIM: | S Barry |
| Progress Days: | 31.36 | Progress (m): | 0.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 18,329,925.00 (\$) | | | | |

Ops 00:00 to 06:00: Dressed off cement from 1180m to 1182m. Commenced kick-off. Drilled hard cement from 1182m to 1197m. Confirmed well sidetracked to DW3 at 1197m. Drilled 216mm (8.5in) hole from 1197m to 1265m. Survey:1253.28m, 19.60inc, 353.21az, 1241.84mTVD.

Ops Summary (24 Hrs): Set Plug 2 from 1691m to 1441m. POOH to 1441m, circ. 1.5 x BU. Set Plug 3 (kick-off plug) from 1441m to 1191m. 9bbl losses. POOH to 834m. WOC. RIH. Tagged TOC at 1179m. POOH. RIH with 216mm (8.5in) rotary steerable BHA. Dressed cement to 1180m.

Ops Lookahead: Drill 216mm (8.5in) hole to TD. POOH. Rig up wireline and RIH Run 1 RCI (pressures).

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|--|
| 0:00 | 0.50 | AH | SCP | P | Picked up cement stand and spaced out. Installed surface lines. |
| 0:30 | 1.00 | AH | SCP | P | Set balanced cement Plug 2 from 1691m to 1441m: Pumped 0.8 m3 (5 bbls) drill water spacer, pressure tested cement lines 17.2 MPa (2500psi); pumped remaining 2.4m3 (15bbls) drillwater spacer; pumped 11.3m3 (71bbls) [calipered hole volume + 10% excess] 1.9sg cement slurry at 0.75m3/min (4.7bpm); chased with 0.9m3 (5.7bbl) drillwater spacer; displaced cement with 10.5m3 (66.3bbl) mud. Final circulating pressure 5.2MPa (750psi). No losses recorded for job. |
| 1:30 | 0.50 | AH | CSR | P | Broke off surface line. Checked for backflow - OK. Broke off cement stand and racked back. POOH with cement stinger from 1691m to 1441m. |
| 2:00 | 1.00 | AH | PCD | P | Circulated at 2.8m3/min (750gpm). Spacer and trace cement in returns at bottoms up. Dumped 20bbls drillwater spacer and 40bbls of cement contaminated mud. Circulated until even 1.26sg mudweight in/out (1.5 x bottoms up). |
| 3:00 | 0.50 | AH | SCP | P | Picked up cement stand and spaced out. Installed surface lines. |
| 3:30 | 1.00 | AH | SCP | P | Set balanced cement Plug 3 (kick off plug) from 1441m to 1191m: Pumped 0.8 m3 (5 bbls) drill water spacer, pressure tested cement lines 17.2 MPa (2500psi); pumped remaining 2.4m3 (15bbls) drillwater spacer; pumped 10.6m3 (66.6bbls) [calipered hole volume + 10% excess] 1.9sg cement slurry at 0.64m3/min (4 bpm); chased with 0.9m3 (5.8bbl) drillwater spacer; displaced cement with 8.3m3 (52.0bbl) mud. Final circulating pressure 4.8MPa (700psi). 1.43m3 (9 bbl) losses recorded for job. |
| 4:30 | 0.50 | AH | CSR | P | Broke off surface line. Checked for backflow - OK. Broke off cement stand and racked back. POOH with cement stinger from 1441m to 1130m. |
| 5:00 | 1.00 | AH | PCD | P | Circulated at 2.8m3/min (750gpm). Spacer and trace cement in returns at bottoms up. Dumped 20bbls drillwater spacer and 45bbls of cement contaminated mud. Circulated until even 1.26sg mudweight in/out (1.5 x bottoms up). |
| 6:00 | 1.00 | AH | CSR | P | POOH with cement stinger from 1130m to 244mm (9.625in) casing shoe at 834m. Flow checked (static). |
| 7:00 | 0.50 | AH | BPT | P | Function tested BOPs and flushed choke and kill lines to clear BOPs of possible cement. |
| 7:30 | 1.50 | AH | RUD | U | Laid down nearbit stabiliser and FEWD pulser hang off collar. Made up new hang-off collar and checked float - OK. Racked back BHA. |
| 9:00 | 1.50 | AH | CSR | U | RIH with cement stinger from 834m to 1179m. Washed down and tagged cement with 4.5Mt (10klbs) at 1179m. |
| 10:30 | 1.00 | AH | CSR | U | Flow checked (static). POOH with cement stinger from 1179m to 834m. Flow checked (static). |
| 11:30 | 1.50 | AH | CSR | P | Continued to POOH with cement stinger from 834m to 320m. |
| 13:00 | 1.50 | AH | CSR | P | Changed to 89mm (3.5in) PH6 tubing handling gear and racked back 11 stands of cement stinger in derrick. Laid out diverter sub. Rigged down 89mm (3.5in) PH6 tubing handling gear and rigged up 127mm (5in) handling gear. |
| 14:30 | 0.50 | AH | CSR | P | Held JSA. Broke out cement stand (FOSV, Side Entry Sub, FOSV), made up drillpipe stand and racked back. |
| 15:00 | 1.00 | D09 | RUD | P | -----Commenced DW3 operations----- |
| 16:00 | 0.50 | D09 | DRT | P | Made up 216mm (8.5in) rotary steerable assembly. Installed new PDC bit (FMF3553). Commenced initialisation of FEWD. |
| 16:30 | 1.50 | D09 | DRT | D | Troubleshoot problems downloading to FEWD. Download corrupting at end of transfer. Changed computers. |
| 18:00 | 0.50 | D09 | DRT | P | Completed download of FEWD. Installed radioactive sources. |



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3

Report No#: 35

Report Date: 21/04/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------|------|-----|-----|---|---|
| 18:30 | 1.50 | D09 | DRT | P | RIH with 216mm (8.5in) Geopilot rotary steerable assembly to 319m. Shallow tested FEWD - OK. |
| 20:00 | 1.50 | D09 | DRT | P | RIH with 216mm (8.5in) Geopilot rotary steerable assembly on 127mm (5in) drillpipe from 319m to 244mm (9.625in) casing shoe at 834m. Broke circulation at casing shoe. Serviced topdrive. |
| 21:30 | 0.50 | D09 | MNR | P | |
| 22:00 | 1.00 | D09 | DRT | P | RIH with 216mm (8.5in) Geopilot rotary steerable assembly on 127mm (5in) drillpipe from 834m to 1122m. |
| 23:00 | 1.00 | D09 | DRT | P | Broke circulation and rotated at 80rpm to run in Geopilot bearings. Washed down at 500gpm from 1122m to 1175m and tagged cement with 4.8Mt (10klbs). Dressed off cement from 1175 to 1180m. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|------------|------------|-------------|----------------------|-------------------------|------------|--------------|------------------------------|
| 8.5in hole | 853.00 | 1,941.00 | 244.47 | 834.00 | | Open Hole | 215.90 |

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------|-----------------|------------|---------|----------|------------------|
| AQUADRILL | 1260 | 37.0 | 13.41 | 6.00 | |

CASING

| | | |
|--------------|--------------|------------------------------|
| Last Casing: | Next Casing: | Last BOP: 9/04/2005 03:43:42 |
|--------------|--------------|------------------------------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------|-----------|------------|-----------------|
| | | | | | | | | | | |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| Daily | | | | | Cumulative | | | | |
|--------|----|------------------|-------|--|------------|--|--|--|--|
| LTI's: | 0 | Incident Reports | 0.00 | | 9.00 | | | | |
| TRCs: | 0 | Stop/Start Cards | 13.00 | | 387.00 | | | | |
| DSLTI | 35 | Stop/Start Tours | 2.00 | | 30.00 | | | | |

Safety Comments

PERSONNEL DATA

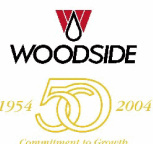
| Company | No. People | Company | No. People |
|----------------------|------------|------------------|------------|
| DRILQUIP | 0 | DOWELL | 2 |
| FUGRO ROV | 2 | SECURITY DBS | 0 |
| HALLIBURTON SERVICES | 0 | ORIGIN ENERGY | 0 |
| DIAMOND Offshore | 57 | SPERRY SUN | 11 |
| BAKER ATLAS | 7 | UPSTREAM | 0 |
| WOODSIDE | 7 | GEO SERVICES | 1 |
| DFE | 0 | WEATHERFORD | 0 |
| BHI | 1 | | |
| | | Total POB | 88 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|--------------|-----------|-------|--------------|--------------|-----------|-------|--------------|
| | | | | | | | |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------|----------|--------------|----------------|
| | | | |



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3

Report No#: 35**Report Date: 21/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|-----------------------|--------------|----------------|
| Far Grip | On location | 20/04/2005 | |
| Pacific Wrangler | Departed for Portland | 17/04/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|--------------------|-----------------------|-------------|--------------|--------------|--------------|-------------|---------------------|
| 69.00 | 5.14 | 0.457 | 2.438 | 1.00 | 0.50 | 0.50 | 14.00 |

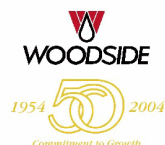
REMARKS

HSE Remarks: 1. Held an "Eco Day" on rig to focus peoples attention on potential eco-hazards that may be missed on a daily basis. 2. Worked on outstanding issues from environmental report: - Additional drip trays manufactured for under riser tensioners. - Sack-store cleaned and better organised, drains plugged off 2. Permit to Work Audits: - on welding in workshop. - on repair of mud pump 1. (Lockouts, PPE). All in compliance. 3. Followed up on a number of stop cards involving untidy housekeeping. 4. Received new fire alarms, pending installation (action from incident report). General Remarks: 1. Backloaded: Baker Atlas wireline tools: seismic unit, gun rack, RCOR; Nodeco cement head. 2. Installed new cable on Baker Atlas wireline unit. 3. Dumped sand traps and prepared new mud for DW3 4. New 8.5in Geopilot Rotary Steerable BHA: 8.5in PDC Bit FMF3553 (3x16, 2 x 17 nozzles) 6.75in Geo-Pilot 7600 NM Flex Pony collar 8.375in Feed Thru NM Stab 6.75in RLL w DGR +EWR 6.75in XHCIM 6.75in SLD + CNP 6.75in BAT Sonic 6.75in P4M 6.75in Float sub with ported float PBL Circulating Sub 12 x 6.5in Drill Collars 6.5in Jar 2 x 6.5in Drill Collars 15 x 5" HWDP 5" DP S135, 19.5ppf

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3



Report No#: 36 **Report Date: 22/04/2005**

Block: VicP37(v) Rig: Ocean Patriot Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|------------|
| DOL: | 35.31 | MD (m): | 1,569.00 | Supervisor: | D Thorpe |
| DFS: | 31.52 | Planned Depth (m): | 1,960.00 | Engineer: | A Clennett |
| Budget Days: | 37.07 | TVD (m): | 1,532.00 | Rig OIM: | S Barry |
| Progress Days: | 31.36 | Progress (m): | 389.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 18,799,217.00 (\$) | | | | |

Ops 00:00 to 06:00: Directionally drilled 216mm (8.5in) hole to 1615m at 8m/hr. Varied parameters to improve ROP [80-180rpm, 4.5-12.7Mt (10-28klbs), 2.5-2.8m3/min (650-750gpm)]. Best performance with 180rpm, reduced flow rate [2.5m3/min (650gpm)], and 11.4-12.7Mt (25-28klb).

Ops Summary (24 Hrs): Sidetracked well to DW3. Drilled new wellpath from 1197m to 1569m, average ROP 15.5m/hr. Survey: 1568.69m 29.91deg inc, 56.92 deg azimuth, 1532.04mTVD.

Ops Lookahead: Drill 216mm (8.5in) hole to TD. POOH. Rig up wireline and RIH Run 1 RCI (pressures).

| From | Dur. (hr) | Phase | Code | Class | Operation |
|------|--------------|-------|------|-------|---|
| 0:00 | 2.50 | D09 | DCP | P | Dressed cement from 1180m to 1181m. Hard cement from 1181m. Oriented 216mm (8.5in) Geopilot rotary steerable assembly and drilled firm cement from 1180m to 1197m [2.3-6.8Mt (10m/hr, 5-15klbs, 2.5-2.8M3/min (650-750gpm), 22.1-23.4MPa (3200-3400psi)]. Confirmed kickoff with 100% formation at 1197m. Kick-off depth confirmed with survey at 1196m. |
| 2:30 | 21.50 | D09 | DRS | P | Directionally drilled 216mm (8.5in) hole from 1197m to 1569m [Parameters - Paaratte: ROP's 7-142m/hr, average on bottom ROP 32m/hr, 140 rpm, WOB 5Mt (12 klbs), TQ 0.48 KdaNm (3.6kft.lbs), 24.6MPa (3570psi), 2.8m3/min (745gpm); Skull Creek: ROP's 2-118m/hr, average on bottom ROP 16.2 m/hr, 134 rpm, WOB 9.1Mt (20 klbs), TQ 0.52 KdaNm (3.9kft.lbs), 25.1MPa (3650psi), 2.8m3/min (739gpm)]. Reduction in ROP's through fault zone into Belfast formation. Varied parameters to increase ROP. [Belfast parameters: average ROP 5m/hr, 90-150rpm, 23.4-26.2MPa (3400-3800psi), 2.5-2.8m3/min (650-750gpm)]. Flow checked at 1499m and 1556m (static). |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|------------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
| 8.5in Hole | 1,196.00 | 1,969.00 | 244.47 | 834.00 | | Open Hole | 215.90 |

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------|--------------------|---------------|------------|-------------|---------------------|
| AQUADRILL | 1250 | 34.0 | 16.28 | 7.00 | |

CASING

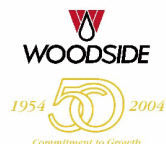
| | | |
|-----------------------------------|--------------|------------------------------|
| Last Casing: 244.47 mm @ 834.00 m | Next Casing: | Last BOP: 9/04/2005 20:47:05 |
|-----------------------------------|--------------|------------------------------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|---------------|--------------|--------------|----------|-------|-----------|-----------|-------------------|--------------|---------------|-----------------|
| 1 | 215.90 | SECURITY DBS | FMF3553 | N | 423 | 107022627 | 2X13.5, 3X12.7 | 1,197.00 | 1,969.00 | ----- |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|---------------------|-------------------------|--------------------------|--------------|----------------|---------|-------------|---------------|----------------|---------------|----------------------|--------------------|----------------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3

Report No#: 36**Report Date: 22/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

OHSE Report

| | | | Daily | Cumulative |
|--------|----|------------------|-------|------------|
| LTI's: | 0 | Incident Reports | 0.00 | 9.00 |
| TRCs: | | Stop/Start Cards | 15.00 | 402.00 |
| DSLTI | 36 | Stop/Start Tours | 0.00 | 30.00 |

Safety Comments**PERSONNEL DATA**

| Company | No. People | Company | No. People |
|--------------|------------|------------------|------------|
| SECURITY DBS | 0 | DIAMOND Offshore | 59 |
| FUGRO ROV | 2 | BAKER ATLAS | 7 |
| DRILQUIP | 0 | SPERRY SUN | 12 |
| DOWELL | 2 | WOODSIDE | 7 |
| BHI | 1 | SMITH | 1 |
| WEATHERFORD | 0 | | |
| | | Total POB | 91 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|--------------|-----------|-------|--------------|
| WATER, POTABLE | m3 | 22.7 | 251.2 | FUEL | m3 | 16.2 | 345.9 |
| WATER, DRILLING | m3 | 154.6 | 643.4 | CEMENT | t | | 118.2 |
| BARITE BULK | t | | 125.9 | BRINE | m3 | | 0.0 |
| GEL, FRESH | t | 0.0 | 26.7 | | | | |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Portland | 20/04/2005 | |
| Pacific Wrangler | Standby | 20/04/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|--------------------|-----------------------|-------------|--------------|--------------|--------------|-------------|---------------------|
| 70.00 | 2.57 | 0.457 | 2.438 | 1.00 | 0.50 | 0.50 | 13.00 |

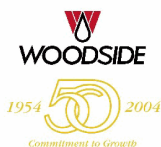
REMARKS

HSE Remarks: 1. 15 stop cards. - Dropped object hazards - Environmental hazards 2. General comment: housekeeping is continually improving after focus over the last week. 3. Permit to work audit on changing liner on Mud Pump 1. 4. Focus on Stepback 5x5 for new crew and job planning. 5. Repatriated second native bird to Wildline refuge organisation. General Remarks: 1. Preparing for Plug and Abandonment and backload. 2. Plug and Abandonment approval recieved for Halladale-1.

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3



Report No#: 37

Report Date: 23/04/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|----------|
| DOL: | 36.31 | MD (m): | 1,775.00 | Supervisor: | D Thorpe |
| DFS: | 32.52 | Planned Depth (m): | 1,960.00 | Engineer: | D Clarke |
| Budget Days: | 37.07 | TVD (m): | 1,710.55 | Rig OIM: | S Barry |
| Progress Days: | 31.36 | Progress (m): | 206.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 19,331,070.00 (\$) | | | | |

Ops 00:00 to 06:00: Drilled 216mm (8.5") hole from 1775m to 1816m. Average ROP 10.2m/hr.

Ops Summary (24 Hrs): Drilled 216mm (8.5") hole from 1569m to 1775m. Average ROP 9m/hr. Survey: 1769.54m, 29.87inc, 53.80az, 1705.94mTVD.

Ops Lookahead: Drill 216mm (8.5in) hole to TD. POOH. Rig up wireline and Run#1 RCI (pressures).

| From | Dur. (hr) | Phase | Code | Class | Operation |
|------|--------------|-------|------|-------|--|
| 0:00 | 24.00 | D09 | DRS | P | Directionally drilled 216mm (8.5") hole from 1569m to 1775m. ROP 5-22m/hr, average on bottom ROP 9 m/hr, 90-160rpm, WOB 6.8-13.6t (15-30klb), TQ 0.5-1.4kdaNm (4-10kft.lb), SPP 25.5MPa (3700psi), Flow 2.7m3/min (720gpm)]. Varied parameters to optimise ROP. Bit whirl detected above 170rpm. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|------------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
| 8.5in Hole | 1,196.00 | 1,969.00 | 244.47 | 834.00 | | Open Hole | 215.90 |

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------|--------------------|---------------|------------|-------------|---------------------|
| AQUADRILL | 1260 | 38.0 | 20.11 | 8.00 | |

CASING

| | | |
|-----------------------------------|--------------|------------------------------|
| Last Casing: 244.47 mm @ 834.00 m | Next Casing: | Last BOP: 9/04/2005 01:41:34 |
|-----------------------------------|--------------|------------------------------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|---------------|--------------|--------------|----------|-------|-----------|-----------|-------------------|--------------|---------------|-----------------|
| 1 | 215.90 | SECURITY DBS | FMF3553 | N | 423 | 107022627 | 2X13.5, 3X12.7 | 1,197.00 | 1,969.00 | ----- |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|----------|---------------------|-------------------------|--------------------------|--------------|----------------|---------|-------------|---------------|----------------|---------------|----------------------|--------------------|----------------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| 1,710.60 | 66.7/133.4 | 110 | 2.7255 | 26,889.6 | 3,247.7 | 12.1 | 147.59 | 24.00 | 141.60 | 5.90 | 24.00 | 141.60 | 1.80 |

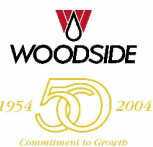
OHSE Report

| Daily | | | | | Cumulative | | | | |
|--------|----|------------------|------|--|------------|--|--|--|--|
| LTI's: | 0 | Incident Reports | 0.00 | | 9.00 | | | | |
| TRCs: | 0 | Stop/Start Cards | 3.00 | | 405.00 | | | | |
| DSLTI | 37 | Stop/Start Tours | 0.00 | | 30.00 | | | | |

Safety Comments

PERSONNEL DATA

| Company | No. People | Company | No. People |
|---------|------------|---------|------------|
|---------|------------|---------|------------|



Woodside Energy
Daily Offshore Report
Well: Halladale-1 DW-3

Report No#: 37**Report Date: 23/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | |
|------------------|----|------------------|-----------|
| DRILQUIP | 0 | SECURITY DBS | 0 |
| DIAMOND Offshore | 59 | SMITH | 0 |
| BHI | 2 | FUGRO ROV | 3 |
| BAKER ATLAS | 7 | WOODSIDE | 7 |
| SPERRY SUN | 12 | WEATHERFORD | 0 |
| DOWELL | 2 | | |
| | | Total POB | 92 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|--------------|-----------|-------|--------------|-----------------|-----------|-------|--------------|
| BRINE | m3 | | 0.0 | WATER, DRILLING | m3 | | 306.4 |
| GEL, FRESH | t | | 26.7 | CEMENT | t | | 118.2 |
| FUEL | m3 | 18.4 | 311.1 | WATER, POTABLE | m3 | 22.5 | 296.1 |
| BARITE BULK | t | | 106.8 | | | | |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Portland | 20/04/2005 | |
| Pacific Wrangler | Standby | 20/04/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|--------------------|-----------------------|-------------|--------------|--------------|--------------|-------------|---------------------|
| 69.00 | 5.14 | 0.610 | 2.012 | 1.00 | 0.50 | 0.50 | 15.00 |

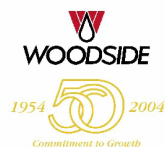
REMARKS

HSE: 1. Continued emphasis on Stepback 5x5 and focussing on the details of the job. General: 1. Changed two swabs and liner on mud pump #1. 2. ABS inspector on rig. Rig passed inspection. Crew commended on quality of work undertaken to remedy deficiencies. 3. Began addition of 10ppb circal to mud system at 1800mMD. 4. Minimum allowable flowrate for MWD 2.27m3/min (600gpm).

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3



Report No#: 38

Report Date: 24/04/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|----------|
| DOL: | 37.31 | MD (m): | 1,969.00 | Supervisor: | D Thorpe |
| DFS: | 33.52 | Planned Depth (m): | 1,960.00 | Engineer: | D Clarke |
| Budget Days: | 37.07 | TVD (m): | 1,881.37 | Rig OIM: | S Barry |
| Progress Days: | 31.36 | Progress (m): | 194.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 19,736,781.00 (\$) | | | | |

Ops 00:00 to 06:00: Backreamed out of hole from 1373m to 834m. Circulated hole clean. Ran back in hole with 216mm (8.5") hole from 832m to 1850m. Worked through tight spot at 1658m.

Ops Summary (24 Hrs): Drilled 216mm (8.5") hole from 1775m to 1969m. Average ROP 12.9m/hr. Re-logged interval from 1922m to 1897m. Ran back to bottom. Circulated hole clean. Pulled out of hole with 216mm (8.5") BHA, backreaming as required. Freed stuck pipe at 1373m.

Ops Lookahead: Circulate hole clean. Pull out of hole with 216mm (8.5") BHA. Rig up wireline and Run#1 RCI (pressures).

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|---|
| 0:00 | 15.00 | D09 | DRS | P | Directionally drilled 216mm (8.5") hole from 1775m to 1969m. ROP 2-12m/hr, average on bottom ROP 7m/hr, 100-110rpm, WOB 11.3-15.9t (25-35klb), TQ 0.8-0.9kdaNm (6-7kft.lb), SPP 23.4-25.5MPa (3400-3700psi), Flow 2.6-2.7m3/min (675-720gpm); ROP 5-15m/hr, average on bottom ROP 11.5m/hr, 150rpm, WOB 10.0-13.6t (22-30klb), TQ 0.7-1.1kdaNm (5-8kft.lb), SPP 23.4-25.5MPa (3400-3700psi), Flow 2.6-2.7m3/min (675-720gpm); ROP 10-30m/hr, average on bottom ROP 18.5m/hr, 150rpm, WOB 1.8-5.0t (4-11klb), TQ 0.8-1.4kdaNm (6-10kft.lb), SPP 25.5MPa (3700psi), Flow 2.7m3/min (720gpm); ROP 10-30m/hr, average on bottom ROP 19.1m/hr, 90-140rpm, WOB 3.6-9.0t (8-20klb), TQ 0.7-1.6kdaNm (5-12kft.lb), SPP 26.2MPa (3800psi), Flow 2.7m3/min (720gpm)]. Drilled hard stringer from 1796-1799, average ROP 2-3m/hr. TD survey 1969.0mMD, 26.20inc, 53.45az, 1881.37mTVD. |
| 15:00 | 0.75 | D09 | TRP | U | Pulled out of hole with 216mm (8.5") BHA from 1969m to 1922m. |
| 15:45 | 0.50 | D09 | PCD | U | Backreamed and re-logged interval from 1922m to 1897m for statistical verification of FEWD data. |
| 16:15 | 0.25 | D09 | TRP | U | Ran in hole with 216mm (8.5") BHA from 1897m to 1969m. |
| 16:30 | 2.00 | D09 | PCD | U | Circulated hole clean with 2.8m3/min (750gpm). Observed thin splintery cavings at shakers on bottoms up, indicating tectonically stressed formation. Increased mud weight to 1.28sg and continued circulating until shakers clean. Circulated total of 4 times bottoms up. |
| 18:30 | 1.00 | D09 | TRP | U | Backreamed out of hole with 216mm (8.5") BHA from 1969m to 1887m. |
| 19:30 | 1.50 | D09 | TRP | U | Observed 1.3t (25klb) overpull at 1887m. Backreamed out of hole from 1887m to 1696m working each stand. Pulled out of hole on elevators from 1696m to 1500m. Observed 13.6t (30klb) overpull at 1500m. Drilling data shows a drilling break and flowcheck was conducted at this depth when drilling. |
| 21:00 | 0.50 | D09 | TRP | U | Backreamed out of hole from 1696m to 1373m, working each stand clean. Observed up to 2.7kdaNm (20kft.lb) torque during backreaming. |
| 21:30 | 0.50 | D09 | TRP | D | String became stuck at 1373m while backreaming. Worked pipe and jarred string free. Sticking mechanism likely to be related to formation change. |
| 22:00 | 2.00 | D09 | TRP | U | Continued to backream out of hole from 1373m to 1225m. Hole condition improved from 1300m. |

HOLE SECTIONS

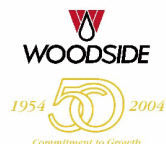
| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|------------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
| 8.5in Hole | 1,196.00 | 1,969.00 | 244.47 | 834.00 | | Open Hole | 215.90 |

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------|--------------------|---------------|------------|-------------|---------------------|
| AQUADRILL | 1260 | 44.0 | 20.59 | 8.00 | |

CASING

| | | |
|-----------------------------------|--------------|------------------------------|
| Last Casing: 244.47 mm @ 834.00 m | Next Casing: | Last BOP: 9/04/2005 00:28:35 |
|-----------------------------------|--------------|------------------------------|



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3

Report No#: 38**Report Date: 24/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-------------------|-----------|------------|-----------------|
| 1 | 215.90 | SECURITY DBS | FMF3553 | N | 423 | 107022627 | 2X13.5, 3X12.7 | 1,197.00 | 1,969.00 | ----- |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| | | | Daily | Cumulative |
|-------|----|------------------|-------|------------|
| LTIs: | 0 | Incident Reports | 0.00 | 9.00 |
| TRCs: | 0 | Stop/Start Cards | 17.00 | 422.00 |
| DSLTI | 38 | Stop/Start Tours | 0.00 | 30.00 |

Safety Comments**PERSONNEL DATA**

| Company | No. People | Company | No. People |
|------------------|------------|------------------|------------|
| SPERRY SUN | 12 | DOWELL | 2 |
| DRILQUIP | 0 | SECURITY DBS | 0 |
| WEATHERFORD | 0 | FUGRO ROV | 3 |
| SMITH | 0 | WOODSIDE | 7 |
| BAKER ATLAS | 7 | BHI | 2 |
| DIAMOND Offshore | 59 | | |
| | | Total POB | 92 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|--------------|-----------|-------|--------------|
| WATER, POTABLE | m3 | 25.5 | 270.6 | FUEL | m3 | 14.1 | 297.0 |
| WATER, DRILLING | m3 | 198.9 | 460.5 | CEMENT | t | 0.0 | 118.2 |
| GEL, FRESH | t | 0.0 | 26.7 | BARITE BULK | t | 6.1 | 100.7 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Portland | 20/04/2005 | |
| Pacific Wrangler | Standby | 20/04/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 69.00 | 5.14 | 0.610 | 0.975 | 0.10 | 0.50 | 0.50 | 16.00 |

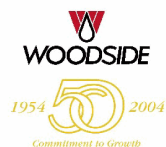
REMARKS

HSE: 1. Held weekly safety meetings with all personnel. 2. Conducted weekly fire drill. Simulated fire in No.3 storeroom. 3. Conducted PTW audit on welding shop. General: 1. Survey 1969.0mMD, 26.20inc, 53.45az, 1881.37mTVD. 2. Geopilot not responding from 1811m to TD due to worn clutch. 3. Recieved Santos spud loadout on Pacific Wrangler.

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3



Report No#: 39 **Report Date: 25/04/2005**

Block: VicP37(v) Rig: Ocean Patriot Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|----------|
| DOL: | 38.31 | MD (m): | 1,969.00 | Supervisor: | D Thorpe |
| DFS: | 34.52 | Planned Depth (m): | 1,960.00 | Engineer: | D Clarke |
| Budget Days: | 37.07 | TVD (m): | 1,881.37 | Rig OIM: | S Barry |
| Progress Days: | 31.36 | Progress (m): | 0.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 20,164,616.00 (\$) | | | | |

Ops 00:00 to 06:00: Rigged down wireline equipment. Laid out jars. Made up cementing stand. Ran in hole with muleshoe and 321m of 89mm (3.5") stinger. Ran cement stinger in hole with 127mm (5") DP to 1730m.

Ops Summary (24 Hrs): Continued backreaming out of hole with 216mm (8 1/2") BHA from 1225m to 834m. Circulated hole clean. Ran back to bottom. Circulated hole clean. Pulled out of hole. Racked back BHA. Laid out FEWD. Rigged up wireline. Ran run #1 RCI, 10 pre-tests.

Ops Lookahead: RIH to TD. Circulate. Set cement plugs #1 and #2. Tag plug #2. Set cement #3 across 244mm (9 5/8") shoe. Tag plug #3. Set cement plug #4. Pull out of hole. Cut and retrieve 9-5/8" casing and hanger. Set 340mm (13 3/8") bridge plug. Set plug #5. Pull BOP.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|---|
| 0:00 | 3.00 | D09 | TRP | U | Continued to backream out of hole from 1225m to 244mm (9 5/8") shoe at 834m, working each stand clean as required. Observed maximum 15.9t (35klb) overpull at 1175m, 1160m and 1131m and up to 1.36kdaN.m (10kft.lb) torque during backreaming. |
| 3:15 | 0.25 | D09 | TRP | U | Circulated hole clean with 2.8m3/min (750gpm). Circulated total of 1.5 times bottoms up. |
| 3:30 | 3.50 | D09 | TRP | U | Ran in hole with 216m (8.5") BHA from 834m to 1962m. Observed 11.4t (25klb) drag at 1658m and 13.6t (30klb) drag at 1887m. Reamed through tight spot with 30rpm and 1.7m3/min (450gpm). |
| 7:00 | 0.50 | D09 | TRP | U | Washed through hard fill from 1962m to 1969m. [30-80rpm, WOB 4.5-9.1t (10-20klb), Flow 2.5m3/min (650gpm)] |
| 7:30 | 1.50 | D09 | PCD | P | Circulated hole clean with 2.8m3/min (750gpm) until shakers clean. Circulated total of two times bottoms up. No cavings observed during circulation. (Mud weight 1.28sg) |
| 9:00 | 4.00 | D09 | TRP | P | Conducted flow check - well static. Pulled out of hole from 1969m to 320m. Conducted flow check at casing shoe and prior to BOP- well static. |
| 13:00 | 4.50 | D09 | TRP | P | Pulled out of hole with 216mm (8.5") BHA. Racked back drill collars. Removed radioactive sources. Laid out FEWD. Broke out bit [Security DBS FMF3553, graded 1-1-WT-A-X-I-CT-TD]. |
| 17:30 | 1.00 | E09 | ELO | P | Held JSA and rigged up to run wireline. |
| 18:30 | 1.00 | E09 | ELO | P | Made up Run#1 RCI toolstring. |
| 19:30 | 2.50 | E09 | ELO | P | Ran Run#1 RCI. Conducted correlation run and fall off test. Conducted 10 pre-tests, all valid. Pulled out of hole. |
| 23:00 | 1.00 | E09 | ELO | P | Rigged down wireline equipment. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|------------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
| 8.5in Hole | 1,196.00 | 1,969.00 | 244.47 | 834.00 | | Open Hole | 215.90 |

DRILLING FLUIDS

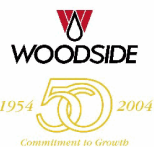
| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------|--------------------|---------------|------------|-------------|---------------------|
| AQUADRILL | 1280 | 40.0 | 16.28 | 7.00 | |

CASING

| | | |
|--------------|--------------|------------------------------|
| Last Casing: | Next Casing: | Last BOP: 9/04/2005 02:28:05 |
|--------------|--------------|------------------------------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|---------------|--------------|--------------|----------|-------|-----------|-----------|-------------------|--------------|---------------|-----------------|
| 1 | 215.90 | SECURITY DBS | FMF3553 | N | 423 | 107022627 | 2X13.5, 3X12.7 | 1,197.00 | 1,969.00 | ----- |



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3

Report No#: 39

Report Date: 25/04/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| | | Daily | Cumulative |
|--------|----|------------------|------------|
| LTI's: | 0 | Incident Reports | 0.00 |
| TRCs: | 0 | Stop/Start Cards | 16.00 |
| DSLTI | 39 | Stop/Start Tours | 0.00 |

Safety Comments

PERSONNEL DATA

| Company | No. People | Company | No. People |
|------------------|------------|------------------|------------|
| BAKER ATLAS | 7 | BHI | 2 |
| WOODSIDE | 7 | FUGRO ROV | 3 |
| SPERRY SUN | 8 | DRILQUIP | 0 |
| DOWELL | 2 | WEATHERFORD | 1 |
| SMITH | 1 | SECURITY DBS | 0 |
| DIAMOND Offshore | 59 | | |
| | | Total POB | 90 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|----------------|-----------|-------|--------------|
| GEL, FRESH | t | 0.0 | 26.7 | BARITE BULK | t | 6.9 | 93.8 |
| FUEL | m3 | 18.4 | 278.6 | CEMENT | t | 0.0 | 118.2 |
| WATER, DRILLING | m3 | 153.4 | 307.1 | WATER, POTABLE | m3 | 14.8 | 256.8 |

SUPPORT CRAFT

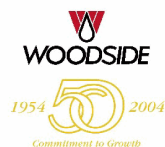
| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Portland | 20/04/2005 | |
| Pacific Wrangler | Standby | 20/04/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 69.00 | 5.14 | 0.610 | 0.610 | 0.60 | 0.60 | 1.00 | 15.00 |

REMARKS

HSE: 1. PTW audit on riser maintenance. 2. CAR update: 4 out of 303 actions remaining. General: 1. Budget Days and Progress Days are not revised to include the DW3 scope. These figures reflect the original DW1 and DW2 budget. 2. Completed After Action Review on Sperry Directional Drilling. 3. 216mm (8.5") BHA showed no sign of balling on bit or stabilisers. No scoring on stabilisers. 1 chipped cutter on nose of bit and 1 backreaming cutter. 4. Preparing additional backload of TPC rental equipment prior to leaving location. 5. Pacific Wrangler reported two incidents: 1. Deepsea express cement head loose fitting caught in sling when being picked up. Removed fitting and continued lift. 2. Containers for spud loadout for next operator did not have security seals as required by ISPS regulations.



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3

Report No#: 40**Report Date: 26/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|----------|
| DOL: | 39.31 | MD (m): | 1,969.00 | Supervisor: | D Thorpe |
| DFS: | 35.52 | Planned Depth (m): | 1,960.00 | Engineer: | D Clarke |
| Budget Days: | 37.07 | TVD (m): | 1,881.37 | Rig OIM: | S Barry |
| Progress Days: | 31.36 | Progress (m): | 0.00 | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 20,544,545.00 (\$) | | | | |

Ops 00:00 to 06:00: Set cement Plug #4 from 942-780m. Pulled out of hole with cement stinger to 700m. Circulated 1.5 times bottoms up. Laid out 51 joints drillpipe and 15 joints HWDP.

Ops Summary (24 Hrs): Laid out jars. Made up cement stand. Ran in hole with cement stinger on 127mm (5") DP to 1969m. Set cement Plug #1 1969-1717m, Plug #2 1717-1487m, Plug #3 1487-1387m. Laid out 69jts DP. Tagged TOC at 1377m. Spotted hi-vis pill 1142-942m.

Ops Lookahead: Tag plug #4. Pull out of hole laying down tubulars. Run in hole with 127m (5") muleshoe. Set cement plug #5. Cut and retrieve 9-5/8" casing. Set 340mm (13 3/8") bridge plug. Set plug #5. Pull BOP. Cut 340mm (13 3/8") casing. Pull wellhead. Pull anchors.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|--|
| 0:00 | 0.50 | E09 | ELO | P | Continued to rig down wireline equipment. |
| 0:30 | 0.50 | AW | SCP | P | Laid out 159mm (6.25") jars. |
| 1:00 | 0.50 | AW | SCP | P | Made up cement stand. |
| 1:30 | 2.50 | AW | SCP | P | Rigged up 89mm (3.5") cement stinger handling gear. Made up 89mm (3.5") muleshoe and ran in hole with 89mm (3.5") PH6 tubing to 321m. |
| 4:00 | 3.00 | AW | SCP | P | Ran in hole with 321m of 89mm (3.5") stinger on 127mm (5") DP. Made up cementing stand. Broke circulation and tagged bottom at 1969m - no fill. |
| 7:00 | 1.00 | AW | SCP | P | Made up cementing stand. Circulated 1.5 times bottoms up at 2.8m3/min (750gpm) until even mud weight 1.28sg in and out (inhibited mud). Rigged up cement line. |
| 8:00 | 1.25 | AW | SCP | P | Set balanced cement plug #1 from 1969m to 1717m. Pumped 0.8m3 (5bbl) drill water spacer. Pressure tested cement line to 17.2MPa (2500psi). Pumped further 2.4m3 (15bbl) drill water spacer. Mixed and pumped 11.1m3 (70bbl) cement slurry at 1.9sg [339sx Class G cement with 6.5m3 drill water, 128lt D145 and 7lt antifoam]. Chased with 0.84m3 (5.3bbl) drillwater. Displaced cement with 13.1m3 (82.3bbl) inhibited mud. No losses recorded during job. |
| 9:15 | 1.25 | AW | SCP | P | Broke off cement line. Checked for backflow - OK. Racked back cement stand. Pulled out of hole with cement stinger from 1969m to 1717m. Made up cement stand. |
| 10:30 | 0.50 | AW | SCP | P | Circulated 2 x bottoms up. Discharged 11.1m3 (70bbl) cement contaminated mud. |
| 11:00 | 1.00 | AW | SCP | P | Rigged up cement line. Set balanced cement plug #2 from 1717m to 1487m. Pumped 0.8m3 (5bbl) drill water spacer. Pressure tested cement line to 17.2MPa (2500psi). Pumped further 2.4m3 (15bbl) drill water spacer. Mixed and pumped 10.5m3 (66bbl) cement slurry at 1.9sg [316sx Class G cement with 6.1m3 drill water, 97lt D145 and 24lt antifoam]. Chased with 0.60m3 (3.8bbl) drillwater. Displaced cement with 11.2m3 (70.2bbl) inhibited mud. No losses recorded during job. |
| 12:00 | 1.00 | AW | SCP | P | Broke off cement line. Checked for backflow - OK. Racked back cement stand. Pulled out of hole with cement stinger from 1717m to 1487m. Made up cement stand. |
| 13:00 | 1.00 | AW | SCP | P | Circulated 2 x bottoms up. Discharged 15.4m3 (97bbl) cement contaminated mud. Flushed BOP choke and kill lines. |
| 14:00 | 1.00 | AW | SCP | P | Rigged up cement line. Set balanced cement plug #3 from 1487m to 1387m. Pumped 0.8m3 (5bbl) drill water spacer. Pressure tested cement line to 17.2MPa (2500psi). Pumped further 2.4m3 (15bbl) drill water spacer. Mixed and pumped 4.0m3 (25.3bbl) cement slurry at 1.9sg [123sx Class G cement with 2.4m3 drill water, 14lt D110 and 9lt antifoam]. Chased with 0.40m3 (2.5bbl) drillwater. Displaced cement with 9.9m3 (62.0bbl) inhibited mud. No losses recorded during job. |
| 15:00 | 0.50 | AW | SCP | P | Broke off cement line. Checked for backflow - OK. Racked back cement stand. Pulled out of hole with cement stinger from 1487m to 1323m. |
| 15:30 | 1.00 | AW | SCP | P | Circulated 1.5 x bottoms up. Discharged 8.4m3 (53bbl) cement contaminated mud. Flushed BOP choke and kill lines. |
| 16:30 | 3.50 | AW | SCP | P | Pulled out of hole from 1323m to 665m laying out 5" DP. |
| 20:00 | 1.00 | AW | SCP | P | Ran in hole with cement stinger on 5" DP from 665m. Washed down from 1294m and tagged firm cement at 1377m with 4.5t (10klb). |
| 21:00 | 2.00 | AW | SCP | P | Pulled out of hole with cement stinger from 1377m to 1142m. Pumped 8.8m3 (55bbl) hi-vis pill and displaced with 3.2m3 (20bbl) mud. Pulled out of hole with cement stinger from 1142m to 942m. |

Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3



Report No#: 40

Report Date: 26/04/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------|------|----|-----|---|---|
| 23:00 | 0.50 | AW | SCP | P | Made up cementing stand. Circulated 1.5 times bottoms up at 2.8m3/min (750gpm) until even mud weight 1.28sg in and out. Rigged up cement line. Rigged up cement line. Commenced setting balanced cement plug #4 across 244mm (9 5/8") shoe from 942m to 780m. Pumped 0.8m3 (5bbl) drill water spacer. Pressure tested cement line to 17.2MPa (2500psi). |
| 23:30 | 0.00 | AW | SCP | P | |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|------------|------------|-------------|----------------------|-------------------------|------------|--------------|------------------------------|
| 8.5in Hole | 1,196.00 | 1,969.00 | 244.47 | 834.00 | | Open Hole | 215.90 |

DRILLING FLUIDS

| Mud Type | Density (kg/m ³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|-----------|------------------------------|------------|---------|----------|------------------|
| AQUADRILL | 1290 | 40.0 | 16.28 | | |

CASING

| | | |
|--------------|--------------|------------------------------|
| Last Casing: | Next Casing: | Last BOP: 9/04/2005 03:10:45 |
|--------------|--------------|------------------------------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------|-----------|------------|-----------------|
| | | | | | | | | | | |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|---------------------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m ³ /min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| Daily | | | | Cumulative | |
|--------|----|------------------|-------|------------|--|
| LTI's: | 0 | Incident Reports | 2.00 | 11.00 | |
| TRCs: | 0 | Stop/Start Cards | 16.00 | 454.00 | |
| DSLTI | 40 | Stop/Start Tours | 0.00 | 30.00 | |

Safety Comments

Incident: Baker Atlas RCI unit damaged while loading onto Pacific Wrangler
Incident: Near miss incident involving lifting of Deepsea Express skid off Pacific Wrangler

PERSONNEL DATA

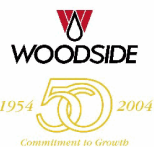
| Company | No. People | Company | No. People |
|------------------|------------|------------------|------------|
| BAKER ATLAS | 0 | FUGRO ROV | 6 |
| WEATHERFORD | 1 | Marcom | 1 |
| SPERRY SUN | 2 | DOWELL | 2 |
| SMITH | 1 | WOODSIDE | 9 |
| BHI | 2 | DRILQUIP | 1 |
| DIAMOND Offshore | 57 | | |
| | | Total POB | 82 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|----------------|-----------|-------|--------------|
| FUEL | m3 | 11.9 | 266.7 | BARITE BULK | t | 0.0 | 93.8 |
| WATER, DRILLING | m3 | 39.8 | 270.3 | WATER, POTABLE | m3 | 27.8 | 229.0 |
| CEMENT | t | 47.0 | 71.3 | GEL, FRESH | t | | 26.7 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Portland | 20/04/2005 | |
| Pacific Wrangler | Standby | 20/04/2005 | |



Woodside Energy
Daily Offshore Report
Well: Halladale-1 DW-3

Report No#: 40**Report Date: 26/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|--------------------|-----------------------|-------------|--------------|--------------|--------------|-------------|---------------------|
| 69.00 | 2.57 | 0.610 | 2.438 | 0.60 | 0.60 | 1.00 | 14.00 |

REMARKS

HSE 1. Victorian DPI personnel on rig to audit WEL environmental management plan. 2. Incident: While backloading Baker Atlas RCI unit to Pacific Wrangler, sudden rig heave caused contact with nearby skid and subsequently damaged door of unit. Unit was temporarily repaired for safe transport. 3. Near miss lifting incident 25-4-05, involving Deepsea Express skid on Pacific Wrangler to be raised as Drilling and Completions incident. General 1. Found 3rd injured native bird on deck. Transported bird to refuge via helicopter. 2. Backloaded Pacific Wrangler with third party equipment. 3. WEL marine master on rig.



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3

Report No#: 41

Report Date: 27/04/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|----------|
| DOL: | 40.31 | MD (m): | 1,969.00 | Supervisor: | D Thorpe |
| DFS: | 36.52 | Planned Depth (m): | 1,960.00 | Engineer: | D Clarke |
| Budget Days: | 37.07 | TVD (m): | 1,881.37 | Rig OIM: | S Barry |
| Progress Days: | 32.75 | Progress (m): | | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 20,866,697.00 (\$) | | | | |

Ops 00:00 to 06:00: Laid out 244mm (9 5/8") casing hanger, seal assembly, wearbushing and 6.5jts 244mm (9 5/8") casing. Ran in hole with 340mm (13 3/8") bridge plug and set at 149m. Pulled out of hole with bridge plug running tool, laying out 159mm (6.25") DC's.

Ops Summary (24 Hrs): Set cement plug #4. Laid out tubulars. Ran in hole & tagged TOC at 782m. Pulled out of hole laying out tubulars. Ran in hole with 127mm muleshoe. Set cement plug #5. Cut 244mm (9 5/8") casing at 149.7m. Recovered 244mm (9 5/8") casing hanger and casing stub.

Ops Lookahead: Continue pull out of hole with bridge plug running tool, laying out DC's. Run in hole with 127mm (5") muleshoe. Tag bridge plug. Set cement plug #6. Pull out of hole. Pull BOP. Cut 508mm (20") casing. Pull wellhead and PGB. Recover anchors.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|--|
| 0:00 | 0.75 | AW | SCP | P | Continued to set balanced cement plug #4. Pumped further 2.4m3 (15bbl) drill water spacer. Mixed and pumped 6.7m3 (42bbl) cement slurry at 1.9sg [201sx Class G cement with 4.0m3 sea water and 7lt antifoam]. Chased with 0.40m3 (2.4bbl) drillwater. Displaced cement with 5.4m3 (34bbl) inhibited mud. No losses recorded during job. |
| 0:45 | 0.75 | AW | SCP | P | Broke off cement line. Checked for backflow - OK. Racked back cement stand. Pulled out of hole with cement stinger from 942m to 700m. |
| 1:30 | 0.50 | AW | SCP | P | Circulated 1.5 x bottoms up. No cement contaminated mud observed. |
| 2:00 | 4.00 | AW | SCP | P | Pulled out of hole from 700m to 320m laying out 127mm (5") DP. Laid out 42joints at 21jt/hr. Ran back in hole from 320m to 544m. Laid out 9 joints 127mm (5") DP and 15 joints HWDP at 20jt/hr. |
| 6:00 | 1.50 | AW | SCP | P | Ran in hole with cement stinger on 127mm (5") DP from 320m. Washed down from 700m and tagged firm cement at 782m with 2.3t (5klb). |
| 7:30 | 5.50 | AW | SCP | P | Pulled out of hole with cement stinger from 782m to 579m. Continued to pull out of hole from 579m to 320m, laying out 127m (5") DP. Laid out 27jts DP at 20jt/hr. Rigged up 89mm (3.5") handling gear. Pulled out of hole from 320m to surface, laying out 89mm (3.5") cement stinger and muleshoe. |
| 13:00 | 1.00 | AW | SCP | P | Picked up 340mm (13 3/8") casing cutter assembly and broke connection to allow makeup on deck. |
| 14:00 | 0.50 | AW | SCP | P | Made up 127mm (5") muleshoe and ran in hole with 127mm (5") DP to 305m. Spotted 4.0m3 (25bbl) 1.5sg hi-vis pill on bottom. |
| 14:30 | 1.00 | AW | SCP | P | Pulled out of hole with 127mm (5") muleshoe from 305m to 205m. Laid out 2 joints 127m (5") DP. Made up cementing stand. |
| 15:30 | 0.50 | AW | SCP | P | Circulated 1.5 times bottoms up at 2.8m3/min (750gpm) until even mud weight 1.28sg in and out. |
| 16:00 | 0.50 | AW | SCP | P | Rigged up cement line. Set balanced cement plug #5 from 205m to 155m. Pumped 0.8m3 (5bbl) drill water spacer. Pressure tested cement line to 17.2MPa (2500psi). Pumped further 0.8m3 (5bbl) drill water spacer. Mixed and pumped 1.9m3 (12.0bbl) cement slurry at 1.9sg [57sx Class G cement with 1.1m3 drill water and 2lt antifoam]. Chased with 0.55m3 (3.5bbl) seawater. Displaced cement with 0.63m3 (4.0bbl) inhibited mud. No losses recorded during job. |
| 16:30 | 1.00 | AW | SCP | P | Broke off cement line. Checked for backflow - OK. Racked back cement stand. Pulled out of hole with 127mm (5") muleshoe from 205m to 155m. Circulated 1.5 times bottoms up. No cement contaminated mud observed. |
| 17:30 | 1.00 | AW | SCP | P | Pulled out of hole from 155m laying out 127mm (5") DP. Laid out 18 joints at 18 jt/hr. |
| 18:30 | 1.00 | AW | MCP | P | Made up 244mm (9 5/8") casing cutting assembly. |
| 19:30 | 1.00 | AW | MCP | P | Ran in hole with casing cutting assembly and landed out marine swivel in wellhead wearbushing landing shoulder. Cut 244mm (9 5/8") casing at 149.7m in 5 minutes. |
| 20:30 | 1.00 | AW | MCP | P | Flow checked well - static. Pulled out of hole and laid out 244mm (9 5/8") casing cutting assembly. |
| 21:30 | 1.00 | AW | MCP | P | Made up 244mm (9 5/8") casing spear. Ran in hole. Speared into 244mm (9 5/8") casing. |
| 22:30 | 1.50 | AW | MCP | P | Latched 244mm (9 5/8") casing. Pulled out of hole with 244mm (9 5/8") casing hanger, seal assembly, wearbushing and 6.5jts 244mm (9 5/8") casing. |



Woodside Energy
Daily Offshore Report
Well: Halladale-1 DW-3

Report No#: 41**Report Date: 27/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| HOLE SECTIONS | | | | | | | | | | | | | |
|------------------|--------------------|-------------------|----------------------|-------------------------|------------------------------|------------------|------------------------------|------------|-------------|-----------------|----------------|-----------------|----------------|
| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) | | | | | | |
| DRILLING FLUIDS | | | | | | | | | | | | | |
| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) | | | | | | | | |
| AQUADRILL | 1280 | 40.0 | 16.28 | | | | | | | | | | |
| CASING | | | | | | | | | | | | | |
| Last Casing: | | Next Casing: | | | Last BOP: 9/04/2005 00:00:00 | | | | | | | | |
| BITS TODAY | | | | | | | | | | | | | |
| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R | | | |
| | | | | | | | | | | | | | |
| BIT OPERATIONS | | | | | | | | | | | | | |
| TODAY | | | | | | | | | | | CUMULATIVE | | |
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |
| OHSE Report | | | | | | | | | | | | | |
| | | | | Daily | | Cumulative | | | | | | | |
| LTI's: | 0 | Incident Reports | | 0.00 | | 11.00 | | | | | | | |
| TRCs: | 0 | Stop/Start Cards | | 19.00 | | 473.00 | | | | | | | |
| DSLTI | 41 | Stop/Start Tours | | 0.00 | | 30.00 | | | | | | | |
| Safety Comments | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PERSONNEL DATA | | | | | | | | | | | | | |
| Company | | | | No. People | | Company | | | | No. People | | | |
| FUGRO ROV | | | | 6 | | SPERRY SUN | | | | 2 | | | |
| DOWELL | | | | 2 | | BAKER ATLAS | | | | 0 | | | |
| Marcom | | | | 1 | | DIAMOND Offshore | | | | 57 | | | |
| DRILQUIP | | | | 1 | | WEATHERFORD | | | | 1 | | | |
| WOODSIDE | | | | 5 | | SMITH | | | | 1 | | | |
| BHI | | | | 1 | | | | | | | | | |
| | | | | | | Total POB | | | | 77 | | | |
| MATERIALS | | | | | | | | | | | | | |
| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End | | | | | | |
| CEMENT | t | | 71.3 | BARITE BULK | t | | 93.8 | | | | | | |
| GEL, FRESH | t | 0.0 | 26.7 | FUEL | m3 | 15.0 | 251.7 | | | | | | |
| WATER, POTABLE | m3 | 30.5 | 198.5 | WATER, DRILLING | m3 | 36.6 | 234.7 | | | | | | |
| SUPPORT CRAFT | | | | | | | | | | | | | |
| Name | Comments | | | | | Arrival Date | Departure Date | | | | | | |
| Far Grip | Standby | | | | | 20/04/2005 | | | | | | | |
| Pacific Wrangler | Standby | | | | | 20/04/2005 | | | | | | | |
| WEATHER | | | | | | | | | | | | | |
| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) | | | | | | |
| 69.00 | 5.14 | 0.610 | 1.524 | 0.60 | 0.60 | 1.00 | 10.00 | | | | | | |
| REMARKS | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |



Woodside Energy
Daily Offshore Report
Well: Halladale-1 DW-3

Report No#: 41

Report Date: 27/04/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

HSE 1. Stop Tour conducted on pipedeck and catwalk. 2. Conducted PTW audit on port box girder. 3. Held closeout meeting with Victorian DPI on audit against WEL Environmental plan. General 1. Completed after action review on drilling DW3 127mm hole. 2. Reviewed operations planning in consideration of weather forecast to optimise safe drillfloor operations.



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3

Report No#: 42

Report Date: 28/04/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|----------|
| DOL: | 41.31 | MD (m): | 1,969.00 | Supervisor: | D Thorpe |
| DFS: | 37.52 | Planned Depth (m): | 1,960.00 | Engineer: | D Clarke |
| Budget Days: | 37.07 | TVD (m): | 1,881.37 | Rig OIM: | S Barry |
| Progress Days: | 33.54 | Progress (m): | | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 21,208,815.00 (\$) | | | | |

Ops 00:00 to 06:00: Skidded BOP on moonpool carriage. Rigged down BOP handling equipment. Made up and ran in hole with 508mm (20") casing cutting assembly. Latched spear and commenced cutting.

Ops Summary (24 Hrs): Laid out 244mm (9 5/8") casing hanger and 6.5jts casing. Set 340mm (13 3/8") bridge plug at 148m. Pulled out of hole, laying out 152mm (6") drill collars. Set cement plug #6. Displaced riser to seawater. Pulled BOP and landed on moonpool carriage.

Ops Lookahead: Cut 508mm (20") casing. Pull wellhead and PGB. Deballast rig while laying down remaining tubulars from derrick. Wait on suitable weather window for anchor handling operations. Recover anchors.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|---|
| 0:00 | 2.50 | AW | MCP | P | Held JHA. Laid out casing spear. Rigged up casing handling equipment. Laid out 244mm (9 5/8") casing hanger, seal assembly and wear bushing and 6 1/2 joints 244mm (9 5/8") casing. Rigged down casing handling equipment. |
| 2:30 | 2.75 | AW | SCP | P | Made up 1 stand 210mm (8.25") DC's. Made up and ran in hole with 340mm (13 3/8") bridge plug to 148m on four 210mm (8.25") and 11x 159mm (6.25") drill collars. The 210mm (8.25") drill collars were required to achieve 20.4t (45klb) setting weight. |
| 5:15 | 2.75 | AW | SCP | P | Set 340mm (13 3/8") bridge plug at 148m. Pulled out of hole with bridge plug running tool, laying out DC's. Laid out 11x 159mm (6.25") and 1x 210mm (8.25") drill collars. |
| 8:00 | 1.00 | AW | SCP | P | Laid out 2x 159mm (6.25") drill collars, 1x HWDP and emergency hang-off tool. |
| 9:00 | 1.25 | AW | SCP | P | Made up 127mm (5") cementing muleshoe and ran in hole on DP. Made up cement stand. Tagged bridge plug at 147m. |
| 10:15 | 0.75 | AW | SCP | P | Rigged up cement line. Circulated 1.5 times bottoms up at 2.8m3/min (750gpm). Concurrently held cementing JSA. |
| 11:00 | 0.50 | AW | SCP | P | Set balanced cement plug #6 from 147m to 97m. Pumped 0.8m3 (5bbl) drill water spacer. Pressure tested cement line to 17.2MPa (2500psi). Pumped further 0.8m3 (5bbl) drill water spacer. Mixed and pumped 3.9m3 (24.3bbl) cement slurry at 1.9sg [116sx Class G cement with 2.3m3 sea water and 4lt antifoam]. Chased with 0.22m3 (1.4bbl) drillwater. Displaced cement with 0.63m3 (4.0bbl) inhibited mud. No losses recorded during job. |
| 11:30 | 1.00 | AW | SCP | P | Broke off cement line. Checked for backflow - OK. Racked back cement stand. Pulled out of hole with 127mm (5") muleshoe from 147m to 96m. Circulated 1.5 times bottoms up. Discharged 3.8m3 (24bbl) cement contaminated mud. |
| 12:30 | 1.00 | AW | SCP | P | Pulled out of hole from 96m to 65m. Functioned BOP rams. Displaced riser, choke and kill lines and surface lines to seawater. |
| 13:30 | 0.50 | AW | SCP | P | Pulled out of hole with 127mm (5") DP. Laid out cementing muleshoe. |
| 14:00 | 0.50 | AW | BPR | P | Held JSA. Rigged up to pull riser and BOP. |
| 14:30 | 1.00 | AW | BPR | P | Made up diverter running tool and laid out diverter. |
| 15:30 | 2.00 | AW | BPR | P | Made up landing joint. Collapsed and pinned slip joint. |
| 17:30 | 0.50 | AW | BPR | P | Unlatched BOP. Removed rucker tensioners. |
| 18:00 | 2.50 | AW | BPR | P | Skidded rig 23m off location. Removed pod hose saddles. Removed choke and kill lines. |
| 20:30 | 1.50 | AW | BPR | P | Laid out landing joint and slip joint. Functioned 762mm (30") HAC hydraulic disconnect with ROV. |
| 22:00 | 2.00 | AW | BPR | P | Pulled BOP through splash zone. Landed BOP on carriage. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|----------|--------------------|---------------|------------|-------------|---------------------|
|----------|--------------------|---------------|------------|-------------|---------------------|



Woodside Energy
Daily Offshore Report
Well: Halladale-1 DW-3

Report No#: 42**Report Date: 28/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

CASING

Last Casing:

Next Casing:

Last BOP: 9/04/2005 22:04:22

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------|-----------|------------|-----------------|
| | | | | | | | | | | |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| Daily | | | | Cumulative | |
|--------|----|------------------|------|------------|--|
| LTI's: | 0 | Incident Reports | 0.00 | 11.00 | |
| TRCs: | 0 | Stop/Start Cards | 8.00 | 481.00 | |
| DSLTI | 42 | Stop/Start Tours | 1.00 | 31.00 | |

Safety Comments**PERSONNEL DATA**

| Company | No. People | Company | No. People |
|------------------|------------|------------------|------------|
| WOODSIDE | 5 | MO47 | 3 |
| DRILQUIP | 1 | BAKER ATLAS | 0 |
| BHI | 0 | DOWELL | 2 |
| DIAMOND Offshore | 60 | Marcom | 1 |
| SMITH | 1 | WEATHERFORD | 0 |
| SPERRY SUN | 0 | FUGRO | 4 |
| FUGRO ROV | 6 | | |
| | | Total POB | 83 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|----------------|-----------|-------|--------------|-----------------|-----------|-------|--------------|
| WATER, POTABLE | m3 | 20.2 | 178.3 | WATER, DRILLING | m3 | 30.2 | 210.5 |
| FUEL | m3 | 11.1 | 240.6 | GEL, FRESH | t | 0.0 | 26.7 |
| CEMENT | t | 0.0 | 71.3 | BARITE BULK | t | 0.0 | 93.8 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Standby | 20/04/2005 | |
| Pacific Wrangler | Standby | 20/04/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 69.00 | 5.14 | 0.914 | 1.981 | 0.50 | 0.50 | 0.50 | 10.00 |

REMARKS



Woodside Energy
 Daily Offshore Report
Well: Halladale-1 DW-3

Report No#: 42

Report Date: 28/04/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

HSE 1. Backloading operations have been given focus at pre-tour meetings following incident with damaged RCI workshop during backload to Pacific Wrangler. 2. Conducted PTW audit on starboard-aft kingpin modifications. 3. Conducted stop tour of shaker house. 4. Found 4th injured native bird on deck. Transported bird to refuge via helicopter. General 1. Santos personnel (3x) on rig for handover. 2. Discharged 71.5m³ (450bbl) drilling fluid on ebb tide. 3. Held rig move meeting with vessel masters on rig. 4. SSU forecast for Friday predicts 6-6.5m wave height (Hs) and 30-35kts wind (gale force). At rig move meeting, agreed that commencement of anchor pulling will be delayed until after the worst peak of weather has passed (Anticipated to be between 18.00hrs & 21.00hrs on Friday night). 5. ROV conducted seabed survey of area surrounding wellhead. 6. Required two attempts to function 762mm (30") HAC hydraulic disconnect. On first attempt, hydraulic fluid was observed to be released at hotstab, indicating HAC piston movement but no was pressure observed to indicate the piston had travelled the full distance. When ROV was recovered, inspection found valve on ROV partially open, allowing fluid to bypass. On the second run, pressure was observed and was held at 10.3MPa (1500psi) for >37sec as per the Drilquip HAC operating procedures. However when the pump was stopped prior releasing the hot stab, pressure was observed to bleed off, indicating possibility of a damaged check valve on PGB. Once activated the HAC piston cannot normally travel back to its unactivated position, even if the 10.3MPa pressure is not held.



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3

Report No#: 43

Report Date: 29/04/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|----------|
| DOL: | 42.31 | MD (m): | 1,969.00 | Supervisor: | D Thorpe |
| DFS: | 38.52 | Planned Depth (m): | 1,960.00 | Engineer: | D Clarke |
| Budget Days: | 37.07 | TVD (m): | 1,881.37 | Rig OIM: | S Barry |
| Progress Days: | 33.77 | Progress (m): | | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 21,712,603.00 (\$) | | | | |

Ops 00:00 to 06:00: Continued to cut 508x762mm (20" x 30") casing. Attempted to pull casing - no success. Unlatched and pulled out of hole with casing cutting assembly.

Ops Summary (24 Hrs): Laid out riser. RIH with 508mm (20") casing cutting assembly. Cut casing. Not able to pull casing. Changed spaceout and knives. RIH & cut 508x762mm (20" x 30") casing at 68.58m. Attempted to pull casing. Changed spaceout and knives. RIH and cut casing.

Ops Lookahead: Pull wellhead and PGB. Deballast rig while laying down remaining tubulars from derrick. Wait on suitable weather window for anchor handling operations. Recover anchors.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|--|
| 0:00 | 1.00 | AW | BPR | P | Disconnected riser from LMRP. Skidded back BOP on moonpool carriage. |
| 1:00 | 1.50 | AW | BPR | P | Laid out 1x 15m riser joint, 1x 6m and 1x 4.5m riser pup joints. Rigged down riser handling equipment. |
| 2:30 | 2.00 | AW | CLR | P | Made up 508mm (20") casing cutting assembly with 1.12m (44") knives. Connected guideropes in moonpool. Ran in hole with casing cutting assembly. |
| 4:30 | 2.00 | AW | CLR | P | Latched grapple into 476mm (18 3/4") wellhead. Confirmed latch with 18.2 (40klb) overpull. Cut casing at 69.75m. Pin of upper HAC joint at 69.78m. After 25minutes attempted to recover wellhead with 68.2t (150klb) maximum overpull - no success. Resumed cutting casing for 30minutes. Attempted to recover wellhead with 79.5t (175klb) maximum overpull - no success. 340mm (13-3/8") cement job brought cement returns to seabed, therefore 762mm (30") conductor is cemented to 508mm (20") casing. Cut location is at 762mm (30") HAC coupling, 3.45m below seafloor. Suspect 762m (30") conductor housing is firmly cemented to highly consolidated seabed. |
| 6:30 | 2.00 | AW | CLR | D | Pulled out of hole with casing cutting assembly. Changed out cutting knives to 1.32m (52"). Changed spaceout to cut 762mm (30") x 508mm (20") above HAC and connection weld. Cut depth 68.58m. Fillet weld connection on upper HAC joint at 68.75m. |
| 8:30 | 1.00 | AW | CLR | D | Attached guideropes and ran in hole with casing cutting assembly #2 to cut 762mm (30") x 508mm (20"). |
| 9:30 | 8.50 | AW | CLR | D | Latched into 476mm (18 3/4") wellhead and confirmed latch with 18.2 (40klb) overpull. Cut 762mm (30") x 508mm (20") casing at 68.58m (2.28m below seabed). After 5.5hours attempted to recover wellhead with 77.3t (170klb) maximum overpull - no success. Resumed cutting for further 2.5hours. Observed torque reduce after 1hour, indicating knives may not be cutting. |
| 18:00 | 2.00 | AW | CLR | D | Pulled out of hole with casing cutting assembly. Confirmed strap of cutting assembly at 3.5m from landing point. Check of spaceout showed theoretical cut point to be 170mm above HAC pin weld. Observed knife ends to be severely rounded and scored. Changed out cutting knives to new 1.32m (52"). Changed spaceout to cut at 68.22m (1.92m below seabed), 530mm from HAC pin weld to ensure clear of pin weld or heat treated areas. |
| 20:00 | 0.50 | AW | CLR | D | Attached guideropes and ran in hole with 762mm (30") x 508mm (20") casing cutting assembly #3. |
| 20:30 | 0.00 | AW | CLR | D | Latched into 476mm (18 3/4") wellhead. Confirmed latch with 18.2 (40klb) overpull. Commenced cutting 762mm (30") x 508mm (20") casing at 68.22m. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|----------|--------------------|---------------|------------|-------------|---------------------|
| | | | | | |

CASING

| | | |
|--------------|--------------|------------------------------|
| Last Casing: | Next Casing: | Last BOP: 9/04/2005 00:00:00 |
|--------------|--------------|------------------------------|



Woodside Energy
Daily Offshore Report
Well: Halladale-1 DW-3

Report No#: 43**Report Date: 29/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------|-----------|------------|-----------------|
| | | | | | | | | | | |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| Daily | | | | Cumulative | | | |
|--------|----|------------------|------|------------|--|--|--|
| LTI's: | 0 | Incident Reports | 0.00 | 11.00 | | | |
| TRCs: | 0 | Stop/Start Cards | 4.00 | 485.00 | | | |
| DSLTI | 43 | Stop/Start Tours | 0.00 | 31.00 | | | |

Safety Comments**PERSONNEL DATA**

| Company | No. People | Company | No. People |
|------------------|------------|------------------|------------|
| SPERRY SUN | 0 | WEATHERFORD | 0 |
| DIAMOND Offshore | 60 | FUGRO | 4 |
| BAKER ATLAS | 0 | DOWELL | 2 |
| FUGRO ROV | 6 | BHI | 0 |
| Marcom | 1 | MO47 | 3 |
| SMITH | 1 | DRILQUIP | 1 |
| WOODSIDE | 5 | | |
| | | Total POB | 83 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|----------------|-----------|-------|--------------|
| WATER, DRILLING | m3 | 91.7 | 150.8 | FUEL | m3 | 11.1 | 229.5 |
| GEL, FRESH | t | 0.0 | 26.7 | BARITE BULK | t | 0.0 | 93.8 |
| CEMENT | t | 7.2 | 64.1 | WATER, POTABLE | m3 | 23.8 | 154.5 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Standby | 20/04/2005 | |
| Pacific Wrangler | Standby | 20/04/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 69.00 | 18.52 | 0.914 | 4.115 | 2.50 | 1.00 | 1.00 | 13.00 |

REMARKS

HSE 1. Focussed on safe operations practices during poor weather. Conducted PTW audit. 2. Found 2 additional injured native birds on deck. Held on rig until next helicopter to transport to refuge. 3. Commenced closeout on Deepsea Express incident. General 1. SSU forecast predicts a second cold front will strengthen wind to 30-45kts on Saturday night before decreasing on Sunday. Significant wave height (Hs) predicted to remain at 5-6m through Saturday and Sunday before easing on Monday. 2. Santos personnel (3x) on rig for handover. 3. Ordered additional P+A personnel and extra cutter sets (2x 44" and 2x 52"). 4. During first attempt at cutting 20" x 30" casing, observed erratic torque after cutting 20" casing - possibly from 0.5" steel plate shroud and supporting gusset for HAC hydraulic lines (maximum wall thickness approximately 3" in places) being cut. This was possibly responsible for damaged cutter tips.



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3

Report No#: 44

Report Date: 30/04/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|----------|
| DOL: | 43.31 | MD (m): | 1,969.00 | Supervisor: | D Thorpe |
| DFS: | 39.52 | Planned Depth (m): | 1,960.00 | Engineer: | D Clarke |
| Budget Days: | 37.07 | TVD (m): | 1,881.37 | Rig OIM: | S Barry |
| Progress Days: | 33.88 | Progress (m): | | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 22,029,392.00 (\$) | | | | |

Ops 00:00 to 06:00: Continued to wait on weather for suitable window to commence deballasting and anchor recovery operations. Wind 25-35kts, significant wave height (Hs) 5-6m. Continued with rig maintenance. Prepared to deballast rig.

Ops Summary (24 Hrs): Cut 508x762mm (20"x30") casing. Attempted to pull casing. POOH with casing cutting assembly. Changed knives. RIH & cut casing. Pulled casing stub, PGB & wellhead free. Laid out wellhead & casing stub. Laid out remaining tubulars. Waited on weather.

Ops Lookahead: Wait on weather for suitable weather window for anchor handling operations. Forecast predicts winds to ease to 16-20knots by late Sunday. Significant wave height (Hs) predicted to ease to 3m by late Monday. Debballast rig & recover anchors.

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|--|
| 0:00 | 6.50 | AW | CLR | D | Continued cutting 762mm (30") x 508mm (20") casing at 68.22m (1.92m below seabed) using 1.32m (52") knives. Observed consistent high torque response 0.5-0.9kdaN.m (4-7kft.lb). [Parameters: 100rpm, 0.81m3/min (220gpm), 5.1MPa (750psi), 9t (20klb) overpull]. Total cutting time 9.75hrs. Attempted to recover wellhead with 77t (170klb) overpull - no success. |
| 6:30 | 2.00 | AW | CLR | D | Pulled out of hole with casing cutting assembly #3. Observed knife ends to be severely rounded and scored. Suspected protective shroud for HAC hydraulic lines (0.5" steel plate) welded to inside of 30" conductor was causing damage to cutter knives. Changed out cutting knives to re-run 1.1m (44") knives. |
| 8:30 | 0.50 | AW | CLR | D | Attached guideropes and ran in hole with 762mm (30") x 508mm (20") casing cutting assembly #4. Latched into 476mm (18 3/4") wellhead and confirm latch with 18.2t (40klb) overpull. |
| 9:00 | 2.00 | AW | CLR | D | Cut 762mm (30") x 508mm (20") casing at 68.22m. [Parameters: 100rpm, 0.5-0.8kdaN.m (4-6kft.lb) 0.81m3/min (220gpm), 5.1MPa (750psi), 9t (20klb) overpull] |
| 11:00 | 1.00 | AW | CLR | D | Pulled out of hole with casing cutting assembly #4. Changed out cutting knives to new 1.1m (44") knives. |
| 12:00 | 1.00 | AW | CLR | P | Attached guideropes and ran in hole with 762mm (30") x 508mm (20") casing cutting assembly #5. Latched into 476mm (18 3/4") wellhead and confirmed latch with 18.2t (40klb) overpull. Bumped casing using compensator with rig heave. Pulled 762mm (30") x 508mm (20") casing stub, PGB and wellhead free from seabed with 63.6t (140klb) overpull. ROV completed final seabed survey - seabed clear. |
| 13:00 | 2.00 | AW | CLR | U | Pulled out of hole with 762mm (30") x 508mm (20") casing stub, PGB and wellhead. Removed inclinometer arm. Landed PGB on moonpool dolly. Released casing cutting assembly. |
| 15:00 | 0.50 | AW | CLR | U | Laid out cutting assembly. Rigged down casing cutting equipment. |
| 15:30 | 2.00 | AW | CLR | U | Made up 476mm (18 3/4") wellhead running tool. Latched wellhead and released conductor from PGB. Laid out wellhead and 762mm (30") x 508mm (20") casing stub. Laid out wellhead running tool. Skidded PGB aside. |
| 17:30 | 2.00 | AW | CLR | U | Laid out remaining tubulars in derrick. 2x stands DP, 1x stand 203m (8") drill collars, 2x stands HWDP and cementing stand. |
| 19:30 | 4.50 | RM | CLR | D | Waited on weather. Removed PGB from moonpool dolly and rigged down PGB guideposts. Commenced planned maintenance. Hung off blocks. Serviced TDS. Cleaned mud pits and possum belly. Prepared for DOGC mechanical and electrical audit. NOTE: Deballasting and anchor recovery operations delayed due to metocean conditions. Significant wave height (Hs) 5-6m and wind 25-35kts. Far Grip conducted anchor handling simulation for all anchor bearings. Unable to maintain all stations in 4-4.5m swells. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|----------|--------------------|---------------|------------|-------------|---------------------|
|----------|--------------------|---------------|------------|-------------|---------------------|



Woodside Energy
Daily Offshore Report
Well: Halladale-1 DW-3

Report No#: 44**Report Date: 30/04/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

CASING

Last Casing:

Next Casing:

Last BOP: 9/04/2005 00:49:12

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|------------|-----------|--------------|----------|-------|-----------|-----------|-----------|-----------|------------|-----------------|
| | | | | | | | | | | |

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|------------------|-------------------|--------------------|-----------|-------------|---------|----------|------------|-------------|------------|----------------|-----------------|----------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |
| | | | | | | | | | | | | | |

OHSE Report

| Daily | | | | Cumulative | |
|--------|----|------------------|------|------------|--|
| LTI's: | 0 | Incident Reports | 0.00 | 11.00 | |
| TRCs: | 0 | Stop/Start Cards | 5.00 | 490.00 | |
| DSLTI | 44 | Stop/Start Tours | 1.00 | 32.00 | |

Safety Comments**PERSONNEL DATA**

| Company | No. People | Company | No. People |
|-------------|------------|------------------|------------|
| FUGRO | 4 | DIAMOND Offshore | 60 |
| DOWELL | 2 | FUGRO ROV | 6 |
| WOODSIDE | 5 | MO47 | 3 |
| BAKER ATLAS | 0 | BHI | 0 |
| Marcom | 1 | WEATHERFORD | 0 |
| SPERRY SUN | 0 | DRILQUIP | 1 |
| SMITH | 1 | | |
| | | Total POB | 83 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|-----------------|-----------|-------|--------------|----------------|-----------|-------|--------------|
| BARITE BULK | t | 0.0 | 93.8 | CEMENT | t | 0.0 | 64.1 |
| WATER, DRILLING | m3 | 29.0 | 150.8 | WATER, POTABLE | m3 | 16.7 | 137.8 |
| GEL, FRESH | t | 0.0 | 26.7 | FUEL | m3 | 11.0 | 218.5 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Standby | 20/04/2005 | |
| Pacific Wrangler | Standby | 20/04/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|-----------------|--------------------|----------|-----------|-----------|-----------|----------|------------------|
| 69.00 | 18.01 | 0.914 | 6.005 | 2.50 | 1.50 | 1.50 | 13.00 |

REMARKS

HSE 1. Conducted PTW audit on moonpool operations during wellhead recovery. 2. Maintained focus on stepback 5x5 in pre tour meetings and JSA's. General 1. SSU forecast predicts winds to moderate throughout Sunday to 16-20kts by Monday morning before increasing again. Significant wave height (Hs) predicted to begin decreasing from 5-6m from midday Sunday, easing to 3m by late Monday. 2. Far Grip conducted anchor recovery simulation beside rig to test workability in metocean conditions. Conditions too severe for safe operations. Wind 25-35kts, Significant wave height (Hs) 5-6m. Estimated requirement is maximum significant wave height 4-4.5m. 3. Helicopter with additional P+A personnel and additional cutter sets was ordered to return to beach mid flight to rig. Additional personnel and equipment no longer required after wellhead was successfully recovered from seabed. 4. Near Miss Incident: Floorman noticed derrick camera protective aluminium shroud dislodged and laying on derrick fingers. Suspect shroud had blown from camera during gale force winds. Removed shroud. Checked other camera shrouds and installed securing bands to prevent dislodgement. 5. BOP preliminary inspection revealed no wear or damage attributable to this drilling campaign. 6. DW2 Core #1. Original DP tally1520.65. Strap tally (SLM) while pulling out of hole 1519.85m.



Woodside Energy
Daily Offshore Report
Well: Halladale-1 DW-3

Report No#: 45**Report Date: 1/05/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|----------|
| DOL: | 44.31 | MD (m): | 1,969.00 | Supervisor: | D Thorpe |
| DFS: | 40.52 | Planned Depth (m): | 1,960.00 | Engineer: | D Clarke |
| Budget Days: | 37.07 | TVD (m): | 1,881.37 | Rig OIM: | S Barry |
| Progress Days: | 34.47 | Progress (m): | | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 22,342,715.00 (\$) | | | | |

Ops 00:00 to 06:00: Recovered primary anchors #2, #4 and #5. Halladale-1 complete and rig handed over to Santos with Anchor #4 bolstered at 05:30hrs 2nd May 2005.

Ops Summary (24 Hrs): Continued to wait on weather. De-ballasted rig from 23.5m to 13m draft. Recovered secondary anchors #7, #2, #6 and #3. Recovered primary anchor #1.

Ops Lookahead:

| From | Dur. (hr) | Phase | Code | Class | Operation |
|-------|--------------|-------|------|-------|---|
| 0:00 | 7.75 | RM | WOW | D | Waited on weather. Wind 25-38kts, Swell 4m, Seas 1.5m. Wind eased to 25-30kts by 06:00hrs. Continued planned maintenance on mud pumps, draw-works, iron roughneck and TDS. Commenced Diamond mechanical and electrical audit on drilling equipment and anchor winches. |
| 7:45 | 8.25 | RM | RMV | P | De-ballasted rig from 23.5m to 13m draft. Wind eased to 25-30kts by 06:00hrs. Swell 4m, Seas 1.5m. |
| 16:00 | 3.00 | RM | RMV | P | Recovered secondary anchors #7 and #2. Continued deballasting from 13m to 12m draft. Passed #7 PCC to Far Grip at 16:07hrs. Passed #2 PCC to Pacific Wrangler at 16:11hrs. Anchor #2 off bottom at 16:31hrs. Anchor #7 off bottom at 16:39hrs. Anchor #7 racked and PCC passed back to rig at 18:50hrs. Anchor #2 racked and PCC passed back to rig at 19:00hrs. #7 anchor winch band brake overheated while hauling in anchor - stopped and let brake cool from 17:02 to 17:50hrs. |
| 19:00 | 2.50 | RM | RMV | P | Recovered secondary anchors #6 and #3. Passed #6 PCC to Far Grip at 19:05hrs. Passed #3 PCC to Pacific Wrangler at 19:08hrs. Anchor #3 off bottom at 17:30hrs. Anchor #6 off bottom at 19:36hrs. Anchor #6 racked and PCC passed back to rig at 20:53hrs. Anchor #3 racked and PCC passed back to rig at 21:17hrs. |
| 21:30 | 2.50 | RM | RMV | P | Recovered primary anchors. Tow bridle passed to Far Grip at 22:10hrs. Passed #1 PCC to Pacific Wrangler at 21:31hrs. Anchor #1 off bottom at 22:31hrs. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|----------|--------------------|---------------|------------|-------------|---------------------|
|----------|--------------------|---------------|------------|-------------|---------------------|

CASING

| Last Casing: | Next Casing: | Last BOP: 9/04/2005 22:54:36 |
|--------------|--------------|------------------------------|
|--------------|--------------|------------------------------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|---------------|--------------|--------------|----------|-------|-----------|-----------|--------------|--------------|---------------|-----------------|
|---------------|--------------|--------------|----------|-------|-----------|-----------|--------------|--------------|---------------|-----------------|

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|---------------------|-------------------------|--------------------------|--------------|----------------|---------|-------------|---------------|----------------|---------------|----------------------|--------------------|----------------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |



Woodside Energy
Daily Offshore Report
Well: Halladale-1 DW-3

Report No#: 45**Report Date: 1/05/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

OHSE Report

| | | | Daily | Cumulative |
|--------|----|------------------|-------|------------|
| LTI's: | 0 | Incident Reports | 1.00 | 12.00 |
| TRCs: | 0 | Stop/Start Cards | 6.00 | 496.00 |
| DSLTI | 45 | Stop/Start Tours | 1.00 | 33.00 |

Safety Comments

Incident: derrick camera protective shroud fell off in high winds

PERSONNEL DATA

| Company | No. People | Company | No. People |
|-------------|------------|------------------|------------|
| FUGRO | 4 | MO47 | 3 |
| DOWELL | 2 | SMITH | 1 |
| FUGRO ROV | 6 | SPERRY SUN | 0 |
| BAKER ATLAS | 0 | DRILQUIP | 1 |
| Marcom | 1 | DIAMOND Offshore | 60 |
| BHI | 0 | WOODSIDE | 5 |
| WEATHERFORD | 0 | | |
| | | Total POB | 83 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|--------------|-----------|-------|--------------|-----------------|-----------|-------|--------------|
| GEL, FRESH | t | 0.0 | 26.7 | WATER, POTABLE | m3 | 16.7 | 121.1 |
| BARITE BULK | t | 0.0 | 93.8 | CEMENT | t | 0.0 | 64.1 |
| FUEL | m3 | 11.3 | 207.2 | WATER, DRILLING | m3 | 22.0 | 150.8 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Standby | 20/04/2005 | |
| Pacific Wrangler | Standby | 20/04/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|--------------------|-----------------------|-------------|--------------|--------------|--------------|-------------|---------------------|
| 69.00 | 5.14 | 0.914 | 3.993 | 2.00 | 1.50 | 1.50 | 12.00 |

REMARKS

HSE 1. CAR; 101 of 103 items closed out. 2. Completed end of well environmental discharge report. 3. Incident #12 for derrick camera shroud
General 1. Conducted after action review for well abandonment operations. 2. Completed KPI for Smith, Fugro ROV and Drilquip.



Woodside Energy

Daily Offshore Report

Well: Halladale-1 DW-3

Report No#: 46

Report Date: 2/05/2005

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | | | |
|-------------------|--------------------|--------------------|----------|-------------|----------|
| DOL: | 44.54 | MD (m): | 1,969.00 | Supervisor: | D Thorpe |
| DFS: | 40.75 | Planned Depth (m): | 1,960.00 | Engineer: | D Clarke |
| Budget Days: | 37.07 | TVD (m): | 1,881.37 | Rig OIM: | S Barry |
| Progress Days: | 37.07 | Progress (m): | | RT-SL (m): | 21.50 |
| AFE Cost: | 21,489,000.00 (\$) | | | | |
| Cumulative Total: | 21,921,874.00 (\$) | | | | |

Ops 00:00 to 06:00:

Ops Summary (24 Hrs): Recovered primary anchors Pacific Wrangler. Far Grip on tow bridle. Halladale-1 complete and rig handed over to Santos with Anchor #4 bolstered at 05:30hrs 2nd May 2005.

Ops Lookahead:

| From | Dur. (hr) | Phase | Code | Class | Operation |
|------|--------------|-------|------|-------|--|
| 0:00 | 5.50 | RM | RMV | P | Continued to recover primary anchors with Pacific Wrangler. Far Grip on tow bridle. Anchor #1 racked and PCC passed back to rig at 00:21hrs. Passed #8 PCC to Pacific Wrangler at 00:35hrs. Anchor #8 off bottom 00:55hrs. Anchor #8 racked and PCC passed back to rig at 02:00 hrs. Passed #5 PCC to Pacific Wrangler at 02:19hrs. Anchor #5 off bottom 02:40hrs. Anchor #5 racked and PCC passed back to rig at 04:00 hrs. Passed #4 PCC to Pacific Wrangler at 04:21hrs. Anchor #4 off bottom 05:26 hrs. Anchor #4 racked at 05:35 hrs. |
| 5:30 | 0.00 | RM | RMV | P | Halladale-1 complete and rig handed over to Santos with Anchor #4 bolstered at 05:30hrs 2nd May 2005. |

HOLE SECTIONS

| Section | MD Top (m) | MD Base (m) | OD of prev. Csg (mm) | MD of prev Csg.shoe (m) | Pilot Hole | Section Type | Effective Hole Diameter (mm) |
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|
|---------|---------------|----------------|----------------------------|-------------------------------|------------|--------------|---------------------------------|

DRILLING FLUIDS

| Mud Type | Density (kg/m³) | PV (mPa/s) | YP (Pa) | 6RPM (°) | Pump Liners (mm) |
|----------|--------------------|---------------|------------|-------------|---------------------|
|----------|--------------------|---------------|------------|-------------|---------------------|

CASING

| Last Casing: | Next Casing: | Last BOP: 9/04/2005 01:58:10 |
|--------------|--------------|------------------------------|
|--------------|--------------|------------------------------|

BITS TODAY

| Bit Number | Size (mm) | Manufacturer | Model No | Class | IADC Code | Serial No | Jets (mm) | MD In (m) | MD Out (m) | I-O-D-L-B-G-O-R |
|---------------|--------------|--------------|----------|-------|-----------|-----------|--------------|--------------|---------------|-----------------|
|---------------|--------------|--------------|----------|-------|-----------|-----------|--------------|--------------|---------------|-----------------|

BIT OPERATIONS

| TODAY | | | | | | | | | | | CUMULATIVE | | |
|--------|---------------------|-------------------------|--------------------------|--------------|----------------|---------|-------------|---------------|----------------|---------------|----------------------|--------------------|----------------------|
| MD (m) | WOB Min/Max (kN) | Current RPM (rpm) | Flow Rate (m³/min) | SPP (kPa) | P Bit (kPa) | % @ Bit | HHP (kW) | Hours (hr) | Footage (m) | ROP (m/hr) | Hours Cum (hr) | Footage Cum (m) | ROP Cum (m/hr) |

OHSE Report

| Daily | | | | | Cumulative | | | | |
|--------|----|------------------|--|------|------------|--------|--|--|--|
| LTI's: | 0 | Incident Reports | | 0.00 | | 11.00 | | | |
| TRCs: | 0 | Stop/Start Cards | | 0.00 | | 496.00 | | | |
| DSLTI | 46 | Stop/Start Tours | | 0.00 | | 33.00 | | | |

Safety Comments

PERSONNEL DATA

| Company | No. People | Company | No. People |
|---------|------------|------------------|------------|
| SMITH | 1 | WEATHERFORD | 0 |
| MO47 | 3 | DIAMOND Offshore | 60 |



Woodside Energy
Daily Offshore Report
Well: Halladale-1 DW-3

Report No#: 46**Report Date: 2/05/2005**

Block: VicP37(v)

Rig: Ocean Patriot

Start Date: 18/03/2005

| | | | |
|------------------|---|-------------|-----------|
| WOODSIDE | 5 | BAKER ATLAS | 0 |
| FUGRO ROV | 6 | SPERRY SUN | 0 |
| DOWELL | 2 | FUGRO | 4 |
| BHI | 0 | Marcom | 1 |
| DRILQUIP | 1 | | |
| Total POB | | | 83 |

MATERIALS

| Product Name | Unit Size | Usage | Quantity End | Product Name | Unit Size | Usage | Quantity End |
|----------------|-----------|-------|--------------|-----------------|-----------|-------|--------------|
| WATER, POTABLE | m3 | 0.0 | 121.1 | FUEL | m3 | 0.0 | 207.2 |
| CEMENT | t | 0.0 | 64.1 | WATER, DRILLING | m3 | 0.0 | 150.8 |
| GEL, FRESH | t | 0.0 | 26.7 | BARITE BULK | t | 0.0 | 93.8 |

SUPPORT CRAFT

| Name | Comments | Arrival Date | Departure Date |
|------------------|----------|--------------|----------------|
| Far Grip | Standby | 20/04/2005 | |
| Pacific Wrangler | Standby | 20/04/2005 | |

WEATHER

| Rig Heading (°) | 10m Wind Spd (m/s) | Wave (m) | Swell (m) | Heave (m) | Pitch (°) | Roll (°) | Temperature (°C) |
|--------------------|-----------------------|-------------|--------------|--------------|--------------|-------------|---------------------|
| 69.00 | 5.14 | 0.610 | 3.993 | 2.00 | 1.50 | 1.50 | 12.00 |

REMARKS

Daily cost \$79,159

Manual cost adjustment (-\$500,000) for reduced management fees

Final estimated well cost \$21,921,874

Bit Record

Appendix 2 - Bit Record

See [Appendix 8](#):

**HALLIBURTON SURFACE DATA LOGGING END
OF WELL REPORT, [Section 6](#)**

Casing Running and Cementing Report

Casing Test Report

Well: **Halladale-1** Date: 26-Mar-05

| | | |
|----------------|--------------|-----------------|
| Casing Size: | 13 3/8 " | |
| Shoe Depth: | 421.07 m TVD | 1382 ft TVD |
| Hole Depth: | 427 m TVD | 1401 ft TVD |
| Mud Weight: | 1.03 sg | 8.58 ppg |
| Pump Rate: | 0.10 bpm | KCl/PHPA |
| Vol pumped: | 1.36 bbls | |
| Vol bled back: | 1.3 bbls | |

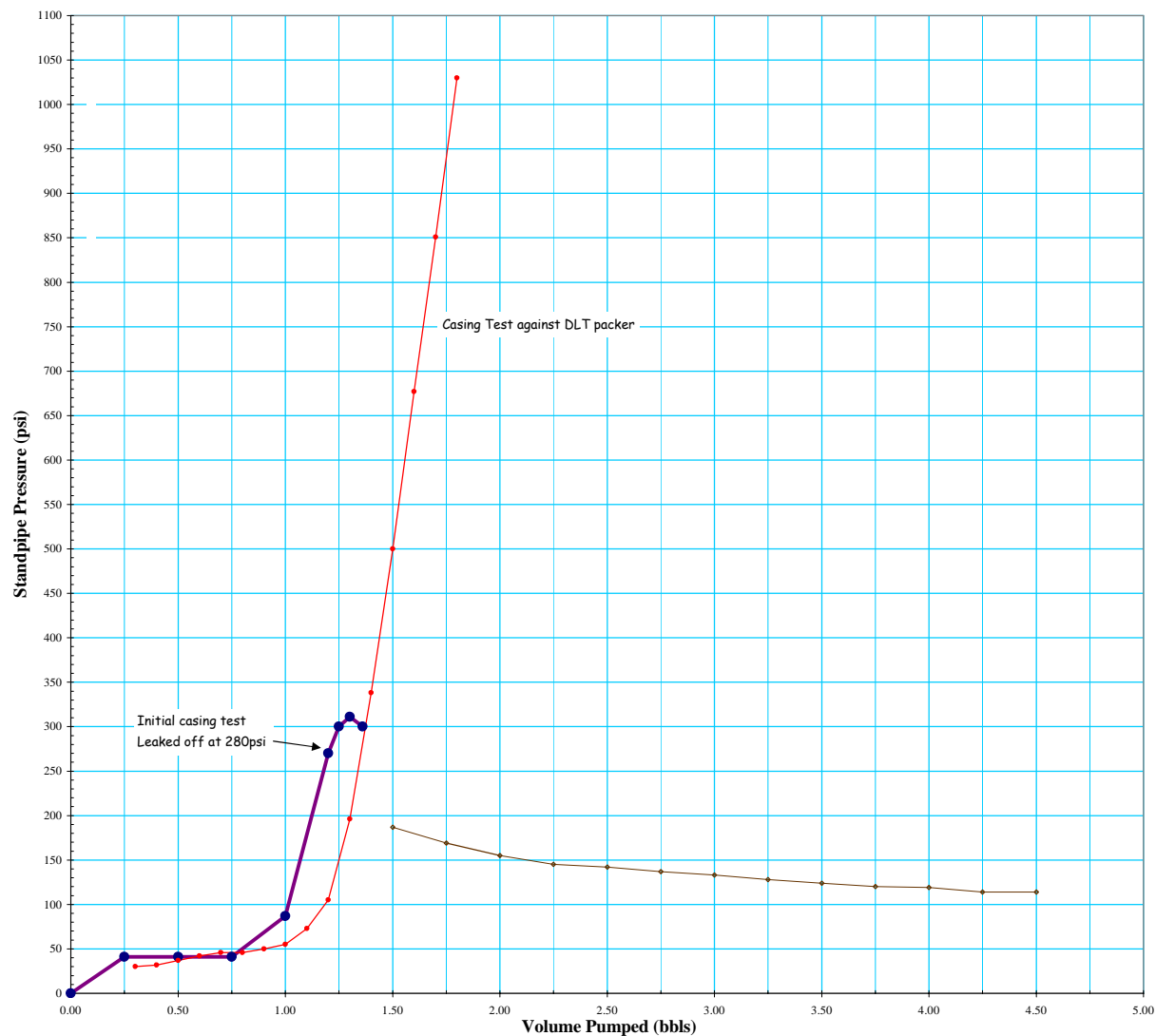
| | | |
|----------------|---------|-----------|
| Target FIT EMW | 1.62 SG | 13.49 ppg |
|----------------|---------|-----------|

| | |
|-------------------|---------|
| Target Surf Press | 353 psi |
|-------------------|---------|

| | |
|------------------|---------|
| Actual Max Press | 280 psi |
|------------------|---------|

| | | |
|------------|-----------|-----------|
| Actual EMW | 1.4979 SG | 12.48 ppg |
|------------|-----------|-----------|

Test Data

[illegible]

NOTES

- Top plug did not bump. Pumped 182bbl. Theoretical displacement 166.5bbl. Base of tail cement 3 joints above shoe.
- Formation leaked off at 280psi (1.50sg EMW)
- Ran DLT packer to 385mRT
- Pressure tested casing, wellhead connectr and shear rams to 1000psi - ok.

Casing Test Report

Well: **Halladale-1** Date: 30-Mar-05

| | | |
|----------------|-------------|-----------------|
| Casing Size: | 9 5/8 " | |
| Shoe Depth: | 833.8 m TVD | 2736 ft TVD |
| Hole Depth: | 839 m TVD | 2753 ft TVD |
| Mud Weight: | 1.16 sg | 9.70 ppg |
| Pump Rate: | 0.10 bpm | KCl/PHPA |
| Vol pumped: | 1.2 bbls | |
| Vol bled back: | 1.2 bbls | |

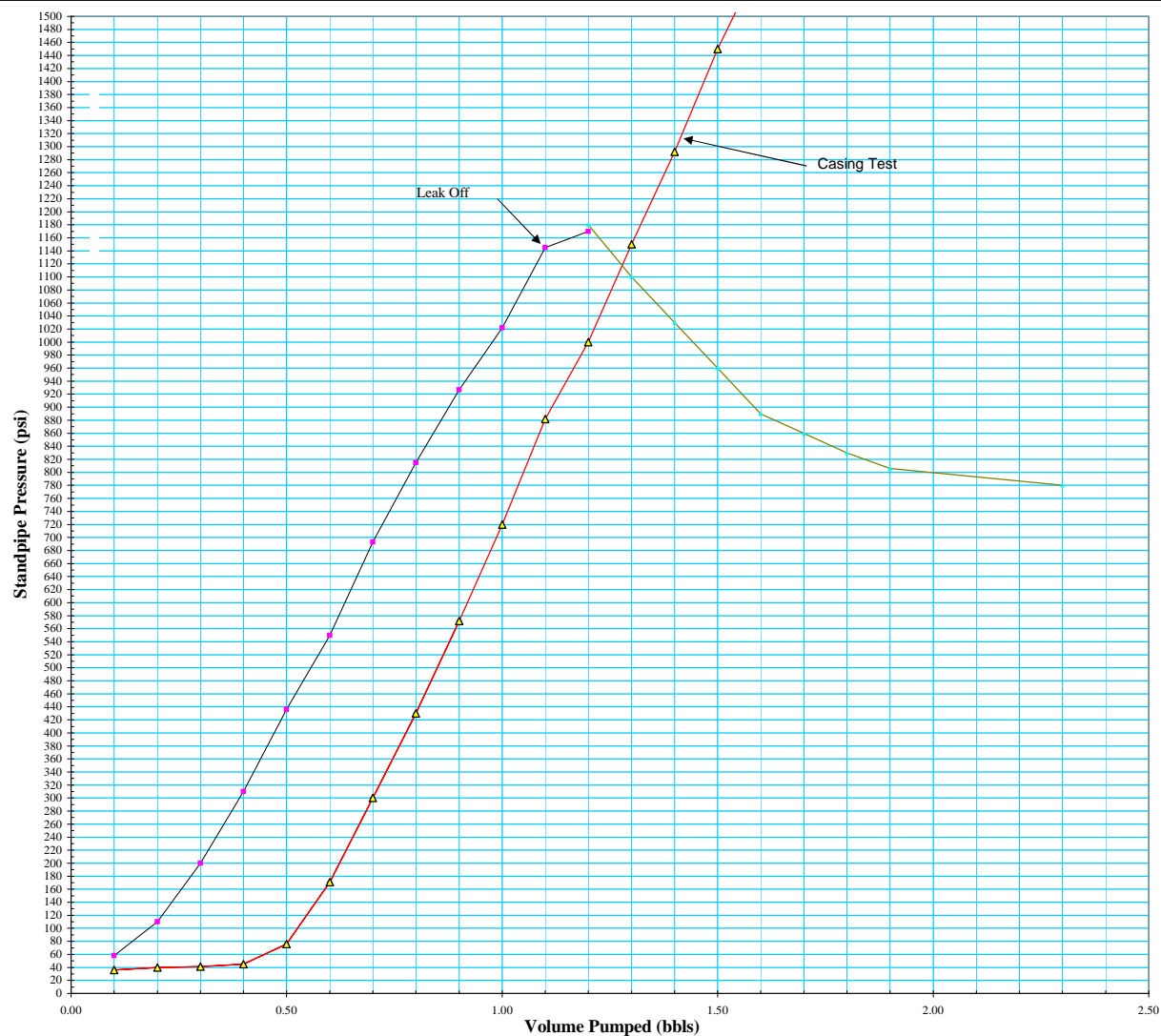
| | | |
|----------------|--------|-----------|
| Target FIT EMW | 1.8 SG | 14.99 ppg |
|----------------|--------|-----------|

| | |
|-------------------|---------|
| Target Surf Press | 754 psi |
|-------------------|---------|

| | |
|------------------|----------|
| Actual Max Press | 1145 psi |
|------------------|----------|

| | | |
|------------|---------|-----------|
| Actual EMW | 2.13 SG | 17.74 ppg |
|------------|---------|-----------|

Test Data

[illegible]

NOTES

LOT conducted by mud down drill pipe and choke & kill line with C&K lines displaced to mud @1.16sg.
Pumped 1.2bbbls. Bled back 1.2bbbls.

Mud Properties

HALLADALE-1 DW3 DAILY FLUID PROPERTIES SUMMARY

36" INTERVAL

| Report | Depth | FL | Mud | Funnel | PV | YP | Gels | 6 rpm | Chlorides | Total Hardness | pH |
|--------|-------|-------|------|--------|----|------------------------|------------------------|-------|-----------|----------------|------|
| Date | MD | Temp. | Wt. | Visc. | cp | lbs/100ft ² | 10" / 10' | | mg/L | mg/L | |
| 2005 | m | C | Sg | sec/qt | | | lbs/100ft ² | | | | |
| 22 Mar | 67 | | 1.06 | 224 | 23 | 59 | 45/65 | 48 | | | 10.0 |
| 23 Mar | 101 | | 1.07 | 225 | 19 | 65 | 43/61 | 45 | | | 9.5 |

17 ½" INTERVAL

| Report | Depth | FL | Mud | Funnel | PV | YP | Gels | 6 rpm | Chlorides | Total Hardness | pH |
|--------|-------|-------|------|--------|----|------------------------|---------|-------|-----------|----------------|-----|
| Date | MD | Temp. | wt. | Visc. | cp | lbs/100ft ² | 10"/10' | | mg/L | mg/L | |
| 2005 | m | C | sg | sec/qt | | | | | | | |
| 24 Mar | 427 | | 1.06 | 216 | 19 | 60 | 40/54 | 42 | 540 | 80 | 9.0 |

12 ¼" INTERVAL

| Report | Depth | FL | Mud | Funnel | PV | YP | Gels | 6 rpm | API | Solids | Water | Sand | Alk | pH | KCl | NaCl | PHPA | LGS | HGS | ASG |
|--------|-------|-------|------|--------|----|------------------------|------------------------|-------|-----|--------|-------|------|-----|------|-----|------|------|-----|-----|--------|
| Date | MD | Temp. | Wt. | Visc. | Cp | lbs/100ft ² | 10" / 10' | | ml | % | % | % | Pm | | % | % | LV | % | % | solids |
| 2005 | m | C | Sg | sec/qt | | | lbs/100ft ² | | | corr | | | ml | | | | ppb | | | |
| 25 Mar | 427 | | | | | | | | | | | | | | | | | | | |
| 26 Mar | 427 | | 1.11 | 50 | 26 | 28 | 8/15 | 13 | 7.0 | 2.4 | 92.0 | 0.1 | 0.5 | 9.5 | 9.5 | 0.1 | 0 | 1.2 | 1.2 | 3,6 |
| 27 Mar | 753 | 48 | 1.14 | 77 | 26 | 42 | 7/13 | 10 | 6.5 | 3.5 | 91.0 | 1.0 | 0.6 | 10.5 | 9.0 | 0.2 | 0.6 | 1.4 | 2.1 | 3.5 |



DRILLING FLUIDS RECAP
Halladale-1



Drilling Fluids

| | | | | | | | | | | | | | | | | | | | | |
|--------|-----|----|------|----|----|----|------|---|-----|-----|------|-----|-----|------|-----|--|-----|-----|-----|-----|
| 28 Mar | 839 | 37 | 1.18 | 71 | 26 | 33 | 6/14 | 9 | 6.2 | 4.6 | 90.0 | 0.7 | 0.3 | 10.0 | 8.5 | | 0.6 | 1.0 | 3.6 | 3.8 |
| | | | | | | | | | | | | | | | | | | | | |



Drilling Fluids

DRILLING FLUIDS RECAP
Halladale-1



8½" INTERVAL

| Report Date | Depth MD | FL Temp. | Mud Wt. | Funnel Visc. | PV Cp | YP lbs/100ft ² | Gels 10" / 10' lbs/100ft ² | 6 rpm | API ml | Solids % | Water % | Sand % | Alk Pm ml | pH | KCl % | NaCl % | PHPA ppb | LGS % | HGS % | ASG solids |
|-------------|----------|----------|---------|--------------|-------|---------------------------|---------------------------------------|-------|--------|----------|---------|--------|-----------|-----|-------|--------|----------|-------|-------|------------|
| 2005 | m | C | sg | sec/qt | | | | | | corr | | | | | | | | | | |
| 22 Apr | 1570 | 50 | 1.25 | 68 | 34 | 34 | 6/12 | 7 | 4.0 | 8.0 | 86.5 | 0.3 | 0.2 | 9.0 | 9.0 | 0.3 | 0.75 | 3.52 | 4.47 | 3.49 |
| 23 Apr | 1750 | 50 | 1.26 | 72 | 38 | 42 | 8/19 | 8 | 4.0 | 8.51 | 86.0 | 0.2 | 0.1 | 9.0 | 9.0 | 0.3 | 0.75 | 3.91 | 4.6 | 3.46 |
| 24 Apr | 1969 | 50 | 1.26 | 74 | 40 | 32 | 7/15 | 7 | 3.6 | 8.29 | 86.0 | 0.25 | 0.1 | 9.0 | 9.5 | 0.3 | 0.75 | 3.72 | 4.57 | 3.48 |
| 25 Apr | 1969 | 50 | 1.28 | 78 | 40 | 35 | 5/18 | 7 | 4.0 | 8.86 | 85.5 | 0.25 | 0.1 | 9.0 | 8.5 | 0.3 | 0.75 | 3.53 | 5.33 | 3.56 |
| 26 Apr | 1969 | 50 | 1.29 | 80 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |

Daily Geological Reports

**CONFIDENTIAL**

| | | | |
|----------------------------|-------------------------|---------------------------|-----------------|
| Date: | 22 Mar 2005 | Last Casing: | N/A |
| Report Number: | 05 | FIT: | N/A |
| Report Period: | 0000-2400 Hours AEDT | Mud Weight: | 1.06 sg |
| Depth @ 2400 Hours: | 69 mMDRT (69 mTVDRT) | ECD: | N/A, no annulus |
| Lag Depth: | N/A | Mud Type: | Gel/Polymer |
| Last Depth: | 0 mMDRT (0 mTVDRT) | Mud Chlorides: | 700 mg/l |
| Progress: | 69 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | N/A |
| RT: | 21.5 m | Deviation: | N/A |
| Bit Diameter: | 36" (914 mm) | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: Continued to ballast down the rig and made up 476 mm (18 ¾") running tool and 127 mm (5") drill pipe. Pressure tested the top drive system and stand pipe manifold. Tested and changed out the internal BOP. Made up the 914 mm (36") BHA and Temporary Guide Base (TGB) and ran in hole tagging seabed at 66.3 mMDRT. Drilled ahead to 69.0mMDRT where the guide lines for the TGB tangled around the drill string. Pulled assembly and TGB out of the hole to untangle and inspect. Skidded the rig 6.8 m prior to rerunning the TGB to the seabed. Operations were temporarily shut down when a bearing assembly and clevis fell out of the derrick. Pulled out of hole and laid out the TGB running tool. Made up and ran the 914 mm (36") drilling assembly, tagging seabed at 66.3 mMDRT. Drilled to 69 mMDRT, before the near bit stabilisers caught on the guide lines for the TGB. Pulled out of hole and untwisted the guidelines in the moonpool.

NEXT 24 HOURS: Break out 36" bit. Recover TGB and skid aside. Skid rig back over original location. Make up new BHA comprising 444 mm (17 ½") bit and 914 mm (36") hole opener and drill ahead without using TGB. Run and cement conductor. Drill 444mm (17 1/2") hole.

CURRENT OPERATION @ 06:00 Hrs AEDT 23/03/2005: Running in hole with a 444 mm (17 ½") bit and 914 mm (36") hole opener.

GEOLOGICAL SUMMARY**LITHOLOGY**

INTERVAL: 66.3 to 69.0 mMDRT
ROP (range): 5.4 – 17.7 m/hr
Av ROP: 13.0 m/hr

Returns to Seabed

HYDROCARBON FLUORESCENCE

No returns to surface.

FORMATION PRESSURE ESTIMATION:

| ITEM | REMARKS |
|---------------------|-----------------------|
| Pore Pressure | Normal |
| MWD Resistivity | Not Run |
| Connection gas | N/A |
| Dxc exponent | N/A |
| Mud weight | 1.06 sg |
| ROP | 5.4-17.7m/h |
| Background gas | No returns to surface |
| Trip Gas | N/A |
| Mud temperature out | N/A |



CONFIDENTIAL

| | |
|----------------|-----|
| Ditch cuttings | N/A |
|----------------|-----|



CONFIDENTIAL

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers and 1 x mudlogger on board.

LWD

1 x LWD and 1 x Directional Driller on board (no LWD in 36" (914mm) borehole assembly).

WIRELINER

No wireline personnel on board.

REMARKS

This is the first Geological Report for Halladale-1 DW1.

Limited progress due to problems generated by the hard seabed.

HSE

Metal object fell from drill string compensator to the drill floor - no injury to personnel.

WELLSITE GEOLOGISTS

Tony Cartwright/Mark Tindale

**CONFIDENTIAL**

| | | | |
|----------------------------|--|---------------------------|---------------|
| Date: | 23 March 2005 | Last Casing: | N/A |
| Report Number: | 06 | FIT: | N/A |
| Report Period: | 0000-2400 Hours AEDT | Mud Weight: | 1.07 sg |
| Depth @ 2400 Hours: | 101 mMDRT (101 mTVDR) | ECD: | Normal |
| Lag Depth: | N/A | Mud Type: | Gel / Polymer |
| Last Depth: | 69 mMDRT (69 mTVDR) | Mud Chlorides: | 600 mg/l |
| Progress: | 32 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | N/A |
| RT: | 21.5 m | Deviation: | N/A |
| Bit Diameter: | 444.5 mm bit x 914 mm hole opener (17.5" x 36") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: Continued to free guidelines from drill string prior to breaking out the 914 mm (36") bit and laid out 444 mm (17 1/2") stabilisers. Made up guide base running tool and tripped in hole to retrieve the guide base. Recovered temporary guide base to the moonpool then laid down the running tool. Skidded rig back to original location. Made up a new BHA comprising a 444.5 mm (17 1/2") drill bit and 914 mm (36") hole opener. Stabbed into original hole and drilled ahead to 101 mMDRT. Pumped a high viscosity sweep and displaced the hole to gel mud prior to pulling out of the hole. Rigged up, ran and cemented the 762 mm (30") casing with Permanent Guide Base to 99.5 mMDRT. Waited on cement.

NEXT 24 HOURS: Make up 444.5 mm (17.5") drilling assembly and Run in Hole. Drill ahead to ~418 mMDRT then rig up and run 340 mm (13.375") casing.

CURRENT OPERATION @ 06:00 Hrs AEDT 24/03/2005: Repairing damaged compensator from which the broken bearing assembly and clevis fell to the drill floor yesterday.

GEOLOGICAL SUMMARY**LITHOLOGY**

INTERVAL: 69 to 101 mMDRT
ROP (range): 1.1 – 36.6 m/hr
Av ROP: 6.5 m/hr

Returns to seabed.

HYDROCARBON FLUORESCENCE

No returns to surface.

GAS SUMMARY

| Background | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
|------------|---------------|--------|--------|--------|---------|---------|--------|
| Nil. | - | - | - | - | - | - | - |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | iC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |
| Trip | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |

**CONFIDENTIAL****FORMATION PRESSURE ESTIMATION:**

| ITEM | REMARKS |
|---------------------|---|
| Pore Pressure | Normal |
| MWD Resistivity | Not run |
| Connection gas | N/A |
| Dxc exponent | N/A |
| Mud weight | 1.07 sg |
| ROP | Varies with lithology and drilling parameters |
| Background gas | No returns to surface |
| Trip Gas | N/A |
| Mud temperature out | N/A |
| Ditch cuttings | N/A |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers and 1 x Logger on board.

LWD

2 x MWD and 1 x Directional Driller on board. No MWD tools in 914 mm (36") drilling assembly.

WIRELINER

No wireline personnel on board.

REMARKS

762 mm (30") casing cemented with 168 bbls of slurry (1.9 sg / 15.9 ppg).

HSE

No incidents to report.

WELLSITE GEOLOGISTS

Mark Tindale / Tony Cartwright



CONFIDENTIAL

| | | | |
|----------------------------|---------------------------|---------------------------|---------------------------|
| Date: | 24 March 2005 | Last Casing: | 762 mm (30") @ 99.5 mMDRT |
| Report Number: | 07 | FIT: | None performed |
| Report Period: | 0000-2400 Hours AEDT | Mud Weight: | 1.06 sg |
| Depth @ 2400 Hours: | 427 mMDRT (427 mTVDRT) | ECD: | Normal |
| Lag Depth: | N/A | Mud Type: | Gel / Polymer |
| Last Depth: | 101 mMDRT (101 mTVDRT) | Mud Chlorides: | 540 mg/l |
| Progress: | 326 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 413.8 mMDRT |
| RT: | 21.5 m | Deviation: | 0.70° |
| Bit Diameter: | 444.5 mm (17 1/2") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: *Rigged down cement lines and 762mm (30") casing running tool. Repaired drill string compensator prior to laying out the 444.5 mm (17 1/2") bit and 914 mm (36") hole opener. Made up 444.5 mm (17 1/2") drilling assembly then ran in hole tagging the top of cement at 98 mMDRT. Cleaned out the shoe track and drilled ahead to 427 mMDRT. Pumped two gel sweeps and ran a multi shot survey prior to pulling out of hole. Made up a jetting sub and ran in hole, pumped a high viscosity gel sweep and circulated the casing clean. Pulled the jetting assembly up to the wellhead and cleaned same. Pulled out of hole and laid out the jetting assembly.*

NEXT 24 HOURS: *Rig up, run and cement the 340 mm (13 3/8") casing and wellhead. Run BOP's.*

CURRENT OPERATION @ 06:00 Hrs AEDT 25/03/2005: *Running 340 mm (13 3/8") casing.*

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 101 to 206 mMDRT
ROP (range): 3.1 – 245.4 m/hr
Av ROP: 48.6 m/hr

Returns to seabed.

INTERVAL: 206 to 246 mMDRT
ROP (range): 5.2 – 63.1 m/hr
Av ROP: 40.0 m/hr

Returns to seabed.

INTERVAL: 246 to 427 mMDRT
ROP (range): 3.4 – 302.3 m/hr
Av ROP: 59.2 m/hr

Returns to seabed.

HYDROCARBON FLUORESCENCE

No returns to surface.

**CONFIDENTIAL****GAS SUMMARY**

No gas returns to surface.

| Background | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
|------------|---------------|--------|--------|--------|---------|---------|--------|
| Nil. | - | - | - | - | - | - | - |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | iC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |
| Trip | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |

FORMATION PRESSURE ESTIMATION:

| ITEM | REMARKS |
|---------------------|--|
| Pore Pressure | Normal |
| MWD Resistivity | Not run |
| Connection gas | N/A |
| Dxc exponent | Normal |
| Mud weight | 1.06 sg |
| ROP | Top Gellibrand Marl reduced ROP. Generally fast and irregular. |
| Background gas | No returns to surface |
| Trip Gas | N/A |
| Mud temperature out | N/A |
| Ditch cuttings | N/A |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers and 1 x Logger on board.

LWD

4 x MWD and 2 x Directional Driller on board. No MWD tools in 444.5 mm (17 1/2") drilling assembly.

WIRELINER

No wireline personnel on board.

REMARKS

Sperry Sun Directional has an incorrect size hang-off collar for the pulsar on board. Without this the pulsar will not work. Arrangements have been made to get the correct part to the rig by early afternoon on Saturday.

HSE

No incidents to report.

WELLSITE GEOLOGISTS

Mark Tindale / Tony Cartwright

**CONFIDENTIAL**

| | | | |
|----------------------------|--------------------------|---------------------------|---------------------------------|
| Date: | 25 March 2005 | Last Casing: | 340 mm (13 3/8") @ 421 mMDRT |
| Report Number: | 08 | FIT: | None performed |
| Report Period: | 0000-2400 Hours AEDT | Mud Weight: | N/A |
| Depth @ 2400 Hours: | 427 mMDRT (427 mTVDR) | ECD: | N/A |
| Lag Depth: | N/A | Mud Type: | Gel / Polymer |
| Last Depth: | 427 mMDRT (427 mTVDR) | Mud Chlorides: | N/A |
| Progress: | 0 m | Est. Pore Press: | N/A |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 413.8 mMDRT |
| RT: | 21.5 m | Deviation: | 0.70° |
| Bit Diameter: | 444.5 mm (17 1/2") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: Made up deep sea cement head, then rigged up to run 340 mm (13 3/8") casing. Made up float equipment, centralisers, guide ropes and tripped in hole with casing. Made up 476 mm (18 3/4") well head to 340 mm (13 3/8") running tool and ran in hole. Landed and latched the well head at 63.80 mMDRT. Tested cement lines, mixed and pumped slurry. Displaced casing to water but failed to bump plug. Rigged down and laid out cementing equipment, rigged up and ran riser. Unable to stab riser joint due to bent connection, changed out same. Positioned BOP and nipped up riser string, installing guide lines. Positioned BOP carriage and ran stack. Pressure tested choke and kill lines, picked up slip joint.

NEXT 24 HOURS: Pressure test wellhead connector and casing. Make up 311 mm (12 1/4") bottom hole assembly. Function test BOP. Drill out shoe track and rat hole, then perform leak off test. Drill 311 mm hole to 244 mm (9 5/8") casing point.

CURRENT OPERATION @ 06:00 Hrs AEDT 26/03/2005: Rigging up storm loops.

GEOLOGICAL SUMMARY**LITHOLOGY**

No new formation drilled

HYDROCARBON FLUORESCENCE

No returns to surface.

GAS SUMMARY

No gas returns to surface.

| Background | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
|------------|---------------|--------|--------|--------|---------|---------|--------|
| Nil. | - | - | - | - | - | - | - |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | iC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |
| Trip | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |

**CONFIDENTIAL****FORMATION PRESSURE ESTIMATION:**

| ITEM | REMARKS |
|---------------------|---------|
| Pore Pressure | - |
| MWD Resistivity | - |
| Connection gas | - |
| Dxc exponent | - |
| Mud weight | - |
| ROP | - |
| Background gas | - |
| Trip Gas | - |
| Mud temperature out | - |
| Ditch cuttings | - |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers and 1 x Logger on board.

LWD

4 x MWD and 2 x Directional Driller on board.

WIRELINER

No wireline personnel on board.

REMARKS

Cement job: lead slurry - 191 bbls @ 1.50 sg (12.5 ppg), tail slurry - 140.5 bbls @ 1.90 sg (15.8 ppg).

The hang off collar for the MWD pulsar will arrive early this morning, with sufficient time to be included in the 311 mm (12 1/4") BHA.

HSE

No incidents to report.

WELLSITE GEOLOGISTS

Mark Tindale / Tony Cartwright

**CONFIDENTIAL**

| | | | |
|----------------------------|--------------------------|---------------------------|---------------------------------|
| Date: | 26 March 2005 | Last Casing: | 340 mm (13 3/8") @ 421 mMDRT |
| Report Number: | 09 | FIT: | None performed |
| Report Period: | 0000-2400 Hours AEDT | Mud Weight: | N/A |
| Depth @ 2400 Hours: | 427 mMDRT (427 mTVDR) | ECD: | N/A |
| Lag Depth: | N/A | Mud Type: | Gel / Polymer |
| Last Depth: | 427 mMDRT (427 mTVDR) | Mud Chlorides: | N/A |
| Progress: | 0 m | Est. Pore Press: | N/A |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 413.8 mMDRT |
| RT: | 21.5 m | Deviation: | 0.70° |
| Bit Diameter: | 311 mm (12 1/4") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: Made up landing joint, choke, kill and booster line goosenecks to slip joint. Pressure tested choke and kill lines with the Dowell cement unit. Skidded rig back to location. Landed and latched BOP followed by the diverter. Pressure tested connector then rigged down riser handling equipment. Made up hanger running tool, casing hanger, cross over, and picked up 340 mm (13 3/8") storm packer. Made up packer assembly and ran in hole to 400 mMDRT. Set packer and attempted to pressure test casing - failed. Moved packer and set at 360 mMDRT then attempted to pressure test casing - failed. Pulled out of hole and adjusted assembly. Ran back in hole and set packer at 385 mMDRT. Pressure tested casing and wellhead connector to 6894.8 kPa (1000 psi) for one hour. Function tested BOP, pulled out of hole and laid out the packer assembly.

NEXT 24 HOURS: Lay out 444.5 mm (17 1/2") bottom hole assembly, make up 311 mm (12 1/4") drilling assembly, run in hole, drill out plugs, shoe track and rat hole then drill ahead 311 mm hole.

CURRENT OPERATION @ 06:00 Hrs AEST 27/03/2005: Making up 311 mm (12 1/4") bottom hole assembly.

GEOLOGICAL SUMMARY**LITHOLOGY**

No new formation drilled.

HYDROCARBON FLUORESCENCE

No returns to surface.

GAS SUMMARY

No gas returns to surface.

| Background | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
|------------|---------------|--------|--------|--------|---------|---------|--------|
| Nil. | - | - | - | - | - | - | - |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | iC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |
| Trip | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |

**CONFIDENTIAL****FORMATION PRESSURE ESTIMATION:**

| ITEM | REMARKS |
|---------------------|---------|
| Pore Pressure | - |
| MWD Resistivity | - |
| Connection gas | - |
| Dxc exponent | - |
| Mud weight | - |
| ROP | - |
| Background gas | - |
| Trip Gas | - |
| Mud temperature out | - |
| Ditch cuttings | - |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers, 2 x Loggers and 2 Sample Catchers on board.

LWD

3 x MWD, 1 x Geo Pilot and 2 x Directional Drillers on board. Pulsar hang-off collar arrived today. 311 mm (12 1/4") MWD tools successfully tested.

WIRELINER

No wireline personnel on board.

REMARKS

In the initial testing of the connector, diverter, BOP and wellhead, the pressure leaked off at 1930 kPa (280 psi), which is an equivalent mud weight of 1.50 sg. As a result, a packer assembly was RIH to pressure test the wellhead against the casing.

ADST changed to AEST 02.00 hours, 27th March. Sperry Sun equipment changed accordingly.

HSE

Top drive contacted automatic racking arm when racking back drill pipe resulting in breaking the shear pins on the racking arm - nothing fell from the derrick.

Diamond hand with chest pains was evacuated to a Melbourne hospital as a precautionary measure at 24.00 hours on the 26th March.

WELLSITE GEOLOGISTS

Mark Tindale / Tony Cartwright

**CONFIDENTIAL**

| | | | |
|---------------------|------------------------|--------------------|------------------------------|
| Date: | 27 March 2005 | Last Casing: | 340 mm (13 3/8") @ 421 mMDRT |
| Report Number: | 10 | FIT: | 1.50 @ 421 mMDRT |
| Report Period: | 0000-2400 Hours AEDT | Mud Weight: | 1.10 – 1.14 sg |
| Depth @ 2400 Hours: | 754 mMDRT (754 mTVDRT) | ECD: | 1.18 sg EMW |
| Lag Depth: | N/A | Mud Type: | Aqua Drill |
| Last Depth: | 427 mMDRT (427 mTVDRT) | Mud Chlorides: | 44 000 |
| Progress: | 327 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 752.6 mMDRT |
| RT: | 21.5 m | Deviation: | Incl: 2.88° Azi: 218.66° |
| Bit Diameter: | 311 mm (12 1/4") | | |

OPERATIONS SUMMARY

25 HOUR SUMMARY: Laid out the 444.5 mm (17 1/2") bottom hole assembly. Made up the 311 mm (12 1/4") bottom hole assembly and ran in hole. Drilled out cement plugs, shoe track and rat hole to 427 mMDRT, then drilled new hole to 538 mMDRT. Circulated excessive drill cuttings from the shakers and conditioned the hole. Continued to drill ahead from 538 to 754 mMDRT.

NEXT 24 HOURS: Drill ahead to casing point ~30 m below top Pember Mudstone, pull out of hole, rig up, run and cement 244 mm (9 5/8") casing.

CURRENT OPERATION @ 06:00 Hrs AEST 28/03/2005: Circulating at casing point 839 mMDRT.

GEOLOGICAL SUMMARY**LITHOLOGY**

INTERVAL: 427 to 440 mMDRT

ROP (range): 8.8 – 71.8 m/hr

Av ROP: 32.5 m/hr

CALCAREOUS CLAYSTONE with minor CALCAREOUS SILTSTONE

CALCAREOUS CLAYSTONE (90-100%): medium greenish grey to light green, in part very light grey, soft to very soft, dispersive to sub-fissile, 30% calcareous clay, 70% siliceous clay, 10% skeletal fragments, trace mica, 5% crinoids.

CALCAREOUS SILTSTONE (0-10%): medium greenish to dark greenish grey, soft to firm, sub-blocky to sub-fissile, 30% calcareous clay, 70% siliceous silt, 20% skeletal fragments.

INTERVAL: 440 to 490 mMDRT

ROP (range): 5 – 40.9 m/hr

Av ROP: 33.6 m/hr

Interbedded CALCAREOUS CLAYSTONE, SILTY CALCAREOUS CLAYSTONE and ARGILLACEOUS CALCILUTITE

CALCAREOUS CLAYSTONE (40-90%): medium greenish grey to light green, in part very light grey, soft to very soft, dispersive to sub-fissile, 40% calcareous clay, 50% siliceous clay, 10% siliceous silt, trace skeletal fragments, trace mica, trace crinoids.

SILTY CALCAREOUS CLAYSTONE (10-60%): white to very light greenish grey, very soft, dispersive, 30% calcareous clay, 10% calcareous silt, 30% siliceous clay, 30% siliceous silt.

ARGILLACEOUS CALCILUTITE (0-100%): medium greenish grey to light green, in part very light grey, soft to very soft, dispersive, 50% calcareous clay, 10% calcareous silt, 20% siliceous clay, 20% siliceous silt, 5% skeletal fragments, 5% crinoids, trace mica, trace foraminifera.

INTERVAL: 490 to 499 mMDRT

ROP (range): 53.9 – 91.6 m/hr

Av ROP: 66.7 m/hr

CALCAREOUS CLAYSTONE and ARGILLACEOUS CALCARENITE

CALCAREOUS CLAYSTONE (70%): medium greenish grey to light green, in part very light grey, soft to very soft, dispersive, 30% calcareous clay, 10% calcareous silt, 40% siliceous clay, 20% siliceous silt, 5% skeletal fragments, 5% crinoids, trace mica, trace foraminifera.



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ARGILLACEOUS CALCARENITE (25%): yellow brown to light brownish grey, soft to moderately hard, dispersive to angular, 30% calcareous clay, 30% calcareous silt, 40% calcareous sand, 3% glauconite, 3% lithic fragments, 1% quartz crystals, trace mica.

CALCAREOUS CLAYSTONE (5%): dark brown to med brownish grey, soft to very soft, dispersive, 30% calcareous clay, 10% calcareous silt, 60% siliceous clay, trace glauconite, trace skeletal fragments, trace mica.

INTERVAL: 499 to 509 mMDRT

ROP (range): 31.2 – 90.1 m/hr

Av ROP: 55.6 m/hr

CALCAREOUS CLAYSTONE

CALCAREOUS CLAYSTONE (100%): light grey to medium brownish grey, soft to very soft, dispersive, 40% calcareous clay, 10% calcareous silt, 30% siliceous clay, 20% siliceous silt, trace mica.

INTERVAL: 509 to 561.5 mMDRT

ROP (range): 11.7 – 187.4 m/hr

Av ROP: 46.5 m/hr

CALCAREOUS SILTY CLAYSTONE grading to SILTY CALCILUTITE

CALCAREOUS SILTY CLAYSTONE (0-100%): very light brown, brownish grey to light olive grey, soft to very soft, dispersive, 25% calcareous clay, 5% calcareous silt, 30% siliceous clay, 40% siliceous silt, trace mica.

SILTY CALCILUTITE (0-100%): light olive grey, medium grey to olive grey, soft to very soft, dispersive, 40% calcareous clay, 20% calcareous silt, 25% siliceous clay, 15% siliceous silt, trace siliceous sand, 5% skeletal fragments, trace foraminifera, trace glauconite.

INTERVAL: 561.5 to 629.5 mMDRT

ROP (range): 13.7 – 206.6 m/hr

Av ROP: 61.8 m/hr

Interbedded CALCAREOUS SANDSTONE, SILTY CALCAREOUS CLAYSTONE and CALCAREOUS ARGILLACEOUS SILTSTONE

CALCAREOUS SANDSTONE (5-70%): light brown, light orange brown, loose to very soft, dispersive, sub-angular to sub-rounded, very poorly sorted, slightly spherical, 20% calcareous clay, 10% calcareous silt, 20% calcareous sand, 50% siliceous sand, 20% very fine grained, 50% fine grained, 25% medium grained, 5% coarse grained, trace very coarse grained, 15% siderite cement, 5% calcite cement, 3% skeletal fragments, trace siderite concretions, 20 % porosity.

SILTY CALCAREOUS CLAYSTONE (0-30%): light olive grey, medium grey to olive grey, soft to very soft, dispersive, 30% calcareous clay, 10% calcareous silt, 30% siliceous clay, 30% siliceous silt, trace siliceous sand, 2% glauconite, trace skeletal fragments.

CALCAREOUS ARGILLACEOUS SILTSTONE (0-40%): medium light grey to greenish grey, soft, sub-blocky, 20% calcareous clay, 20% calcareous silt, 20% siliceous clay, 40% siliceous silt, trace siliceous sand.

CALCAREOUS ARGILLACEOUS SILTSTONE (0-90%): light olive grey, medium grey to olive grey, soft, dispersive, 20% calcareous clay, 20% calcareous silt, 20% siliceous clay, 40% siliceous silt, trace glauconite, trace skeletal fragments.

INTERVAL: 629.5 to 754 mMDRT

ROP (range): 11.4 – 250.5 m/hr

Av ROP: 64.9 m/hr

Interbedded SANDSTONE and ARGILLACEOUS SILTSTONE

SANDSTONE (90-100%): very light brown to very pale orange, light brown, loose, dispersive, sub-angular to sub-rounded, moderately sorted, slightly spherical, 100% siliceous sand, 10% fine grained, 40% medium grained, 30% coarse grained, 15% very coarse grained, 5% granules, trace silica cement, trace lithic fragments.

ARGILLACEOUS SILTSTONE (0-10%): light to medium bluish grey, brownish grey, firm, trace calcareous clay, 20% siliceous clay, 70% siliceous silt, 10% siliceous sand, 50% very fine grained, 40% fine grained, 10% medium grained, trace mica.

HYDROCARBON FLUORESCENCE

No hydrocarbon fluorescence shows.

**CONFIDENTIAL****GAS SUMMARY**

| Background | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
|---------------|---------------|--------|--------|--------|---------|---------|--------|
| 427 – 440 | 0.02 | - | - | - | - | - | - |
| 440 – 490 | 0.04 | - | - | - | - | - | - |
| 490 – 499 | 0.00 | - | - | - | - | - | - |
| 499 – 509 | 0.00 | - | - | - | - | - | - |
| 509 – 561.5 | 0.01 | - | - | - | - | - | - |
| 561.5 – 629.5 | 0.02 | - | - | - | - | - | - |
| 629.5 – 754 | 0.04 | - | - | - | - | - | - |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | iC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |
| Trip | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| Nil. | - | - | - | - | - | - | - |

FORMATION PRESSURE ESTIMATION:

| ITEM | REMARKS |
|---------------------|--|
| Pore Pressure | Increasing normally with depth. |
| MWD Resistivity | Not run. |
| Connection gas | None observed. |
| Dxc exponent | Pressure increasing normally with depth. |
| Mud weight | Slightly overbalanced. |
| ROP | Varying with lithology and drilling parameters. |
| Background gas | Negligible gas. |
| Trip Gas | No trip gas. |
| Mud temperature out | Increasing slightly with depth. |
| Ditch cuttings | Often a large quantity when high ROP was experienced. No pressure cavings. |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers, 2 x Loggers and 2 Sample Catchers on board.

LWD

3 x MWD, 1 x Geo Pilot and 2 x Directional Drillers on board.

Bit to GR sensor distance: 13.88 m.

WIRELINE

2 x Wireline Technicians on board, pre-testing equipment.

REMARKS

Voluminous cuttings built up in the possum belly 16.30 – 20.00 hours. These were frequently cleaned out to avoid clogging the gas trap and blinding the sample boards.

Poor quality samples were caught over the interval 630 m – 700 m. After investigation it was found that the sample catcher was not collecting from the fine screen, only the coarse. As a result, any unconsolidated sands over this interval were effectively not sampled. The problem was corrected immediately upon discovery. Unfortunately the high rate of penetration at the time resulted in 70 m of unreliable samples.



HSE

No incidents to report.

WELLSITE GEOLOGISTS

Mark Tindale / Tony Cartwright

**CONFIDENTIAL**

| | | | |
|----------------------------|------------------------|---------------------------|-------------------------------|
| Date: | 28 March 2005 | Last Casing: | 244 mm (9 5/8") @ 833.8 mMDRT |
| Report Number: | 11 | FIT: | 1.50 @ 421 mMDRT |
| Report Period: | 0000-2400 Hours AEST | Mud Weight: | 1.16 sg (at 09.45 hrs) |
| Depth @ 2400 Hours: | 839 mMDRT (839 mTVDRT) | ECD: | N/A |
| Lag Depth: | N/A | Mud Type: | Aqua Drill |
| Last Depth: | 754 mMDRT (754 mTVDRT) | Mud Chlorides: | 43 000 |
| Progress: | 85 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 810.51 mMDRT |
| RT: | 21.5 m | Deviation: | Incl: 4.59° Azi: 213.32° |
| Bit Diameter: | 311 mm (12 1/4") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: *Continued to drill 311 mm (12 1/4") hole ahead from 754 to 798 mMDRT where a gain in the pits was observed and the well was flow checked – no flow. Drilled ahead to casing point at 839 mMDRT and circulated bottoms up. Pulled out of hole to the casing shoe – several tight spots were encountered. Ran in hole and performed a wiper trip due to the tight hole, then continued pulling out to surface. The 311 mm (12 1/4") bottom hole assembly was racked back in the derrick. Rigged up 244 mm (9 5/8") casing running tool then started running 244 mm (9 5/8") casing.*

NEXT 24 HOURS: *Land and cement 244 mm (9 5/8") casing. Lay out 311 mm (12 1/4") bottom hole assembly. Make up and run in 216 mm (8 1/2") drilling assembly.*

CURRENT OPERATION @ 06:00 Hrs AEST 29/03/2005: *Pulling hangar running tool out of hole.*

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 754 to 801.5 mMDRT
ROP (range): 11.4 – 250.5 m/hr
Av ROP: 64.9 m/hr

SANDSTONE grading to rare ARGILLACEOUS SILTSTONE

SANDSTONE (60-100%): very light brown to very pale orange, light brown, loose, dispersive, sub-angular to sub-rounded, moderately sorted, slightly spherical, 100% siliceous sand, 10% fine grained, 40% medium grained, 30% coarse grained, 15% very coarse grained, 5% granules, trace silica cement, trace lithic fragments.

ARGILLACEOUS SILTSTONE (0-40%): light to medium bluish grey, brownish grey, firm, trace calcareous clay, 20% siliceous clay, 70% siliceous silt, 10% siliceous sand, 50% very fine grained, 40% fine grained, 10% medium grained, trace mica.

INTERVAL: 801.5 to 839 mMDRT
ROP (range): 13.0 – 59.0 m/hr
Av ROP: 28.0 m/hr

ARGILLACEOUS SILTSTONE grading to SILTY SANDSTONE and SILTY CLAYSTONE

ARGILLACEOUS SILTSTONE (0-60%): dark yellowish brown, olive grey to medium dark grey, firm to friable, sub-blocky, 30% siliceous clay, 40% siliceous silt, 30% siliceous sand, 40% very fine grained, 30% fine grained, 20% medium grained, 10% coarse grained.

SILTY SANDSTONE (0-40%): colourless to very light grey brown, loose, dispersive, sub-angular to sub-rounded, poorly sorted to very poorly sorted, slightly spherical, 10% siliceous clay, 20% siliceous silt, 70% siliceous sand, 5% fine grained, 30% medium grained, 50% coarse grained, 15% very coarse grained, trace granules, trace silica cement.

SILTY CLAYSTONE (0-100%): brownish grey, dark yellowish brown, olive grey, soft, amorphous to sub-blocky, 50% siliceous clay, 30% siliceous silt, 20% siliceous sand, 2% pyrite.

**CONFIDENTIAL****HYDROCARBON FLUORESCENCE**

No hydrocarbon fluorescence shows.

GAS SUMMARY

| Background | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
|-------------|---------------|--------|--------|--------|---------|---------|--------|
| 754 – 801.5 | 0.04 | - | - | - | - | - | - |
| 801.5 - 839 | 0.04 | - | - | - | - | - | - |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | iC4 (%) | NC4 (%) | C5 (%) |
| Nil | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| Nil | - | - | - | - | - | - | - |
| Trip | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| Nil | - | - | - | - | - | - | - |

FORMATION PRESSURE ESTIMATION:

| ITEM | REMARKS |
|---------------------|---|
| Pore Pressure | Increasing normally with depth. |
| MWD Resistivity | Not run. |
| Connection gas | None observed. |
| Dxc exponent | Pressure increasing normally with depth. |
| Mud weight | Slightly overbalanced. |
| ROP | Varying with lithology and drilling parameters. |
| Background gas | Negligible gas. |
| Trip Gas | No trip gas. |
| Mud temperature out | Increasing slightly with depth. |
| Ditch cuttings | Normal. |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers, 2 x Loggers and 2 Sample Catchers on board.

LWD

3 x MWD, 1 x Geo Pilot and 2 x Directional Drillers on board.

WIRELINE

4 x Wireline Technicians on board, pre-testing equipment.

REMARKS

244 mm (9 5/8") casing landed at 833.8 mMDRT.

Cement job: lead slurry 50 bbls at 1.5 sg (12.5 ppg), tail slurry 63 bbls at 1.9 sg (15.8 ppg).

HSE

No incidents to report.

WELLSITE GEOLOGISTS

Mark Tindale / Tony Cartwright

**CONFIDENTIAL**

| | | | |
|----------------------------|--------------------------|---------------------------|--------------------------------|
| Date: | 29 March 2005 | Last Casing: | 244 mm (9 5/8") @ 834 mMDRT |
| Report Number: | 12 | FIT: | N/A |
| Report Period: | 0000-2400 Hours AEST | Mud Weight: | N/A |
| Depth @ 2400 Hours: | 839 mMDRT (839 mTVDR) | ECD: | N/A |
| Lag Depth: | N/A | Mud Type: | Aqua Drill |
| Last Depth: | 839 mMDRT (839 mTVDR) | Mud Chlorides: | N/A |
| Progress: | 0 m | Est. Pore Press: | N/A |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 810.51 mMDRT |
| RT: | 21.5 m | Deviation: | Incl: 4.59° Azi: 213.32° |
| Bit Diameter: | 311 mm (12 1/4") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: Completed running 244 mm (9 5/8") casing and set shoe at 834 mMDRT. Circulated casing then cement same, failing to bump plugs. Pulled casing running tool out of the hole, rigged down cement head and lines. Ran in hole with Mill-Flush tool to 64.8 mMDRT, then cleaned well head. Set seal assembly to the well head and pressure tested BOP. Pulled out of hole and laid out plug assembly. Ran wear bushing, pressure tested stand pipe, IBOP and mud hose. Broke down and laid out 311 mm (12 1/4") drilling assembly from derrick. Commenced picking and making up drill pipe from main deck.

NEXT 24 HOURS: Continue making up drill pipe. Pressure test casing prior to making up 216 mm (8 1/2") bottom hole assembly, running in hole and drilling ahead.

CURRENT OPERATION @ 06:00 Hrs AEST 30/03/2005: Making up 216 mm (8 1/2") bottom hole assembly.

GEOLOGICAL SUMMARY**LITHOLOGY**

No new lithology.

HYDROCARBON FLUORESCENCE

No new lithology.

GAS SUMMARY

| Background | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
|------------|---------------|--------|--------|--------|---------|---------|--------|
| | - | - | - | - | - | - | - |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | iC4 (%) | NC4 (%) | C5 (%) |
| | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| | - | - | - | - | - | - | - |
| Trip | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | C5 (%) |
| | - | - | - | - | - | - | - |

**CONFIDENTIAL****FORMATION PRESSURE ESTIMATION:**

No drilling.

| ITEM | REMARKS |
|---------------------|---------|
| Pore Pressure | |
| MWD Resistivity | |
| Connection gas | |
| Dxc exponent | |
| Mud weight | |
| ROP | |
| Background gas | |
| Trip Gas | |
| Mud temperature out | |
| Ditch cuttings | |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers, 2 x Loggers and 2 Sample Catchers on board.

LWD

3 x MWD, 1 x Geo Pilot and 2 x Directional Drillers on board.

WIRELIN

4 x Wireline Technicians on board, pre-testing equipment.

REMARKS

Rig Power down 01.00 – 01.30 hours 29th March, purged unit and rebooted systems. Gas detector calibrated 29th March – ready for 216 mm (8 ½”) section.

HSE

No incidents to report.

WELLSITE GEOLOGISTS

Mark Tindale / Tony Cartwright

**CONFIDENTIAL**

| | | | |
|----------------------------|-------------------------------|---------------------------|--------------------------------|
| Date: | 31 March 2005 | Last Casing: | 244 mm (9 5/8") @ 834 mMDRT |
| Report Number: | 14 | FIT: | 2.13 sg EMW |
| Report Period: | 0000-2400 Hours AEST | Mud Weight: | 1.25 sg |
| Depth @ 2400 Hours: | 1496 mMDRT (1468.0 mTVDRT) | ECD: | 1.36-1.38 sg EMW |
| Lag Depth: | 1496 mMDRT | Mud Type: | Aqua Drill |
| Last Depth: | 863 mMDRT (862.5 mTVDRT) | Mud Chlorides: | 46 000 mg/l |
| Progress: | 635 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 1483.44 mMDRT |
| RT: | 21.5 m | Deviation: | Incl: 18.60° Azi: 202.81° |
| Bit Diameter: | 216 mm (8 1/2") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: Continued to repair damaged fitting on top drive. Drilled ahead in 216 mm (8 1/2") hole to 891 mMDRT. Observed oil leaking from top drive - circulated whilst oil leak was investigated (found to be overflow of gear oil through breather port). Drilled ahead to 1342 mMDRT where oil was observed to be leaking from top drive gearbox. Drilling was stopped to drain 15 gallons of oil from the gearbox to rectify problem. Drilling continued to 1430 mMDRT. Stopped drilling and circulated whilst making repairs to pumps #2 and #3. Drilling continued to the midnight depth of 1496 mMDRT.

NEXT 24 HOURS: Continue to drill ahead 216 mm (8 1/2") hole to coring point at approximately 1788 mMDRT. Pull out of the hole to core.

CURRENT OPERATION @ 06:00 Hrs AEST 01/04/2005: Drilling ahead at 1644 mMDRT.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 863 to 887 mMDRT
ROP (range): 7.5 – 124.8 m/hr
Av ROP: 38.2 m/hr

SILTY CLAYSTONE with occasional SANDSTONE beds

SILTY CLAYSTONE (40-70%): light olive grey to olive grey and dusky green, soft to very soft, sub-blocky to dispersive, 5% calcareous clay, 70% siliceous clay, 20% siliceous silt, 5% siliceous sand, 3% glauconite.

SANDSTONE (30-60%): colourless to very light brown, loose, dispersive, sub-angular to angular, poorly sorted, slightly elongated to slightly spherical, 10% siliceous clay, 90% siliceous sand, 20% fine grained, 30% medium grained, 30% coarse grained, 20% very coarse grained, trace granules, 5% silica cement, trace pyrite cement, 2% pyrite, 15 % porosity.

INTERVAL: 887 to 950 mMDRT
ROP (range): 84.9 – 90.0 m/hr
Av ROP: 87 m/hr

SANDSTONE interbedded with SILTY CLAYSTONE

SANDSTONE (50-100%): pale brown to colourless, loose, dispersive, sub-angular to angular, moderately sorted to well sorted, slightly spherical, 10% siliceous clay, trace siliceous silt, 90% siliceous sand, 5% fine grained, 30% medium grained, 50% coarse grained, 15% very coarse grained, 10% silica cement, 15 % porosity.

SILTY CLAYSTONE (0-50%): pale yellowish brown to light olive grey, very soft to soft, dispersive to sub-blocky, 60% siliceous clay, 40% siliceous silt, trace siliceous sand.



CONFIDENTIAL

INTERVAL: 950 to 1000 mMDRT
ROP (range): 21.6 – 209.8 m/hr
Av ROP: 97 m/hr

SANDSTONE with minor to rare SILTY CLAYSTONE

SANDSTONE (70-100%): very pale orange and yellowish grey to colourless, loose, dispersive, angular to sub-angular, poorly to well sorted, 10% siliceous clay, 90% siliceous sand, 20% very fine grained, 40% fine grained, 40% medium grained, trace coarse grained, 5% silica cement, 15-20 % porosity.

SILTY CLAYSTONE (0-30%): yellowish grey to light olive grey, very soft to soft, dispersive, 50% siliceous clay, 40% siliceous silt, 10% siliceous sand, trace glauconite.

INTERVAL: 1000 to 1160 mMDRT
ROP (range): 15.7 – 168.8 m/hr
Av ROP: 77.1 m/hr

Interbedded SANDSTONE and SILTY CLAYSTONE

SANDSTONE (10-90%): yellowish grey to colourless, loose, dispersive, sub-angular to sub-rounded, moderately well to well sorted, slightly spherical grains, 10% siliceous clay, 90% siliceous sand, 20% very fine grained, 40% fine grained, 35% medium grained, 15% coarse grained, trace to 5% very coarse grained, 5% silica cement, trace pyritic cement, trace to 5% lithic fragments, trace glauconite grains, 20 % porosity.

SILTY CLAYSTONE (10-90%): medium greenish to dark olive grey and dark greyish green, rarely very light orange grey, very soft to soft, dispersive, trace calcareous clay, 70% siliceous clay, 30% siliceous silt, trace siliceous sand, trace carbonaceous material, trace to 5% glauconite.

INTERVAL: 1160 to 1200 mMDRT
ROP (range): 16.6 – 129.9 m/hr
Av ROP: 52 m/hr

SILTY CLAYSTONE with minor lenses of SANDSTONE

SILTY CLAYSTONE (50-90%): light olive to dark greenish grey, very soft, dispersive, 70% siliceous clay, 30% siliceous silt, 10% glauconite, traces of fine carbonaceous fragments.

SANDSTONE (10-50%): colourless, loose, sub-angular to sub-rounded, moderately sorted, slightly elongated, 10% siliceous clay, 10% siliceous silt, 80% siliceous sand, 35% very fine grained, 30% fine grained, 25% medium grained, 10% coarse grained, trace very coarse grained, trace pyritic cement, 5% lithic fragments, 20 % porosity.

INTERVAL: 1200 to 1220 mMDRT
ROP (range): 88.7 – 94.9 m/hr
Av ROP: 52 m/hr

SANDSTONE

SANDSTONE (100%): colourless, loose, sub-angular to sub-rounded, moderately sorted to well sorted, slightly elongated, 10% siliceous clay, 5% siliceous silt, 85% siliceous sand, 5% very fine grained, 40% fine grained, 45% medium grained, 10% coarse grained, trace very coarse grained, trace lithic fragments, 20 % porosity.

INTERVAL: 1220 to 1270 mMDRT
ROP (range): 7.2 – 77.5 m/hr
Av ROP: 37.9 m/hr

SILTY CLAYSTONE with minor SANDSTONE

SILTY CLAYSTONE (50-70%): very light to dark olive grey, very soft, dispersive, 70% siliceous clay, 30% siliceous silt, 5% glauconite.

SANDSTONE (30-50%): colourless to brownish white, loose to moderately hard, sub-angular to sub-rounded, moderately sorted, slightly elongated, 5% siliceous clay, 5% siliceous silt, 90% siliceous sand, 5% very fine grained, 40% fine grained, 45% medium grained, 10% coarse grained, trace very coarse grained, 5% pyrite cement, 5% silica cement, trace lithic fragments.



CONFIDENTIAL

INTERVAL: 1270 to 1358 mMDRT
ROP (range): 13.1 – 117.1 m/hr
Av ROP: 44.1 m/hr

Interbedded ARGILLACEOUS SILTSTONE and ARGILLACEOUS SANDSTONE

ARGILLACEOUS SILTSTONE (20-90%): yellowish grey to very light and light olive grey, very soft to soft, dispersive to sub-blocky, 40% siliceous clay, 50% siliceous silt, 10% siliceous sand, trace to 3% glauconite.

ARGILLACEOUS SANDSTONE (10-80%): colourless to yellowish light grey, loose, dispersive, sub-angular to sub-rounded, moderately sorted to well sorted, slightly spherical to spherical, 20% siliceous clay, 80% siliceous sand, 30% very fine grained, 40% fine grained, 30% medium grained, trace coarse grained, 10% silica cement, trace pyrite, 10 % porosity.

INTERVAL: 1358 to 1383 mMDRT
ROP (range): 10.1 – 111.9 m/hr
Av ROP: 48.6 m/hr

SANDSTONE and minor to rare SILTY CLAYSTONE

SANDSTONE (80-90%): colourless to very light grey, light greyish brown, loose, dispersive, sub-angular to angular, moderately sorted to poorly sorted, slightly spherical, trace calcareous clay, 10% siliceous silt, 90% siliceous sand, 20% very fine grained, 50% fine grained, 30% medium grained, trace coarse grained, trace very coarse grained, 10% silica cement, trace pyrite, 10 % porosity.

SILTY CLAYSTONE (10-20%): light olive grey to light greyish brown, soft to very soft, dispersive to sub-blocky, 10% calcareous clay, 50% siliceous clay, 35% siliceous silt, 5% siliceous sand, trace glauconite, trace pyrite.

INTERVAL: 1383 to 1496 mMDRT
ROP (range): 3.9 – 83.5 m/hr
Av ROP: 29.3 m/hr

CLAYSTONE

CLAYSTONE (100%): light olive grey and pale yellowish brown to medium olive grey, soft, amorphous, in part 5% calcareous clay, 85-90% siliceous clay, 5-10% siliceous silt, trace to 10% siliceous sand in part as hard, thin stringers, trace pyrite, trace glauconite.

HYDROCARBON FLUORESCENCE

None observed.

**CONFIDENTIAL****GAS SUMMARY**

| Background | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
|-------------|------------------|--------|--------|--------|---------|---------|---------|---------|---------|
| 863-887 m | 0.01-0.03 (0.02) | 0.002 | 0.001 | 0 | 0 | 0 | 0 | 0 | 0 |
| 887-950 m | 0-0.12 (0.04) | 0.017 | 0.001 | 0 | 0 | 0 | 0 | 0 | 0.05 |
| 950-1000 m | 0.05-0.09 (0.07) | 0.021 | 0.002 | 0 | 0 | 0 | 0 | 0 | 0.19 |
| 1000-1160 m | 0.04-0.21 (0.11) | 0.037 | 0.003 | 0.002 | 0 | 0 | 0 | 0 | 0.24 |
| 1160-1200 m | 0.09-0.13 (0.12) | 0.023 | 0.003 | 0.002 | 0 | 0 | 0 | 0 | 0.18 |
| 1200-1220 m | 0.09-0.16 (0.13) | 0.054 | 0.003 | 0.002 | 0.001 | 0.001 | 0 | 0 | 0.18 |
| 1220-1270 m | 0.10-1.40 (0.34) | 0.223 | 0.014 | 0.005 | 0.001 | 0.001 | 0 | 0 | 0.28 |
| 1270-1358 m | 0.08-0.78 (0.24) | 0.165 | 0.011 | 0.002 | 0.001 | 0.001 | 0 | 0 | 0.19 |
| 1358-1390 m | 0.14-0.42 (0.23) | 0.189 | 0.009 | 0.001 | 0 | 0 | 0 | 0 | 0.30 |
| 1390-1496 m | 0.21-3.81 (0.85) | 0.831 | 0.055 | 0.019 | 0.003 | 0.004 | 0.001 | 0 | 0.37 |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| 1248 m | 1.401 | 0.637 | 0.042 | 0.016 | 0.004 | 0.003 | 0.001 | 0 | 0.389 |
| 1406 m | 1.500 | 0.146 | 0.099 | 0.274 | 0.004 | 0.004 | 0.0005 | 0 | 0.390 |
| 1437 m | 6.4 | 0.569 | 0.270 | 0.074 | 0.011 | 0.012 | 0.002 | 0.001 | 0.377 |
| 1481 m | 3.9 | 0.450 | 0.222 | 0.064 | 0.010 | 0.012 | 0.002 | 0.001 | 0.511 |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| Nil | - | - | - | - | - | - | - | - | - |
| Trip | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| Nil | - | - | - | - | - | - | - | - | - |

FORMATION PRESSURE ESTIMATION:

| ITEM | REMARKS |
|---------------------|---|
| Pore Pressure | Increasing normally with depth. |
| MWD Resistivity | Varying with lithology. |
| Connection gas | Nil. |
| Dxc exponent | Remaining fairly constant. |
| Mud weight | Slightly overbalanced. |
| ROP | Varying with lithology and overall slowing. |
| Background gas | Rising slightly. |
| Trip Gas | Nil. |
| Mud temperature out | Increasing slowly with depth. |
| Ditch cuttings | Good hole cleaning, occasional collecting in possum belly, no pressure cavings. |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers, 2 x Loggers and 2 Sample Catchers on board.

LWD

3 x MWD, 1 x Geo Pilot and 2 x Directional Drillers on board.

WIRELINE

2 x Wireline Technicians on board, pre-testing equipment.



CONFIDENTIAL

REMARKS

Some evidence of bit textured cuttings, notably finely crushed sandstone grains between 1140-1150 mMDRT.

Hard stringer of cemented sandstone intersected at 1227 m.

HSE

Incident: Top drive blocks contacted the man riding tugger wire when blocks were raised after top drive repair. Tugger wire parted and fell to floor – no one was injured.

WELLSITE GEOLOGISTS

Mark Tindale / Tony Cartwright

**CONFIDENTIAL**

| | | | |
|----------------------------|------------------------------------|---------------------------|--------------------------------|
| Date: | 10th April 2005 | Last Casing: | 244 mm (9 5/8") @ 834 mMDRT |
| Report Number: | 24B (DW2) | FIT: | 2.13 sg EMW |
| Report Period: | 0000-2400 Hours AEST | Mud Weight: | 1.25 sg |
| Depth @ 2400 Hours: | 889 mMDRT (888.49 mTVDRT) | ECD: | 1.49 – 1.54 sg EMW |
| Lag Depth: | 889 mMDRT | Mud Type: | Aqua Drill |
| Last Depth: | 808 mMDRT (TOC) (807.73 mTVDRT) | Mud Chlorides: | 45 000 mg/l |
| Progress: | 81 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 852.56 mMDRT |
| RT: | 21.5 m | Deviation: | Incl: 4.74° Azi: 218.31° |
| Bit Diameter: | 216 mm (8 1/2") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: *Changed over to Halladale-1 DW2 at 07:20 hrs on April 10, 2005. Laid out previous directional assembly and made up new 216 mm (8 1/2") directional assembly comprising geopilot and MWD tools for the measurement of gamma ray, resistivity, neutron, density and sonic data. The MWD tools were tested at surface prior to running in the hole to 293 mMDRT and shallow testing MWD and Geo-pilot. 89 mm (3.5") tubing was moved from forward to aft side of fingerboard. The directional assembly was run in to top of cement at 808 mMDRT. Geo-pilot was broken in by staging of pumps prior to drilling ahead to the midnight depth of 889 mMDRT with the kick-off point at 855 mMDRT.*

NEXT 24 HOURS: *Continue drilling ahead in 216 mm (8.5") hole to coring point.*

CURRENT OPERATION @ 06:00 Hrs AEST 11/04/2005: *Drilling 216 mm hole at 1060 mMDRT.*

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 855 to 886 mMDRT

ROP (range): 5.2 – 40.6 m/hr

Av ROP: 21.4 m/hr

Interbedded SILTY CLAYSTONE and SANDSTONE with minor SILTSTONE

SANDSTONE (10-20%): colourless, frosted white, translucent, transparent, loose, sub-angular to sub-rounded, poorly sorted, slightly spherical to spherical, 100% siliceous sand, 70% very fine grained, trace fine grained, 20% medium grained, 10% coarse grained, trace very coarse grained, 10% porosity.

SILTY CLAYSTONE (40-70%): light grey, greenish grey, pale brown, yellowish grey, soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, 5% pyrite, trace glauconite, trace moderate to dark brown hard blocky fragments. Grades to Argillaceous Siltstone in part.

SILTSTONE (20-40%) dark grey, brownish grey, sub-blocky, 10% siliceous clay, 90% siliceous silt, trace mica.

INTERVAL: 886 to 889 mMDRT

ROP (range): 9.3 – 41.2 m/hr

Av ROP: 28.5 m/hr

SANDSTONE with minor SILTY CLAYSTONE

SANDSTONE (90%): pale brown, greyish orange, pale yellowish brown, translucent, transparent, loose, sub-angular to rounded, poorly sorted to moderately sorted, slightly spherical to spherical, 100% siliceous sand, 10% fine grained, 20% medium grained, 60% coarse grained, 10% very coarse grained, 20% porosity.

SILTY CLAYSTONE (10%): medium grey, medium dark grey, greyish orange, soft, amorphous to dispersive, 70% siliceous clay, 30% siliceous silt. Grades to Argillaceous Siltstone in part.

**CONFIDENTIAL****HYDROCARBON FLUORESCENCE**

None observed.

GAS SUMMARY

| Background | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
|------------|--------------------|--------|--------|--------|---------|---------|---------|---------|---------|
| 855 – 886 | Nil – 0.04 (0.02) | 0.0065 | 0.0014 | 0.0004 | 0.0001 | 0 | 0.0001 | 0 | 0 |
| 886 – 889 | 0.02 – 0.04 (0.02) | 0.0054 | 0.0014 | 0.0005 | 0.0001 | 0 | 0.0002 | 0.0001 | 0 |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| Nil | - | - | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| Nil | - | - | - | - | - | - | - | - | - |
| Trip | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| Nil | - | - | - | - | - | - | - | - | - |

FORMATION PRESSURE ESTIMATION

| ITEM | REMARKS |
|---------------------|---------------------------------------|
| Pore Pressure | Normal |
| MWD Resistivity | Good correlation with Halladale-1 DW1 |
| Connection gas | None observed |
| Dxc exponent | Normally trending |
| Mud weight | Estimated overbalance at 600 psi. |
| ROP | Controlled drilling during kick off. |
| Background gas | Minimal |
| Trip Gas | None observed |
| Mud temperature out | No abnormal trend observed. |
| Ditch cuttings | Good returns |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers, 2 x Mudloggers, 2 x Sample Catchers

LWD**Sensors (Distance to Bit):**

Caliper (ACAL): 25.29
Directional (DM): 8.97
Porosity (CTN): 26.13
Density (SLD): 22.05
Pressure While Drilling (PWD): 16.37
Resistivity (EWR-P4): 13.85
Sonic (BAT): 31.10
Gamma (DGR): 11.53
Vibration (DDS): 0.0

3 x MWD, 1 x Geo Pilot and 2 x Directional Drillers on board.

WIRELINE

1 x Wireline Engineer, 2 x Wireline Operators, 2 x RCI Specialists

REMARKS

Operations on Halladale-1 DW2 commenced at 07:30 hrs AEST Sunday 10th April. This is the first Geological Report for Halladale-1 DW2 and is labelled number 24B. The final Daily Geological Report for Halladale-1 DW1 (Location Black Watch) is a separate report and labelled number 24A.



HSE

No incidents to report.

WELLSITE GEOLOGISTS

Simon Billeau / Manuel Ortiz



CONFIDENTIAL

| | | | |
|----------------------------|--------------------------------|---------------------------|--------------------------------|
| Date: | 11th April 2005 | Last Casing: | 244 mm (9 5/8") @ 834 mMDRT |
| Report Number: | 25 | FIT: | 2.13 sg EMW |
| Report Period: | 0000-2400 Hours AEST | Mud Weight: | 1.25 sg |
| Depth @ 2400 Hours: | 1393 mMDRT (1370.08 mTVDRT) | ECD: | 1.46 – 1.54 sg EMW |
| Lag Depth: | 1390 mMDRT | Mud Type: | Aqua Drill |
| Last Depth: | 889 mMDRT (888.49 mTVDRT) | Mud Chlorides: | 49 000 mg/l |
| Progress: | 504 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 1368.83 mMDRT |
| RT: | 21.5 m | Deviation: | Incl: 22.99° Azi: 346.35° |
| Bit Diameter: | 216 mm (8 1/2") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: Continued to drill 216 mm (8 1/2") hole from 889 mMDRT to 1393 mMDRT.

NEXT 24 HOURS: Continue drilling 216 mm (8.5") hole to coring point, pull out drilling assembly and pick up coring assembly.

CURRENT OPERATION @ 06:00 Hrs AEST 12/04/2005: Drilling ahead in 216 mm (8 1/2") hole at 1410 mMDRT.

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 889 to 1090 mMDRT

ROP (range): 8.9 – 104.0 m/hr

Av ROP: 38.2 m/hr

Interbedded SANDSTONE with minor SANDY and SILTY CLAYSTONE

SANDSTONE (20-100%): pale yellowish orange, very pale orange, greyish orange, becoming very light grey and yellowish grey from 940 mMDRT, loose, sub-angular to rounded, moderately sorted to well sorted, slightly spherical to spherical, 100% siliceous sand, 70% medium grained, 20% coarse grained, 10% fine grained, trace very coarse grained, becoming very fine to fine grained with depth, 20% porosity, no shows.

SANDY CLAYSTONE (0-80%): light olive grey, medium grey, soft to firm, amorphous to sub-blocky, 70% siliceous clay, 20% siliceous sand, 10% siliceous silt, trace coal, trace mica.

SILTY CLAYSTONE (0-30%): medium dark grey, dark greenish grey, soft to moderately hard, amorphous to sub-blocky, 10 to 20% siliceous silt, 80 to 90% siliceous clay, trace siliceous sand, trace mica, trace glauconite, trace carbonaceous material.

INTERVAL: 1090 to 1265 mMDRT

ROP (range): 3.8 – 119.1 m/hr

Av ROP: 32.9 m/hr

SANDY, occasionally SILTY CLAYSTONE with Interbedded SANDSTONE

SANDSTONE (10-90%): very light grey, grey, transparent, translucent, rarely pale yellow, loose, 60% very fine grained, 40% fine grained, trace medium grained, rare trace coarse grained, moderately to well sorted, slightly spherical to spherical, good inferred porosity, no shows.

SANDY CLAYSTONE (0-80%): medium grey to occasionally dark grey, rarely greenish grey, very soft to soft, rarely firm, amorphous to dispersive, arenaceous, 80% siliceous clay, 20% siliceous sand, 70% very fine grained, 30% fine grained, moderately to well sorted, slightly spherical to spherical, trace micro-pyrite, rare trace glauconite.

SILTY CLAYSTONE (0-70%): light grey, medium grey, occasionally dark grey, rarely brown grey, soft to firm, amorphous to blocky, silty, 80% siliceous clay, 20% siliceous silt, trace siliceous sand, rare trace carbonaceous matter, rare trace mica.

CONFIDENTIAL

INTERVAL: 1265 to 1324 mMDRT

ROP (range): 5.8 – 78.9 m/hr

Av ROP: 29.2 m/hr

SILTY CLAYSTONE with minor SANDSTONE

SILTY CLAYSTONE (80-100%): light grey, medium grey, rarely brown grey, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace carbonaceous partings.

SANDSTONE (0-20%): very light grey, translucent, transparent, loose, 70% very fine grained, 30% fine grained, trace medium grained, sub-angular to rounded, moderately sorted to well sorted, slightly spherical to spherical, 20 % porosity, no shows.

INTERVAL: 1324 to 1386 mMDRT

ROP (range): 10.6 – 130.7 m/hr

Av ROP: 42.7 m/hr

Interbedded SANDSTONE and CLAYSTONE

SANDSTONE (0-90%): very light grey, translucent, transparent, loose to rarely friable, 80% fine grained, 20% medium grained, trace very fine grained, sub-angular to rounded, moderately sorted to well sorted, slightly spherical to spherical, 95% siliceous sand, trace siliceous clay matrix, trace calcite cement, good inferred porosity, no shows.

CLAYSTONE (10-100%): medium light grey, light grey, very soft to soft, amorphous to dispersive, 90% siliceous clay, 10% siliceous silt, trace calcareous clay, trace coal/lignite, trace pyrite and glauconite.

INTERVAL: 1386 to 1390 mMDRT

ROP (range): 2.0 – 64.9 m/hr

Av ROP: 16.0 m/hr

SILTY CLAYSTONE and CLAYSTONE with minor SANDSTONE

SILTY CLAYSTONE (70%): medium light grey, light olive grey, soft to firm, amorphous to dispersive, trace calcareous clay, 80% siliceous clay, 20% siliceous silt, trace glauconite, trace coal/lignite fragments.

CLAYSTONE (20%): pale brown, very pale orange, yellowish grey, very soft to soft, amorphous to dispersive, 95% siliceous clay, 5% siliceous silt, minor to common greyish brown brittle to hard fragments (siderite?).

SANDSTONE (10%): light grey, yellowish grey, loose, 90% siliceous sand, 10% siliceous clay matrix, 60% very fine grained, 30% fine grained, 10% medium grained, sub-angular to sub-rounded, poorly sorted, slightly elongated to slightly spherical, 10 % porosity, no shows.

HYDROCARBON FLUORESCENCE

None observed.

GAS SUMMARY

| Background | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
|-------------|--------------------|--------|--------|--------|---------|---------|---------|---------|---------|
| 889 – 1090 | 0.01 – 0.07 (0.03) | 0.0106 | 0.0013 | 0.0005 | 0 | 0 | 0.0001 | 0 | 0.0038 |
| 1090 – 1265 | 0.02 – 1.38 (0.12) | 0.1028 | 0.0061 | 0.0023 | 0.0003 | 0.0002 | 0.0001 | 0 | 0.0077 |
| 1265 – 1324 | 0.23 – 0.57 (0.38) | 0.3553 | 0.0246 | 0.0071 | 0.0016 | 0.0016 | 0.0012 | 0.0004 | 0.0059 |
| 1324 – 1386 | 0.13 – 0.48 (0.25) | 0.2246 | 0.0110 | 0.0032 | 0.0011 | 0.0007 | 0.0003 | 0.0001 | 0.0077 |
| 1386 – 1390 | 0.16 – 0.47 (0.27) | 0.2551 | 0.0121 | 0.0027 | 0.0010 | 0.0005 | 0.0004 | 0.0001 | 0.0076 |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| Nil | - | - | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| Nil | - | - | - | - | - | - | - | - | - |
| Trip | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| Nil | - | - | - | - | - | - | - | - | - |

**CONFIDENTIAL****FORMATION PRESSURE ESTIMATION**

| ITEM | REMARKS |
|---------------------|---|
| Pore Pressure | Normal. |
| MWD Resistivity | Excellent correlation with Halladale-1 DW1. |
| Connection gas | None observed. |
| Dxc exponent | Dxc trend changes through varying lithology. |
| Mud weight | Being maintained at 1.25 sg as per program. |
| ROP | ROP decreased due to formation change at 1386 mMDRT (Skull Creek Mudstone) |
| Background gas | Background increased from 1255 mMDRT (0.04% to 0.25%) possibly due to more competent formation. |
| Trip Gas | None observed. |
| Mud temperature out | Gradual increase of temperature out. Masking/insulating effect on mud with addition of premix. |
| Ditch cuttings | Good returns. |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers, 2 x Mudloggers, 2 x Sample Catchers

LWD

3 x MWD Engineers, 1 x Geo-Pilot, 2 x Directional Drillers

SENSORS

| | Distance to Bit (m) |
|-------------------------------|---------------------|
| Vibration (DDS) | 0 |
| Directional (DM) | 8.97 |
| Gamma (DGR) | 11.53 |
| Resistivity (EWR-P4) | 13.85 |
| Pressure While Drilling (PWD) | 16.37 |
| Density (SLD) | 22.05 |
| Caliper (ACAL) | 25.29 |
| Porosity (CTN) | 26.13 |
| Sonic (BAT) | 31.10 |

WIRELINE

1 x Wireline Engineer, 2 x Wireline Operators, 2 x RCI Specialists

REMARKS

None

HSE

No incident to report.

WELLSITE GEOLOGISTS

Simon Billeau / Manuel Ortiz

**CONFIDENTIAL**

| | | | |
|----------------------------|-------------------------------|---------------------------|--------------------------------|
| Date: | 21 st April 2005 | Last Casing: | 244 mm (9 5/8") @ 834 mMDRT |
| Report Number: | 35B | FIT: | 2.13 sg EMW |
| Report Period: | 0000-2400 Hours AEST | Mud Weight: | 1.26 sg |
| Depth @ 2400 Hours: | 1941 mMDRT (1875.4 mTVDRT) | ECD: | 1.4 sg EMW |
| Lag Depth: | 1941 mMDRT | Mud Type: | Aqua Drill |
| Last Depth: | 1941 mMDRT (1875.4 mTVDRT) | Mud Chlorides: | 52 000 mg/l |
| Progress: | 0 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 1169.9 mMDRT |
| RT: | 21.5 m | Deviation: | Incl: 20.36° Azi: 343.92° |
| Bit Diameter: | 216 mm (8 1/2") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: *Changed over to Halladale-1 DW3 at 15:00 hrs, April 21, 2005. Made up 216 mm (8 1/2") drilling assembly with Geo-pilot and LWD tools to measure gamma ray, resistivity, neutron, density and sonic data. Downloaded to LWD tool prior to running in hole and shallow testing LWD - okay. Continued running in hole to 834 mMDRT where a top drive service was conducted. Continued to run in hole tagging top of cement at 1175 mMDRT. Drilled cement in Halladale-1 DW3 to 1180 mMDRT.*

NEXT 24 HOURS: *Drill ahead in 216 mm (8 1/2") hole as per program.*

CURRENT OPERATION @ 06:00 Hrs AEST 22/04/2005: *Drilling ahead at 1265 mMDRT.*

GEOLOGICAL SUMMARY**LITHOLOGY**

No new formation drilled.

GAS SUMMARY

| Depth Interval | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
|----------------|---------------|--------|--------|--------|---------|---------|---------|---------|---------|
| - | - | - | - | - | - | - | - | - | - |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |
| Trip Depth | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |

FORMATION PRESSURE ESTIMATION

| ITEM | REMARKS |
|---------------------|---------|
| Pore Pressure | |
| MWD Resistivity | |
| Connection gas | |
| Dxc exponent | |
| Mud weight | |
| ROP | |
| Background gas | |
| Trip Gas | |
| Mud temperature out | |
| Ditch cuttings | |



CONFIDENTIAL

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers, 2 x Mudloggers, 2 x Sample Catchers

LWD

3 x MWD Engineers, 1 x Geo-pilot, 2 x Directional Drillers

SENSORS**Distance
to Bit (m)**

| | |
|-------------------------------|-------|
| Vibration (DDS) | 0.00 |
| Directional (DM) | 8.98 |
| Gamma (DGR) | 11.51 |
| Resistivity (EWR-P4) | 13.81 |
| Pressure While Drilling (PWD) | 16.34 |
| Density (SLD) | 21.95 |
| Caliper (ACAL) | 25.17 |
| Porosity (CTN) | 26.00 |
| Sonic (BAT) | 30.80 |

WIRELINE

7 x Baker Atlas

REMARKS

This is the first daily geological report for Halladale-1 DW3

HSE

No incidents

WELLSITE GEOLOGISTS

Simon Billeau / Manuel Ortiz



CONFIDENTIAL

| | | | |
|----------------------------|-------------------------------|---------------------------|--------------------------------|
| Date: | 22 nd April 2005 | Last Casing: | 244 mm (9 5/8") @ 834 mMDRT |
| Report Number: | 36 | FIT: | 2.13 sg EMW |
| Report Period: | 0000-2400 Hours AEST | Mud Weight: | 1.25 sg |
| Depth @ 2400 Hours: | 1569 mMDRT (1532.5 mTVDRT) | ECD: | 1.41 sg EMW |
| Lag Depth: | 1560 mMDRT | Mud Type: | Aqua Drill |
| Last Depth: | 1180 mMDRT (1173.1 mTVDRT) | Mud Chlorides: | 47 000 mg/l |
| Progress: | 389 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 1597.67 mMDRT |
| RT: | 21.5 m | Deviation: | Incl: 30.33° Azi: 57.13° |
| Bit Diameter: | 216 mm (8 1/2") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: *Drilled cement from 1180 to 1197 mMDRT (Kick off point). Directionally drilled 216 mm (8 1/2") hole to the midnight depth of 1569 mMDRT.*

NEXT 24 HOURS: *Continue drilling 216 mm (8 1/2") hole to total depth (~1964 mMDRT).*

CURRENT OPERATION @ 06:00 Hrs AEST 23/04/2005: *Drilling 216 mm (8 1/2") hole at 1615 mMDRT.*

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 1200 to 1230 mMDRT
ROP (range): 7.5-71.5 m/hr
Av ROP: 28.0 m/hr

SANDSTONE with minor interbedded CLAYSTONE and SILTY CLAYSTONE.

SANDSTONE (10-100%): yellowish grey, light olive grey, translucent, transparent, loose, sub-angular, moderately sorted to well sorted, slightly elongated to spherical, 100% siliceous sand, 40% fine grained, 40% medium grained, 20% coarse grained, trace very coarse grained, trace light grey lithic fragments, trace pyrite, good inferred porosity, no shows.

CLAYSTONE (0-70%): very light grey, yellowish grey, translucent, transparent, very soft to soft, amorphous to dispersive, 90% siliceous clay, 10% siliceous silt, trace very fine siliceous sand.

SILTY CLAYSTONE (0-70%): brownish grey, olive grey, medium dark grey, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, rare coal/lignite, trace mica, trace pyrite.

INTERVAL: 1230 to 1260 mMDRT
ROP (range): 11.7-123.5m/hr
Av ROP: 24.3 m/hr

SILTY CLAYSTONE and ARGILLACEOUS SILTSTONE

SILTY CLAYSTONE (40-100%): brownish grey, olive grey, medium dark grey, medium grey, soft to firm, amorphous to sub-blocky, 80% siliceous clay, 20% siliceous silt, 5% glauconite, trace-rare pyrite, trace mica flakes, trace carbonaceous fragments.

ARGILLACEOUS SILTSTONE (0-60%): medium grey, olive grey, speckled with carbonaceous partings, soft to firm, amorphous to sub-blocky, 20% siliceous clay, 80% siliceous silt, trace pyrite, trace mica, trace carbonaceous partings.



CONFIDENTIAL

INTERVAL: 1260 to 1384 mMDRT
ROP (range): 7.9-142.2 m/hr
Av ROP: 36.0 m/hr

ARGILLACEOUS SILTSTONE with interbedded SANDSTONE and SILTY CLAYSTONE

ARGILLACEOUS SILTSTONE (30-60%): medium grey, olive grey, speckled with carbonaceous partings, soft to firm, amorphous to sub-blocky, 20% siliceous clay, 80% siliceous silt, trace pyrite, trace mica, trace carbonaceous partings.

SANDSTONE (10-50%): light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, poorly to moderately sorted, slightly elongated to rarely spherical, 100% siliceous sand, trace very fine, 305 fine grained, 60% medium grained, 10% coarse grained, trace very coarse grained, 20% inferred porosity.

SILTY CLAYSTONE (30-40%): brownish grey, olive grey, medium dark grey, medium grey, soft to firm, amorphous to sub-blocky, 80% siliceous clay, 20% siliceous silt, 5% glauconite, trace-rare pyrite, trace mica flakes, trace carbonaceous fragments.

INTERVAL: 1384 to 1470 mMDRT
ROP (range): 12.8-95.3 m/hr
Av ROP: 27.0 m/hr

SILTY CLAYSTONE with minor interbedded SANDSTONE

SILTY CLAYSTONE (70-100%): light brownish grey, rarely medium brownish grey, very soft to soft, amorphous to dispersive, 90% siliceous clay, 10% siliceous silt, trace pyrite, trace mica, trace fine carbonaceous partings.

SANDSTONE (0-30%): light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, poorly to moderately sorted, slightly elongate to slightly spherical, 100% siliceous sand, 40% very fine grained, 40% fine grained, 20% medium grained, trace coarse grained, trace to abundant pyrite, 20% inferred porosity, no shows.

INTERVAL: 1470 to 1520 mMDRT
ROP (range): 6.1-118.6 m/hr
Av ROP: 22.3 m/hr

SILTY CLAYSTONE

SILTY CLAYSTONE (100%), light brownish grey, medium brownish grey, rarely light grey, very soft to soft, amorphous to dispersive, 90% siliceous clay, 10% siliceous silt, trace fine carbonaceous partings, trace mica.

INTERVAL: 1520 to 1560 mMDRT
ROP (range): 1.8-60.4 m/hr
Av ROP: 9.1 m/hr

SILTY CLAYSTONE with interbedded SANDSTONE

SILTY CLAYSTONE (70-100%): light brownish grey, medium brownish grey, rarely light grey, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace fine carbonaceous partings, trace mica, trace fossil fragments, trace nodular pyrite.

SANDSTONE (10-30%): white to light grey, loose, angular to sub angular, minor sub rounded, moderately to well sorted, elongated to slightly spherical, 100% siliceous sand, 30% very fine grained, 60% fine grained, 10% medium grained, trace calcite cement, trace lithic fragments, good inferred porosity, no shows.

**CONFIDENTIAL****GAS SUMMARY**

| Depth Interval | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
|----------------|------------------|--------|--------|--------|---------|---------|---------|---------|---------|
| 1200-1230 | 0-0.08 (0.03) | 0.0148 | 0.0009 | 0.0002 | - | - | - | - | 0.02 |
| 1230-1260 | 0.04-1.09 (0.31) | 0.1275 | 0.0071 | 0.0015 | 0.0003 | 0.0002 | 0.0001 | 0.0001 | 0.03 |
| 1260-1384 | 0.06-0.41 (0.17) | 0.1148 | 0.0065 | 0.0016 | 0.0004 | 0.0003 | 0.0001 | - | 0.03 |
| 1384-1470 | 0.13-3.65 (0.53) | 0.3187 | 0.0200 | 0.0052 | 0.0008 | 0.0010 | 0.0002 | 0.0001 | 0.07 |
| 1470-1520 | 0.34-0.72 (0.49) | 0.2910 | 0.0223 | 0.0073 | 0.0011 | 0.0015 | 0.0003 | 0.0002 | 0.10 |
| 1520-1560 | 0.11-0.56 (0.30) | 0.1788 | 0.0126 | 0.0040 | 0.0006 | 0.0007 | 0.0001 | 0.0001 | 0.07 |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| 1441 | 3.65 | 2.8435 | 0.0917 | 0.0203 | 0.0028 | 0.0033 | - | 0.0005 | 0.13 |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |
| Trip Depth | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |

FORMATION PRESSURE ESTIMATION

| ITEM | REMARKS |
|---------------------|---|
| Pore Pressure | Estimated normal. |
| MWD Resistivity | Varies with lithology. |
| Connection gas | None observed. |
| Dxc exponent | Dxc trend steady. |
| Mud weight | Being maintained at 1.25 sg as per program. |
| ROP | Varies with lithology. |
| Background gas | 0.03-0.53% |
| Trip Gas | None. |
| Mud temperature out | Slow increase of temperature out. |
| Ditch cuttings | Good cuttings returns, little variation in shape or size. |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers, 2 x Mudloggers, 2 x Sample Catchers

LWD

3 x MWD Engineers, 1 x Geo-pilot, 2 x Directional Drillers

SENSORS

| | Distance to Bit (m) |
|-------------------------------|---------------------|
| Vibration (DDS) | 0.00 |
| Directional (DM) | 8.98 |
| Gamma (DGR) | 11.51 |
| Resistivity (EWR-P4) | 13.81 |
| Pressure While Drilling (PWD) | 16.34 |
| Density (SLD) | 21.95 |
| Caliper (ACAL) | 25.17 |
| Porosity (CTN) | 26.00 |
| Sonic (BAT) | 30.80 |

WIRELINE

7 x Baker Atlas

REMARKS

None



HSE

No incidents

WELLSITE GEOLOGISTS

Simon Billeau / Cliff Menhennitt

**CONFIDENTIAL**

| | | | |
|----------------------------|-------------------------------|---------------------------|--------------------------------|
| Date: | 23 rd April 2005 | Last Casing: | 244 mm (9 5/8") @ 834 mMDRT |
| Report Number: | 37 | FIT: | 2.13 sg EMW |
| Report Period: | 0000-2400 Hours AEST | Mud Weight: | 1.26 sg |
| Depth @ 2400 Hours: | 1775 mMDRT (1710.7 mTVDRT) | ECD: | 1.40 sg EMW |
| Lag Depth: | 1770 mMDRT | Mud Type: | Aqua Drill |
| Last Depth: | 1569 mMDRT (1532.5 mTVDRT) | Mud Chlorides: | 47 000 mg/l |
| Progress: | 206 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 1769.54 mMDRT |
| RT: | 21.5 m | Deviation: | Incl: 29.87° Azi: 53.81° |
| Bit Diameter: | 216 mm (8 1/2") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: Directionally drilled 216 mm (8 1/2") hole from 1569 to 1775 mMDRT.

NEXT 24 HOURS: Continue drilling 216 mm (8 1/2") hole to total depth (~1964 mMDRT).

CURRENT OPERATION @ 06:00 Hrs AEST 24/04/2005: Drilling 216 mm (8 1/2") hole at 1816 mMDRT.

GEOLOGICAL SUMMARY**LITHOLOGY**

INTERVAL: 1560 to 1775 mMDRT
ROP (range): 1.7-40.1 m/hr
Av ROP: 8.9 m/hr

SILTY CLAYSTONE

SILTY CLAYSTONE (100%): medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to 5% glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace nodular pyrite, trace disseminated pyrite.

GAS SUMMARY

| Depth Interval | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
|----------------|------------------|--------|--------|--------|---------|---------|---------|---------|------------------|
| 1560-1775 | 0.08-0.30 (0.19) | 0.1092 | 0.0059 | 0.0011 | 0.0001 | 0.0001 | - | - | 0.04-0.08 (0.06) |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |
| Trip Depth | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |

**CONFIDENTIAL****FORMATION PRESSURE ESTIMATION**

| ITEM | REMARKS |
|---------------------|---|
| Pore Pressure | Estimated normal. |
| MWD Resistivity | Varies with lithology. |
| Connection gas | None observed. |
| Dxc exponent | Dxc trend steady. |
| Mud weight | Being maintained at 1.25 sg as per program. |
| ROP | Varies with lithology. |
| Background gas | 0.08-0.30% |
| Trip Gas | None. |
| Mud temperature out | Slow increase of temperature out. |
| Ditch cuttings | Good cuttings returns, little variation in shape or size. |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers, 2 x Mudloggers, 2 x Sample Catchers

LWD

3 x MWD Engineers, 1 x Geo-pilot, 2 x Directional Drillers

SENSORS**Distance
to Bit (m)**

| | |
|-------------------------------|-------|
| Vibration (DDS) | 0.00 |
| Directional (DM) | 8.98 |
| Gamma (DGR) | 11.51 |
| Resistivity (EWR-P4) | 13.81 |
| Pressure While Drilling (PWD) | 16.34 |
| Density (SLD) | 21.95 |
| Caliper (ACAL) | 25.17 |
| Porosity (CTN) | 26.00 |
| Sonic (BAT) | 30.80 |

WIRELINER

7 x Baker Atlas

REMARKS

None

HSE

No incidents

WELLSITE GEOLOGISTS

Simon Billeau / Cliff Menhennitt



CONFIDENTIAL

| | | | |
|----------------------------|-------------------------------|---------------------------|--------------------------------|
| Date: | 24 th April 2005 | Last Casing: | 244 mm (9 5/8") @ 834 mMDRT |
| Report Number: | 38 | FIT: | 2.13 sg EMW |
| Report Period: | 0000-2400 Hours AEST | Mud Weight: | 1.26 sg |
| Depth @ 2400 Hours: | 1969 mMDRT (1881.1 mTVDRT) | ECD: | 1.41 sg EMW |
| Lag Depth: | 1969 mMDRT | Mud Type: | Aqua Drill |
| Last Depth: | 1775 mMDRT (1710.7 mTVDRT) | Mud Chlorides: | 51,000 mg/l |
| Progress: | 194 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 1960.0 mMDRT |
| RT: | 21.5 m | Deviation: | Incl: 28.26° Azi: 57.61° |
| Bit Diameter: | 216 mm (8 1/2") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: *Directionally drilled 216 mm (8 1/2") hole from 1775 to 1969 mMDRT. Pulled out of hole and performed LWD wipe section from 1922 to 1897 mMDRT prior to running in to TD and circulating the hole clean. Pulled out of hole, back reaming from 1969 - 1696 and 1500 - 1373 mMDRT. The string became stuck at 1373 mMDRT whilst back reaming. Worked pipe and jarred free. Back reaming continued to the midnight depth of 1225 mMDRT.*

NEXT 24 HOURS: *Continue to back ream to the casing shoe and circulate hole clean prior to running in hole to complete the wiper trip. Circulate the hole clean and pull out of hole. Rig up Baker Atlas and perform run 1 wireline logging: GR-RCI.*

CURRENT OPERATION @ 06:00 Hrs AEST 25/04/2005: *Running in hole at 1850 mMDRT.*

GEOLOGICAL SUMMARY

LITHOLOGY

INTERVAL: 1775 to 1801 mMDRT
ROP (range): 2.1-20.0 m/hr
Av ROP: 6.9 m/hr

SILTY CLAYSTONE

SILTY CLAYSTONE (100%): medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to 5% glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace nodular pyrite, trace disseminated pyrite.

INTERVAL: 1801 to 1870 mMDRT
ROP (range): 3.2-51.8 m/hr
Av ROP: 13.5 m/hr

SILTY CLAYSTONE becoming SANDY CLAYSTONE with interbedded SANDSTONE

SILTY CLAYSTONE (0-100%): medium grey, medium greenish grey, very soft to soft, sub-blocky to blocky, 80% siliceous clay, 20% siliceous silt, trace carbonaceous partings, trace mica, trace glauconite.

SANDY CLAYSTONE (0-70%): light grey, medium grey, rarely dark grey, rarely brownish grey, rarely greenish grey, very soft to soft, amorphous to dispersive, 60% siliceous clay, 20% siliceous silt, 20% siliceous sand, trace carbonaceous partings, trace mica, trace glauconite.

SANDSTONE (0-60%): light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, moderately to well sorted, slightly elongated to slightly spherical, 100% siliceous sand, 70% very fine grained, 30% fine grained, trace medium grained, trace pyrite, 15% inferred porosity, no shows.

CONFIDENTIAL

INTERVAL: 1870 to 1907 mMDRT
ROP (range): 11.2-52.2 m/hr
Av ROP: 25.3 m/hr

SANDSTONE with minor interbedded SILTY CLAYSTONE

SANDSTONE (50-100%): light grey, white, translucent, transparent, loose, angular to sub-rounded, very poorly to poorly sorted, slightly elongated to slightly spherical, 100% siliceous sand, 10% very fine grained, 20% fine grained, 60% medium grained, 10% coarse grained, trace very coarse grained, trace pyrite, 20% inferred porosity, no shows.

SILTY CLAYSTONE (0-50%): light brownish grey, brownish medium grey, light grey, rarely dark grey, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace carbonaceous partings, trace mica, trace pyrite.

INTERVAL: 1907 to 1959 mMDRT
ROP (range): 8.5-48.4 m/hr
Av ROP: 21.3 m/hr

SILTY CLAYSTONE with Interbedded SANDSTONE

SILTY CLAYSTONE (30-70%): light brownish grey, medium brownish grey, medium grey, rarely light grey, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace carbonaceous partings, trace mica, trace pyrite.

SANDSTONE (30-70%): light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, poorly to moderately sorted, slightly elongated to slightly spherical, 100% siliceous sand, 40% very fine grained, 40% fine grained, 20% medium grained, trace coarse grained, rare trace pyrite cement, 20% inferred porosity, no shows.

INTERVAL: 1959 to 1969 mMDRT
ROP (range): 12.3-37.1 m/hr
Av ROP: 24.4 m/hr

SANDSTONE with minor interbedded SILTY CLAYSTONE

SANDSTONE (10-80%): light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, moderately to well sorted, slightly elongated to rarely spherical, 100% siliceous sand, 60% very fine grained, 40% fine grained, trace medium grained, abundant rock flour, rare trace pyrite cement, 15% inferred porosity, no shows.

SILTY CLAYSTONE (20-90%): light brownish grey, light grey, medium grey, rarely white, very soft to soft, amorphous to dispersive, slightly calcareous, 80% siliceous clay, 20% siliceous silt, trace carbonaceous partings, trace mica.

GAS SUMMARY

| Depth Interval | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
|----------------|------------------|--------|--------|--------|---------|---------|---------|---------|------------------|
| 1770-1801 | 0.07-0.19 (0.15) | 0.0926 | 0.0055 | 0.0015 | 0.0001 | 0.0002 | - | - | 0.07-0.08 (0.07) |
| 1801-1870 | 0.09-0.42 (0.24) | 0.1525 | 0.0069 | 0.0016 | 0.0002 | 0.0003 | 0.0001 | 0.0001 | 0.04-0.09 (0.07) |
| 1870-1907 | 0.30-1.89 (0.57) | 0.4607 | 0.0222 | 0.0056 | 0.0008 | 0.0009 | 0.0001 | 0.0001 | 0.06-0.08 (0.07) |
| 1907-1959 | 0.23-0.60 (0.33) | 0.2182 | 0.0139 | 0.0039 | 0.0005 | 0.0007 | 0.0001 | 0.0001 | 0.06-0.08 (0.07) |
| 1959-1969 | 0.25-0.43 (0.34) | 0.2254 | 0.0123 | 0.0032 | 0.0004 | 0.0005 | 0.0001 | 0.0001 | 0.03-0.07 (0.06) |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| 1877 | 1.89 | 1.9510 | 0.0843 | 0.0195 | 0.0031 | 0.0031 | 0.0004 | 0.0002 | 0.07 |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |
| Trip Depth | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |

**CONFIDENTIAL****FORMATION PRESSURE ESTIMATION**

| ITEM | REMARKS |
|---------------------|---|
| Pore Pressure | Estimated normal. |
| MWD Resistivity | Varies with lithology. |
| Connection gas | None observed. |
| Dxc exponent | Dxc trend steady. |
| Mud weight | Being maintained at 1.25 – 1.26 sg as per program. |
| ROP | Varies with lithology. |
| Background gas | 0.07-1.89% |
| Trip Gas | None. |
| Mud temperature out | Slow increase of temperature out. |
| Ditch cuttings | Good cuttings returns, little variation in shape or size. |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers, 2 x Mudloggers, 2 x Sample Catchers

LWD

3 x MWD Engineers, 1 x Geo-pilot, 2 x Directional Drillers

SENSORS**Distance
to Bit (m)**

| | |
|-------------------------------|-------|
| Vibration (DDS) | 0.00 |
| Directional (DM) | 8.98 |
| Gamma (DGR) | 11.51 |
| Resistivity (EWR-P4) | 13.81 |
| Pressure While Drilling (PWD) | 16.34 |
| Density (SLD) | 21.95 |
| Caliper (ACAL) | 25.17 |
| Porosity (CTN) | 26.00 |
| Sonic (BAT) | 30.80 |

WIRELINER

7 x Baker Atlas

REMARKS

None

HSE

No incidents

WELLSITE GEOLOGISTS

Simon Billeau / Cliff Menhennitt

**CONFIDENTIAL**

| | | | |
|----------------------------|-------------------------------|---------------------------|--------------------------------|
| Date: | 25 th April 2005 | Last Casing: | 244 mm (9 5/8") @ 834 mMDRT |
| Report Number: | 39 | FIT: | 2.13 sg EMW |
| Report Period: | 0000-2400 Hours AEST | Mud Weight: | 1.28 sg |
| Depth @ 2400 Hours: | 1969 mMDRT (1881.1 mTVDRT) | ECD: | 1.43 sg EMW |
| Lag Depth: | 1969 mMDRT | Mud Type: | Aqua Drill |
| Last Depth: | 1775 mMDRT (1710.7 mTVDRT) | Mud Chlorides: | 51,000 mg/l |
| Progress: | 0 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 1960.0 mMDRT |
| RT: | 21.5 m | Deviation: | Incl: 28.26° Azi: 57.61° |
| Bit Diameter: | 216 mm (8 1/2") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: Continued to back ream to the casing shoe at 834 mMDRT. Ran in hole to TD and circulated the hole clean prior to pulling out of hole. At surface, the drill collars were racked back and the LWD laid out prior to rigging up for run 1 wireline logging: GR-RCI. 10 pressure points were successfully obtained prior to pulling out and commencing to rig down the wireline equipment.

NEXT 24 HOURS: P&A Halladale-1 DW3.

CURRENT OPERATION @ 06:00 Hrs AEST 26/04/2005: Running into hole with cement stinger at 1730 mMDRT to set abandonment plugs.

GEOLOGICAL SUMMARY**LITHOLOGY**

No new lithology drilled.

GAS SUMMARY

| Depth Interval | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
|----------------|---------------|--------|--------|--------|---------|---------|---------|---------|---------|
| - | - | - | - | - | - | - | - | - | - |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |
| Trip Depth | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |

FORMATION PRESSURE ESTIMATION

| ITEM | REMARKS |
|---------------------|------------------------|
| Pore Pressure | Estimated normal. |
| MWD Resistivity | Varies with lithology. |
| Connection gas | - |
| Dxc exponent | - |
| Mud weight | 1.26 sg |
| ROP | Varies with lithology. |
| Background gas | - |
| Trip Gas | None. |
| Mud temperature out | - |
| Ditch cuttings | - |



CONFIDENTIAL

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers, 2 x Mudloggers, 2 x Sample Catchers

LWD

3 x MWD Engineers, 1 x Geo-pilot, 2 x Directional Drillers

WIRELINE

7 x Baker Atlas

WIRELINE DIARY

A JSA was held on the rig floor prior to rigging up and running in hole with wireline logging run 1: GR-RCI. The tools were surface checked and run in hole to 100 m where the compensators were set. A short correlation pass was made at 1180 m and the depth shifted -0.9 m to match the wireline GR in Halladale-1 DW2 prior to running in hole to 1940 m where a correlation pass was conducted. A 1 minute and 6 minute fall off test were conducted at 1872 m prior to successfully obtaining 10 pretests. The GR-RCI tool was run in hole to 1950 mMDRT prior to performing a GR survey whilst pulling out of hole to the 9 5/8" shoe at 834 m. The wireline was pulled out of hole to the surface and the wireline equipment rigged down.

REMARKS

None

HSE

No incidents

WELLSITE GEOLOGISTS

Simon Billeau / Cliff Menhennitt

**CONFIDENTIAL**

| | | | |
|----------------------------|-------------------------------|---------------------------|--------------------------------|
| Date: | 26 th April 2005 | Last Casing: | 244 mm (9 5/8") @ 834 mMDRT |
| Report Number: | 40 | FIT: | 2.13 sg EMW |
| Report Period: | 0000-2400 Hours AEST | Mud Weight: | 1.29 sg |
| Depth @ 2400 Hours: | 1969 mMDRT (1881.1 mTVDRT) | ECD: | - sg EMW |
| Lag Depth: | 1969 mMDRT | Mud Type: | Aqua Drill |
| Last Depth: | 1775 mMDRT (1710.7 mTVDRT) | Mud Chlorides: | 51,000 mg/l |
| Progress: | 0 m | Est. Pore Press: | Normal |
| Water Depth: | 44.8 mLAT | Last Survey Depth: | 1960.0 mMDRT |
| RT: | 21.5 m | Deviation: | Incl: 28.26° Azi: 57.61° |
| Bit Diameter: | 216 mm (8 1/2") | | |

OPERATIONS SUMMARY

24 HOUR SUMMARY: Completed rigging down Baker Atlas. Ran in hole with cement stinger. Set cement plug #1 between 1969 and 1717 mMDRT. Set cement plug #2 between 1717 and 1487 mMDRT. Set cement plug #3 between 1487 and 1387 mMDRT. Tagged cement plug #3 at 1377 mMDRT. Prepared to set cement plug #4.

NEXT 24 HOURS: Continue P&A operations.

CURRENT OPERATION @ 06:00 Hrs AEST 27/04/2005: Running in hole to tag cement plug #4.

GEOLOGICAL SUMMARY**LITHOLOGY**

No new lithology drilled.

GAS SUMMARY

| Depth Interval | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
|----------------|---------------|--------|--------|--------|---------|---------|---------|---------|---------|
| - | - | - | - | - | - | - | - | - | - |
| Peaks | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |
| Connection | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |
| Trip Depth | Total GAS (%) | C1 (%) | C2 (%) | C3 (%) | IC4 (%) | NC4 (%) | IC5 (%) | NC5 (%) | CO2 (%) |
| - | - | - | - | - | - | - | - | - | - |

FORMATION PRESSURE ESTIMATION

| ITEM | REMARKS |
|---------------------|-------------------|
| Pore Pressure | Estimated normal. |
| MWD Resistivity | - |
| Connection gas | - |
| Dxc exponent | - |
| Mud weight | 1.26 sg |
| ROP | - |
| Background gas | - |
| Trip Gas | - |
| Mud temperature out | - |
| Ditch cuttings | - |

MUDLOGGING EQUIPMENT/PERSONNEL

2 x Data Engineers,



REMARKS

This is the last geological report for Halladale-1 DW3.

HSE

Whilst back loading the Baker Atlas RCI unit to the Pacific Wrangler, sudden rig heave caused contact with nearby skid and subsequently damaged the door of the unit.

WELLSITE GEOLOGISTS

Simon Billeau / Cliff Menhennitt

Wellsite Lithology Log



Woodside Energy Ltd.

Well Name : Halladale-1 DW1 (Location Black Watch)

Wellsite Lithology Log

Rig: Ocean Patriot
Basin: Otway
Date Spudded: 22-Mar-05
Date TD: 4-Apr-05

Rig Type: Semi-submersible
Rotary Table: 21.5 m
Water Depth: 44.8 mLAT
Total Depth: 1918 mRT
Well Status: P&A

Latitude: 38 34 45.67 S
Longitude: 142 43 50.82 E
Eastings: 650 760
Northings: 5 728 481
Datum: GDA94, MGA Zone 54, CM 141°(E)

Wellsite Geologists:

Mark Tindale
Tony Cartwright
Simon Bileau
Manuel Ortiz

Rock Types

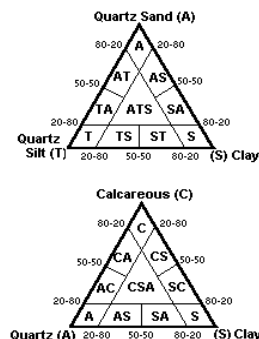
| | |
|--|-------------------------------------|
| | Sample Contaminated or Missed |
| | (Clyst) Claystone |
| | (Clyst, calc) Claystone, calcareous |
| | (Siltst) Siltstone |
| | (Sst) Sandstone |
| | (Cgl) Conglomerate |
| | (Lst) Limestone (recrystallised) |
| | (Cl) Calcilutite |
| | (Ct) Calcisiltite |
| | (Ca) Calcareenite |
| | (Cr) Calcirudite |
| | (Dol) Dolomite |

| | |
|------|------------------|
| | (An) Anhydrite |
| | (Gyp) Gypsum |
| | (Ha) Halite/Salt |
| | (C) Coal |
| | (Cht) Chert |
| | (MM) Metamorphic |
| | (Plut) Plutonic |
| | (Vol) Volcanic |
| * | silty |
| | sandy |
| — | argillaceous |

| | |
|-----|----------------------|
| Py: | Pyrite |
| Mc: | Mica |
| Ch: | Chert |
| C: | Lignite / Coal |
| G: | Glauconite |
| F: | Feldspar |
| Ce: | Chlorite |
| Qx: | Quartz Crystals |
| Cx: | Calcite Crystals |
| Sc: | Siderite Concretions |
| Gp: | Gypsum |
| He: | Hematite |

| | |
|-----|--------------------|
| Al: | Algae |
| O: | Ooliths |
| Co: | Corals |
| Cr: | Crinoids |
| Fo: | Foraminifera |
| Br: | Bryozoa |
| Os: | Ostracoda |
| Rd: | Radiolaria |
| I: | Inoceramus |
| Sk: | Skeletal Fragments |
| Lf: | Lithic Fragments |

Rock Classification



Sample Reliability

Q: Questionable
U: Unreliable
No entry indicates that sample is considered reliable.

Hardness

L: Loose
VS: Very Soft
S: Soft
Fr: Friable
F: Firm
MH: Moderately Hard
H: Hard

Fracture

A: Amorphous
Ang: Angular
B: Blocky
SB: Sub Blocky
Conc: Conchoidal
Disp: Dispersive

Rounding

A: Angular
SA: Subangular
SR: Subrounded
R: Rounded
WR: Well Rounded

Sorting

VP: Very Poor
P: Poor
M: Moderate
W: Well
VW: Very Well

Sphericity

VE: Very Elongated
E: Elongated
SE: Slightly Elongated
SS: Slightly Spherical
S: Spherical
VS: Very Spherical

Cement

Q: Silica
C: Calcite
D: Dolomite
P: Pyrite
Sd: Siderite

Porosity

g: intergranular
v: vugular
i: intraskeletal
f: fracture



Colour

wh = white
gy = grey
blk = black
red = red
pk = pink
pu = purple
brn = brown
yel = yellow
gn = green
olv = olive
blu = blue
omg = orange
cl = colourless
mult = multicolour
trans = translucent
lt = light
dk = dark
med = medium
vgt = variegated



Wellsite Lithology Log

Well Name : HALLADALE-1 DW-1 (Location Black Watch)

| Lithology | | | | | | | | | | Grains | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | Longhand Description | | | | |
|-------------|--------------------|----------------|-----------------|-----------|-----------------------------------|----------|----------|----------|----------|------------|----------|---------------|----------|------------------------------|---------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|------|---|-------------|------|------|-----|------|----------|-------------------|----------------------|---|------|---|---|
| | | | | | | | | | | Calcareous | | Siliciclastic | | % | | | | | | | | | | | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | | | 5 | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | | % | Type | % | HC Shows (y/h) |
| 427 | Clyst | calc | | 100 | med gnish gy to lt gn, ip v lt gy | s | vs | Disp | SF | 30.0 | | | 70.0 | 100.0 | | | | | | | 0.0 | | | | | | sk | 10.0 | Mc | 0.1 | cr | 5.0 | | | | N |  | T: Cartwright on tour, 13:00 hrs, 27th March. Spudded Halladale-1 DW1 at 12:30 hrs 22/03/05. Drilled 36' hole section to 101 mMDRT. Set 30' conductor at 99.5 mMDRT. Drilled ahead in 17 1/2' hole to 427 mMDRT prior to setting 13 3/8" casing at 421 mMDRT. Calcareous Claystone, medium greenish grey to light green, in part very light grey, soft to very soft, dispersive to sub-fissile, 30% calcareous clay, 70% siliceous clay, 10% skeletal fragments, trace mica, 5% crinoids. |
| 430 | Clyst | calc | | 90 | med gnish gy to lt gn, ip v lt gy | s | vs | Disp | SF | 30.0 | | | 70.0 | 100.0 | | | | | | | 0.0 | | | | | | sk | 10.0 | Mc | 0.1 | cr | 5.0 | | | | N |  | Calcareous Claystone, medium greenish grey to light green, in part very light grey, soft to very soft, dispersive to sub-fissile, 30% calcareous clay, 70% siliceous clay, 10% skeletal fragments, trace mica, 5% crinoids. |

| Well Name : HALLADALE-1 DW-1 (Location Black Watch) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------|----------------|-----------------|-----------|-----------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|------------------------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|---------|---|------|-------------|------|------|------|-----|----------|-------------------|----------------------|-----|------|---|---|--|--|
| Lithology | | | | | | | | | | Grains | | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | Longhand Description | | | | | | |
| Depth (mKT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | Type |
| 430 | Stat | calc | | 10 | med gnish to dk gnish gy | s | f | sb | sf | 30.0 | | | | 70.0 | 100.0 | | | | | | | | | | | | | | sk | 20.0 | | | | | | | | N | | Calcareous Siltstone, medium greenish to dark greenish grey, soft to firm, sub-blocky to sub-fissile, 30% calcareous clay, 70% siliceous silt, 20% skeletal fragments. | |
| 440 | Clyst | calc | | 90 | med gnish gy to lt gn, ip v lt gy | s | vs | Disp | SF | 40.0 | | | 50.0 | 10.0 | 100.0 | | | | | | | | | | | | | | sk | 10.0 | Mc | 0.1 | cr | 5.0 | | | | | N | | Calcareous Claystone, medium greenish grey to light green, in part very light grey, soft to very soft, dispersive to sub-fissile, 40% calcareous clay, 50% siliceous clay, 10% siliceous silt, 10% skeletal fragments, trace mica, 5% crinoids. |
| 440 | Stat | calc | | 10 | med gnish to dk gnish gy | s | f | sb | sf | 20.0 | 20.0 | | 10.0 | 50.0 | 100.0 | | | | | | | | | | | | | | sk | 20.0 | G | 0.1 | | | | | | N | | Calcareous Siltstone, medium greenish to dark greenish grey, soft to firm, sub-blocky to sub-fissile, 20% calcareous clay, 20% calcareous silt, 10% siliceous clay, 50% siliceous silt, 20% skeletal fragments, trace glauconite. | |
| 450 | Clyst | calc | | 40 | med gnish gy to lt gn, ip v lt gy | s | vs | Disp | SF | 40.0 | | | 50.0 | 10.0 | 100.0 | | | | | | | | | | | | | | sk | 0.1 | Mc | 0.1 | cr | 0.1 | | | | | N | | Calcareous Claystone, medium greenish grey to light green, in part very light grey, soft to very soft, dispersive to sub-fissile, 40% calcareous clay, 50% siliceous clay, 10% siliceous silt, trace skeletal fragments, trace mica, trace crinoids. |
| 450 | Clyst | calc | | 60 | wt to v lt gnish gy | vs | | Disp | | 30.0 | 10.0 | | 30.0 | 30.0 | 100.0 | | | | | | | | | | | | | | | | | | | | | | | N | | Silty Calcareous Claystone, white to very light greenish grey, very soft, dispersive, 30% calcareous clay, 10% calcareous silt, 30% siliceous clay, 30% siliceous silt. | |
| 460 | Clyst | calc | | 90 | med gnish gy to lt gn, ip v lt gy | s | vs | Disp | SF | 40.0 | | | 50.0 | 10.0 | 100.0 | | | | | | | | | | | | | | sk | 0.1 | | | | | | | | N | | Calcareous Claystone, medium greenish grey to light green, in part very light grey, soft to very soft, dispersive to sub-fissile, 40% calcareous clay, 50% siliceous clay, 10% siliceous silt, trace skeletal fragments. | |
| 460 | Clyst | calc | | 10 | wt to v lt gnish gy | vs | | Disp | | 30.0 | 10.0 | | 30.0 | 30.0 | 100.0 | | | | | | | | | | | | | | | | | | | | | | | N | | Silty Calcareous Claystone, white to very light greenish grey, very soft, dispersive, 30% calcareous clay, 10% calcareous silt, 30% siliceous clay, 30% siliceous silt. | |
| 470 | Clyst | calc | | 100 | med gnish gy to lt gn, ip v lt gy | s | vs | Disp | | 40.0 | 5.0 | | 30.0 | 25.0 | 100.0 | | | | | | | | | | | | | | sk | 5.0 | cr | 5.0 | mc | 0.1 | fo | 0.1 | | N | | Calcareous Claystone, med gnish gy to lt gn, ip v lt gy, soft to very soft, dispersive, 40% calcareous clay, 5% calcareous silt, 30% siliceous clay, 25% siliceous silt, 5% skeletal fragments, 5% crinoids, trace mica, trace foraminifera | |
| 480 | Cl | arg | | 100 | med gnish gy to lt gn, ip v lt gy | s | vs | Disp | | 50.0 | 10.0 | | 20.0 | 20.0 | 100.0 | | | | | | | | | | | | | | sk | 5.0 | cr | 5.0 | mc | 0.1 | fo | 0.1 | | N | | Argillaceous Calcilutite, medium greenish grey to light green, in part very light grey, soft to very soft, dispersive, 50% calcareous clay, 10% calcareous silt, 20% siliceous clay, 20% siliceous silt, 5% skeletal fragments, 5% crinoids, trace mica, trace foraminifera. | |
| 490 | Clyst | calc | | 100 | med gnish gy to lt gn, ip v lt gy | s | vs | Disp | | 30.0 | 10.0 | | 40.0 | 20.0 | 100.0 | | | | | | | | | | | | | | sk | 5.0 | cr | 5.0 | mc | 0.1 | fo | 0.1 | | N | | Calcareous Claystone, medium greenish grey to light green, in part very light grey, soft to very soft, dispersive, 30% calcareous clay, 10% calcareous silt, 40% siliceous clay, 20% siliceous silt, 5% skeletal fragments, 5% crinoids, trace mica, trace foraminifera. | |
| 500 | Clyst | calc | | 70 | med gnish gy to lt gn, ip v lt gy | s | vs | Disp | | 30.0 | 10.0 | | 50.0 | 10.0 | 100.0 | | | | | | | | | | | | | | sk | 5.0 | cr | 5.0 | mc | 0.1 | fo | 0.1 | | N | | Calcareous Claystone, medium greenish grey to light green, in part very light grey, soft to very soft, dispersive, 30% calcareous clay, 10% calcareous silt, 40% siliceous clay, 20% siliceous silt, 5% skeletal fragments, 5% crinoids, trace mica, trace foraminifera. | |
| 500 | Ca | arg | | 25 | yell bn to lt brnish gy | s | mh | Disp | ang | 30.0 | 30.0 | 40.0 | | 100.0 | | | | | | | | | | | | | | g | 3.0 | If | 3.0 | qx | 1.0 | mc | 0.1 | | N | | Argillaceous Calcarenite, yellow brown to light brownish grey, soft to moderately hard, dispersive to angular, 30% calcareous clay, 30% calcareous silt, 40% calcareous sand, 3% glauconite, 3% lithic fragments, 1% quartz crystals, trace mica. | | |

| Well Name : HALLADALE-1 DW-1 (Location Black Watch) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Lithology | | | | | | | | | | Grains | | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | Longhand Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Calcareous | | Siliciclastic | | % | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | Type | | | | % | Type | % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | Clay (%) | Silt (%) | Sand (%) | Clay (%) | | | | | | | | | | | | | Silt (%) | Sand (%) | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (v/n) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 500 | | Clyst | calc | 5 | dk bn to med brnsh gy | s | vs | Disp | 30.0 | 10.0 | | 60.0 | 100.0 | | | | | | | | 0.0 | | | | | | | | | | g | 0.1 | sk | 0.1 | mc | 0.1 | | | | | | | | N | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



| Lithology | | | | | | | | | | Grains | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | Longhand Description | | | | | | | | | | | | | | |
|-------------|--------------------|----------------|-----------------|-----------|------------------------------|----------|----------|----------|----------|------------|----------|---------------|------------------------------|--------------|---------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|------|-------------|------|------|------|-----|----------|-------------------|----------------------|-----|------|---|------|---|----------------|--|---|----|----|---|--|---|--|
| | | | | | | | | | | Calcareous | | Siliciclastic | | % | | | | | | | | | | | 1 | 2 | 3 | 1 | 2 | 3 | | | | 4 | 5 | | | | | | | | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (v/n) | | | | | | | | |
| 580 | Sst | calc | | 70 | lt brn, lt omg brn | L | VS | Disp | 20.0 | 10.0 | 20.0 | | | 50.0 | 100.0 | 20.0 | 50.0 | 25.0 | 5.0 | 0.1 | 100.1 | SA | SR | VP | SS | Sd | 15.0 | C | 5.0 | | Sk | 3.0 | Sc | 0.1 | | | | | | | | g | 20 | N | | | Calcareous Sandstone, light brown, light orange brown, loose to very soft, dispersive, subangular to subrounded, very poorly sorted, slightly spherical, 20% calcareous clay, 10% calcareous silt, 20% calcareous sand, 50% siliceous sand, 20% very fine grained, 50% fine grained, 25% medium grained, 5% coarse grained, trace very coarse grained, 15% sidentite cement, 5% calcite cement, 3% skeletal fragments, trace sidentite concretions, 20 % porosity. |
| 580 | Cl | arg | | 30 | med lt gy to gnish gy | S | | SB | 30.0 | 20.0 | | 20.0 | 30.0 | 0.1 | 100.1 | | | | | | 0.0 | | | | | | | | | | | | | | | | | | | | | | N | | | Calcareous Argillaceous Siltstone, medium light grey to greenish grey, soft, sub-blocky, 20% calcareous clay, 20% calcareous silt, 20% siliceous clay, 40% siliceous silt, trace siliceous sand. | |
| 590 | Sst | calc | | 60 | lt brn, lt omg brn | L | | Disp | 10.0 | 10.0 | 10.0 | | 10.0 | 60.0 | 100.0 | 20.0 | 50.0 | 25.0 | 5.0 | 0.1 | 100.1 | SA | SR | VP | SS | Sd | 15.0 | C | 5.0 | | Sk | 3.0 | Sc | 0.1 | | | | | | | | g | 10 | N | | | Calcareous Sandstone, light brown, light orange brown, loose, dispersive, subangular to subrounded, very poorly sorted, slightly spherical, 10% calcareous clay, 10% calcareous silt, 10% calcareous sand, 10% siliceous silt, 60% siliceous sand, 20% very fine grained, 50% fine grained, 25% medium grained, 5% coarse grained, trace very coarse grained, 15% sidentite cement, 5% calcite cement, 3% skeletal fragments, trace sidentite concretions, trace porosity. |
| 590 | Sstat | calc | | 40 | med lt gy to gnish gy | S | | SB | 30.0 | 10.0 | | 10.0 | 50.0 | 0.1 | 100.1 | | | | | | 0.0 | | | | | | | | | | | | | | | | | | | | | | N | | | Calcareous Argillaceous Siltstone, medium light grey to greenish grey, soft, sub-blocky, 20% calcareous clay, 20% calcareous silt, 20% siliceous clay, 40% siliceous silt, trace siliceous sand. | |
| 600 | Sstat | calc | | 90 | lt olv gy, med gy to olv gy | S | | Disp | 20.0 | 20.0 | | 20.0 | 40.0 | | 100.0 | | | | | | 0.0 | | | | | | | | | | G | 0.1 | Sk | 0.1 | | | | | | | | | N | | | Calcareous Argillaceous Siltstone, light olive grey, medium grey to olive grey, soft, dispersive, 20% calcareous clay, 20% calcareous silt, 20% siliceous clay, 40% siliceous silt, trace glauconite, trace skeletal fragments. | |
| 600 | Sst | sid | | 10 | lt gy to lt brn, lt omg brn | L | | Disp | 20.0 | 10.0 | 10.0 | | | 60.0 | 100.0 | 30.0 | 40.0 | 25.0 | 5.0 | | 100.0 | SA | SR | M | P | SS | Sd | 10.0 | C | 5.0 | | Sk | 0.1 | | | | | | | | g | 10 | N | | | Sidentic Sandstone, light grey to light brown, lt orange brown, loose, dispersive, subangular to subrounded, moderately sorted to poorly sorted, slightly spherical, 20% calcareous clay, 10% calcareous silt, 10% calcareous sand, 60% siliceous sand, 30% very fine grained, 40% fine grained, 25% medium grained, 5% coarse grained, 10% sidentite cement, 5% calcite cement, trace skeletal fragments, 10 % porosity. | |
| 610 | Sstat | calc | | 100 | lt olv gy, med gy to olv gy | S | VS | Disp | 20.0 | 10.0 | | 20.0 | 50.0 | | 100.0 | | | | | | 0.0 | | | | | | | | | | Py | 0.1 | | | | | | | | | | | N | | | Calcareous Argillaceous Siltstone, light olive grey, medium grey to olive grey, soft to very soft, dispersive, 20% calcareous clay, 10% calcareous silt, 20% siliceous clay, 50% siliceous silt, trace pyrite. | |
| 620 | Clst | | | 65 | med gnish gy, pl gn to lt gy | F | S | SB | 0.1 | | | 60.0 | 40.0 | | 100.1 | | | | | | 0.0 | | | | | | | | | | G | 3.0 | | | | | | | | | | | N | | | Claystone, medium greenish grey, pale green to light grey, firm to soft, sub-blocky, trace calcareous clay, 60% siliceous clay, 40% siliceous silt, 3% glauconite. | |
| 620 | Sstat | calc | | 30 | lt olv gy, med gy to olv gy | S | VS | Disp | 20.0 | 10.0 | | 20.0 | 50.0 | | 100.0 | | | | | | 0.0 | | | | | | | | | | | | | | | | | | | | | | N | | | Calcareous Argillaceous Siltstone, light olive grey, medium grey to olive grey, soft to very soft, dispersive, 20% calcareous clay, 10% calcareous silt, 20% siliceous clay, 50% siliceous silt. | |
| 620 | Sst | sid | | 5 | lt gy to lt brn, lt omg brn | L | | Disp | 20.0 | 10.0 | 10.0 | | | 60.0 | 100.0 | 30.0 | 40.0 | 25.0 | 5.0 | | 100.0 | SA | SR | M | P | SS | Sd | 10.0 | C | 5.0 | | Sk | 0.1 | | | | | | | | g | 10 | N | | | Sidentic Sandstone, light grey to light brown, light orange brown, loose, dispersive, | |



| Lithology | | | | Grains | | | Grain Size & Characteristics | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|--------------------|----------------|-----------------|------------|--|---------------|------------------------------|----------|----------|----------|----------|----------|----------|--------------|---------------|----------|-------------|------------|-----------------|--------------|--------------|----------|-------------------|------------|------|----|------|------|------|---|------|---|------|-----|------|-----|---------------|--|---|---|---|---|--|---|--|--|---|
| | | | | Calcareous | | Siliciclastic | | % | | | | | | | | | 1 | 2 | 3 | 1 | 2 | | | | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (~20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (µm) | | | | | | | | | | |
| 630 | Q | Set | | 10 | mod yellowish brown to light brown | L | Disp | 10.0 | | | | | | 90.0 | 100.0 | 20.0 | 40.0 | 30.0 | 10.0 | 0.1 | 100.1 | SA | R | VP | P | SS | Sd | 10.0 | | | | | Fo | 0.1 | Py | 0.1 | | | | | | g | 15 | N | | | Sandstone, moderate yellowish brown to light brown, loose, dispersive, subangular to rounded, very poorly sorted to poorly sorted, slightly spherical, 10% calcareous clay, 90% siliceous sand, 20% very fine grained, 40% fine grained, 30% medium grained, 10% coarse grained, trace very coarse grained, 10% siderite cement, trace foraminifera, trace pyrite, 15 % porosity. |
| 640 | U | Clyst | | 100 | dark yellowish brown, brownish grey to greyish brown | S | VS | SB | 10.0 | | | 70.0 | 20.0 | 0.1 | 100.1 | | | | | | 0.0 | | | | | | | | | | | | | | | | | | | N | | | Sandstone component probably being lost at the shakers. Gamma Ray indicates the Dilwyn Formation should be much cleaner. Sample quality is poor with a large proportion of sticky clay. Over all a low volume of cuttings at the shakers for test drilling. | | | | |
| 650 | U | Clyst | | 100 | dark yellowish brown, brownish grey to greyish brown | S | VS | SB | 0.1 | | | 70.0 | 30.0 | 0.1 | 100.2 | | | | | | 0.0 | | | | | | | | | | | | | | | | | | N | | | Claystone, dark yellowish brown, brownish grey to greyish brown, soft to very soft, sub-blocky, 10% calcareous clay, 70% siliceous clay, 20% siliceous silt, trace siliceous sand. | | | | | |
| 660 | U | Clyst | | 90 | dark yellowish brown, brownish grey to greyish brown | S | VS | SB | 0.1 | | | 60.0 | 30.0 | 10.0 | 100.1 | | | | | | 0.0 | | | | | | | | | | | | | | | | | | N | | | Claystone, dark yellowish brown, brownish grey to greyish brown, soft to very soft, sub-blocky, trace calcareous clay, 60% siliceous clay, 30% siliceous silt, trace coarse siliceous sand. | | | | | |
| 660 | U | Set | | 10 | clay to very light grey | L | Disp | | | | | 30.0 | 70.0 | 100.0 | | | 10.0 | 50.0 | 40.0 | 0.1 | 100.1 | SR | R | M | W | SS | S | Q | 30.0 | | | | | | | | | | | g | 5 | N | | | Sandstone, colourless to very light grey, loose, dispersive, subrounded to rounded, moderately sorted to well sorted, slightly spherical to spherical, 30% siliceous clay, 70% siliceous sand, 10% medium grained, 50% coarse grained, 40% very coarse grained, trace granules, 5 % porosity. | | |
| 670 | U | Clyst | | 95 | dark yellowish brown, brownish grey to greyish brown | S | VS | Disp | SB | 0.1 | | | 65.0 | 35.0 | 100.1 | | | | | | 0.0 | | | | | | | | | | | | | | | | | | N | | | Claystone, dark yellowish brown, brownish grey to greyish brown, soft to very soft, dispersive to sub-blocky, trace calcareous clay, 65% siliceous clay, 35% siliceous silt. | | | | | |
| 670 | U | Set | | 5 | clay to very light grey | L | Disp | | | | | 30.0 | 70.0 | 100.0 | | | 10.0 | 50.0 | 40.0 | 0.1 | 100.1 | SR | R | M | W | SS | S | Q | 30.0 | | | | | | | | | | | g | 5 | N | | | Sandstone, colourless to very light grey, loose, dispersive, subrounded to rounded, moderately sorted to well sorted, slightly spherical to spherical, 30% siliceous clay, 70% siliceous sand, 10% medium grained, 50% coarse grained, 40% very coarse grained, trace granules, 30% silica cement, 5 % porosity. | | |
| 680 | U | Clyst | | 95 | dark yellowish brown, brownish grey to greyish brown | S | VS | Disp | SB | 0.1 | | | 65.0 | 35.0 | 100.1 | | | | | | 0.0 | | | | | | | | | | | | | | | | | | N | | | Something clearly wrong with the samples. Checked sample catchers method and he was sampling the coarse screen only. Therefore, unconsolidated sand grains were being missed. Correlated the problem and samples from 710 m are reliable. | | | | | |
| 680 | U | Set | | 5 | clay to very light grey | L | Disp | | | | | 30.0 | 70.0 | 100.0 | | | 10.0 | 50.0 | 40.0 | 0.1 | 100.1 | SR | R | M | W | SS | S | Q | 30.0 | | | | | | | | | | | g | 5 | N | | | Claystone, dark yellowish brown, brownish grey to greyish brown, soft to very soft, dispersive to sub-blocky, trace calcareous clay, 65% siliceous clay, 35% siliceous silt. | | |
| 690 | U | Clyst | | 100 | pale brown to dark yellowish brown | S | VS | Disp | | | | 90.0 | 10.0 | 0.1 | 100.1 | | | | | | 0.0 | | | | | | | | | | | | | | | | | | | N | | | Sandstone, colourless to very light grey, loose, dispersive, subrounded to rounded, moderately sorted to well sorted, slightly spherical to spherical, 30% siliceous clay, 70% siliceous sand, 10% medium grained, 50% coarse grained, 40% very coarse grained, trace granules, 30% silica cement, 5 % porosity. | | | | |
| 700 | U | Clyst | | 100 | pale brown to dark yellowish brown | S | VS | Disp | | | | 90.0 | 10.0 | 0.1 | 100.1 | | | | | | 0.0 | | | | | | | | | | | | | | | | | | | N | | | Claystone, pale brown to dark yellowish brown , soft to very soft, dispersive, 90% siliceous clay, 10% siliceous silt, trace coarsesiliceous sand. | | | | |
| 710 | | Set | | 100 | clay to light brown | L | Disp | | | | | | | 100.0 | 100.0 | 10.0 | 60.0 | 30.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------|----------------|-----------------|-----------|------------------------------|----------|----------|------------|----------|----------|---------------|----------|------------------------------|--------------|---------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|---------|----|------|-------------|------|---|------|----|----------|-------------------|----------------------|---|----------------|---|----|---|--|---|---|
| Well Name : HALLADALE-1 DW-1 (Location Black Watch) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | Grains | | | | | Grain Size & Characteristics | | | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | Longhand Description | | | | | | | | |
| | | | | | | | | Calcareous | | | Siliciclastic | | | | | | | | | | | | | | % | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | | | 5 | | | | | | | |
| Depth (mKT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (v/n) | | | | | | |
| 720 | Sst | | | 100 | v lt brn to v pl omg, lt brn | L | Disp | | | | | | 100.0 | 100.0 | | 10.0 | 40.0 | 30.0 | 15.0 | 5.0 | 100.0 | SA | SR | M | SS | Q | 0.1 | | | | | Lf | 0.1 | | | | | | N | Sandstone, very light brown to very pale orange, light brown, loose, dispersive, subangular to subrounded, moderately sorted, slightly spherical, 100% siliceous sand, 10% fine grained, 40% medium grained, 30% coarse grained, 15% very coarse grained, 5% granules, trace silica cement, trace lithic fragments. | | | |
| 730 | Sst | | | 90 | v lt brn to v pl omg, lt brn | L | Disp | | | | | | 100.0 | 100.0 | | 10.0 | 40.0 | 30.0 | 15.0 | 5.0 | 100.0 | SA | SR | M | SS | Q | 0.1 | | | | | Lf | 0.1 | | | | | | N | Sandstone, very light brown to very pl omg, lt brn, loose, dispersive, subangular to subrounded, moderately sorted, slightly spherical, 100% siliceous sand, 10% fine grained, 40% medium grained, 30% coarse grained, 15% very coarse grained, 5% granules, trace silica cement, trace lithic fragments. | | | |
| 730 | Silst | | | 10 | lt-med bluish gy, brnsh gy | F | SB | 0.1 | | | 20.0 | 70.0 | 10.0 | 100.1 | 50.0 | 40.0 | 10.0 | | | | 100.0 | | | | | | | | | | | Mc | 0.1 | | | | | | N | Siltstone, light to medium bluish grey, brownish grey, firm, trace calcareous clay, 20% siliceous clay, 70% siliceous silt, 10% siliceous sand, 50% very fine grained, 40% fine grained, 10% medium grained, trace mica. | | | |
| 740 | Sst | | | 100 | v lt brn to cl | L | Disp | | | | | | 100.0 | 100.0 | | 10.0 | 50.0 | 35.0 | 5.0 | | 100.0 | SR | SA | | | Q | 0.1 | | | | | Py | 0.1 | | | | | | N | Sandstone, very light brown to colourless, loose, dispersive, subrounded to subangular, 100% siliceous sand, 10% fine grained, 50% medium grained, 35% coarse grained, 5% very coarse grained, trace silica cement, trace pyrite. | | | |
| 750 | Sst | | | 90 | v lt brn to cl | L | Disp | | | | | | 100.0 | 100.0 | | 10.0 | 50.0 | 35.0 | 5.0 | | 100.0 | SR | SA | M | SS | Q | 0.1 | | | | | Py | 0.1 | | | | | g | 20 | N | Sandstone, very light brown to colourless, loose, dispersive, subrounded to subangular, 100% siliceous sand, 10% fine grained, 50% medium grained, 35% coarse grained, 5% very coarse grained, trace silica cement, trace pyrite, 20% porosity. | | |
| 750 | Silst | arg | | 10 | lt brn gy - lt olv gy | S | VS | Disp | | | 20.0 | 60.0 | 20.0 | 100.0 | 40.0 | 50.0 | 10.0 | | | | 100.0 | | | | | | | | | | | | | | | | | | N | Argillaceous Siltstone, light brown grey - light olive grey, soft to very soft, dispersive, 20% siliceous clay, 60% siliceous silt, 20% siliceous sand, 40% very fine grained, 50% fine grained, 10% medium grained. | | | |
| 760 | Sst | | | 100 | v lt brn, cl, gyish org | L | Disp | | | | | | 100.0 | 100.0 | | 10.0 | 20.0 | 50.0 | 20.0 | 0.1 | 100.1 | SR | SA | M | SS | Q | 0.1 | | | | | | | | | | | g | 20 | N | Sandstone, very light brown, colourless, greyish orange, loose, dispersive, subrounded to subangular, moderately sorted, slightly spherical, 100% siliceous sand, 10% fine grained, 20% medium grained, 50% coarse grained, 20% very coarse grained, trace granules, trace silica cement, 20 % porosity. | | |
| 765 | Sst | | | 100 | v lt brn, cl, gyish org | L | Disp | | | | | | 100.0 | 100.0 | | 10.0 | 20.0 | 50.0 | 20.0 | 0.1 | 100.1 | SR | SA | M | SS | Q | 0.1 | | | | | | | | | | | | g | 20 | N | Sandstone, very light brown, colourless, greyish orange, loose, dispersive, subrounded to subangular, moderately sorted, slightly spherical, 100% siliceous sand, 10% fine grained, 20% medium grained, 50% coarse grained, 20% very coarse grained, trace granules, trace silica cement, 20 % porosity. | |
| 770 | Sst | | | 100 | v lt brn, cl, gyish org | L | Disp | | | | | | 100.0 | 100.0 | | 10.0 | 20.0 | 50.0 | 20.0 | 0.1 | 100.1 | SR | SA | M | SS | Q | 0.1 | | | | | | | | | | | | g | 20 | N | Sandstone, very light brown, colourless, greyish orange, loose, dispersive, subrounded to subangular, moderately sorted, slightly spherical, 100% siliceous sand, 10% fine grained, 20% medium grained, 50% coarse grained, 20% very coarse grained, trace granules, trace silica cement, 20 % porosity. | |
| 775 | Sst | | | 100 | v lt brn to cl, v pl omg | L | Disp | | | | | | 100.0 | 100.0 | | 20.0 | 40.0 | 30.0 | 10.0 | 0.1 | 100.1 | SA | SR | M | W | SS | Q | 5.0 | | | | | Py | 0.1 | | | | | g | 15 | N | Sandstone, very light brown to colourless, very pale orange, loose, dispersive, subangular to subrounded, moderately sorted to well sorted, slightly spherical to spherical, 100% siliceous sand, 20% fine grained, 40% medium grained, 30% coarse grained, 10% very coarse grained, trace granules, 5% silica cement, trace pyrite, 15 % porosity. | |
| 780 | Sst | | | 100 | v lt brn to cl, v pl omg | L | Disp | | | | | | 100.0 | 100.0 | | 20.0 | 40.0 | 30.0 | 10.0 | 0.1 | 100.1 | SA | SR | M | W | SS | Q | 5.0 | | | | | Py | 0.1 | | | | | g | 15 | N | Sandstone, very light brown to colourless, very pale orange, loose, dispersive, subangular to subrounded, moderately sorted to well sorted, slightly spherical, 100% siliceous sand, 20% fine grained, 40% medium grained, 30% coarse grained, 10% very coarse grained, trace granules, 5% silica cement, trace pyrite, 15 % porosity. | |
| 785 | Sst | | | 100 | cl to v lt brn | L | Disp | | | | | | 100.0 | 100.0 | | 10.0 | 40.0 | 40.0 | 10.0 | 0.1 | 100.1 | SR | R | M | P | S | SS | Q | 0.1 | | | | | Py | 0.1 | | | | | g | 20 | N | Sandstone, colourless to very light brown, loose, dispersive, subrounded to rounded, moderately sorted to poorly sorted, spherical to slightly spherical, 100% siliceous sand, 10% fine grained, 40% medium grained, 40% coarse grained, 10% very coarse grained, trace granules, trace silica cement, trace pyrite, 20 % porosity. |



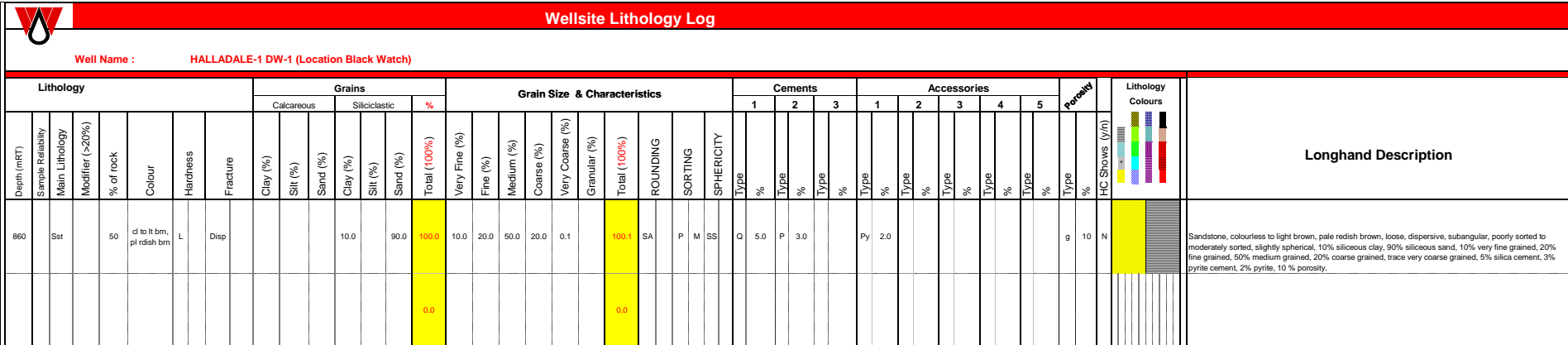
| | |
|-------------|---|
| Well Name : | HALLADALE-1 DW-1 (Location Black Watch) |
|-------------|---|

| Lithology | | | | | | | | | | Grains | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | | Accessories | | | | | Porosity | Lithology Colours | | Longhand Description | | | | | |
|-------------|--------------------|----------------|-----------------|------------------------------------|--------|----------|----------|----------|----------|------------|----------|---------------|----------|------------------------------|---------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|------|----|------|-------------|------|----|------|-----|----------|-------------------|---|----------------------|----------------|---|--|--|--|
| | | | | | | | | | | Calcareous | | Siliciclastic | | | | | | | | | | | | % | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | | | | | HC Shows (v/v) | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | | | | | | | |
| 790 | Sst | | 100 | cl to v lt brn | L | Disp | | | | | | | 100.0 | 100.0 | | 10.0 | 40.0 | 40.0 | 10.0 | 0.1 | 100.1 | SR | R | M | P | S | SS | Q | 0.1 | | Py | 0.1 | | | | g | 20 | N | | | Sandstone, colourless to very light brown, loose, dispersive, subrounded to rounded, moderately sorted to poorly sorted, spherical to slightly spherical, 100% siliceous sand, 10% fine grained, 40% medium grained, 40% coarse grained, 10% very coarse grained, trace granules, trace silica cement, trace pyrite, 20 % porosity. |
| 795 | Sst | | 100 | v pl org to cl | L | Disp | | | | | | | 100.0 | 100.0 | | 25.0 | 45.0 | 25.0 | 5.0 | | 100.0 | SR | SA | P | M | SS | Q | 5.0 | | | | | | | g | 15 | N | | | Sandstone, very pale orange to colourless, loose, dispersive, subrounded to subangular, poorly sorted to moderately sorted, slightly spherical, 100% siliceous sand, 25% fine grained, 45% medium grained, 25% coarse grained, 5% very coarse grained, 5% silica cement, 15 % porosity. | |
| 800 | Sst | | 60 | v pl org to cl | L | Disp | | | | | | | 100.0 | 100.0 | | 25.0 | 45.0 | 25.0 | 5.0 | | 100.0 | SR | SA | P | M | SS | Q | 5.0 | | | | | | | g | 15 | N | | | Sandstone, as above. | |
| 800 | Silst | arg | 40 | dk yellsh brn, olv gy to med dk gy | F | Fr | SB | | | | 30.0 | 40.0 | 30.0 | 100.0 | 40.0 | 30.0 | 20.0 | 10.0 | | 100.0 | | | | | | | | | | | | | | | | | | N | | | Argillaceous Siltstone, dark yellowish brown, olive grey to medium dark grey, firm to friable, sub-blocky, 30% siliceous clay, 40% siliceous silt, 30% siliceous sand, 40% very fine grained, 30% fine grained, 20% medium grained, 10% coarse grained. |
| 805 | Silst | arg | 60 | dk yellsh brn, olv gy to med dk gy | F | Fr | SB | | | | 30.0 | 40.0 | 30.0 | 100.0 | 40.0 | 30.0 | 20.0 | 10.0 | | 100.0 | | | | | | | | | | | | | | | | | | N | | | Argillaceous Siltstone, dark yellowish brown, olive grey to medium dark grey, firm to friable, sub-blocky, 30% siliceous clay, 40% siliceous silt, 30% siliceous sand, 40% very fine grained, 30% fine grained, 20% medium grained, 10% coarse grained. |
| 805 | Sst | Sily | 40 | cl to v lt gy brn | L | Disp | | | | | 10.0 | 20.0 | 70.0 | 100.0 | | 5.0 | 30.0 | 50.0 | 15.0 | 0.1 | 100.1 | SA | SR | P | VP | SS | Q | 0.1 | | | | | | | g | 10 | N | | | Silty Sandstone, colourless to vrey light grey brown, loose, dispersive, subangular to subrounded, poorly sorted to very poorly sorted, slightly spherical, 10% siliceous clay, 20% siliceous silt, 70% siliceous sand, 5% fine grained, 30% medium grained, 50% coarse grained, 15% very coarse grained, trace granules, trace silica cement. | |
| 810 | Silst | arg | 80 | dk yellsh brn, olv gy to med dk gy | F | Fr | SB | | | | 30.0 | 40.0 | 30.0 | 100.0 | 40.0 | 30.0 | 20.0 | 10.0 | | 100.0 | | | | | | | | | | | | | | | | | | N | | | Argillaceous Siltstone, dark yellowish brown, olive grey to medium dark grey, firm to friable, sub-blocky, 30% siliceous clay, 40% siliceous silt, 30% siliceous sand, 40% very fine grained, 30% fine grained, 20% medium grained, 10% coarse grained. |
| 810 | Sst | sily | 20 | cl to v lt gy brn | L | Disp | | | | | 10.0 | 20.0 | 70.0 | 100.0 | | 5.0 | 30.0 | 50.0 | 15.0 | 0.1 | 100.1 | SA | SR | P | VP | SS | Q | 0.1 | | | | | | | g | 10 | N | | | Argillaceous Siltstone, dark yellowish brown, olive grey to medium dark grey, firm to friable, sub-blocky, 30% siliceous clay, 40% siliceous silt, 30% siliceous sand, 40% very fine grained, 30% fine grained, 20% medium grained, 10% coarse grained. | |
| 815 | Silst | arg | 60 | dk yellsh brn, olv gy to med dk gy | F | Fr | SB | | | | 30.0 | 40.0 | 30.0 | 100.0 | 40.0 | 30.0 | 20.0 | 10.0 | | 100.0 | | | | | | | | | | | | | | | | | | N | | | Silty Sandstone, colourless to vrey light grey brown, loose, dispersive, subangular to subrounded, poorly sorted to very poorly sorted, slightly spherical, 10% siliceous clay, 20% siliceous silt, 70% siliceous sand, 5% fine grained, 30% medium grained, 50% coarse grained, 15% very coarse grained, trace granules, trace silica cement. |
| 815 | Clyst | sily | 30 | med to dk olv gy, lt brnsh gy | S | A | | 0.1 | | | 70.0 | 20.0 | 10.0 | 100.1 | | | | | | 0.0 | | | | | | | Py | 0.1 | | Ce | 0.1 | | | | | | | N | | | Silty Claystone, medium to dark olive grey, light brownish grey, soft, amorphous, trace calcareous clay, 70% siliceous clay, 20% siliceous silt, 10% siliceous sand, trace pyrite, trace chlorite. |
| 815 | Sst | sily | 10 | cl to v lt gy brn | L | Disp | | | | | 10.0 | 20.0 | 70.0 | 100.0 | | 5.0 | 30.0 | 50.0 | 15.0 | 0.1 | 100.1 | SA | SR | P | VP | SS | Q | 0.1 | | | | | | | g | 10 | N | | | Silty Sandstone, colourless to vrey light grey brown, loose, dispersive, subangular to subrounded, poorly sorted to very poorly sorted, slightly spherical, 10% siliceous clay, 20% siliceous silt, 70% siliceous sand, 5% fine grained, 30% medium grained, 50% coarse grained, 15% very coarse grained, trace granules, trace silica cement. | |
| 820 | Silst | arg | 35 | dk yellsh brn, olv gy to med dk gy | F | Fr | SB | | | | 30.0 | 40.0 | 30.0 | 100.0 | 40.0 | 30.0 | 20.0 | 10.0 | | 100.0 | | | | | | | | | | | | | | | | | | N | | | Argillaceous Siltstone, dark yellowish brown, olive grey to medium dark grey, firm to friable, sub-blocky, 30% siliceous clay, 40% siliceous silt, 30% siliceous sand, 40% very fine grained, 30% fine grained, 20% medium grained, 10% coarse grained. |



| | |
|-------------|---|
| Well Name : | HALLADALE-1 DW-1 (Location Black Watch) |
|-------------|---|

[illegible]











Well Name : HALLADALE-1 DW-2 (Location Halladale)

Wellsite Lithology Log

Wellsite Geologists: Mark Tindale
Tony Cartwright

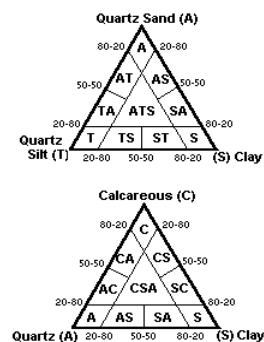
Rock Types

- | | | |
|---|--------------|-------------|
|  | (An) | Anhydrite |
|  | (Gyp) | Gypsum |
|  | (Ha) | Halite/Salt |
|  | (C) | Coal |
|  | (Chl) | Chert |
| | | |
|  | (MM) | Metamorphic |
|  | (Plut) | Plutonic |
|  | (Vol) | Volcanic |
| | | |
| • | silty | |
| | sandy | |
| — | argillaceous | |

Accessories

- | | | | |
|-----|----------------------|-----|--------------------|
| Py: | Pyrite | Al: | Algae |
| Mc: | Mica | O: | Ooliths |
| Ch: | Chert | Co: | Corals |
| C: | Lignite / Coal | Cr: | Crinoids |
| G: | Glauconite | Fo: | Foraminifera |
| F: | Feldspar | Br: | Bryozoa |
| Ce: | Chlorite | Os: | Ostracoda |
| Qx: | Quartz Crystals | Rd: | Radiolaria |
| Cx: | Calcite Crystals | I: | Inoceramus |
| Sc: | Siderite Concretions | Sk: | Skeletal Fragments |
| Gp: | Gypsum | Lf: | Lithic Fragments |
| He: | Hematite | | |

Rock Classification



Colors

| | |
|-------------|---------------|
| wh = white | brn = brown |
| gy = grey | yel = yellow |
| blk = black | gn = green |
| red = red | olv = olive |
| pk = pink | blu = blue |
| pu = purple | orng = orange |

- Colour:**
- brn = brown
 - yel = yellow
 - gn = green
 - olv = olive
 - blu = blue
 - ornq = orange

- cl = colourless
mult = multicolour
trans = translucent
lt = light
dk = dark
med = medium
vgt = variegated

Wellsite Lithology Log

Well Name : HALLADALE-1 DW-2 (Location Halladale)

| Lithology | | | | | | | Grains | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | Accessories | | | | | Potency | Lithology Colours | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Calcareous | Silt (%) | Sand (%) | Siliciclastic | | % | Grain Size & Characteristics | | | | | | | | | | 1 | 2 | 3 | 1 | | | | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | Clay (%) | Silt (%) | | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | | | | | Total (100%) | ROUNDING | SORTING | | | | | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 855 | Sst | | 20 | cl, frosted wh, trnst, transp | L | | | | | | | | 100.0 | 100.0 | 10.0 | 30.0 | 50.0 | 10.0 | 0.1 | | 100.1 | SA | SR | P | SS | S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------|----------------|-----------------|-----------|---|----------|----------|------------|----------|---------------|------------------------------|----------|----------|--------------|---------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|-------------|-----|------|-----|------|----------|-------------------|-----|----------------------|---|------|---|----------------|--|--|
| Well Name : HALLADALE-1 DW-2 (Location Halladale) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | Grains | | | Grain Size & Characteristics | | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | | Longhand Description | | | | | | |
| | | | | | | | | Calcareous | | Siliciclastic | | | | | | | | | | | | % | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | | | | 5 | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (v/n) | | |
| 855 | Clyst | slty | | 40 | lt gy, gnsh gy, pl brn, yelsh gy | S | A | Disp | | | 80.0 | 20.0 | | 100.0 | | | | | | | 0.0 | | | | C | 0.1 | | | Py | 0.1 | G | 0.1 | | | | N | ---- | Silty Claystone: lt grey, greenish grey, pale brown, yellowish grey, soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace calcite cement, trace pyrite, trace glauconite | |
| 860 | Sst | | | 10 | cl, frosted wh, trnsl, transp | L | | | | | | | 100.0 | 100.0 | 70.0 | 0.1 | 20.0 | 10.0 | 0.1 | | 100.2 | SA | SR | P | | | | | | | | | | g | 10 | N | ---- | Sandstone, as above, colorless, frosted white, translucent, transparent, loose, subangular to subrounded, poorly sorted, slightly spherical to spherical, 100% siliceous sand, 70% very fine grained, trace fine grained, 20% medium grained, 10% coarse grained, trace very coarse grained, 10 % porosity | |
| 860 | Siltst | | | 20 | dk gy, brnsh gy | | SB | | | 10.0 | 90.0 | | | 100.0 | | | | | | | 0.0 | | | | | | Mc | 0.1 | | | | | | | | N | ---- | Siltstone, as above, dark grey, brownish grey, sub-blocky, 10% siliceous clay, 90% siliceous silt, trace mica | |
| 860 | Clyst | slty | | 70 | lt gy, gnsh gy, pl brn, yelsh gy | S | A | Disp | | | 80.0 | 20.0 | | 100.0 | | | | | | | 0.0 | | | | | | | Py | 5.0 | G | 0.1 | | | | | N | ---- | Silty Claystone, as above, light grey, greenish grey, pale brown, yellowish grey, soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, 5% pyrite, trace glauconite, trace moderate to dark brown hard blocky fragments | |
| 870 | Sst | | | 60 | yelsh gy, pl yelsh brn, trnsl, transp | L | | | | | | | 100.0 | 100.0 | 0.1 | 10.0 | 30.0 | 50.0 | 10.0 | | 100.1 | SA | R | P | M | SS | S | | | | | | | g | 20 | N | ---- | Sandstone, yellowish grey, pale yellowish brown, translucent, transparent, loose, subangular to rounded, poorly sorted to moderately sorted, slightly spherical to spherical, 100% siliceous sand, trace very fine grained, 10% fine grained, 30% medium grained, 50% coarse grained, 10% very coarse grained, 20 % porosity | |
| 870 | Clyst | slty | | 40 | med gy, med dk gy | S | MH | A | SB | | 70.0 | 30.0 | 0.1 | 100.1 | | | | | | | 0.0 | | | | | | | Mc | 0.1 | | | | | | | N | ---- | Silty Claystone, medium grey, medium dark grey, soft to moderately hard, amorphous to sub-blocky, 30% siliceous clay, 70% siliceous silt, trace siliceous sand, trace mica | |
| 880 | Sst | | | 90 | pl brn, gysh org, pl yelsh brn, trnsl, transp | L | | | | | | | 100.0 | 100.0 | | 10.0 | 20.0 | 60.0 | 10.0 | | 100.0 | SA | R | P | M | SS | S | | | | | | | g | 20 | N | ---- | Sandstone, pale brown, greyish orange, pale yellowish brown, translucent, transparent, loose, subangular to rounded, poorly sorted to moderately sorted, slightly spherical to spherical, 100% siliceous sand, 10% fine grained, 20% medium grained, 60% coarse grained, 10% very coarse grained, 20 % porosity | |
| 880 | Clyst | slty | | 10 | med gy, med dk gy, gysh org | S | A | Disp | | | 70.0 | 30.0 | | 100.0 | | | | | | | 0.0 | | | | | | | | | | | | | | | N | ---- | Silty Claystone, medium grey, medium dark grey, greyish orange, soft, amorphous to dispersive, 70% siliceous clay, 30% siliceous silt | |
| 890 | Sst | | | 90 | pl brn, gysh org, pl yelsh brn, trnsl, transp | L | | | | | | | 100.0 | 100.0 | | | 40.0 | 50.0 | 10.0 | | 100.0 | SA | R | P | M | SS | S | | | | | | | g | 20 | N | ---- | Sandstone, as above, pale brown, greyish orange, pale yellowish brown, translucent, transparent, loose, subangular to rounded, poorly sorted to moderately sorted, slightly spherical to spherical, 100% siliceous sand, 40% medium grained, 50% coarse grained, 10% very coarse grained, 20% porosity | |
| 890 | Clyst | slty | | 10 | med gy, med dk gy, gysh org | S | A | Disp | | | 70.0 | 30.0 | | 100.0 | | | | | | | 0.0 | | | | | | | | | | | | | | | N | ---- | Silty Claystone, as above, medium grey, medium dark grey, greyish orange, soft, amorphous to dispersive, 30% siliceous clay, 70% siliceous silt | |
| 900 | Sst | | | 90 | pl yelsh org, v pl org, gysh org | L | | | | | | | 100.0 | 100.0 | | | 30.0 | 50.0 | 20.0 | | 100.0 | A | R | M | | SS | S | | | | | | | g | 20 | N | ---- | Sandstone, as above, pale yellowish orange, very pale orange, greyish orange, loose, angular to rounded, moderately sorted, slightly spherical to spherical, 100% siliceous sand, 30% medium grained, 50% coarse grained, 20% very coarse grained, 20% porosity | |
| 900 | Clyst | | | 10 | med dk gy, dk gy | S | MH | A | Disp | | 90.0 | 10.0 | | 100.0 | | | | | | | 0.0 | | | | | | | | | | | | | | | N | ---- | Claystone, as above, medium dark grey, dark grey, soft to moderately hard, amorphous to dispersive, 90% siliceous clay, 10% siliceous silt | |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------|----------------|-----------------|-----------|----------------------------------|----------|----------|------------|----------|---------------|------------------------------|----------|----------|--------------|---------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|-------------|----|------|-----|------|----------|-------------------|----------------------|------|---|------|---|------|----|----------------|--|---|---|
| Well Name : HALLADALE-1 DW-2 (Location Halladale) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | Grains | | | Grain Size & Characteristics | | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | Longhand Description | | | | | | | | | | |
| | | | | | | | | Calcareous | | Siliciclastic | | | | | | | | | | | | % | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | | | 5 | | | | | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (v/n) | | | |
| 910 | Sst | | | 90 | pl yelsh omg, v pl omg, gysh omg | L | | | | | | | 100.0 | 100.0 | | 10.0 | 70.0 | 20.0 | 0.1 | | 100.1 | SA | R | M | W | SS | S | | | | | | | | | | | g | 20 | N | | Sandstone, as above, pale yellowish orange, very pale orange, greyish orange, loose, subangular to rounded, moderately sorted to well sorted, slightly spherical to spherical, 100% siliceous sand, 10% fine grained, 70% medium grained, 20% coarse grained, trace very coarse grained, 20% porosity |
| 910 | Clst | | | 10 | med dk gy, dk gy | S | MH | A | Disp | | | 90.0 | 10.0 | 100.0 | | | | | | | 0.0 | | | | | | | | | | | | | | | | | N | | | Claystone, as above, medium dark grey, dark grey, soft to moderately hard, amorphous to dispersive, 90% siliceous clay, 10% siliceous silt | |
| 920 | Sst | | | 90 | pl yelsh omg, v pl omg, gysh omg | L | | | | | | | 100.0 | 100.0 | | 30.0 | 40.0 | 30.0 | 0.1 | | 100.1 | A | R | M | W | SS | | | | | | | | | | | g | 20 | N | | Sandstone, as above, pale yellowish orange, very pale orange, greyish orange, loose, angular to rounded, moderately sorted to well sorted, slightly spherical, 100% siliceous sand, 30% fine grained, 40% medium grained, 30% coarse grained, trace very coarse grained, 20% porosity | |
| 920 | Clst | | | 10 | med dk gy, dk gy | S | F | A | Disp | | | 90.0 | 10.0 | 100.0 | | | | | | | 0.0 | | | | | | | | | | | | | | | | | N | | | Claystone, as above, medium dark grey, dark grey, soft to firm, amorphous to dispersive, 90% siliceous clay, 10% siliceous silt | |
| 930 | Sst | | | 90 | pl yelsh omg, v pl omg, gysh omg | L | | | | | | | 100.0 | 100.0 | | 0.1 | 70.0 | 30.0 | | | 100.1 | A | SR | P | M | SE | SS | | | | | | | | | | g | 20 | N | | Sandstone, pale yellowish orange, very pale orange, greyish orange, loose, angular to subrounded, poorly sorted to moderately sorted, slightly elongated to slightly spherical, 100% siliceous sand, 0.1% fine grained, 70% medium grained, 30% coarse grained, 20 % porosity with 5% Claystone | |
| 930 | Clst | | | 10 | med dk gy, dk gy | S | F | A | Disp | | | 90.0 | 10.0 | 100.0 | | | | | | | 0.0 | | | | | | | | | | | | | | | | | N | | | Claystone, as above, medium dark grey, dark grey, soft to firm, amorphous to dispersive, 90% siliceous clay, 10% siliceous silt | |
| 940 | Sst | | | 60 | v pl omg, pl yelsh omg, gysh omg | L | | | | | | | 100.0 | 100.0 | | 10.0 | 70.0 | 20.0 | | | 0.0 | SA | R | P | M | SS | | | | | | | | | | g | 20 | N | | Sandstone, as above, very pale orange, pale yellowish orange, greyish orange, loose, subangular to rounded, poorly sorted to moderately sorted, slightly spherical, 100% siliceous sand, 10% fine grained, 70% medium grained, 20% coarse grained, 20 % porosity | | |
| 940 | Clst | | | 40 | med dk gy, dk gy | VS | S | A | | | | 90.0 | 10.0 | 0.1 | 100.0 | | | | | | 0.0 | | | | | | | | | | | | | | | | | N | | | Claystone, medium dark grey, dark grey, very soft to soft, sticky, amorphous, 90% siliceous clay, 10% siliceous silt, trace siliceous sand | |
| 950 | Sst | | | 80 | v lt gy, yelsh gy, v pl omg | L | | | | | | | 100.0 | 100.0 | | | 60.0 | 30.0 | 10.0 | | 100.0 | A | SR | P | | SE | SS | | | | | | | | | | g | 20 | N | | Sandstone, very light grey, yellowish grey, very pale orange, loose, angular to subrounded, poorly sorted, slightly elongated to slightly spherical, 100% siliceous sand, 60% medium grained, 30% coarse grained, 10% very coarse grained, 20 % porosity | |
| 950 | Clst | sly | | 20 | med dk gy, dk gnsh gy | S | MH | A | SB | | | 70.0 | 20.0 | 10.0 | 100.0 | | | | | | 0.0 | | | | | | Mc | 0.1 | G | 0.1 | | | | | | | | N | | | Silty Claystone, medium dark grey, dark greenish grey, soft to moderately hard, amorphous to sub-blocky, 10% siliceous clay, 90% siliceous silt, trace siliceous sand, trace mica, trace glauconite, trace carbonaceous material | |
| 960 | Sst | | | 90 | v lt gy, yelsh gy, v pl omg | L | | | | | | | 100.0 | 100.0 | | | 60.0 | 30.0 | 10.0 | | 100.0 | A | SR | P | | SE | SS | | | | | | | | | | g | 20 | N | | Sandstone, as above, very light grey, yellowish grey, very pale orange, loose, angular to subrounded, poorly sorted, slightly elongated to slightly spherical, 100% siliceous sand, 60% medium grained, 30% coarse grained, 10% very coarse grained, 20 % porosity | |
| 960 | Clst | sdly | | 10 | med dk gy, lt ol gy, med gy | | | | | | | 70.0 | 10.0 | 20.0 | 100.0 | | | | | | 0.0 | | | | | | | Py | 0.1 | | | | | | | | N | | | | Sandy Claystone, medium dark grey, light olive grey, medium grey, 70% siliceous clay, 10% siliceous silt, 20% siliceous sand, trace pyrite | |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------|----------------|-----------------|-----------------------------|-----------------------------|----------|----------|------------|----------|----------|------------------------------|----------|----------|--------------|---------------|----------|------------|------------|-----------------|--------------|--------------|---------------|---------|------------|-------------|----|------|---|------|----------|-------------------|----|----------------------|---|------|----|----------------|---|---|
| Well Name : HALLADALE-1 DW-2 (Location Halladale) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | Grains | | | Grain Size & Characteristics | | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | | Longhand Description | | | | | | |
| | | | | | | | | Calcareous | | | | | | | | | | | | | | Siliciclastic | | | % | | | 1 | 2 | | | | | 3 | 1 | 2 | 3 | 4 | 5 |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (y/n) | | |
| 970 | Sst | | 20 | v lt gy, yelsh gy, v pl omg | L | | | | | | | | | 100.0 | 100.0 | | 50.0 | 40.0 | 10.0 | | 100.0 | A | SR | P | SE | SS | | | | | | | | | | g | 20 | N | Sandstone, very light grey, yellowish grey, very pale orange, loose, angular to subrounded, poorly sorted, slightly elongated to slightly spherical, 100% siliceous sand, 50% medium grained, 40% coarse grained, 10% very coarse grained, 20 % porosity |
| 970 | | Clyst | sd | 80 | med dk gy, lt ol gy, med gy | | | | | | 70.0 | 10.0 | 20.0 | 100.0 | | | | | | | | 0.0 | | | | | | C | 0.1 | | | | | | | | | N | Sandy Claystone, as above, medium dark grey, light olive grey, medium grey, 70% siliceous clay, 10% siliceous silt, 20% siliceous sand, trace coal |
| 980 | Sst | | 60 | v lt gy, yelsh gy, v pl omg | | | | | | | | | | 100.0 | 100.0 | | 30.0 | 60.0 | 10.0 | 0.1 | 100.1 | A | R | P | M | SE | SS | | | | | | | | | g | 15 | N | Sandstone, very light grey, yellowish grey, very pale orange, angular to rounded, poorly sorted to moderately sorted, slightly elongated to slightly spherical, 100% siliceous sand, 30% fine grained, 60% medium grained, 10% coarse grained, trace very coarse grained, 15 % porosity |
| 980 | | Clyst | sd | 40 | lt ol gy, med gy | S | F | | A | SB | | 70.0 | 10.0 | 20.0 | 100.0 | | | | | | | 0.0 | | | | | | G | 0.1 | C | 0.1 | Mc | 0.1 | | | | | N | Sandy Claystone, light olive grey, medium grey, soft to firm, amorphous to sub-blocky, 70% siliceous clay, 10% siliceous silt, 20% siliceous sand, trace glauconite, trace coal,trace mica |
| 990 | Sst | | 70 | yelsh gy, v lt gy | L | | | | | | 10.0 | | 90.0 | 100.0 | | 80.0 | 20.0 | | | | 100.0 | SR | R | M | W | | | | | | | | | | g | 20 | N | Sandstone, yellowish grey, very light grey, loose, subrounded to rounded, moderately sorted to well sorted, 10% siliceous clay, 90% siliceous sand, 80% fine grained, 20% medium grained, 20 % porosity | |
| 990 | | Clyst | sd | 30 | lt ol gy, med gy | S | F | | A | SB | | 70.0 | 10.0 | 20.0 | 100.0 | | | | | | | 0.0 | | | | | | C | 0.1 | Mc | 0.1 | | | | | | N | Sandy Claystone, light olive grey, medium grey, soft to firm, amorphous to sub-blocky, 70% siliceous clay, 10% siliceous silt, 20% siliceous sand, trace coal,trace mica | |
| 1000 | Sst | | 90 | yelsh gy, v lt gy | L | | | | | | 10.0 | | 90.0 | 100.0 | | 70.0 | 30.0 | | | | 100.0 | SR | R | M | W | | | | | | | | | | g | 20 | N | Sandstone, as above, yellowish grey, very light grey, loose, subrounded to rounded, moderately sorted to well sorted, 10% siliceous clay, 90% siliceous sand, 70% fine grained, 30% medium grained, trace pale yellowish orange lithcs, 20 % porosity | |
| 1000 | | Clyst | slty | 10 | lt ol gy, med gy, lt gy | S | F | | A | SB | | 80.0 | 20.0 | 0.1 | 100.1 | | | | | | | 0.0 | | | | | | C | 0.1 | Mc | 0.1 | | | | | | N | Silty Claystone, light olive grey, medium grey, light grey, soft to firm, amorphous to sub-blocky, 80% siliceous clay, 20% siliceous silt, trace siliceous sand, trace coal,trace mica | |
| 1010 | Sst | | 80 | yelsh gy, v lt gy | L | | | | | | 10.0 | | 90.0 | 100.0 | | 60.0 | 40.0 | | 0.1 | | 100.1 | SR | R | M | W | | | | | | | | | | g | 20 | N | Sandstone, as above, yellowish grey, very light grey, loose, subrounded to rounded, moderately sorted to well sorted, 10% siliceous clay, 90% siliceous sand, 60% fine grained, 40% medium grained, trace very coarse grained, 20 % porosity | |
| 1010 | | Clyst | slty | 20 | lt ol gy, med gy, lt gy | S | F | | A | SB | | 80.0 | 20.0 | 0.1 | 100.1 | | | | | | | 0.0 | | | | | | C | 0.1 | Mc | 0.1 | | | | | | N | Silty Claystone, as above, light olive grey, medium grey, light grey, soft to firm, amorphous to sub-blocky, 80% siliceous clay, 20% siliceous silt, trace siliceous sand, trace coal,trace mica | |
| 1020 | Sst | | 70 | yelsh gy, v lt gy | L | | | | | | 10.0 | | 90.0 | 100.0 | | 60.0 | 40.0 | | 0.1 | | 100.1 | SR | R | M | W | | | | | | | | | | g | 20 | N | Sandstone, as above, yellowish grey, very light grey, loose, subrounded to rounded, moderately sorted to well sorted, 10% siliceous clay, 90% siliceous sand, 60% fine grained, 40% medium grained, trace very coarse grained, 20 % porosity | |
| 1020 | | Clyst | slty | 30 | lt ol gy, med gy, lt gy | S | F | | A | SB | | 80.0 | 20.0 | 0.1 | 100.1 | | | | | | | 0.0 | | | | | | C | 0.1 | Mc | 0.1 | | | | | | N | Silty Claystone, as above, light olive grey, medium grey, light grey, soft to firm, amorphous to sub-blocky, 80% siliceous clay, 20% siliceous silt, trace siliceous sand, trace coal,trace mica | |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------|----------------|-----------------|-----------|--|----------|----------|------------|----------|----------|------------------------------|----------|----------|--------------|---------------|----------|------------|------------|-----------------|--------------|--------------|---------------|---------|------------|-------------|----|------|-----|------|----------|------|-------------------|------|----------------------|------|----|----------------|--|--|
| Well Name : HALLADALE-1 DW-2 (Location Halladale) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | Grains | | | Grain Size & Characteristics | | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | | Lithology Colours | | Longhand Description | | | | | |
| | | | | | | | | Calcareous | | | | | | | | | | | | | | Siliciclastic | | % | 1 | 2 | 3 | 1 | 2 | | | | | | 3 | 4 | 5 | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (y/n) | | |
| 1030 | Sst | | | 100 | lt gy, yelsh gy | L | | | | | | | | 100.0 | 100.0 | | 30.0 | 70.0 | | 0.1 | | 100.1 | SR | R | | | | | | | | | | | g | 20 | N | Sandstone, light grey, yellowish grey, loose, subrounded to rounded, 100% siliceous sand, 30% fine grained, 70% medium grained, trace very coarse grained, 20 % porosity, no shows | |
| 1040 | Sst | | | 20 | v lt gy gy, transp, trnsl | L | | | | | | | | 100.0 | 100.0 | 80.0 | 20.0 | | | 0.1 | | 100.1 | SR | R | W | VW | S | VS | | | | | | | | g | 20 | N | Sandstone, very light grey, grey, transparent, translucent, loose, subrounded to rounded, well sorted to very well sorted, spherical to very spherical, 100% siliceous sand, 80% very fine grained, 20% fine grained, trace very coarse grained, 20 % porosity, no shows |
| 1040 | Clyst | sd | | 80 | med lt gy, med gy | S | F | A | Disp | | | | 80.0 | 0.1 | 20.0 | 100.1 | | | | | | 0.0 | | | | | C | 0.1 | Mc | 0.1 | | | | | | | N | Sandy Claystone, medium light grey, medium grey, soft to firm, amorphous to dispersive, 80% siliceous clay, trace siliceous silt, 20% siliceous sand, trace coal, trace mica | |
| 1050 | Sst | | | 80 | v lt gy, gy, transp, transl | L | | | | | | | | 100.0 | 100.0 | 20.0 | 30.0 | 50.0 | 0.1 | | | 100.1 | SR | R | M | P | SS | S | | | | | | | | g | 20 | N | Sandstone, very light grey, grey, transparent, translucent, loose, subrounded to rounded, moderately sorted to poorly sorted, slightly spherical to spherical, 100% siliceous sand, 20% very fine grained, 30% fine grained, 50% medium grained, trace coarse grained, 20 % porosity, no shows |
| 1050 | Clyst | sd | | 20 | med lt gy, med gy | S | F | A | Disp | | | | 80.0 | 0.1 | 20.0 | 100.1 | | | | | | 0.0 | | | | | C | 0.1 | Mc | 0.1 | Py | 0.1 | | | | | N | Sandy Claystone, medium light grey, medium grey, soft to firm, amorphous to dispersive, 80% siliceous clay, trace siliceous silt, 20% siliceous sand, trace coal, trace mica, trace pyrite | |
| 1060 | Sst | | | 80 | v lt gy, gy, transp, transl | L | | | | | | | | 100.0 | 100.0 | 60.0 | 30.0 | 10.0 | 0.1 | | | 100.1 | SR | R | M | W | SS | S | | | | | | | | g | 20 | N | S Billeau on Tour (Monday 11th April 06:00hrs) |
| 1060 | Clyst | sd | | 20 | med lt gy, med gy | VS | S | A | Disp | | | | 80.0 | 10.0 | 10.0 | 100.0 | | | | | | 0.0 | | | | | C | 0.1 | Mc | 0.1 | Py | 0.1 | | | | | N | | |
| 1070 | Sst | | | 80 | v lt gy, gy, transp, transl, r pl yell | L | | | | | | | | 100.0 | 100.1 | 40.0 | 50.0 | 10.0 | 0.1 | | | 100.1 | SA | SR | M | W | SS | S | | | | | | | | g | 20 | N | Sandstone: very light grey, grey, transparent, translucent, rarely pale yellow, loose, very fine to fine, rarely medium, very rarely coarse grained, moderately to well sorted, slightly spherical to spherical, good inferred porosity. |
| 1070 | Clyst | sd | | 20 | med lt gy, med gy | VS | S | A | Disp | | | | 80.0 | 0.1 | 20.0 | 100.0 | | | | | | 0.0 | | | | | Py | 0.1 | | | | | | | | N | | | |
| 1080 | Sst | | | 20 | v lt gy, gy, transp, transl | L | | | | | | | | 100.0 | 100.0 | 60.0 | 40.0 | 0.1 | | | | 100.1 | SA | SR | M | W | SS | S | | | | | | | | g | 20 | N | Sandstone: very light grey, grey, transparent, translucent, loose, very fine to fine, rarely medium, moderately to well sorted, slightly spherical to spherical, good inferred porosity. |
| 1080 | Clyst | sd | | 80 | med lt gy, med gy | VS | S | A | Disp | | | | 60.0 | 20.0 | 20.0 | 100.0 | | | | | | 0.0 | | | | | Py | 0.1 | G | 0.1 | | | | | | N | | | |
| 1090 | Sst | | | 50 | v lt gy, gy, transp, transl, r pl onge | L | | | | | | | | 100.0 | 100.0 | 50.0 | 40.0 | 10.0 | 0.1 | | | 100.1 | SA | SR | M | W | SS | S | | | | | | | | g | 20 | N | Sandstone: very light grey, grey, transparent, translucent, rarely pale orange, loose, very fine to fine, rarely medium, moderately to well sorted, slightly spherical to spherical, good inferred porosity. |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------|----------------|-----------------|-----------|--|----------|----------|------------|----------|----------|------------------------------|----------|----------|--------------|---------------|----------|------------|------------|-----------------|--------------|--------------|---------------|---------|------------|-------------|---|------|----|------|----------|-------------------|----|----------------------|---|------|---|------|----|----------------|--|--|--|--|--|
| Well Name : HALLADALE-1 DW-2 (Location Halladale) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | Grains | | | Grain Size & Characteristics | | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | | Longhand Description | | | | | | | | | | | |
| | | | | | | | | Calcareous | | | | | | | | | | | | | | Siliciclastic | | % | 1 | 2 | 3 | 1 | 2 | | | | | 3 | 4 | 5 | | | | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (y/n) | | | | | |
| 1090 | Clyst | sd | | 50 | med lt gy, med gy | VS | F | A | Disp | | | | 80.0 | 10.0 | 10.0 | 100.0 | | | | | | 0.0 | | | | | | | | Py | 0.1 | Mc | 0.1 | | | | | | | N | | | | |
| 1100 | Set | | | 70 | v lt gy, gy, transp, transl, r pl yell | L | | | | | | | | 100.0 | 100.0 | 30.0 | 60.0 | 10.0 | 0.1 | | | 100.0 | SA | SR | M | W | SS | S | | | | | | | | | g | 20 | N | Sandstone: very light grey, grey, transparent, translucent, rarely pale yellow, loose, predominately fine grained, occasionally medium grained, very rarely coarse grained, moderately to well sorted, slightly spherical to spherical, good inferred porosity. | | | | |
| 1100 | Clyst | sd | | 30 | med lt gy, med gy | VS | S | A | Disp | | | | 70.0 | 10.0 | 20.0 | 100.0 | | | | | | 0.0 | | | | | | | | Py | 0.1 | Mc | 0.1 | | | | | | | N | | | | |
| 1110 | Set | | | 30 | V lt gy, gy, transp, transl | L | | | | | | | | 100.0 | 100.0 | 70.0 | 30.0 | 0.1 | | | | 100.1 | SA | SR | M | W | SS | S | | | | | | | | | g | 20 | N | Sandstone: very light grey, grey, transparent, translucent, loose, predominately very fine to fine, rarely medium, very rarely coarse grained, moderately to well sorted, slightly spherical to spherical, good inferred porosity. | | | | |
| 1110 | Clyst | sd | | 70 | med lt gy, med gy | VS | S | A | Disp | | | | 80.0 | 0.1 | 20.0 | 100.1 | | | | | | 0.0 | | | | | | | | Py | 0.1 | | | | | | | | | N | | | | |
| 1120 | Set | | | 30 | v lt gy, gy, transp, transl | L | | | | | | | | 100.0 | 100.0 | 80.0 | 20.0 | 0.1 | | | | 100.1 | SA | SR | M | W | SS | S | | | | | | | | | g | 20 | N | Sandstone: very light grey, grey, transparent, translucent, loose, very fine grained, occasionally fine grained, rarely medium grained, moderately to well sorted, slightly spherical to spherical, trace pyrite, good inferred porosity. | | | | |
| 1120 | Clyst | sd | | 70 | med gy, occ dk gy | VS | S | A | Disp | | | | 70.0 | 0.1 | 30.0 | 100.1 | | | | | | 0.0 | | | | | | | | G | 0.1 | | | | | | | | | N | Sandy Claystone: medium grey to occasionally dark grey, rarely greenish grey, very soft to soft, rarely firm, amorphous to dispersive, arenaceous, very fine to fine grained, moderately to well sorted, slightly spherical to spherical, trace micro-pyrite, rare trace glauconite. | | | |
| 1130 | Set | | | 40 | lt gy, gy, transp, transl, r pl gr | L | | | | | | | | 100.0 | 100.0 | 70.0 | 20.0 | 10.0 | | | | 100.1 | SA | SR | M | W | SE | SS | | | | | | | | | g | 20 | N | Sandstone: very light grey, grey, transparent, translucent, rarely pale green, loose, predominately very fine grained, occasionally fine grained, rarely medium grained, moderately to well sorted, slightly spherical to spherical, trace pyrite, good inferred porosity. | | | | |
| 1130 | Clyst | sd | | 60 | med gy, occ dk gy | VS | S | A | Disp | | | | 80.0 | 0.1 | 20.0 | 100.0 | | | | | | 100.1 | | | | | | | | G | 0.1 | Mc | 0.1 | | | | | | | N | | | | |
| 1140 | Set | | | 90 | lt gy, wh, transp, transl, r pnk, r pl yell, r pl onge | L | | | | | | | | 100.0 | 100.0 | 10.0 | 20.0 | 70.0 | 0.1 | | | 100.1 | SA | SR | M | W | SE | SS | | | | | | | | | g | 20 | N | Sandstone: very light grey, grey, transparent, translucent, rarely pale pink, rarely pale yellow, rarely pale orange, loose, predominately medium grained, occasionally fine grained, moderately to well sorted, sub-angular to sub-rounded, slightly elongated to slightly spherical, trace pyrite, good inferred porosity. | | | | |
| 1140 | Clyst | sd | | 10 | med gy, occ dk gy | VS | S | A | Disp | | | | 80.0 | 0.1 | 20.0 | 100.0 | | | | | | 100.1 | | | | | | | | Mc | 0.1 | Py | 0.1 | | | | | | | N | | | | |
| 1150 | Set | | | 30 | lt gy, wh, transp, transl | L | | | | | | | | 100.0 | 100.0 | 70.0 | 30.0 | 0.1 | | | | 100.1 | SR | R | M | W | SS | S | | | | | | | | | g | 20 | N | | | | | |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------|----------------|-----------------|-----------|---------------------------|----------|----------|------------|----------|----------|---------------|----------|----------|------------------------------|---------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|------|---|-------------|----|------|----|------|----------|-------------------|----------------------|------|----|------|---|----------------|---|
| Well Name : HALLADALE-1 DW-2 (Location Halladale) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | Grains | | | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | Longhand Description | | | | | | |
| | | | | | | | | Calcareous | | | Siliciclastic | | | | | | | | | | | | | % | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | | | 5 | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (y/n) | |
| 1150 | | Clyst | sd | 70 | med gy, occ dk gy | VS | S | A | Disp | | | | 80.0 | 0.1 | 20.0 | 100.0 | | | | | | 100.1 | | | | | | | | Py | 0.1 | Mc | 0.1 | | | | | | N | |
| 1160 | | Sst | | 20 | lt gy, wh, transp, transl | L | | | | | | | | 100.0 | 100.0 | 80.0 | 20.0 | 0.1 | | | | 100.1 | SR | R | M | W | SS | S | | | | | | | g | 20 | N | Sandstone: very light grey, grey, transparent, translucent, loose, 80% very fine grained, 20% fine grained, moderately to well sorted, sub-rounded to rounded, slightly spherical to spherical, trace pyrite, good inferred porosity. | | |
| 1160 | | Clyst | sd | 80 | lt gy, med gy | S | F | A | Disp | | | | 80.0 | 0.1 | 20.0 | 100.0 | | | | | | 100.0 | | | | | | | | Mc | 0.1 | Py | 0.1 | | | | | | N | |
| 1170 | | Sst | | 30 | ly gy, wh, transp, transl | L | | | | | | | | 100.0 | 100.0 | 70.0 | 30.0 | 0.1 | 0.1 | | | 100.2 | SA | SR | M | W | SE | S | | | | | | | g | 20 | N | | | |
| 1170 | | Clyst | sd | 70 | lt gy, med gy | VS | S | A | Disp | | | | 80.0 | 0.1 | 20.0 | 100.0 | | | | | | 0.0 | | | | | | | | Mc | 0.1 | | | | | | | | N | |
| 1180 | | Sst | | 20 | lt gy, wh, transp, transl | L | | | | | | | | 100.0 | 100.0 | 80.0 | 20.0 | 0.1 | 0.1 | | | 100.2 | SA | SR | M | W | SE | S | | | Py | | 0.1 | | | | g | | 20 | N |
| 1180 | | Clyst | sd | 80 | lt gy, med gy | VS | F | A | Disp | | | | 80.0 | 0.1 | 20.0 | 100.0 | | | | | | 100.0 | | | | | | | | Py | 0.1 | Mc | 0.1 | | | | | | N | |
| 1190 | | Sst | | 10 | lt gy, wh, transp, transl | | | | | | | | | 100.0 | 100.0 | 70.0 | 30.0 | 0.1 | 0.1 | | | 100.1 | SA | SR | P | M | SE | SS | | | py | 0.1 | | | | | g | 20 | N | Sandstone, light grey, white, transparent, translucent, loose, 70% very fine grained, 30% fine grained, trace medium and coarse grained, sub-angular to sub-rounded, poor to moderately sorted, slightly elongated to slightly spherical, trace pyrite, good inferred porosity. |
| 1190 | | Clyst | slty | 90 | lt gy, med gy, r dk gy | S | F | A | B | | | | 80.0 | 20.0 | 0.1 | 100.0 | | | | | | 0.0 | | | | | | | | Py | 0.1 | Lf | 0.1 | | | | | N | | |



Woodside Energy Ltd.

Well Name : HALLADALE-1 DW3

Wellsite Lithology Log

Rig: Ocean Patriot
Basin: Otway
Date Spudded: 22/03/2005 (DW1)
Date Kick-off: 22/04/2005
Date TD: 24/04/2005

Rig Type: Semi-submersible
Rotary Table: 21.5 mLAT
Water Depth: 44.8 mLAT
Total Depth: 1969 mRT
Well Status: P & A

Latitude: 38 34 45.54 S
Longitude: 142 43 50.95 E
Eastings: 650 763.2
Northings: 5 728 485.2
GDA94, MGA Zone 54

Wellsite Geologists:
Simon Blaauw
Manuel Ortiz
Cliff Menhennitt

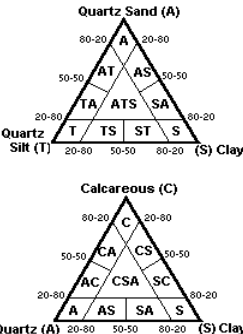
Rock Types

| | |
|--|-------------------------------------|
| | Sample Contaminated or Missed |
| | (Clyst) Claystone |
| | (Clyst, calc) Claystone, calcareous |
| | (Siltst) Siltstone |
| | (Sst) Sandstone |
| | (Cgl) Conglomerate |
| | (Lst) Limestone (recrystallised) |
| | (Cl) Calcilutite |
| | (Ct) Calcisiltite |
| | (Ca) Calcarenite |
| | (Cr) Calcirudite |
| | (Dol) Dolomite |

| | |
|--|------------------|
| | (An) Anhydrite |
| | (Gyp) Gypsum |
| | (Ha) Halite/Salt |
| | (C) Coal |
| | (Cht) Chert |
| | (MM) Metamorphic |
| | (Plut) Plutonic |
| | (Vol) Volcanic |
| | * silty |
| | sandy |
| | — argillaceous |

| | |
|--------------------------|------------------------|
| Py: Pyrite | Al: Algae |
| Mc: Mica | O: Oolites |
| Ch: Chert | Co: Corals |
| C: Lignite / Coal | Cr: Crinoids |
| G: Glauconite | Fo: Foraminifera |
| F: Feldspar | Br: Bryozoa |
| Ce: Chlorite | Os: Ostracoda |
| Qx: Quartz Crystals | Rd: Radiolaria |
| Cx: Calcite Crystals | I: Inoceramus |
| Sc: Siderite Concretions | Sk: Skeletal Fragments |
| Gp: Gypsum | Lf: Lithic Fragments |
| He: Hematite | |

Rock Classification



Sample Reliability
Q: Questionable
U: Unreliable
No entry indicates that sample is considered reliable.

Hardness
L: Loose
VS: Very Soft
S: Soft
Fr: Friable
F: Firm
MH: Moderately Hard
H: Hard

Fracture
A: Amorphous
Ang: Angular
B: Blocky
SB: Sub Blocky
Conc: Conchoidal
Disp: Dispersive

Rounding
A: Angular
SA: Subangular
SR: Subrounded
R: Rounded
WR: Well Rounded

Sorting
VP: Very Poor
P: Poor
M: Moderate
W: Well
VW: Very Well

Sphericity
VE: Very Elongated
E: Elongated
SE: Slightly Elongated
SS: Slightly Spherical
S: Spherical
VS: Very Spherical

Cement
Q: Silica
C: Calcite
D: Dolomite
P: Pyrite
Sd: Siderite

Porosity
g: intergranular
v: vugular
i: intraskeletal
f: fracture

Colour
wh = white
gy = grey
blk = black
red = red
pk = pink
pu = purple
brn = brown
yel = yellow
gn = green
olv = olive
blu = blue
org = orange
cl = colourless
mult = multicolour
trans = translucent
lt = light
dk = dark
med = medium
vgt = variegated



Wellsite Lithology Log

Well Name : HALLADALE-1 DW3

| Lithology | | | | | | | | Grains | | | Grain Size & Characteristics | | | | | | | | | | | Cements | | | Accessories | | | | | porosity | Lithology Colours | Longhand Description | | | | | | |
|-------------|--------------------|----------------|-----------------|-----------|---|----------|----------|------------|---------------|-------|------------------------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|----|---------|---|---|-------------|-----|----|-----|------|----------|-------------------|----------------------|---|------|----|------|---|---|
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Calcareous | Siliciclastic | % | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | Type | | | | % | Type | % | Type | % | Type |
| 1200 | Sat | | | 90 | lt gy, lt ol gy, trmsl, transp | l | | | | 100.0 | 100.0 | | 80.0 | 20.0 | 0.1 | | 100.1 | sa | r | m | ss | s | | | Py | 5.0 | | | | | | | | g | 20 | n | | M. Ortiz on tour, 18:00 hrs, 21st April 2005. Spudded Sidelacked Halladale-1 DW3 at 02:30 hrs 21/04/05 from 1197 mMDRT. Sandstone, light grey, light olive grey, translucent, transparent, loose, subangular to rounded, trace angular, moderately sorted to well sorted, slightly spherical to spherical, 100% siliceous sand, 80% medium grained, 20% coarse grained, trace very coarse grained, 5% pyrite nodules, good inferred porosity, no shows. |
| 1200 | Clyst | sly | | 10 | lt gy, yelsh gy, occ lt gnsh gy, tr mott gn | s | f | a | disp | | | | | | | 20.0 | 80.0 | 100.0 | | | | | | | g | 5.0 | cc | 3.0 | py | 0.1 | | | | | | n | | Silty Claystone, light grey, yellowish grey, occasionally light greenish grey, trace mottled green, soft to firm, amorphous to dispersive, 20% siliceous silt, 80% siliceous sand, 5% glauconite, rare coal/lignite fragments, trace pyrite. |



Well Name : HALLADALE-1 DW3

| Lithology | | | | | | | | | Grains | | | | | | Grain Size & Characteristics | | | | | | | | | | | Cements | | | | | Accessories | | | | | Porosity | | Lithology Colours | | | | | | |
|-------------|--------------------|----------------|-----------------|-----------|-----------------------------------|----------|----------|---|------------|----------|----------|-------------|----------|----------|------------------------------|---------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|---------|----|------|---|------|-------------|------|-----|------|-----|----------------|-----|-------------------|----|----|---|--|--|---|
| | | | | | | | | | Calcareous | | | Siliclastic | | | | | | | | | | | | | | % | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (y/n) | | | | | | | | |
| 1210 | Sst | | | 100 | yelsh gy, lt al gy, tmsl, transp | I | | | | | | | | | 100.0 | | 40.0 | 40.0 | 20.0 | 0.1 | | 100.1 | sa | m | w | se | s | | | Lf | 0.1 | py | 0.1 | | | | | | g | 20 | n | | Sandstone, yellowish grey, light olive grey, translucent, transparent, loose, subangular, moderately sorted to well sorted, slightly elongated to spherical, 100% siliceous sand, 40% fine grained, 40% medium grained, 20% coarse grained, trace very coarse grained, trace ligh grey lithic fragments, trace pyrite, good inferred porosity, no shows. | |
| 1220 | Sst | | | 10 | v lt gy, yelsh gy, tmsl, transp | I | | | | | | | | | 100.0 | | 90.0 | 10.0 | | | | 100.0 | sr | r | m | w | ss | s | | | | | | | | | | g | 10 | n | | Siltstone, trace, as above. | | |
| 1220 | Clyst | | | 70 | off wh, v lt gy | vs | s | a | disp | | | 100.0 | 0.1 | | 100.1 | | | | | | | 0.0 | | | | | | | | | | | | | | | | | | n | | Claystone, off white, very light grey, very soft to soft, amorphous to dispersive, 100% siliceous clay, trace siliceous silt. | | |
| 1220 | Clyst | slty | | 20 | bmsh gy, ol gy, med dk gy | vs | s | a | disp | | | 80.0 | 20.0 | | 100.0 | | | | | | | 0.0 | | | | | | | | cc | 3.0 | mc | 0.1 | py | 0.1 | | | | | | n | | Silty Claystone, bmsh gy, ol gy, med dk gy, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, rare coal/lignite, trace mica, trace pyrite. | |
| 1230 | Clyst | slty | | 70 | bmsh gy, ol gy, med dk gy | s | f | a | sb | | | 70.0 | 30.0 | | 100.0 | | | | | | | 0.0 | | | | | | | | py | 5.0 | cc | 0.1 | g | 0.1 | | | | | | n | | Silty Claystone, brownish grey, olive grey, medium dark grey, soft to firm, amorphous to sub-blocky, 70% siliceous clay, 30% siliceous silt, 5% pyrite, trace coal/lignite, carbonaceous microatminations in part, trace glauconite | |
| 1230 | Clyst | | | 30 | v lt gy, yelsh gy, tmsl, transp | vs | s | a | disp | | | 90.0 | 10.0 | 0.1 | 100.1 | | | | | | | 0.0 | | | | | | | | | | | | | | | | | | n | | Claystone, very light grey, yellowish grey, translucent, transparent, very soft to soft, amorphous to dispersive, 90% siliceous clay, 10% siliceous silt, trace very fine siliceous sand | | |
| 1240 | Clyst | slty | | 100 | bmsh gy, ol gy, med dk gy, med gy | s | f | a | sb | 5.0 | | 75.0 | 20.0 | | 100.0 | | | | | | | 0.0 | | | | | | | | g | 5.0 | py | 0.1 | mc | 0.1 | | | | | | n | | Silty Claystone, brownish grey, olive gy, medium dark grey, medium grey, soft to firm, amorphous to sub-blocky, trace-5% calcareous clay, 75% siliceous clay, 20% siliceous silt, 5% glauconite, trace pyrite nodules, trace mica, minor medium brown Dolomite fragments. S Billeau on Tour (6:00hrs 22/04/05) | |
| 1250 | Clyst | slty | | 100 | bmsh gy, ol gy, med dk gy, med gy | s | f | a | sb | | | 80.0 | 20.0 | | 100.0 | | | | | | | 0.0 | | | | | | | | g | 5.0 | py | 0.1 | mc | 0.1 | cc | 0.1 | | | | | n | | Silty Claystone, brownish grey, olive grey, medium dark grey, medium grey, soft to firm, amorphous to sub-blocky, 80% siliceous clay, 20% siliceous silt, 5% glauconite, trace-rare pyrite, trace mica flakes, trace carbonaceous fragments |
| 1260 | Clyst | slty | | 40 | bmsh gy, ol gy, med dk gy | vs | s | a | sb | | | 80.0 | 20.0 | | 100.0 | | | | | | | 0.0 | | | | | | | | py | 0.1 | mc | 0.1 | cc | 0.1 | | | | | | n | | Silty Claystone, brownish grey, olive grey, medium dark grey, medium grey, soft to firm, amorphous to sub-blocky, 80% siliceous clay, 20% siliceous silt, 5% glauconite, trace-rare pyrite, trace mica flakes, trace carbonaceous fragments | |
| 1260 | Silst | arg | | 60 | med gy, ol gy, spkld blk | s | f | a | sb | | | 20.0 | 80.0 | 0.1 | 100.1 | | | | | | | 0.0 | | | | | | | | py | 0.1 | mc | 0.1 | cc | 0.1 | | | | | | n | | Argillaceous Siltstone, medium grey, olive grey, speckled with carbonaceous partings, soft to firm, amorphous to sub-blocky, 20% siliceous clay, 80% siliceous silt, trace pyrite, trace mica, trace carbonaceous partings. | |
| 1270 | Clyst | slty | | 20 | bmsh gy, ol gy, med gy, med dk gy | s | f | a | sb | | | 80.0 | 20.0 | | 100.0 | | | | | | | 0.0 | | | | | | | | cc | 0.1 | mc | 0.1 | | | | | | | | | n | | Silty Claystone, brownish grey, olive grey, medium dark grey, medium grey, soft to firm, amorphous to sub-blocky, 80% siliceous clay, 20% siliceous silt, 5% glauconite, trace-rare pyrite, trace mica flakes, trace carbonaceous fragments |
| 1270 | Silst | arg | | 30 | med gy, ol gy, spkld blk | s | f | a | sb | | | 20.0 | 80.0 | 0.1 | 100.1 | | | | | | | 0.0 | | | | | | | | cc | 0.1 | py | 0.1 | mc | 0.1 | | | | | | n | | Argillaceous Siltstone, medium grey, olive grey, speckled with carbonaceous partings, soft to firm, amorphous to sub-blocky, 20% siliceous clay, 80% siliceous silt, trace pyrite, trace mica, trace carbonaceous partings. | |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Well Name : HALLADALE-1 DW3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | | | Grains | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | | Accessories | | | | | Porosity | Lithology Colours | Longhand Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Siliciclastic | | % | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | 1 | | 2 | | 3 | | 4 | | 5 | | Type | | % | Type | % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | Clay (%) | Silt (%) | | | | | | | | | | | | Type | % | Type | % | Type | % | Type | % | Type | % | | | | | | Type | % | Type | % | Type | % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1270 | Sst | | | 50 | lt gy, wh, trans, transp | l | | | | | | | 100.0 | 100.0 | 0.1 | 30.0 | 60.0 | 10.0 | 0.1 | | 100.2 | sa | sr | p | m | se | s | | | | | | | | | | | | | | g | 20 | n | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | </ |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|--------------------|----------------|-----------------|---------------------------------|--------|----------|----------|----------|----------|----------|----------|----------|----------|------------------------------|---------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|----|----|-------------|-----|-----|-----|----|----------|-------------------|----------------------|----|------|---|---|--|
| Well Name : HALLADALE-1 DW3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | Grains | | | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | Longhand Description | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | | | 5 | Type | % | | |
| 1320 | Silst | arg | 30 | med gy, ol gy, brnsh gy, lt brn | | | | | | 20.0 | 80.0 | 0.1 | 100.1 | 0.0 | | | | | | | | | | | | | py | 0.1 | cc | 0.1 | | | | | | n | | Argillaceous Siltstone, medium grey, olive grey, brownish grey, light brown, soft to firm, amorphous to rarely blocky, 20% siliceous clay, 80% siliceous silt, trace siliceous sand, trace carbonaceous partings, trace pyrite. | |
| 1320 | Sst | | 10 | lt gy, wh, trans, transp | I | | | | | | | | 100.0 | 100.0 | 70.0 | 30.0 | 0.1 | | | | 100.1 | sa | sr | m | w | ss | p | 0.1 | | | | | | | g | 15 | n | | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, moderately to well sorted, slightly spherical to rarely spherical, 100% siliceous sand, 70% very fine grained, 30% fine grained, trace medium grained, trace coarse grained, trace pyrite, 15% inferred porosity. |
| 1330 | Clyst | slty | 30 | med brnsh gy, lt brn, med gy | | | | | | 80.0 | 20.0 | 0.1 | 100.1 | 0.0 | | | | | | | | | | | | | cc | 0.1 | py | 0.1 | | | | | | n | | Silty Claystone, as above. | |
| 1330 | Sst | | 70 | lt gy, wh, trans, transp | I | | | | | | | | 100.0 | 100.0 | 0.1 | 20.0 | 70.0 | 10.0 | 0.1 | | 100.2 | a | sr | vp | p | e | ss | p | 0.1 | | | | | | g | 20 | n | | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, very poorly to poorly sorted, elongate to slightly spherical, 100% siliceous sand, trace very fine grained, 20% fine grained, 70% medium grained, 10% coarse grained, trace very coarse grained, trace pyrite, 20% inferred porosity, no shows. |
| 1340 | Clyst | slty | 20 | med brnsh gy, lt brn, med gy | vs | s | a | disp | | 80.0 | 20.0 | 0.1 | 100.1 | 0.0 | | | | | | | | | | | | | cc | 0.1 | py | 0.1 | | | | | | n | | Silty Claystone, as above. | |
| 1340 | Sst | | 80 | lt gy, wh, trans, transp | | | | | | | | | 100.0 | 100.0 | 0.1 | 20.0 | 70.0 | 10.0 | 0.1 | | 100.2 | a | sr | vp | p | e | ss | p | 0.1 | | | | | | g | 20 | n | | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, very poorly to poorly sorted, elongate to slightly spherical, 100% siliceous sand, trace very fine grained, 20% fine grained, 70% medium grained, 10% coarse grained, trace very coarse grained, trace pyrite, 20% inferred porosity, no shows. |
| 1350 | Clyst | slty | 10 | med brnsh gy, lt brn, med gy | vs | s | a | disp | | 80.0 | 20.0 | 0.1 | 100.1 | 0.0 | | | | | | | | | | | | | cc | 0.1 | py | 0.1 | | | | | | n | | Silty Claystone, as above. | |
| 1350 | Sst | | 90 | lt gy, wh, trans, transp | I | | | | | | | | 100.0 | 100.0 | 10.0 | 40.0 | 50.0 | 0.1 | 0.1 | | 100.2 | a | sr | vp | p | e | ss | p | 0.1 | | | | | | g | 20 | n | | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, very poorly to poorly sorted, elongate to slightly spherical, 100% siliceous sand, 10% very fine grained, 40% fine grained, 50% medium grained, trace coarse grained, trace very coarse grained, trace to abundant pyrite, 20% inferred porosity, no shows. |
| 1360 | Clyst | slty | 50 | med brnsh gy, lt brn, med gy | vs | s | a | disp | | 80.0 | 20.0 | 0.1 | 100.1 | 0.0 | | | | | | | | | | | | | cc | 0.1 | py | 0.1 | mc | 0.1 | | | | n | | Silty Claystone, as above. | |
| 1360 | Sst | | 50 | lt gy, wh, trans, transp | I | | | | | | | | 100.0 | 100.0 | 50.0 | 40.0 | 10.0 | 0.1 | | 100.1 | sa | sr | p | m | se | ss | p | 0.1 | | | | | | g | 20 | n | | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, poorly to moderately sorted, slightly elongate to slightly spherical, 100% siliceous sand, 50% very fine grained, 40% fine grained, 10% medium grained, trace coarse grained, trace to abundant pyrite, 20% inferred porosity, no shows. | |
| 1370 | Clyst | slty | 30 | med brnsh gy, lt brn, med gy | vs | s | a | disp | | 80.0 | 20.0 | | 100.0 | 0.0 | | | | | | | | | | | | | cc | 0.1 | py | 0.1 | | | | | | n | | Silty Claystone, medium brownish grey, light brown, medium grey, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace carbonaceous partings, trace pyrite. | |
| 1370 | Sst | | 70 | lt gy, wh, trans, transp | I | | | | | | | | 100.0 | 100.0 | 30.0 | 40.0 | 30.0 | 0.1 | | 100.1 | sa | sr | p | m | se | ss | p | 0.1 | | | | | | g | 20 | n | | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, poorly to moderately sorted, slightly elongate to slightly spherical, 100% siliceous sand, 30% very fine grained, 40% fine grained, 30% medium grained, trace coarse grained, trace to abundant pyrite, 20% inferred porosity, no shows. | |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|--------------------|----------------|-----------------|-----------|---|----------|----------|----------|----------|------------|----------|----------|-------------|--------------|------------------------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|---------|----|------|---|------|-------------|------|----|------|----|----------|-------------------|----------------------|---|---|---|---|--|--|--|
| Well Name : HALLADALE-1 DW3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | | | Grains | | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | | | Accessories | | | | | Porosity | Lithology Colours | Longhand Description | | | | | | | |
| | | | | | | | | | | Calcareous | | | Siliclastic | | | | | | | | | | | | % | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (y/n) | | | | | | | |
| 1380 | | Clyst | stly | 60 | lt gy, r med gy, med brnsh gy, r lt brn | vs | s | a | disp | | | | 80.0 | 20.0 | 0.1 | 100.1 | | | | | | 0.0 | | | | | | | | cc | 0.1 | py | 0.1 | | | | n | | | | | | | |
| 1380 | | Sst | | 40 | lt gy, wh, trans, transp | I | | | | | | | | 100.0 | 100.0 | 30.0 | 40.0 | 30.0 | 0.1 | | 100.1 | sa | sr | p | m | se | ss | p | 0.1 | | | | | | g | 20 | n | | | | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, poorly to moderately sorted, slightly elongate to slightly spherical, 100% siliceous sand, 30% very fine grained, 40% fine grained, 30% medium grained, trace coarse grained, trace to abundant pyrite, 20% inferred porosity, no shows. | | | |
| 1390 | | Clyst | stly | 70 | lt gy, r med gy, med brnsh gy, r lt brn | vs | s | a | disp | | | | 80.0 | 20.0 | 0.1 | 100.1 | | | | | | 0.0 | | | | | | | | cc | 0.1 | mc | 0.1 | py | 0.1 | | | | n | | | | | |
| 1390 | | Sst | | 30 | lt gy, wh, trans, transp | I | | | | | | | | 100.0 | 100.0 | 40.0 | 40.0 | 20.0 | 0.1 | | 100.1 | sa | sr | p | m | se | ss | p | 0.1 | | | | | | g | 20 | n | | | | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, poorly to moderately sorted, slightly elongate to slightly spherical, 100% siliceous sand, 40% very fine grained, 40% fine grained, 20% medium grained, trace coarse grained, trace to abundant pyrite, 20% inferred porosity, no shows. | | | |
| 1400 | | Clyst | stly | 90 | lt brnsh gy, r med brnsh gy | vs | s | a | disp | | | | 90.0 | 10.0 | 0.1 | 100.1 | | | | | | 0.0 | | | | | | | | cc | 0.1 | mc | 0.1 | py | 0.1 | | | | n | | | | | |
| 1400 | | Sst | | 10 | lt gy, wh, trans, transp | I | | | | | | | | 100.0 | 100.0 | 40.0 | 40.0 | 20.0 | | | 100.0 | sa | sr | p | m | se | ss | p | 0.1 | | | | | | g | 20 | n | | | | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, poorly to moderately sorted, slightly elongate to slightly spherical, 100% siliceous sand, 40% very fine grained, 40% fine grained, 20% medium grained, trace coarse grained, trace to abundant pyrite, 20% inferred porosity, no shows. | | | |
| 1410 | | Clyst | stly | 90 | lt brnsh gy, r med brnsh gy | vs | s | a | disp | | | | 90.0 | 10.0 | | 100.0 | | | | | | 0.0 | | | | | | | | cc | 0.1 | mc | 0.1 | py | 0.1 | | | | n | | | | | |
| 1410 | | Sst | | 10 | lt gy, wh, trans, transp | I | | | | | | | | 100.0 | 100.1 | 60.0 | 40.0 | 0.1 | | | 0.0 | sr | r | m | w | se | s | | | | | | | g | 20 | n | | | | Sandstone, light grey, white, translucent, transparent, loose, sub-rounded to rarely rounded, moderately to well sorted, slightly elongate to spherical, 100% siliceous sand, 60% very fine grained, 40% fine grained, trace medium grained, trace coarse grained, trace to abundant pyrite, 20% inferred porosity, no shows. | | | | |
| 1420 | | Clyst | stly | 100 | lt brnsh gy, r med brnsh gy | vs | s | a | disp | | | | 90.0 | 10.0 | | 100.0 | | | | | | 100.1 | | | | | | | | cc | 0.1 | mc | 0.1 | py | 0.1 | | | | n | | | | | |
| 1430 | | Clyst | stly | 100 | lt brnsh gy, r med brnsh gy | vs | s | a | disp | | | | 80.0 | 20.0 | | 100.0 | | | | | | 0.0 | | | | | | | | cc | 0.1 | mc | 0.1 | | | | | n | | | | | | |
| 1440 | | Clyst | stly | 70 | lt brnsh gy, r med brnsh gy | vs | s | a | disp | | | | 80.0 | 20.0 | 0.1 | 100.1 | | | | | | 0.0 | | | | | | | | cc | 0.1 | mc | 0.1 | | | | | n | | | | | | |
| 1440 | | Sst | | 30 | lt gy, wh, trans, transp | I | | | | | | | | 100.0 | 100.0 | 60.0 | 40.0 | 0.1 | | | 100.1 | | | | | | | | py | 0.1 | | | | | g | 15 | n | | | | Sandstone, light grey, white, translucent, transparent, loose, sub-rounded to rarely rounded, moderately to well sorted, slightly elongate to spherical, 100% siliceous sand, 60% very fine grained, 40% fine grained, trace medium grained, trace pyrite, 15% inferred porosity, no shows. | | | |



Well Name : HALLADALE-1 DW3

| Lithology | | | | Grains | | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | | | Accessories | | | | | Porosity | | Lithology Colours | | Longhand Description | | | | | |
|-------------|--------------------|----------------|-----------------|------------|------------------------------------|----------|---------------|----------|------------------------------|----------|----------|----------|----------|--------------|---------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|-------------|-------|---|------|-----|----------|-----|-------------------|-----|----------------------|-----|----------------|---|--|--|
| | | | | Calcareous | | | Siliciclastic | | | | | | | | | | | | % | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (y/n) | | | |
| 1450 | Clyst | slty | | 100 | lt brnsh gy, r med brnsh gy, lt gy | s f | a disp | 0.1 | | | 90.0 | 10.0 | | 100.1 | | | | | | | 0.0 | | | | | | cc | 0.1 | mc | 0.1 | | | | | n | | Silty Claystone, light brownish grey, rarely medium brownish grey, rarely light grey, soft to firm, amorphous to dispersive, 90% siliceous clay, 10% siliceous silt, trace carbonaceous partings, trace mica, trace calcareous. | |
| 1460 | Clyst | slty | | 80 | lt brnsh gy, r med brnsh gy, lt gy | vs | s a disp | | | | 80.0 | 20.0 | 0.1 | 100.0 | | | | | | | 100.0 | | | | | | cc | 0.1 | mc | 0.1 | | | | | n | | Silty Claystone, as above. | |
| 1460 | Sst | | | 20 | lt gy, wh, trans, transp | l | | | | | | | 100.0 | 100.0 | 20.0 | 50.0 | 30.0 | | | | 100.0 | sa | sr | p m | se ss | | py | 0.1 | | | | | g | 20 | n | | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, poorly to moderately sorted, slightly elongate to spherical, 100% siliceous sand, 20% very fine grained, 50% fine grained, 30% medium grained, trace pyrite, 20% inferred porosity, no shows. | |
| 1470 | Clyst | slty | | 80 | lt brnsh gy, r med brnsh gy, lt gy | vs | s a disp | | | | 80.0 | 20.0 | 0.1 | 100.1 | | | | | | | 0.0 | | | | | | cc | 0.1 | mc | 0.1 | | | | | n | | Silty Claystone, as above. | |
| 1470 | Sst | | | 20 | lt gy, wh, trans, transp | l | | | | | | | 100.0 | 100.0 | 20.0 | 50.0 | 30.0 | | | | 100.0 | sa | sr | p m | se ss | | py | 0.1 | | | | | g | 20 | n | | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, poorly to moderately sorted, slightly elongate to spherical, 100% siliceous sand, 20% very fine grained, 50% fine grained, 30% medium grained, trace pyrite, 20% inferred porosity, no shows. | |
| 1480 | Clyst | slty | | 100 | lt brnsh gy, med brnsh gy, lt gy | vs | s a disp | | | | 80.0 | 20.0 | | 100.0 | | | | | | | 0.0 | | | | | | cc | 0.1 | mc | 0.1 | | | | | n | | Silty Claystone, light brownish grey, medium brownish grey, rarely light grey, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, tace fine carbonaceous partings, trace mica. | |
| 1490 | Clyst | slty | | 100 | med brnsh gy | vs | s a disp | | | | 80.0 | 20.0 | | 100.0 | | | | | | | 0.0 | | | | | | cc | 0.1 | mc | 0.1 | | | | | n | | | |
| 1500 | Clyst | slty | | 100 | med brnsh gy | vs | s a disp | | | | 90.0 | 10.0 | | 100.0 | | | | | | | 100.1 | | | | | | cc | 0.1 | mc | 0.1 | | | | | n | | Silty Claystone, light brownish grey, medium brownish grey, rarely light grey, very soft to soft, amorphous to dispersive, 90% siliceous clay,10% siliceous silt, tace fine carbonaceous partings, trace mica. | |
| 1510 | Clyst | slty | | 100 | med brnsh gy | vs | s a disp | | | | 90.0 | 10.0 | | 100.0 | | | | | | | 100.1 | | | | | | cc | 0.1 | mc | 0.1 | | | | | n | | Silty Claystone, light brownish grey, medium brownish grey, rarely light grey, very soft to soft, amorphous to dispersive, 90% siliceous clay,10% siliceous silt, tace fine carbonaceous partings, trace mica. | |
| 1520 | Clyst | slty | | 100 | med brnsh gy, r lt brnsh gy | vs | s a disp | | | | 80.0 | 20.0 | | 100.0 | | | | | | | 0.0 | | | | | | cc | 0.1 | mc | 0.1 | | | | | n | | Silty Claystone, light brownish grey, medium brownish grey, rarely light grey, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, tace fine carbonaceous partings, trace mica. | |
| 1530 | Clyst | slty | | 80 | med brnsh gy, r lt brnsh gy | vs | s a disp | | | | 80.0 | 20.0 | | 100.0 | | | | | | | 100.1 | | | | | | Cc | 0.1 | mc | 0.1 | cr | 0.1 | Py | 0.1 | | n | | Silty Claystone, light brownish grey, medium brownish grey, rarely light grey, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace fine carbonaceous partings, trace mica, trace fossil fragments, trace nodular pyrite. |
| 1530 | Sst | | | 20 | lt gy, wh, trans, transp | Fr | | | | | | | 100.0 | 100.0 | 30.0 | 60.0 | 10.0 | | | | 100.0 | a | sa | m w | se ss | C | 0.1 | lf | 0.1 | | | | g | 20 | n | | Sandstone, white to light grey, returned loose, angular to sub angular, minor sub rounded, moderately to well sorted, elongated to slightly spherical, 100% siliceous sand, 30% very fine grained, 60% fine grained, 10% medium oragined, trace calcite cement, trace lithic fragments, ood inferred porosity. No shows. | |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|--------------------|----------------|-----------------|-----------|-----------------------------|----------|----------|------------|----------|----------|-------------|----------|------------------------------|--------------|---------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|------|-------------|------|----|------|-----|----------|-------------------|----------------------|----|------|----|----------------|--|--|
| Well Name : HALLADALE-1 DW3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | Grains | | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | Longhand Description | | | | | | |
| | | | | | | | | Calcareous | | | Siliclastic | | | | | | | | | | | | % | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | | | 5 | % | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (y/n) | | |
| 1540 | | Clyst | stly | 90 | med brnsh gy, r lt brnsh gy | vs | s | a | disp | | | | 80.0 | 20.0 | 100.0 | | | | | | | 100.1 | | | | | | Cc | 0.1 | mc | 0.1 | cr | 0.1 | Py | 0.1 | | n | Silty Claystone, light brownish grey, medium brownish grey, rarely light grey, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace fine carbonaceous partings, trace mica. C Menhenitt on Tour (06:00hrs 22/04/05) | |
| 1540 | | Sst | | 10 | lt gy, wh, trans, transp | Fr | | | | | | | 100.0 | 100.0 | 20.0 | 60.0 | 20.0 | 0.1 | | | 100.1 | a | s | a | m | w | se | ss | C | 0.1 | | | | | g | 20 | n | Sandstone, as above. | |
| 1550 | | Clyst | stly | 70 | med brnsh gy, r lt brnsh gy | vs | s | a | disp | | | | 80.0 | 20.0 | 100.0 | | | | | | | 100.0 | | | | | | Cc | 0.1 | mc | 0.1 | py | 0.1 | | | | n | Silty Claystone, as above. | |
| 1550 | | Sst | | 30 | lt gy, wh, trans, transp | Fr | | | | | | | 100.0 | 100.0 | 20.0 | 30.0 | 50.0 | 0.1 | | | 100.1 | a | s | a | m | w | se | ss | C | 0.1 | | | | | g | 20 | n | Sandstone, white to light grey, returned loose, angular to sub angular, minor sub rounded, moderately to well sorted, elongated to slightly spherical, 100% siliceous sand, 20% very fine grained, 30% fine grained, 50% medium grained, trace coarse grained, trace calcite cement, trace lithic fragments, good inferred porosity, no shows. | |
| 1560 | | Clyst | stly | 100 | med brnsh gy, r lt brnsh gy | vs | s | a | disp | | | | 80.0 | 20.0 | 100.0 | | | | | | | 0.0 | | | | | | Cc | 0.1 | mc | 0.1 | py | 0.1 | | | | n | Silty Claystone, as above. | |
| 1570 | | Clyst | stly | 100 | med lt gy, lt brnsh gy | vs | s | a | sb | | | | 80.0 | 20.0 | 100.0 | | | | | | | 0.0 | | | | | | G | 1.0 | Cc | 0.1 | mc | 0.1 | py | 0.1 | | n | Silty Claystone, medium light to brownish grey grey, rarely light grey, very soft to soft, amorphous to dispersive, occasionally sub blocky, 80% siliceous clay, 20% siliceous silt, trace to rare glauconite, trace fine carbonaceous partings, trace mica, trace nodular pyrite. | |
| 1580 | | Clyst | stly | 100 | med lt gy, lt brnsh gy | vs | s | a | sb | | | | 80.0 | 20.0 | 100.0 | | | | | | | 100.0 | | | | | | G | 1.0 | Cc | 0.1 | mc | 0.1 | py | 0.1 | | n | Silty Claystone, as above. | |
| 1590 | | Clyst | stly | 100 | med lt gy, lt brnsh gy | vs | s | a | sb | | | | 80.0 | 20.0 | 100.0 | | | | | | | 100.1 | | | | | | G | 1.0 | Cc | 0.1 | mc | 0.1 | py | 0.1 | | n | Silty Claystone, as above. | |
| 1600 | | Clyst | stly | 100 | med lt gy, lt brnsh gy | vs | s | a | sb | | | | 80.0 | 20.0 | 100.0 | | | | | | | 0.0 | | | | | | G | 2.0 | Cc | 0.1 | mc | 0.1 | py | 0.1 | | n | Silty Claystone, generally as above, increasing glauconite. | |
| 1610 | | Clyst | stly | 100 | med lt gy, lt brnsh gy | vs | s | a | sb | | | | 80.0 | 20.0 | 100.0 | | | | | | | 0.0 | | | | | | g | 1.0 | cc | 0.1 | mc | 0.1 | py | 0.1 | | n | S Billeau on Tour (6:00hrs 23/04/05) | |
| 1620 | | Clyst | stly | 100 | med lt gy, lt brnsh gy | vs | s | a | sb | | | | 80.0 | 20.0 | 100.0 | | | | | | | 100.1 | | | | | | g | 0.1 | cc | 0.1 | mc | 0.1 | py | 0.1 | | n | Silty Claystone, medium light grey to light brownish grey, rarely mottled green, very soft to soft, amorphous to rarely sub-blocky, 80% siliceous clay, 20% siliceous silt, trace to heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace pyrite. | |
| 1630 | | Clyst | stly | 100 | med lt gy, lt brnsh gy | vs | s | a | sb | | | | 80.0 | 20.0 | 100.0 | | | | | | | 100.0 | | | | | | g | 2.0 | cc | 0.1 | mc | 0.1 | py | 0.1 | | n | Silty Claystone, medium light grey to light brownish grey, rarely mottled green, very soft to soft, amorphous to rarely sub-blocky, 80% siliceous clay, 20% siliceous silt, heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace pyrite. | |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|--------------------|----------------|-----------------|-----------|-----------------------|----------|----------|------------|----------|---------------|----------|---|---------------|------------------------------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|----------|----------|------|---|-------------|---|------|---|------|----------|----------------|-------------------|----------------|----------------------|------|--|--|
| Well Name : HALLADALE-1 DW3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | | | Grains | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | | Lithology Colours | | Longhand Description | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Calcareous | | Siliciclastic | | % | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | 1 | | 2 | | 3 | | 4 | | 5 | | HC Shows (y/n) | HC Shows (y/n) | HC Shows (y/n) | | | | |
| | | | | | | | | Clay (%) | Silt (%) | Sand (%) | Clay (%) | | | | | | | | | | | | Silt (%) | Sand (%) | Type | % | Type | % | Type | % | Type | % | | | | | Type | % | Type |
| 1640 | | Clyst | stly | 100 | med lt gy, lt brnsh | vs | s | a | sb | | | | 80.0 | 20.0 | 100.0 | | | | 0.0 | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey to light brownish grey, rarely mottled green, very soft to soft, amorphous to rarely sub-blocky, 80% siliceous clay, 20% siliceous silt, heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace pyrite. | |
| 1650 | | Clyst | stly | 100 | med lt gy, lt brnsh | vs | s | a | sb | | | | 80.0 | 20.0 | 100.0 | | | | 100.0 | | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey to light brownish grey, rarely mottled green, very soft to soft, amorphous to rarely sub-blocky, 80% siliceous clay, 20% siliceous silt, heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace pyrite. |
| 1660 | | Clyst | stly | 100 | med lt gy, lt brnsh | vs | s | a | sb | | | | 80.0 | 20.0 | 100.0 | | | | 0.0 | | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey to light brownish grey, rarely mottled green, very soft to soft, amorphous to rarely sub-blocky, 80% siliceous clay, 20% siliceous silt, trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace pyrite. |
| 1670 | | Clyst | stly | 100 | med lt gy, r lt brnsh | s | f | sb | b | | | | 80.0 | 20.0 | 100.0 | | | | 0.0 | | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, soft to firm, sub-blocky to blocky, 80% siliceous clay, 20% siliceous silt, trace glauconite fragments and nodules, trace carbonaceous partings, trace mica. |
| 1680 | | Clyst | stly | 100 | med lt gy, r lt brnsh | vs | s | a | disp | | | | 80.0 | 20.0 | 100.0 | | | | 0.0 | | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace glauconite fragments and nodules, trace carbonaceous partings, trace mica. |
| 1690 | | Clyst | stly | 100 | med lt gy, r lt brnsh | s | f | sb | b | | | | 80.0 | 20.0 | 100.0 | | | | 0.0 | | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace glauconite fragments and nodules, trace carbonaceous partings, trace mica. |
| 1700 | | Clyst | stly | 100 | med lt gy, r lt brnsh | s | f | sb | b | | | | 80.0 | 20.0 | 100.0 | | | | 100.0 | | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica. |
| 1710 | | Clyst | stly | 100 | med lt gy, lt brnsh | s | f | sb | b | | | | 80.0 | 20.0 | 100.0 | | | | 0.0 | | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica. C Menhennitt on Tour (18:00hrs 23/04/05) |
| 1720 | | Clyst | stly | 100 | med lt gy, lt brnsh | s | f | sb | b | | | | 80.0 | 20.0 | 100.0 | | | | 0.0 | | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, nil to trace nodular pyrite. |
| 1730 | | Clyst | stly | 100 | med lt gy, lt brnsh | s | f | sb | b | | | | 80.0 | 20.0 | 100.0 | | | | 0.0 | | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to rare glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace nodular pyrite. |
| 1740 | | Clyst | stly | 100 | med lt gy, lt brnsh | s | f | sb | b | | | | 80.0 | 20.0 | 100.0 | | | | 100.0 | | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace nodular pyrite. |
| 1750 | | Clyst | stly | 100 | med lt gy, lt brnsh | s | f | sb | b | | | | 80.0 | 20.0 | 100.0 | | | | 0.0 | | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace nodular pyrite, trace fossil fragments. |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|--------------------|----------------|-----------------|-----------|-------------------------------------|----------|----------|------------|----------|---------------|----------|----------|-------|--------------|------------------------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|----------|------|----|-------------|---|------|---|------|----------|------|-------------------|---|----------------------|------|--|---|--|
| Well Name : HALLADALE-1 DW3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | | | Grains | | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | | Lithology Colours | | Longhand Description | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Calcareous | | Siliciclastic | | | % | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | 1 | | 2 | | 3 | | 4 | | 5 | | HC Shows (y/n) | | | | | | |
| | | | | | | | | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | | | | | | | | | | | | | Sand (%) | Type | % | Type | % | Type | % | Type | % | Type | | % | | Type | % | | |
| 1760 | | Clyst | stly | 100 | med lt gy, lt brnsh gy | s f | sb | b | | | 80.0 | 20.0 | 100.0 | | | | | | | | 0.0 | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace nodular pyrite, trace disseminated pyrite. | | |
| 1770 | | Clyst | stly | 100 | med lt gy, lt brnsh gy | s f | sb | b | | | 80.0 | 20.0 | 100.0 | | | | | | | | 0.0 | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace nodular pyrite, trace disseminated pyrite. | |
| 1780 | | Clyst | stly | 100 | med lt gy, lt brnsh gy | s f | sb | b | | | 80.0 | 20.0 | 100.0 | | | | | | | | 100.1 | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace nodular pyrite, trace disseminated pyrite, trace calcite fracture fill. | |
| 1790 | | Clyst | stly | 100 | med lt gy, lt brnsh gy | s f | sb | b | | | 80.0 | 20.0 | 100.0 | | | | | | | | 0.0 | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace nodular pyrite, trace disseminated pyrite. | |
| 1800 | | Clyst | stly | 100 | med lt gy, lt brnsh gy | s f | sb | b | | | 80.0 | 20.0 | 100.0 | | | | | | | | 0.0 | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely light brownish grey, rarely mottled light greenish grey, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace nodular pyrite, trace disseminated pyrite. | |
| 1810 | | Clyst | stly | 100 | med gy, r dk gy, gn gy, r lt yel gy | s f | sb | b | | | 80.0 | 20.0 | 100.0 | | | | | | | | 0.0 | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium light grey, rarely dark grey, greenish grey, rarely light yellowish grey, mottled, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace to heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace nodular pyrite, trace disseminated pyrite. Note abundant Circal mud additive in sample. S Billeau on Tour (06:00 24/04/05) | |
| 1820 | | Clyst | stly | 100 | gn gy, dk gn gy, med gy, dk gy | s f | sb | b | | | 80.0 | 20.0 | 100.0 | | | | | | | | 0.0 | | | | | | | | | | | | | | | | | n | | Silty Claystone, greenish grey, dark greenish grey, rarely dark grey, medium grey, very mottled, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, trace nodular pyrite, trace disseminated pyrite. | |
| 1830 | | Clyst | stly | 100 | med gy, med gn gy, r lt yel | s f | sb | b | | | 80.0 | 20.0 | 0.1 | 100.1 | | | | | | | 100.0 | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium grey, medium greenish grey, rarely dark grey, trace light yellowish grey, mottled in parts, soft to firm, sub-blocky to blocky, occasionally very soft to soft, rarely amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace siliceous sand, heavy trace glauconite fragments and nodules, trace carbonaceous partings, trace mica, rare trace nodular pyrite, trace disseminated pyrite. | |
| 1835 | | Clyst | stly | 100 | med brn gy | vs | s | a | disp | | 90.0 | 10.0 | 100.0 | | | | | | | | 0.0 | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium brownish grey, rarely mottled green, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, rare trace glauconite fragments and nodules, trace carbonaceous partings, trace mica. | |
| 1840 | | Clyst | stly | 90 | med gy, med gn gy, dk gy | s f | sb | b | | | 80.0 | 20.0 | 0.1 | 100.1 | | | | | | | 0.0 | | | | | | | | | | | | | | | | | n | | Silty Claystone, medium grey, medium greenish grey, very soft to soft, sub-blocky to blocky, 80% siliceous clay, 20% siliceous silt, trace carbonaceous partings, trace mica, trace glauconite. | |
| 1840 | | Sst | | 10 | lt gy, wh, trans, r lt yel | l | | | | | | | 100.0 | 100.0 | 40.0 | 40.0 | 20.0 | 0.1 | | | 100.0 | sa | sr | p | m | se | ss | p | | | | | | | | | g | 15 | n | | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, poorly to moderately sorted, slightly elongated to slightly spherical, 100% siliceous sand, 40% very fine grained, 40% fine grained, 20% medium grained, trace coarse grained, trace pyrite, 15% inferred porosity, no shows. |
| 1845 | | Clyst | sdly | 70 | lt gy, med gy | vs | s | a | disp | | 70.0 | 10.0 | 20.0 | 100.0 | | | | | | | 0.0 | | | | | | | | | | | | | | | | | n | | Sandy Claystone, light grey, medium grey, very soft to soft, amorphous to dispersive, 70% siliceous clay, 10% siliceous silt, 20% siliceous sand, trace carbonaceous partings, trace mica, trace glauconite. | |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|--------------------|----------------|-----------------|-----------|---|----------|----------|----------|----------|----------|----------|----------|----------|--------------|------------------------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|---------|----|------|-------------|------|-----|------|----|----------|-------------------|----------------------|------|---|------|----|---|---|
| Well Name : HALLADALE-1 DW3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | | | Grains | | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | Accessories | | | | | Porosity | Lithology Colours | Longhand Description | | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | | | | Type | % | Type | % | HC Shows (y/n) | |
| 1845 | Sst | | | 30 | lt gy, wh, trans, transp | I | | | | | | | 100.0 | 100.1 | 70.0 | 30.0 | 0.1 | | | | 100.0 | sa | r | m | w | se | ss | p | 0.1 | | | | | | | | | g | 15 | n | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, moderately to well sorted, slightly elongated to slightly spherical, 100% siliceous sand, 70% very fine grained, 30% fine grained, trace medium grained, trace pyrite, 15% inferred porosity, no shows. |
| 1850 | Clyst | sdly | | 50 | lt gy, med gy, r dk gy, r brnsh gy, r gnsh gy | vs | s | a | disp | | | | 60.0 | 20.0 | 20.0 | | | | | | 0.0 | | | | | | | g | 0.1 | cc | 0.1 | mc | 0.1 | | | | | | n | Sandy Claystone, light grey, medium grey, rarely dark grey, rarely brownish grey, rarely greenish grey, very soft to soft, amorphous to dispersive, 60% siliceous clay, 20% siliceous silt, 20% siliceous sand, trace carbonaceous partings, trace mica, trace glauconite. | |
| 1850 | Sst | | | 50 | lt gy, wh, trans, transp | I | | | | | | | 100.0 | 100.1 | 70.0 | 30.0 | 0.1 | | | | 100.0 | sa | sr | m | w | se | ss | p | 0.1 | | | | | | | | | g | 20 | n | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, moderately to well sorted, slightly elongated to slightly spherical, 100% siliceous sand, 70% very fine grained, 30% fine grained, trace medium grained, trace pyrite, 20% inferred porosity, no shows. |
| 1860 | Clyst | sdly | | 40 | lt gy, med gy, r dk gy, r brnsh gy, r gnsh gy | vs | s | a | disp | | | | 70.0 | 10.0 | 20.0 | | | | | | 0.0 | | | | | | | g | 0.1 | cc | 0.1 | mc | 0.1 | | | | | | n | Sandy Claystone, light grey, medium grey, rarely dark grey, rarely brownish grey, rarely greenish grey, very soft to soft, amorphous to dispersive, 70% siliceous clay, 10% siliceous silt, 20% siliceous sand, trace carbonaceous partings, trace mica, trace glauconite. | |
| 1860 | Sst | | | 60 | lt gy, wh, trans, transp | I | | | | | | | 100.0 | 100.1 | 30.0 | 40.0 | 30.0 | 0.1 | 0.1 | | 100.0 | sa | sr | p | m | se | ss | p | 0.1 | | | | | | | | | g | 20 | n | Sandstone, light grey, white, translucent, transparent, loose, sub-angular to sub-rounded, poorly to moderately sorted, slightly elongated to slightly spherical, 100% siliceous sand, 30% very fine grained, 40% fine grained, 30% medium grained, trace coarse grained, trace very coarse grained, trace pyrite, 20% inferred porosity, no shows. |
| 1865 | Clyst | sdly | | 40 | lt gy, med gy, r wh, r lt gm | vs | s | a | disp | | | | 60.0 | 10.0 | 30.0 | | | | | | 0.0 | | | | | | | g | 0.1 | cc | 0.1 | mc | 0.1 | | | | | | n | Sandy Claystone, light grey, medium grey, rarely off-white, rarely light green, very soft to soft, amorphous to dispersive, 60% siliceous clay, 10% siliceous silt, 30% siliceous sand, trace carbonaceous partings, trace mica, trace glauconite. | |
| 1865 | Clyst | slty | | 20 | lt gy, med gy, r brnsh gy, r gnsh gy | vs | s | a | disp | | | | 80.0 | 20.0 | 0.1 | | | | | | 0.0 | | | | | | | g | 0.1 | cc | 0.1 | mc | 0.1 | | | | | | n | Silty Claystone, light grey, medium grey, rarely brownish grey, rarely greenish grey, very soft to soft, amorphous to dispersive, 80% siliceous clay, 20% siliceous silt, trace carbonaceous partings, trace mica, trace pyrite, trace glauconite. | |
| 1865 | Sst | | | 40 | lt gy, wh, trans, transp | I | | | | | | | 100.0 | 100.0 | 20.0 | 30.0 | 40.0 | 10.0 | 0.1 | | 100.1 | sa | sr | vp | p | se | ss | | py | 0.1 | | | | | | | g | 20 | n | Sandstone, light grey, white, translucent, transparent, loose, angular to sub-rounded, very poorly to poorly sorted, slightly elongated to spherical, 100% siliceous sand, 20% very fine grained, 30% fine grained, 40% medium grained, 10% coarse grained, trace very coarse grained, trace pyrite, 20% inferred porosity, no shows. | |
| 1870 | Sst | | | 100 | lt gy, wh, trans, transp, r pl yel | I | | | | | | | 100.0 | 100.0 | 10.0 | 20.0 | 60.0 | 10.0 | 0.1 | | 100.1 | a | sr | p | m | e | ss | | py | 0.1 | | | | | | | g | 20 | n | Sandstone, light grey, white, translucent, transparent, trace pale yellow, loose, angular to sub-rounded, poorly to moderately sorted, elongated to slightly spherical, 100% siliceous sand, 10% very fine grained, 20% fine grained, 60% medium grained, 10% coarse grained, trace very coarse grained, trace pyrite, 20% inferred porosity, no shows. | |
| 1875 | Sst | | | 100 | lt gy, wh, trans, transp, r pl yel | I | | | | | | | 100.0 | 100.0 | 10.0 | 20.0 | 50.0 | 10.0 | 10.0 | | 100.0 | a | sr | vp | p | e | ss | | py | 0.1 | | | | | | | g | 20 | n | Sandstone, light grey, white, translucent, transparent, trace pale yellow, loose, angular to sub-rounded, very poorly to poorly sorted, elongated to slightly spherical, 100% siliceous sand, 10% very fine grained, 20% fine grained, 50% medium grained, 10% coarse grained, 10% very coarse grained, trace pyrite, 20% inferred porosity, no shows. | |
| 1880 | Sst | | | 100 | lt gy, wh, trans, transp | I | | | | | | | 100.0 | 100.0 | 10.0 | 20.0 | 50.0 | 20.0 | 0.1 | | 100.1 | a | sr | vp | p | e | ss | | py | 0.1 | | | | | | | g | 20 | n | Sandstone, light grey, white, translucent, transparent, loose, angular to sub-rounded, very poorly to poorly sorted, elongated to slightly spherical, 100% siliceous sand, 10% very fine grained, 20% fine grained, 50% medium grained, 20% coarse grained, trace very coarse grained, trace pyrite, 20% inferred porosity, no shows. | |
| 1885 | Sst | | | 100 | lt gy, wh, trans, transp, r pl yel | I | | | | | | | 100.0 | 100.0 | 10.0 | 10.0 | 50.0 | 20.0 | 10.0 | | 100.1 | a | sr | vp | p | e | ss | | py | 0.1 | | | | | | | g | 20 | n | Sandstone, light grey, white, translucent, transparent, rare trace pale yellow, loose, angular to sub-rounded, very poorly to poorly sorted, elongated to slightly spherical, 100% siliceous sand, 10% very fine grained, 10% fine grained, 50% medium grained, 20% coarse grained, trace very coarse grained, trace pyrite, 20% inferred porosity, no shows. | |

| Wellsite Lithology Log | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Well Name : HALLADALE-1 DW3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lithology | | | | | | | | Grains | | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | | Accessories | | | | | Porosity | | Lithology Colours | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | Calcareous | | | Siliciclastic | | | | | | | | | | | | % | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | % of rock | Colour | Hardness | Fracture | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | HC Shows (y/n) | Longhand Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1890 | Sst | | 50 | lt gy, wh, trans, transl | l | | | | | | | | 100.0 | 100.0 | 20.0 | 20.0 | 50.0 | 10.0 | 0.1 | | 100.1 | a | sr | vp | p | se | s | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Well Name : HALLADALE-1 DW3

| Lithology | | | | | | | | | | Grains | | | | | Grain Size & Characteristics | | | | | | | | | | Cements | | | | | Accessories | | | | | Porosity | | Lithology Colours | | Longhand Description | | | | |
|-------------|--------------------|----------------|-----------------|--|----|---|---|------|-----|------------|----------|----------|---------------|----------|------------------------------|--------------|---------------|----------|------------|------------|-----------------|--------------|--------------|----------|---------|------------|------|----|------|-------------|------|-----|------|----------|----------|---|-------------------|----|----------------------|----------------|--|--|--|
| | | | | | | | | | | Calcareous | | | Siliciclastic | | % | | | | | | | | | | | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | Porosity | | | | | | | | | |
| Depth (mRT) | Sample Reliability | Main Lithology | Modifier (>20%) | | | | | | | Clay (%) | Silt (%) | Sand (%) | Clay (%) | Silt (%) | Sand (%) | Total (100%) | Very Fine (%) | Fine (%) | Medium (%) | Coarse (%) | Very Coarse (%) | Granular (%) | Total (100%) | ROUNDING | SORTING | SPHERICITY | Type | % | Type | % | Type | % | Type | % | Type | % | Type | % | | HC Shows (y/n) | | | |
| 1920 | Clyst | silty | 80 | lt gy, med gy, lt brnsh gy, r dk gy | vs | s | a | disp | | | | 80.0 | 20.0 | | 100.0 | | | | | | | | 0.0 | | | | | | cc | 0.1 | mc | 0.1 | py | 0.1 | | | | n | | | | | |
| 1925 | Clyst | silty | 100 | lt gy, med gy, lt brnsh gy, r dk gy | vs | s | a | disp | | | | 80.0 | 20.0 | | 100.0 | | | | | | | | 0.0 | | | | | | cc | 0.1 | mc | 0.1 | py | 0.1 | | | | n | | | | | |
| 1930 | Clyst | silty | 100 | lt gy, med gy, r gmsh gy | vs | s | a | disp | | | | 80.0 | 20.0 | | 100.0 | | | | | | | | 0.0 | | | | | | cc | 0.1 | g | 0.1 | mc | 0.1 | | | | n | | | | | |
| 1935 | Clyst | silty | 100 | lt gy, med gy, r gmsh gy | vs | s | a | disp | | | | 80.0 | 20.0 | | 100.0 | | | | | | | | 0.0 | | | | | | cc | 0.1 | g | 0.1 | mc | 0.1 | | | | n | | | | | |
| 1940 | Clyst | silty | 70 | lt gy, med gy, lt brnsh gy, off wh | vs | s | a | disp | 0.1 | | | 80.0 | 20.0 | 0.1 | 100.2 | | | | | | | | 0.0 | | | | | | cc | 0.1 | mc | 0.1 | | | | | n | | | | | | |
| 1940 | Set | | 30 | lt gy, wh, trans, transp | I | | | | | | | | | | 100.0 | 100.0 | 50.0 | 50.0 | 0.1 | | | | 100.1 | sa | sr | m | w | se | s | py | 0.1 | | | | | | g | 15 | n | | | | |
| 1945 | Clyst | silty | 40 | lt gy, med gy, lt brnsh gy, off wh | vs | s | a | disp | 0.1 | | | 80.0 | 20.0 | | 100.1 | | | | | | | | 0.0 | | | | | | cc | 0.1 | mc | 0.1 | | | | | n | | | | | | |
| 1945 | Set | | 60 | lt gy, wh, trans, transp | I | | | | | | | | | | 100.0 | 100.0 | 50.0 | 50.0 | 0.1 | | | | 100.1 | sa | sr | m | w | se | s | py | 0.1 | | | | | | g | 15 | n | | | | |
| 1950 | Clyst | silty | 50 | lt brnsh gy, med brnsh gy, med gy, r lt gy | vs | s | a | disp | | | | 80.0 | 20.0 | | 100.0 | | | | | | | | 0.0 | | | | | | cc | 0.1 | mc | 0.1 | py | 0.1 | | | | n | | | | | |
| 1950 | Set | | 50 | lt gy, wh, transl, transp | I | | | | 0.1 | | | | | | 100.0 | 100.1 | 40.0 | 60.0 | 0.1 | | | | 100.1 | sa | sr | m | w | se | s | py | 0.1 | | | | | | g | 15 | n | | | | |
| 1955 | Clyst | silty | 30 | lt brnsh gy, med brnsh gy, med gy, r lt gy | vs | s | a | disp | | | | 80.0 | 20.0 | | 100.0 | | | | | | | | 0.0 | | | | | | cc | 0.1 | mc | 0.1 | py | 0.1 | | | | | | | | | |
| 1955 | Set | | 70 | lt gy, wh, trans, transp | I | | | | 0.1 | | | | | | 100.0 | 100.1 | 40.0 | 40.0 | 20.0 | 0.1 | | | 100.1 | sa | sr | p | m | se | ss | py | 0.1 | | | | | | g | 20 | n | | | | |



Well Name : HALLADALE-1 DW3

[illegible]

Litholog Description Codes

| Lithology | | Modifier | | Colour | | Hardness | | Rounding | | Accessories | |
|-----------|----------------|----------|--------------|--------|---------------|----------|-----------------|------------|--------------------|-------------|----------------------|
| Anh | Anhydrite | arg | ARGILLACEOUS | wh | white | L | Loose | WR | Well Rounded | Cx | Calcite crystals |
| C | Coal | calc | CALCAREOUS | gy | grey | VS | Very soft | R | Rounded | Ch | Chert |
| Cgl | Conglomerate | carb | CARBONACEOUS | blk | black | S | Soft | SR | Sub-rounded | Ce | Chlorite |
| Ca | Calcarenite | dol | DOLOMITIC | rd | red | Fr | Friable | SA | Sub-angular | Cc | Coal/Lignite |
| Cht | Chert | glc | GLAUCONITIC | pk | pink | F | Firm | A | Angular | C | Coal |
| Cl | Calclutite | kaol | KAOLINITIC | pu | purple | MH | Moderately hard | Sorting | | F | Feldspar |
| Clyst | Claystone | mic | MICACEOUS | orng | orange | H | Hard | VP | Very Poor | G | Glauconite |
| Cr | Calcirudite | ool | OOLITIC | brn | brown | Fracture | | P | Poor | Gp | Gypsum |
| Ct | Calcsiltite | py | PYRITIC | yel | yellow | A | amorphous, | M | Moderately | He | Hematite |
| Dol | Dolomite | sdv | SANDY | grn | green | Ang | angular, | W | Well | Lf | Lithic Fragments |
| Gyp | Gypsum | sid | SIDERITIC | ol | olive | B | blocky, | VW | Very Well | Mc | Mica |
| Lst | Limestone | sil | SILICEOUS | bl | blue | SB | sub-blocky, | Sphericity | | Py | Pyrite |
| MM | Metamorphic | | | cl | colourless | Conc | conchoidal, | VE | Very Elongated | Qx | Quartz crystals |
| Non | None | | | multi | multicoloured | Disp | dispersive, | E | Elongated | Sc | Siderite Concretions |
| Plut | Plutonic | | | trans | translucent | F | fissile, | SE | Slightly Elongated | Al | Algae |
| Salt/Ev | Salt-Evaporite | | | | | SF | sub-fissile, | SS | Slightly Spherical | Br | Bryozoa |
| Sst | Sandstone | | | lt | light | M | massive, | S | Spherical | Co | Corals |
| Sltst | Siltstone | | | dk | dark | Sp | splintery, | VS | Very Spherical | Cr | Crinoid |
| Tuf | Tuff | | | mod | moderate | St | sticky, | Cements | | Fo | Foram |
| Vol | Volcanic | | | vgt | variegated | Porosity | | Q | Silica | I | Inoceramus |
| Unsp | Unspecified | | | | | g | granular | P | Pyrite | O | Ooliths |
| | | | | | | v | vugular | C | Calcite | Os | Ostracod |
| | | | | | | l | intra-skeletal | D | Dolomite | Rd | Radiolaria |
| | | | | | | f | fracture | Sd | Siderite | Sk | Skel Frag |

| Hydrocarbon Show Codes | | | | | | | | | | | |
|------------------------|------------|-------|----------|--------------|--------------------|--------|---------------|----------|-----------|-----------|-----------|
| Stain | | Odour | | Distribution | | Colour | | Cut Type | | Thickness | |
| | | | | | | | | | | | |
| bl | blue | No | None | PP | Pinpoint | wh | white | D | Diffuse | Tk | Thick |
| brn | brown | Sli | Slight | S | Spotty | gy | grey | Bld | Bleeding | mTk | mod Thick |
| gn | gold | Mod | Moderate | P | Patchy | blk | black | S | Streaming | mTn | mod Thin |
| or | orange | Stg | Strong | E | Even | rd | red | Blm | Blooming | Tn | Thin |
| vi | violet | | | PPS | Pinpoint - Spotted | pk | pink | | | P | Patchy |
| yl | yellow | | | PPP | Pinpoint - Patchy | pu | purple | | | | |
| wh | white | | | PPE | Pinpoint - Even | orng | orange | | | | |
| col | colourless | | | PE | Patchy - Even | brn | brown | | | | |
| stra | straw | | | | | yel | yellow | | | | |
| am | amber | | | | | grn | green | | | | |
| | | | | | | ol | olive | | | | |
| | | | | | | bl | blue | | | | |
| pl | pale | | | | | cl | colourless | | | | |
| lt | light | | | | | multi | multicoloured | | | | |
| dk | dark | | | | | trans | translucent | | | | |
| | | | | | | | | | | | |
| | | | | | | lt | light | | | | |
| | | | | | | dk | dark | | | | |
| | | | | | | mod | moderate | | | | |
| | | | | | | vgt | variegated | | | | |

| Show Rating | |
|-------------|-----------|
| | |
| P | Poor |
| F | Fair |
| G | Good |
| VG | Very Good |
| E | Excellent |

| Intensity | |
|-----------|-------------------------|
| | |
| VD | Very Dull |
| D | Dull |
| MB | Mod. Bright |
| B | Bright |
| VDD | Very Dull - Dull |
| VDMB | Very Dull - Mod. Bright |
| VDB | Very Dull - Bright |
| DMB | Dull - Mod. Bright |
| DB | Dull to Bright |
| MBB | Mod Bright - Bright |

| Cut Rate | |
|----------|-----------|
| | |
| N | Nil |
| VS | Very Slow |
| S | Slow |
| MF | Mod. Fast |
| F | Fast |
| VF | Very Fast |
| I | Instant |

3.0.2

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Formation Pressure

WOODSIDE ENERGY LTD.

WIRELINE PRESSURE SURVEY RESULTS

INPUT DATA IN WHITE CELLS ONLY

WELL: Halladale-1 DW3 (Halladale)
FIELD:
RUN DATE: 25-Apr-05
RIG: Ocean Patriot
RT (m): 21.5
CONTRACTOR: Baker Atlas

TOOL TYPE (eg RCI, MDT): RCI
PROBE TYPE:
GAUGE:
GAUGE RESOLUTION (psi):

| SUITE # | RUN # | PRETEST # | MEASURED DEPTH mRT | TVD mRT | TVD mSS | BEFORE HSP psia | FORMATION PRESSURE psia | AFTER HSP psia | MOBILITY md/cp | TEMP deg C | VOLUME cc | TIME sec | TIME min | VALID | NO SEAL | LOW PERM | OTHER | COMMENTS |
|---------|-------|-----------|--------------------------|------------|------------|-----------------------|-------------------------------|----------------------|-------------------|---------------|--------------|-------------|-------------|-------|---------|----------|-------|----------|
| 1 | 1 | 1 | 1,871.7 | 1,795.2 | 1,773.7 | 3,287.0 | 2,589.10 | 3,287.00 | 455.00 | 81.40 | 10 | 350 | 5.83 | 1 | | | | |
| | | 2 | 1,873.3 | 1,796.6 | 1,775.1 | 3,289.5 | 2,591.00 | 3,289.40 | 371.50 | 81.70 | 10 | 220 | 3.67 | 1 | | | | |
| | | 3 | 1,874.7 | 1,797.9 | 1,776.4 | 3,291.7 | 2,592.70 | 3,291.60 | 164.30 | 82.20 | 10 | 200 | 3.33 | 1 | | | | |
| | | 4 | 1,876.3 | 1,799.2 | 1,777.7 | 3,294.4 | 2,594.60 | 3,294.30 | 1,708.00 | 82.50 | 10 | 225 | 3.75 | 1 | | | | |
| | | 5 | 1,877.8 | 1,800.5 | 1,779.0 | 3,296.8 | 2,596.60 | 3,296.50 | 160.90 | 82.70 | 10 | 220 | 3.67 | 1 | | | | |
| | | 6 | 1,882.7 | 1,804.9 | 1,783.4 | 3,304.6 | 2,602.70 | 3,304.70 | 1,095.00 | 83.00 | 10 | 220 | 3.67 | 1 | | | | |
| | | 7 | 1,885.3 | 1,807.2 | 1,785.7 | 3,309.1 | 2,605.80 | 3,309.00 | 472.00 | 83.20 | 10 | 220 | 3.67 | 1 | | | | |
| | | 8 | 1,891.8 | 1,812.8 | 1,791.3 | 3,319.0 | 2,613.90 | 3,319.20 | 506.60 | 83.40 | 10 | 220 | 3.67 | 1 | | | | |
| | | 9 | 1,900.8 | 1,820.7 | 1,799.2 | 3,333.2 | 2,624.90 | 3,333.10 | 586.00 | 83.60 | 10 | 220 | 3.67 | 1 | | | | |
| | | 10 | 1,904.2 | 1,823.6 | 1,802.1 | 3,338.5 | 2,629.10 | 3,338.46 | 357.31 | 83.80 | 10 | 250 | 4.17 | 1 | | | | |
| | | 11 | | | | | | | | | | | - | | | | | |
| | | 12 | | | | | | | | | | | - | | | | | |
| | | 13 | | | | | | | | | | | - | | | | | |
| | | 14 | | | | | | | | | | | - | | | | | |
| | | 15 | | | | | | | | | | | - | | | | | |
| | | 16 | | | | | | | | | | | - | | | | | |
| | | 17 | | | | | | | | | | | - | | | | | |
| | | 18 | | | | | | | | | | | - | | | | | |
| | | 19 | | | | | | | | | | | - | | | | | |
| | | 20 | | | | | | | | | | | - | | | | | |
| | | 21 | | | | | | | | | | | - | | | | | |
| | | 22 | | | | | | | | | | | - | | | | | |
| | | 23 | | | | | | | | | | | - | | | | | |
| | | 24 | | | | | | | | | | | - | | | | | |
| | | 25 | | | | | | | | | | | - | | | | | |
| | | 26 | | | | | | | | | | | - | | | | | |
| | | 27 | | | | | | | | | | | - | | | | | |
| | | 28 | | | | | | | | | | | - | | | | | |
| | | 29 | | | | | | | | | | | - | | | | | |
| | | 30 | | | | | | | | | | | - | | | | | |
| | | 31 | | | | | | | | | | | - | | | | | |
| | | 32 | | | | | | | | | | | - | | | | | |
| | | 33 | | | | | | | | | | | - | | | | | |
| | | 34 | | | | | | | | | | | - | | | | | |
| | | 35 | | | | | | | | | | | - | | | | | |
| | | 36 | | | | | | | | | | | - | | | | | |
| | | 37 | | | | | | | | | | | - | | | | | |
| | | 38 | | | | | | | | | | | - | | | | | |
| | | 39 | | | | | | | | | | | - | | | | | |
| | | 40 | | | | | | | | | | | - | | | | | |
| | | 41 | | | | | | | | | | | - | | | | | |
| | | 42 | | | | | | | | | | | - | | | | | |
| | | 43 | | | | | | | | | | | - | | | | | |
| | | 44 | | | | | | | | | | | - | | | | | |
| | | 45 | | | | | | | | | | | - | | | | | |

| | | | | | | | | | | | | | | | | | | |
|--|--|----|--|--|--|--|--|--|--|--|--|--|--|----|---|---|---|--|
| | | 46 | | | | | | | | | | | | | | | | |
| | | 47 | | | | | | | | | | | | | | | | |
| | | 48 | | | | | | | | | | | | | | | | |
| | | 49 | | | | | | | | | | | | | | | | |
| | | 50 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 10 | 0 | 0 | 0 | |

Mudlogging End of Well Report



HALLIBURTON

Sperry Drilling Services

SURFACE DATA LOGGING

END OF WELL REPORT

Woodside Energy Limited

Halladale-1 DW1 – (Location Black Watch)

Halladale-1 DW2

Halladale-1 DW3

| | |
|-----------------|---|
| Rig: | Ocean Patriot |
| Field: | Black Watch & Halladale |
| Country: | Australia |
| Job No: | AU-FE-0003325470 / 68 / 69 |
| Date: | 22nd March – 24th April 2005 |

HALLIBURTON



| | | |
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1 INTRODUCTION

The Diamond Offshore Ocean Patriot semi-submersible offshore drilling rig was used to drill the well in permit Vic/P37(V).

A Sperry Drilling Services INSITE (Integrated System for Information Technology and Engineering) mud logging unit was contracted by Woodside Energy Ltd for the drilling of the Halladale-1 DW1 (Location Black Watch) deviated exploration well. The unit provided a full Surface Data Logging (SDL) network for the job. This included both real-time and lagged data acquisition, data processing, data storage and data presentation.

Measurement While Drilling (MWD) and Directional Drilling services were included in the SDL database to provide a comprehensive real time, and post-recorded evaluation of the formations drilled.

Full surface data logging for Halladale-1 DW1 (Location Black Watch) commenced when the well was spudded at 12:30 hrs on the 22nd March 2005, and continued for the duration of the well. The well reached a total depth of 1918.0 mMDRT at 16:20 hrs on the 04th April 2005. After running Wireline logs, the well was subsequently plugged back to 808.0 mMDRT. The well was renamed as Halladale-1 DW2 at 07:30 hrs on 10th April 2005.

Halladale-1 DW2 was sidetracked from Halladale-1 DW1 (Location Black Watch) at 853.0 mMDRT at 21:30 hrs on 10th April 2005. Halladale-1 DW2 reached a total depth of 1941.0 mMDRT at 17:30 hrs on the 17th April 2005. Wireline logs were run and Halladale-1 DW2 well was subsequently plugged back to 1179.0 mMDRT.

On retrieving the cement stinger and running in hole with a new BHA, the well was renamed Halladale-1 DW3 at 15:00 hrs on 21st April 2005.

Halladale-1 DW3 was sidetracked from Halladale-1 DW2 at 1197.0 mMDRT at 02:30 hrs on 22nd April 2005. It reached a total depth of 1969.0 m MDRT at 15:15 hrs on 24th April 2005.

This report is intended as a summary of the information and data collected, processed and monitored as part of the INSITE service agreement.

2 WELL SUMMARY

2.1 WELL GENERAL INFORMATION

| | | |
|---|--|---------------|
| Well Name: | Halladale-1 DW1 (Location Black Watch) / DW2 / DW3 | |
| Operator: | Woodside Energy Limited | |
| Classification | Deviated Exploration | |
| Permit: | Vic/P37(V) | |
| Surface Location: | Lat: 38° 34' 45.54" S Long: 142° 43' 50.95" E UTM Easting: 650763.20 UTM Northing: 5728485.20 | |
| Country | Australia | |
| Drilling Rig: | Ocean Patriot | |
| Type of rig | Semi-submersible | |
| Contractor: | Diamond Offshore | |
| Depth Measured From | Rig Floor | |
| Permanent Datum | LAT | |
| RT to MSL | 21.50 m | |
| Water Depth | 44.80 m | |
| Total Depth Halladale-1 DW1 (Location Black Watch) | 1918.0 mMDRT | 1869.2 mTVDRT |
| Total Depth Halladale-1 DW2 | 1941.0 mMDRT | 1880.0 mTVDRT |
| Total Depth Halladale-1 DW3 | 1969.0 mMDRT | 1881.4 mTVDRT |

3 SYNOPSIS: HALLADALE-1 DW1 (LOCATION BLACK WATCH)/DW2 / DW3

3.1 DRILLING SUMMARY HALLADALE-1 DW1 (LOCATION BLACK WATCH)

914 mm (36") Hole

The 914 mm (36") hole section was drilled in three bit runs. The first two runs were attempted with a 914 mm (36") Varel L111 bit dressed with 3 x 32 jets, which drilled to 68.5m and 69.0 m respectively. These bit runs were pulled prematurely due to the drill string becoming entangled with the TGB guide lines.

The third run included a 445 mm (17 ½") HC MX-1 tricone bit, dressed with 2 x 20, 1x18 jets and was run in conjunction with a 914 mm (36") hole opener dressed with 4 x 28 jets. The BHA was a conventional rotary drilling assembly, which tagged the seabed at 66.3 mMDRT and drilled to section TD at 101.0 mMDRT. The section was drilled using seawater and PHG sweeps. The 762 x 508 mm (30" x 20") conductor was set at 99.5 mMDRT.

445 mm (17 ½") Hole

The 445 mm (17½") hole section was drilled riserless and in one bit run using seawater with Guar Gum and Hi-Vis sweeps.

This run included a HC MX1 bit, dressed with 2 x 20 and 1 x 18 jets. Cement was tagged in the 762 x 508 mm (30" x 20") casing at 98.0 mMDRT. The cement was drilled out and worked through the casing shoe and new formation was drilled from 101.0 mMDRT to hole section TD at 427.0 mMDRT.

At TD of the 445 mm (17½") hole section, a 31.8 m³ (200 bbl) Hi-Vis Gel sweep was pumped followed by another 23.8 m³ (150 bbl) Hi-Vis Gel sweep. The well was then displaced to unweighted KCl mud.

The 340 mm (13 ⅜") casing was run and cemented at 421.0 mMDRT. The top of the plug did not bump resulting in a wetshoe. The riser was run and the BOP stack was tested with an RTTS packer. The test was successful at 6.89 MPa (1000 psi), and an LOT was conducted to 1.93 MPa (280 psi) to an EMW at 1.50 sg (12.51 ppg) using sea water of 1.04 sg (8.67 ppg).

311 mm (12 ¼") Hole

The 311 mm (12 ¼") hole section was drilled in one bit run. No FIT was performed.

The first run included a HC MX-CO3 bit, dressed with 2 x 20 and 1 x 18 jets. This bit was run with a Sperry Drilling Services mud motor and MWD tools. The well was displaced to 1.10 sg (9.18 ppg) Aqua-Drill mud after tagging the float assembly at 407.0 mMDRT. The float assembly was drilled out from 407.0 mMDRT before cleaning out the shoe track and rat hole to 427.0 mMDRT. New formation was drilled to section TD of 839.0 mMDRT.

The 244 mm (9 ⁵/₈") casing was run and cemented with the shoe set at 834.0 mMDRT (833.63 mTVD).

3.2 DRILLING SUMMARY HALLADALE-1 DW2

216 mm (8 ½") Hole

216 mm (8 ½") hole section was drilled using 4 bit runs.

The first run included a Smith MA89BCTVPX bit, dressed with 6 x 16 jets. The drilling assembly included Sperry Drilling Services Geopilot and MWD tools. The top of the cement was tagged at 808.0 mMDRT in the 244mm (9 ⁵/₈") casing. The cement was drilled out and Halladale-1 DW2 was sidetracked at 853.0 mMDRT. The hole was then directionally drilled to 1514.0 mMDRT before pulling out of hole.

3.3 DRILLING SUMMARY HALLADALE-1 DW3

216 mm (8 1/2") Hole

216 mm (8 ½") hole section was drilled using a Security DBS FMF 3553 bit, dressed with 6 x 16 and 2 x 17 jets. Sperry Drilling Services Geopilot and MWD tools were run in the drilling assembly. The top of the cement was tagged at 1179.0 mMDRT, and the cement was drilled before Halladale-1 DW3 was kicked off at 1197.0 mMDRT at 02:30 hrs on 22 April 2005. The hole was directionally drilled to a total hole depth of 1969.0 mMDRT. The hole was circulated clean prior to pull out of hole to run wireline logs.

3.3.1 WIRELINE PROGRAM

The sole wireline run was successful.

Wireline logging programme as follows:

Run 1: RCI (Pressures only)

3.3.2 ABANDONMENT OF HALLADALE-1 DW3

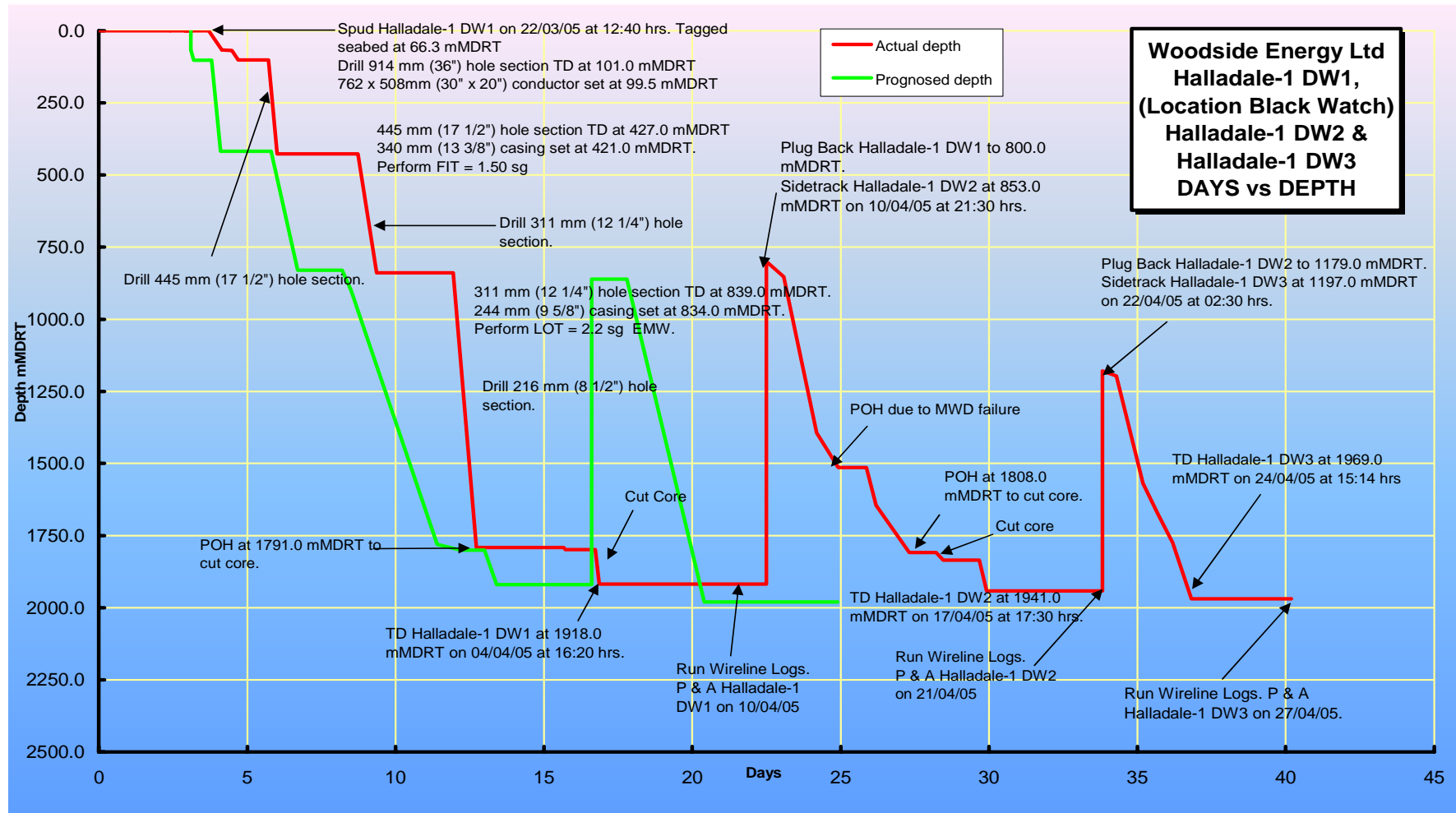
A total of three cement plugs were set for the abandonment of the well.

Cement plug #1 1941.0 mMDRT – 1717.0 mMDRT

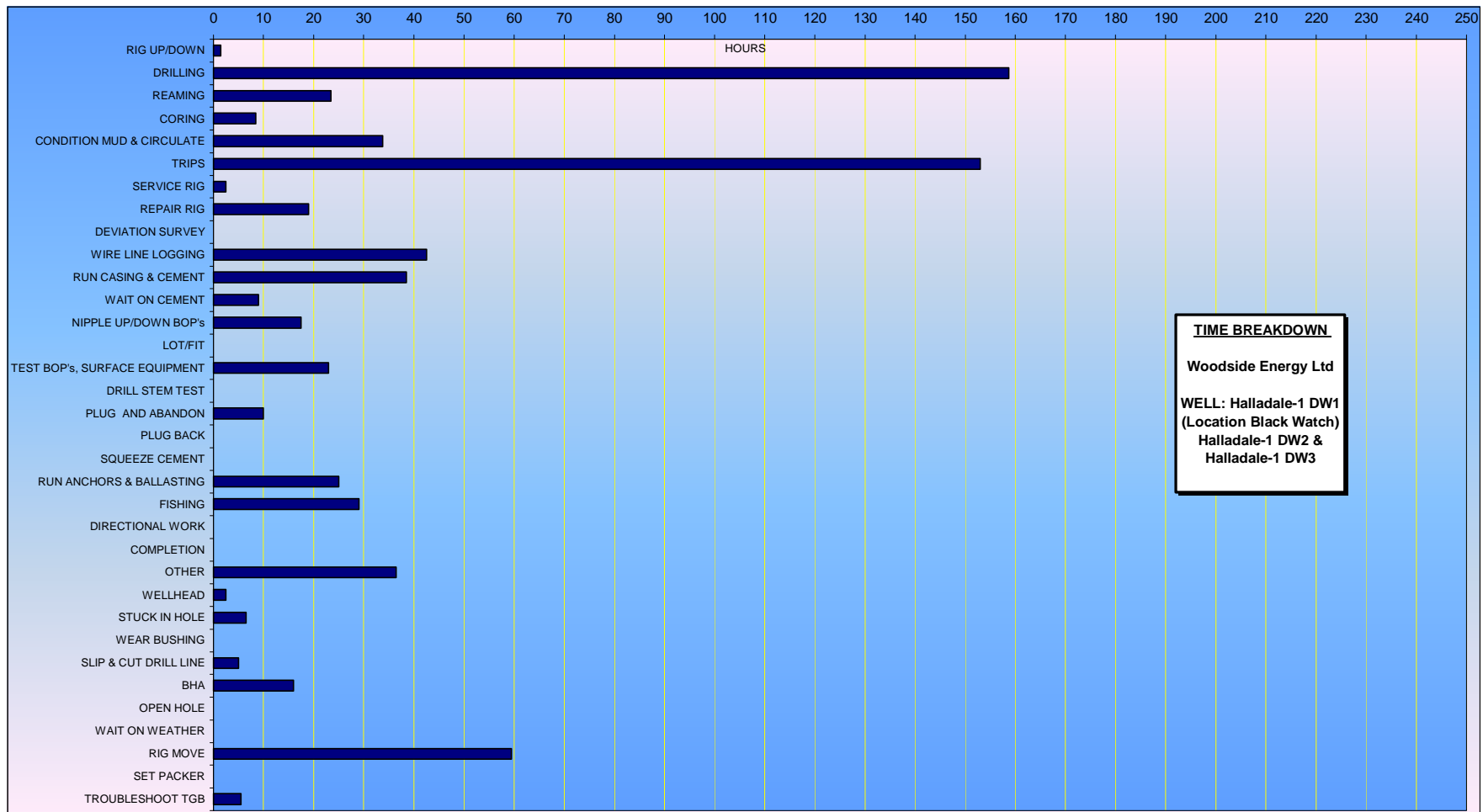
Cement plug #2 1717.0 mMDRT – 1487.0 mMDRT

Cement plug #3 942.0 mMDRT – 780.0 mMDRT

3.4 DAYS VS DEPTH



3.5 TIME BREAKDOWN



3.6 PORE PRESSURE DISCUSSION

Whilst drilling this well the following methods were used in the detection of abnormal pore pressures:

DETECTION METHODS:

1) Gas levels:

Background gas and trip gas levels are qualitative indicators of pore pressure. Connection gas can be used effectively as a quantitative measurement as it is considered that its presence could indicate that pore pressure is within a quantifiable measure of the drilling fluids hydrostatic pressure. Increase in background trip gases can indicate erosion of overbalance.

2) Hole conditions:

Abnormal pore pressures in the hole are indicated by the tightness, drag and fill conditions. All these conditions are indicative of pore pressure approaching or being greater than the drilling fluids hydrostatic.

3) Cuttings appearance:

Abnormally large cuttings and cavings and abnormally swelling mudstone can be a good indicator of close to balance or underbalanced conditions in the wellbore.

4) Flow line temperature:

Temperature is a qualitative indicator. Temperature increases rapidly on entering over pressured zones and is not lithology dependant.

5) Dc Exponent:

Throughout the well 47/3b-12, the d exponent, as developed by Jordan and Shirley, was calculated every 1ft as a 10ft interval average. The basic expression is as follows:

$$d = \frac{\log \left[\frac{R}{60N} \right]}{\log \left[\frac{12.W}{D.10^6} \right]}$$

where: R = rate of penetration, ft/hr

N = rotary speed

W = bit weight, lbs

D = bit size, ins

This was developed originally to relate rates of penetration, rotary speed, bit weight and bit size to the affects of differential pressure. If plotted on semi-log paper, the difference between observed and expected values of d exponent, in mudstones, represents the magnitude of the pore pressure. The d exponent was corrected and normalised for changes in mud weight and also E.C.D. by the following:

$$D_{xc} = \frac{d \times \text{Normal Pressure (ppg)}}{\text{Equivalent Circulating Density (ppg)}}$$

DISCUSSION:**Halladale-1 DW1 (Location Black Watch)****914 mm (36") section**

The 914 mm (36") hole section was drilled to 101.0 mMDRT with seawater and sweeps of hi-vis pills with the returns to seabed. The 762 x 508mm (30" x 20") conductor was set at 99.5 mMDRT.

The modified D exponent plotted for this section could not fit to any trend.

445 mm (17 ½") section

The 445 mm (17½") hole was drilled vertically to a section TD of 427.0 mMDRT with seawater and sweeps of hi-vis pills. The 340 mm (13 ⅜") casing was run and cemented at 421.0 mMDRT.

The section consisted mainly of Limestone and Marl.

The modified D exponent for this section did not show any significant trend. Pore pressure was estimated as normal for this section.

311 mm (12 ¼") Section

The section was drilled with KCl Polymer mud system, initially with a mud weight of 1.11 sg (9.26 ppg), increasing to 1.16 sg (9.68 ppg) at the base of the section.

The 244 mm (9 ⅝") casing was run and cemented at 834.0 mMDRT.

The upper section consisted predominantly of interbedded calcareous claystone and siltstone. The mid to lower section consisted of interbedded claystone, siltstone and minor sandstone. The base of the section consisted predominantly of sandstone with interbedded claystone and siltstone.

Background gas was low for the section ranging from 0.02 to 0.07%, with no gas peaks recorded.

No abnormal temperature and pore pressures were recorded except for the expected hydrothermal gradient increase.

The modified D exponent plotted had no indications of abnormal pore pressure.

The low background gas for the section indicates a normal pore pressure.

Halladale-1 DW2

Halladale-1 DW2 was sidetracked from Halladale-1 DW1 (Location Black Watch) at 853.0 mMDRT below the 244 mm (9 ⁵/₈") casing shoe.

This hole section was drilled with KCI Polymer mud system, initially with a mud weight of 1.25 sg (10.43 ppg), increasing to 1.26 sg (10.51 ppg) at the base of the section.

The section consisted predominantly of interbedded silty claystone, argillaceous siltstone and sandstone.

Background gas remained low at an average of 0.03% to 1180.0 mMDRT.

Halladale-1 DW3

Halladale-1 DW3 was sidetracked from Halladale-1 DW2 at 1197.0 mMDRT, 364.0 m below the 244 mm (9 ⁵/₈") casing shoe set at 834.0 mMDRT.

This hole section was drilled with Aqua-Drill mud system, initially with a mud weight of 1.26 sg (10.51 ppg). The section consisted predominantly of interbedded silty claystone, argillaceous siltstone and sandstone.

Background gas remained low at an average of 0.05% to 1230.0 mMDRT. Below this depth background gas increased steadily to reach 0.9% at 1440.0 mMDRT before dropping again to 0.2% at 1570.0 mMDRT.

Resistivity was erratic but generally showed a cutback trend in the mudstone.

The Modified D exponent also showed a cutback trend. The above factors appeared to indicate that pore pressure had increased above normal in the mudstone.

Pore pressure at the base of the mudstone was estimated in the range 1.11 sg (9.26 ppg) to 1.13 sg (9.43 ppg).

On penetration of the sandstone at 1542.0 mMDRT background gas levels decreased to 0.2%. Same gas levels were recorded in the up to 1801.0 mMDRT.

There were no other indicators of increasing pore pressure. Based on the relatively low gas peak of 2.9% at 1874.0 mMDRT, pore pressure was estimated in the range 1.12 sg (9.34 ppg) to 1.16 sg (9.68 ppg).

4.0 LOGGING SERVICES SUPPLIED

4.1 GEOLOGICAL MONITORING EQUIPMENT

Auto calcimeter

Canon Bubble Jet Printer

Company Workstation

Database PC (ADI)

Draw works Depth Encoder

FID Chromatograph

FID Total Gas Detector

Floating Gas Trap

Flow Out Paddle

H₂S detectors (x4)

Hookload and WOB

HP Design jet Printer

Hydrometers

INSITE IRIS Data acquisition PC

Isotube Manifold

Mud Density In/Out

Mud Temperature In/Out

Pit Volume Sensors (x7)

Pressure Sensors (x4)

Printrex Printer

Proximity Sensor

Pump Stroke Counters (x3)

Rig Floor Monitor (x1)

Standard Fluoroscope

Standard Stereo Microscope

Workstation PC

4.2 SERVICES PROVIDED

Data files in .pdf, ASCII (LAS) format

Formation Evaluation

Geological and Engineering Reporting

Hydraulics Analysis using Planit

Interpreted Lithology

Plots of daily drilling activities

Real Time Drilling Monitoring

Real Time Log Display of MWD/LWD data

Real Time monitoring of drilling fluids

Real Time Tabular Display of Data

Real Time Trip Monitoring

Real Time Display of Data

Sample Collection and Processing

Timers for Hours and Revolutions on drilling assembly

4.3 MONITORED PARAMETERS

Block Position

Choke Pressure

CO₂

Continuous Gas Percentage in Air

Depth

Flow Out

Gas Analysis (C1-C5)

H₂S

Hookload

Hydrocarbon Shows

Formation Lithology

Mud Density In and Out

Mud Temperature In and Out

Mud Volume

LWD data

On/Off Bottom status

Pump Stroke and Volume of Mud Pumped

Rate of Penetration

Revolutions per Minute of Top Drive

Stand Pipe Pressure

Swab\Surge Calculation

Torque and Vibration

Weight on Bit including Drag and Obstructions

Well Volumes and Lag Calculations

4.4 PERSONNEL

INSITE engineers continuously monitored all operations whilst drilling Halladale-1 DW1 (Location Black Watch). They provided any well and drilling data upon request, notified the appropriate personnel of any irregularities or anticipated problems, provided daily reports, print outs of data and prepared master logs and final reports.

DATA ENGINEERS

LOGGING ENGINEERS

SAMPLE CATCHERS

| | | |
|-------------------|----------------------|---------------------|
| Tony Wyeth | Devalpally Vidyanath | Murali Vishwanathan |
| Bronwyn Calleja | Steve McDonald | Richard Snow |
| Norman Naidoo | Jamie Connell | Adam Matuzelis |
| Sam (Alex) Willis | Oliver Ningelgen | Adnan Chohan |
| Roman Kadiric | | |
| Gary Bloom | | |

4.5 SAMPLE COLLECTION

Drill Cuttings Samples

One extra large bag (1500 g) of water-washed cuttings and a smaller bag (500 g) of unwashed cuttings were collected for each interval sampled from the commencement of returns. A small portion of washed sample was placed into Samplex trays (2 sets) and the remainder were air-dried and split into four sets x 200 g, one set of 100 g and one set of 30 g in 200 g plastic sample bags.

Mudgas Samples

Samples of mudgas were collected from the DW1, DW2 and DW3 wells below the 244 mm (9 ⁵/₈") casing shoe using Isotubes at significant gas peaks and at every 50.0 m and at TD of the well.

In Halladale-1 DW3, a total of 18 mudgas samples were collected.

Mud and Mud Filtrate Samples

Mud samples and mud filtrate samples (prepared by the mud engineer) were collected from either the active pit or the return flow line at the beginning of each new mud system, whenever there was a significant change in mud composition, prior to each Wireline logging suite and whenever requested by the Wellsite Geologist.

A total of six mud samples and filtrate samples were collected from DW1 while 5 mud samples and 3 mud filtrate samples were collected from DW2. A total of 3 mud samples and 2 mud filtrate samples were collected from DW3.

4.6 SAMPLE DISTRIBUTION

All samples collected were sent attention to: Gary Kemp

Core Laboratories

447-449 Belmont Ave

Kewdale WA 6105

Items were then on forwarded to the various relevant organisations.

Unwashed and Air-Dried Drill Cuttings (1 Set of 500g)

Set 1. Origin Energy

CoreLab to forward to:

Origin Energy C/-

ACS Laboratories

8 Cox Road

Windsor QLD 4030

Attention Kevin Flynn

Washed and Air-Dried Drill Cuttings (5 Sets of 200 g)

Set 1. Geoscience Australia

Core Lab to forward to:

Geoscience Australia

Cnr Jerrabomberra Avenue & Hindmarsh Drive

Symonston ACT 2609.

Attention: Eddie Resiak

Set 2. DPI

Core lab to contact Graeme Torr (03) 9658 4545 at DPI for forwarding delivery arrangements.

DPI Core Sample Library

South Road (off Sneydes Road)

WERRIBEE 3030

Sets 3, 4 & 5. WEL

CoreLab to store samples on behalf of WEL.

Washed and Air-Dried Drill Cuttings (1 Set of 100g)

Set 1. Origin Energy

CoreLab to forward to:

Origin Energy C/-

ACS Laboratories

8 Cox Road

Windsor QLD 4030

Attention Kevin Flynn

Washed and Air-Dried Drill Cuttings – FIS (1 Set of 30g)

CoreLab to store samples prior to sub-sampling and on forwarding to Fluid Inclusion Technologies.

Samplex Trays (2 Sets)

Set 1. Origin Energy

CoreLab to forward to:

Origin Energy C/-

ACS Laboratories

8 Cox Road

Windsor QLD 4030

Attention Kevin Flynn

Set 2. WEL

CoreLab to store samples on behalf of WEL.

Mudgas Samples (1 Set)

CoreLab to forward to:

Isotech Laboratories Inc

1308 Parkland Court

Champaign

IL 61821-1826, USA

Mud Samples (1 Set)

CoreLab to forward to Geotech fridge:

41 to 45 Furnace Rd

Welshpool WA 6106

Att: Christine West (08) 9458 8877

5.0 GEOLOGY AND SHOWS

5.1 INTRODUCTION

Sampling of drilled cuttings for Halladale-1 DW1 (Location Black Watch) commenced in the 311 mm (12 ¼") hole section, from 427.0 mMDRT until the total well depth of 1918.0 mMDRT.

Sampling of drilled cuttings for Halladale-1 DW2 commenced in the 216 mm (8 ½") hole section, from 860.0 mMDRT until the total well depth of 1941.0 mMDRT.

Sampling of drilled cuttings for Halladale-1 DW3 commenced in the 216 mm (8 ½") hole section, from 1200.0 mMDRT until the total well depth of 1969.0 mMDRT.

Spot sample collection for quick inspection, as well as any changes in the programmed sampling frequency depended on the rate of penetration and were made at the discretion of the Wellsite Geologist.

Samples of washed, air-dried cuttings were collected over the following intervals:

| Halladale-1 DW1 (Location Black Watch) | |
|--|----------------------------|
| SAMPLE DEPTH mMDRT | SAMPLE FREQUENCY Metres |
| 427 - 430 | 3 |
| 430 - 760 | 10 |
| 760 - 830 | 5 |
| 830 - 839 | 9 |
| 839 - 840 | 1 |
| 840 - 860 | 10 |

| Halladale-1 DW2 | |
|-----------------------|----------------------------|
| SAMPLE DEPTH mMDRT | SAMPLE FREQUENCY Metres |
| 860 - 1200 | 10 |

| Halladale-1 DW3 | |
|-----------------------|----------------------------|
| SAMPLE DEPTH mMDRT | SAMPLE FREQUENCY Metres |
| 1200 - 1830 | 10 |
| 1830 - 1965 | 5 |
| 1965 - 1969 TD | 4 |

Cuttings were logged on site by Sperry Drilling Services geologists using a binocular microscope. An ultraviolet light box was used to inspect the fluorescence of cuttings.

Gas was monitored by a Baseline Total Hydrocarbon Gas detector (Flame Ionisation Detector - F.I.D), calibrated such that 50 API units, or 10,000 parts per million (ppm) is equivalent to 1% methane gas in air. An on-line F.I.D gas chromatograph recorded the gas breakdown, calibrated to analyse C1, C2, C3, iso C4, normal C4 alkanes, neo C5, iso C5 and normal C5.

Regular gas system checks were performed to ensure the correct functioning of the gas detection and measurement system. Check gas 2.5% (pure methane) and 10% (pure methane) were used to ascertain correct readings by the total gas detection equipment, and gas mixture was used to check the chromatograph. A successful and accurate chromatograph calibration was done prior to drilling 311 mm (12 1/4") hole. Subsequent checks with carbide to test for blockages to the gas flow line detected no blockages.

CO₂ and H₂S gases were monitored with a Drager Polytron ND Tox gas detector situated in the logging unit. It measured the CO₂ and H₂S levels continuously from the gas sample line that the hydrocarbon gas detectors also took hydrocarbon gas samples. No CO₂ or H₂S gas were encountered during the drilling of these wells.

The following section outlines a brief explanation of different hydrocarbon gas ratios in the enclosed Gas Ratio Plot.

C1 Ratios (C1/C2, C1/C3, C1/C4 Total, C1/C5 Total) : C1 Ratios display the fraction of each component compared to the fraction of C1. The ratios generally decrease with depth as more mature sediments are encountered. Mature source rocks and hydrocarbon reservoirs show low ratios.

Gas Wetness Ratio (GWR) $C_2+C_3+C_4+C_5/C_{total} \times 100$: The GWR gives an indication of maturity. It will generally increase with depth as the C1 fraction will represent a smaller part of the total light HC.

Light to Heavy ratio (LHR): $C_1+C_2/C_3+C_4+C_5 \times 100$. The LHR is expected to decrease with depth.

Oil Character Qualifier (OCQ): C_4+C_5/C_3 . Under some circumstances high amounts of C_1 will mask the presence of oil. GWR and LHR could then be misinterpreted. In the presence of oil, C_4+C_5 will increase relative to C_3 , and the OCQ would increase.

Average Carbon Number (ACN): $[C_1 + (2 \times C_2) + (3 \times C_3) + (4 \times C_4) + (5 \times C_5)] / (C_1 + C_2 + C_3 + C_4 + C_5)$.

5.2 LITHOLOGICAL SUMMARY FOR HALLADALE-1 DW1 (LOCATION BLACK WATCH)

Following is a tabulated lithological summary of Halladale-1 DW1 (Location Black Watch). The intervals have been determined on the basis of cuttings lithology and drilling parameters and are consistent with those delineated by the Wellsite Geologist.

| | | | |
|---|--|---|---|
| Interpretative Depth 427.0 to 490.0 mMDRT | | Lithology Interbedded CALCAREOUS CLAYSTONE and CALCAREOUS SILTY CLAYSTONE interbedded with minor CALCAREOUS SILTSTONE and localised ARGILLACEOUS CALCILUTITE. | |
| ROP. (metre/hour) Min. 5.0 Max. 471.2 Avg. 53.2 | Drilling Parameters (Avg) WOB : 7.2 MT RPM(surf): 28 RPM(mot): 91 TRQ : 1.09 kft.lb | Maximum Formation Gas: 0.04% Chromatograph Analysis: C₁ : 0.0000% C₂ : 0.0000% C₃ : 0.0023% iC₄ : 0.1089% nC₄ : 0.0631% iC₅ : 0.0000% nC₅ : 0.0000% | Average Formation Gas: 0.02% Chromatograph Analysis: C₁ : 0.0000% C₂ : 0.0000% C₃ : 0.0004% iC₄ : 0.0035% nC₄ : 0.0021% iC₅ : 0.0001% nC₅ : 0.0034% |
| <p>CALCAREOUS CLAYSTONE (40 - 100%): medium greenish grey to light green, very light grey in part, soft to very soft, amorphous to sub-fissile, 35% calcareous clay, 65% siliceous clay, 15% fossil fragments, trace micro mica, trace glauconite in parts.</p> <p>CALCAREOUS SILTY CLAYSTONE (10 - 60%): white to light greenish grey, very soft, amorphous, dispersive, 30% calcareous clay, 10% calcareous silt, 30% siliceous clay, 30% siliceous silt.</p> <p>CALCAREOUS SILTSTONE (10%): medium greenish grey to dark greenish grey, soft to firm, sub-blocky to sub-fissile, 30% calcareous clay, 70% siliceous silt, 20% fossil fragments.</p> <p>ARGILLACEOUS CALCILUTITE (0 - 40%): medium greenish grey to light green, soft to very soft, dispersive, 55% calcareous clay, 15% calcareous silt, 15% siliceous clay, 15% siliceous silt, 10% fossil fragments, trace mica.</p> | | | |

| | | | |
|---|--|--|--|
| Interpretative Depth 490.0 - 499.0 mMDRT | | Lithology CALCAREOUS CLAYSTONE with minor ARGILLACEOUS CALCARENITE interbeds. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.01% | Average Formation Gas: 0.0000% |
| Min. 53.9 Max. 94.0 Avg. 72.1 | WOB : 7.2 MT RPM(surf): 82 RPM(mot): 104 TRQ : 3.3 kft.lb | Chromatograph Analysis: C₁ : 0.0000% C₂ : 0.0000% C₃ : 0.0023% iC₄ : 0.1089% nC₄ : 0.0631% iC₅ : 0.0000% nC₅ : 0.0000% | Chromatograph Analysis: C₁ : 0.0000% C₂ : 0.0000% C₃ : 0.0001% iC₄ : 0.0000% nC₄ : 0.0000% iC₅ : 0.0000% nC₅ : 0.0000% |
| <p>CALCAREOUS CLAYSTONE (1) (70%): medium greenish grey to light green, soft to very soft, dispersive, 30% calcareous clay, 10% calcareous silt, 40% siliceous clay, 20% siliceous silt, 10% fossil fragments, trace mica.</p> <p>ARGILLACEOUS CALCARENITE (15%): yellowish brown to light brownish grey, soft to moderately hard, dispersive to angular, 30% calcareous clay, 30% calcareous silt, 40% calcareous sand, trace to rare glauconite, trace to rare lithic fragments, trace mica.</p> <p>CALCAREOUS CLAYSTONE(2) (5%): dark brown to medium brownish grey, soft to very soft, dispersive, 30% calcareous clay, 10% calcareous silt, 60% siliceous clay, trace glauconite, trace fossil fragments, trace mica.</p> | | | |

| Interpretative Depth 499.0 - 509.0 mMDRT | | Lithology CALCAREOUS CLAYSTONE. | |
|--|---|--|--|
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.02% | Average Formation Gas: 0.00% |
| Min. 31.2 Max. 89.5 Avg. 60.3 | WOB :10.7 MT RPM(surf): 83 RPM(mot): 104 TRQ : 3.32 kft.lb | Chromatograph Analysis: C ₁ : 0.0000% C ₂ : 0.0000% C ₃ : 0.0001% iC ₄ : 0.0000% nC ₄ : 0.0000% iC ₅ : 0.0000% nC ₅ : 0.0000% | Chromatograph Analysis: C ₁ : 0.0000% C ₂ : 0.0000% C ₃ : 0.0001% iC ₄ : 0.0000% nC ₄ : 0.0000% iC ₅ : 0.0000% nC ₅ : 0.0000% |
| CALCAREOUS CLAYSTONE (100%): light grey to medium brownish grey, soft to very soft, dispersive, 40% calcareous clay, 10% calcareous silt, 30% siliceous clay, 20% siliceous silt, trace mica. | | | |

| Interpretative Depth 509.0 - 561.0 mMDRT | | Lithology CALCAREOUS CLAYSTONE interbedded with SILTY CALCILUTITE. | |
|---|---|--|--|
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.05% | Average Formation Gas: 0.01% |
| Min. 11.7 Max. 187.4 Avg. 59.7 | WOB : 7.0 MT RPM(surf): 89 RPM(mot): 113 TRQ : 3.09 kft.lb | Chromatograph Analysis: C ₁ : 0.0000% C ₂ : 0.0000% C ₃ : 0.0001% iC ₄ : 0.0000% nC ₄ : 0.0000% iC ₅ : 0.0000% nC ₅ : 0.0000% | Chromatograph Analysis: C ₁ : 0.0000% C ₂ : 0.0000% C ₃ : 0.0000% iC ₄ : 0.0000% nC ₄ : 0.0000% iC ₅ : 0.0000% nC ₅ : 0.0000% |
| CALCAREOUS CLAYSTONE (60 - 100%): brownish grey to light olive grey, olive grey, soft to very soft, dispersive, 30% calcareous clay, 10% calcareous silt, 40% calcareous sand, 20% siliceous clay, trace mica, trace fossil fragments. | | | |
| SILTY CALCILUTITE (0 - 60%): light olive grey, medium grey to olive grey, soft to very soft, dispersive, 50% calcareous clay, 20% calcareous silt, 10% calcareous sand, 20% siliceous silt, minor fossil fragments, trace glauconite. | | | |

| | | | |
|---|---|---|---|
| Interpretative Depth 561.0 - 629.5 mMDRT | | Lithology Interbedded CALCAREOUS SANDSTONE, CALCAREOUS ARGILLACEOUS SILTSTONE, CALCAREOUS SILTY CLAYSTONE and with minor SIDERITIC CALCILUTITE and SIDERITIC SANDSTONE. | |
| ROP. (metre/hour) Min. 11.7 Max. 195.6 Avg. 67.8 | Drilling Parameters (Avg) WOB : 6.1 MT RPM(surf): 92 RPM(mot): 131 TRQ : 2.97 kft.lb | Maximum Formation Gas: 0.05% Chromatograph Analysis: C₁ : 0.0000% C₂ : 0.0000% C₃ : 0.0010% iC₄ : 0.0000% nC₄ : 0.0000% iC₅ : 0.0004% nC₅ : 0.0009% | Average Formation Gas: 0.00% Chromatograph Analysis: C₁ : 0.0000% C₂ : 0.0000% C₃ : 0.0000% iC₄ : 0.0000% nC₄ : 0.0000% iC₅ : 0.0000% nC₅ : 0.0000% |
| <p>CALCAREOUS SANDSTONE (0 - 60%): light brown, light orange brown, soft to firm, dispersive to sub-blocky, very fine to medium grained, predominantly fine, poorly sorted, sub-angular to angular, spherical, 20% calcareous clay, 10% calcareous silt, 20% calcareous sand, 50% siliceous sand, abundant siderite cement, minor calcareous cement, trace siderite cement, moderate to good visible porosity, no show.</p> <p>CALCAREOUS ARGILLACEOUS SILTSTONE (0 - 100%): medium light grey to greenish grey, light olive grey, soft, dispersive, 30% calcareous clay, 10% calcareous silt, 10% siliceous clay, 50% siliceous silt, trace siliceous sand, trace glauconite.</p> <p>CALCAREOUS SILTY CLAYSTONE (0 - 40%): light olive grey, medium grey to olive grey, soft to very soft, dispersive, 30% calcareous clay, 10% calcareous silt, 30% siliceous clay, 30% siliceous silt, trace siliceous sand, trace glauconite, trace fossil fragments.</p> <p>CALCAREOUS, ARGILLACEOUS SILTSTONE (2) (0 - 40%): medium light grey to greenish grey, soft, sub-blocky, 20% calcareous clay, 20% calcareous silt, 20% siliceous clay, 40% siliceous silt.</p> <p>SIDERITIC CALCILUTITE (0 - 10%): very pale orange, moderate reddish orange to light brown, firm to moderately hard, blocky to sub-blocky, 80% calcareous clay, 15% siliceous silt, 5% siliceous sand.</p> <p>SIDERITIC SANDSTONE (0 - 10%): light grey to light brown, light orange brown, loose, dispersive, very fine to coarse grained, predominantly fine to medium grained, sub-angular to sub-rounded, poor to moderately sorted, sub-spherical, 20% calcareous clay, 10% calcareous silt, 10% calcareous sand, 60% siliceous sand, minor sideritic cement, trace fossil fragments, poor to fair visible porosity, no show.</p> | | | |

| Interpretative Depth 629.5 - 700.0 mMDRT | | Lithology Interbedded SILTY CLAYSTONE and SANDSTONE. | |
|---|---|--|--|
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.07% | Average Formation Gas: 0.04% |
| Min. 17.7 Max. 235.2 Avg. 98.7 | WOB : 6.5 MT RPM(surf): 82 RPM(mot): 129 TRQ : 2.22 kft.lb | Chromatograph Analysis: C ₁ : 0.0004% C ₂ : 0.0000% C ₃ : 0.0002% iC ₄ : 0.0000% nC ₄ : 0.0001% iC ₅ : 0.0000% nC ₅ : 0.0000% | Chromatograph Analysis: C ₁ : 0.0001% C ₂ : 0.0000% C ₃ : 0.0000% iC ₄ : 0.0000% nC ₄ : 0.0000% iC ₅ : 0.0000% nC ₅ : 0.0000% |
| <p>SILTY CLAYSTONE (90 - 100%): dark yellowish brown, brownish grey to greyish brown, soft to very soft, dispersive to sub-blocky, trace calcareous clay, 65% siliceous clay, 35% siliceous silt.</p> <p>SANDSTONE (0 - 10%): clear, translucent, very light grey, loose, dispersive, medium to very coarse grained, predominantly coarse to very coarse, sub-round to rounded, moderate to moderately well sorted, sub-spherical to spherical, 30% silt clay, 70% siliceous sand, abundant siliceous cement, poor visible porosity, no show.</p> | | | |

| Interpretative Depth 700.0 - 801.5 mMDRT | | Lithology SANDSTONE with minor interbedded ARGILLACEOUS SILTSTONE. | |
|--|---|--|--|
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.08% | Average Formation Gas: 0.03% |
| Min. 11.4 Max. 250.5 Avg. 80.3 | WOB : 4.1 MT RPM(surf): 74 RPM(mot): 124 TRQ : 1.94 kft.lb | Chromatograph Analysis: C ₁ : 0.0005% C ₂ : 0.0000% C ₃ : 0.0005% iC ₄ : 0.0000% nC ₄ : 0.0000% iC ₅ : 0.0000% nC ₅ : 0.0000% | Chromatograph Analysis: C ₁ : 0.0001% C ₂ : 0.0000% C ₃ : 0.0000% iC ₄ : 0.0000% nC ₄ : 0.0000% iC ₅ : 0.0000% nC ₅ : 0.0000% |
| <p>SANDSTONE (90 - 100%): clear, translucent, very light grey, very light brown, loose, firm to moderately hard aggregates, fine to very coarse grained, predominantly medium to coarse, poor to moderately sorted, sub-angular to sub-rounded, sub-spherical, trace siliceous cement trace pyrite cement, trace to rare quartz overgrowth, trace pyrite nodules, fair to good visible porosity, no show.</p> <p>ARGILLACEOUS SILTSTONE (0 - 10%): light brownish grey, light greenish grey to olive grey, medium brownish grey, soft, amorphous, common to abundant, very fine to fine quartz grains, 25% siliceous clay, 20% silica sand, trace carbonaceous specks.</p> | | | |

| | | | |
|---|--|---|---|
| Interpretative Depth 801.5 - 839.0 mMDRT | | Lithology SILTY CLAYSTONE with minor ARGILLACEOUS SILTSTONE and SILTY SANDSTONE interbeds. | |
| ROP. (metre/hour) Min. 13.0 Max. 51.3 Avg. 32.1 | Drilling Parameters (Avg) WOB : 10.2 MT RPM(surf): 95 RPM(mot): 132 TRQ : 3.09 kft.lb | Maximum Formation Gas: 0.06% Chromatograph Analysis: C₁ : 0.0033% C₂ : 0.0002% C₃ : 0.0001% iC₄ : 0.0002% nC₄ : 0.0001% iC₅ : 0.0000% nC₅ : 0.0000% | Average Formation Gas: 0.04% Chromatograph Analysis: C₁ : 0.0008% C₂ : 0.0000% C₃ : 0.0000% iC₄ : 0.0000% nC₄ : 0.0000% iC₅ : 0.0000% nC₅ : 0.0000% |
| <p>SILTY CLAYSTONE (15 - 100%): medium brownish grey to dark brownish grey, olive grey, soft, amorphous, abundant silt, trace to rare very fine quartz grains, trace carbonaceous, trace fossil fragments, trace nodular pyrite.</p> <p>ARGILLACEOUS SILTSTONE (15 - 55%): medium brownish grey to dark brownish grey, olive grey in part, soft, amorphous, common to abundant very fine to fine quartz grains, 25% siliceous clay, 20% siliceous sand, trace carbonaceous specks.</p> <p>SILTY SANDSTONE (0 - 50%): clear, translucent, very light grey, very light brown, loose, firm to moderately hard aggregates, fine to very coarse grains, predominantly medium to coarse, poor to moderately sorted, sub-angular to sub-rounded, sub-spherical, 20% siliceous silt, trace pyrite cement, trace to rare quartz overgrowth, trace pyrite nodules, fair to good visible porosity, no show.</p> | | | |

| | | | |
|--|--|---|---|
| Interpretative Depth 839.0 - 887.0 mMDRT | | Lithology Interbedded SILTY CLAYSTONE and SANDSTONE. | |
| ROP. (metre/hour) Min. 3.9 Max. 124.8 Avg. 25.4 | Drilling Parameters (Avg) WOB : 4.8 MT RPM(surf): 110 RPM(mot): N/A TRQ : 2.14 kft.lb | Maximum Formation Gas: 0.03% Chromatograph Analysis: C₁ : 0.0038% C₂ : 0.0014% C₃ : 0.0004% iC₄ : 0.0000% nC₄ : 0.0000% iC₅ : 0.0005% nC₅ : 0.0003% | Average Formation Gas: 0.02% Chromatograph Analysis: C₁ : 0.0020% C₂ : 0.0009% C₃ : 0.0001% iC₄ : 0.0000% nC₄ : 0.0000% iC₅ : 0.0001% nC₅ : 0.0000% |
| <p>SILTY CLAYSTONE (60 - 70%): light olive grey to olive grey, greenish grey, brownish grey, soft to firm, amorphous, 30% silt, 10% very fine sand, trace to rare dark green glauconite, trace red lithic fragments in parts.</p> <p>SANDSTONE (30 - 40%): clear, translucent, light grey to light brown, pale orange brown, loose, moderately hard aggregates, fine to coarse grains, predominantly medium, poor to moderately sorted, angular to sub-rounded, sub-spherical, trace pyrite cement, trace siliceous cement, rare fossil fragments, trace nodular pyrite, moderate visible porosity, no show.</p> | | | |

5.3 LITHOLOGICAL SUMMARY FOR HALLADALE-1 DW2

Following is a tabulated lithological summary of Halladale-1 DW2. The intervals have been determined on the basis of cuttings lithology and drilling parameters and are consistent with those delineated by the Wellsite Geologist.

| Interpretative Depth | | Lithology | |
|--|---|--|--|
| 853.0 - 886.0 mMDRT | | Interbedded SILTY CLAYSTONE and SANDSTONE. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.04% | Average Formation Gas: 0.02% |
| Min. 5.2 Max. 40.6 Avg. 21.3 | WOB : 4.4MT RPM(surf): 122 RPM(mot): N/A TRQ : 1.66 kft.lb | Chromatograph Analysis: C ₁ : 0.0090% C ₂ : 0.0017% C ₃ : 0.0006% iC ₄ : 0.0003% nC ₄ : 0.0001% iC ₅ : 0.0000% nC ₅ : 0.0004% | Chromatograph Analysis: C ₁ : 0.0065% C ₂ : 0.0014% C ₃ : 0.0004% iC ₄ : 0.0001% nC ₄ : 0.0000% iC ₅ : 0.0000% nC ₅ : 0.0001% |
| <p>SILTY CLAYSTONE (60 - 70%): light olive grey to olive grey, brownish grey, greenish grey in parts, soft to firm, amorphous, 30% silt, 10% very fine sand, trace to rare dark green glauconite, trace red lithic fragments in parts.</p> <p>SANDSTONE (30 to 40%): clear, translucent, light grey to light brown, pale orange brown, loose moderately hard aggregates, fine to coarse grains, predominantly medium, poor to moderately sorted, angular to sub-rounded, sub-spherical, trace siliceous cement, rare fossil fragments, trace nodular pyrite, moderate visible porosity, no show.</p> | | | |

| | | | |
|---|--|--|--|
| Interpretative Depth 886.0 to 933.0 mMDRT | | Lithology SANDSTONE with minor interbedded SILTY CLAYSTONE. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.05% | Average Formation Gas: 0.03% |
| Min. 9.3 Max. 40.6 Avg. 21.3 | WOB : 2.8 MT RPM(surf): 132 RPM(mot): N/A TRQ : 1.87 kft.lb | Chromatograph Analysis: C ₁ : 0.0124% C ₂ : 0.0015% C ₃ : 0.0006% iC ₄ : 0.0002% nC ₄ : 0.0000% iC ₅ : 0.0002% nC ₅ : 0.0001% | Chromatograph Analysis: C ₁ : 0.004 % C ₂ : 0.0011% C ₃ : 0.0003% iC ₄ : 0.0000% nC ₄ : 0.0000% iC ₅ : 0.0001% nC ₅ : 0.0000% |
| <p>SANDSTONE (90 - 100%): pale orange brown to light brown, greyish orange, translucent, clear, loose, very fine to very coarse, predominantly very fine to medium, poorly to occasionally moderately sorted, angular to sub-rounded, occasionally round, sub-spherical, trace to rare silica cement, trace to rare pyrite, trace red lithics, moderate visible porosity, no shows.</p> <p>SILTY CLAYSTONE (0 - 10%): brownish grey to medium grey, medium greenish grey in place, soft to firm, occasionally moderately hard, amorphous, sub-blocky, 30% silt, 10% sand, trace glauconite, trace micro mica.</p> | | | |

| | | | |
|---|---|--|--|
| Interpretative Depth 933.0 - 948.0 mMDRT | | Lithology Interbedded SANDSTONE and CLAYSTONE. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.06% | Average Formation Gas: 0.05% |
| Min. 8.9 Max. 56.2 Avg. 35.7 | WOB : 4.6 MT RPM(surf): 132 RPM(mot): N/A TRQ : 1.9 kft.lb | Chromatograph Analysis: C ₁ : 0.0220% C ₂ : 0.0017% C ₃ : 0.0006% iC ₄ : 0.0001% nC ₄ : 0.0000% iC ₅ : 0.0002% nC ₅ : 0.0001% | Chromatograph Analysis: C ₁ : 0.0143% C ₂ : 0.0014% C ₃ : 0.0004% iC ₄ : 0.0000% nC ₄ : 0.0000% iC ₅ : 0.0001% nC ₅ : 0.0000% |
| <p>SANDSTONE (75 - 80%): clear, translucent, moderately sorted, light yellowish brown, very fine to coarse, predominantly medium, poor to moderately sorted, angular to sub-rounded, sub-spherical, trace to rare silica cement, trace to rare nodular pyrite, moderate to good visible porosity, no shows.</p> <p>CLAYSTONE (20 - 25%): brownish grey, off white to light grey, light yellowish brown, light olive grey to olive grey, greenish grey in parts, soft, amorphous, 10 to 20% silt, 5 to 10% sand, trace to local rare glauconite.</p> | | | |

| | | | |
|--|--|--|---|
| Interpretative Depth 948.0 - 975.0 mMDRT | | Lithology Interbedded SANDSTONE and SILTY CLAYSTONE. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.07% | Average Formation Gas: 0.04% |
| Min. 16.3 Max. 104.2 Avg. 42.8 | WOB : 3.2 MT RPM(surf): 132 RPM(mot): N/A TRQ : 1.94 kft.lb | Chromatograph Analysis: C ₁ : 0.0206% C ₂ : 0.0018% C ₃ : 0.0007% iC ₄ : 0.0002% nC ₄ : 0.0000% iC ₅ : 0.0005% nC ₅ : 0.0002% | Chromatograph Analysis: C ₁ : 0.0130% C ₂ : 0.0015% C ₃ : 0.0005% iC ₄ : 0.0000% nC ₄ : 0.0000% iC ₅ : 0.0001 % nC ₅ : 0.0000% |
| <p>SANDSTONE (30 - 90%): clear, translucent, moderately sorted, light yellowish brown, fine to very coarse, predominantly medium to coarse, poorly sorted, angular to sub-rounded, sub-spherical, rare silica cement, trace pyrite cement, trace quartz over growth, rare nodules pyrite, trace red lithics, good visible porosity, no shows.</p> <p>SILTY CLAYSTONE (10 - 70%): light to medium olive grey in parts, light to medium grey, soft to firm, sub-blocky, 30% silt, 10 to 20% very fine to fine sand, rare carbonaceous, trace to rare micro mica.</p> | | | |

| | | | |
|---|---|---|--|
| Interpretative Depth 975.0 - 1018.0 mMDRT | | Lithology SANDSTONE with common interbedded SILTY CLAYSTONE. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.05% | Average Formation Gas: 0.03% |
| Min. 17.73 Max. 90.5 Avg. 43.8 | WOB : 3.5MT RPM(surf): 129 RPM(mot): N/A TRQ : 2.28 kft.lb | Chromatograph Analysis: C ₁ : 0.0145 % C ₂ : 0.0015 % C ₃ : 0.0007% iC ₄ : 0.0001% nC ₄ : 0.0000% iC ₅ : 0.0003 % nC ₅ : 0.0001% | Chromatograph Analysis: C ₁ : 0.0080% C ₂ : 0.0012% C ₃ : 0.0005% iC ₄ : 0.0000% nC ₄ : 0.0000% iC ₅ : 0.0001% nC ₅ : 0.0000% |
| <p>SANDSTONE (75 - 95%): clear, translucent, light yellowish brown in parts, loose, very fine to coarse, predominantly fine to medium, moderate to well sorted, angular to sub-rounded, sub-spherical, trace to rare silica cement, trace calcareous cement in parts, trace red lithics, moderate to good visible porosity, no shows.</p> <p>SILTY CLAYSTONE (5 - 25%): olive grey to light olive grey, light to medium grey, light yellowish brown to off white, soft to firm, sub-blocky, 30% silt, 10 to 15% sand , trace to rare glauconite, trace carbonaceous, trace red lithics.</p> | | | |

| | | | |
|---|--|--|--|
| Interpretative Depth 1018.0 - 1090.0mMDRT | | Lithology Interbedded SANDSTONE and SANDY CLAYSTONE. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.06 % | Average Formation Gas: 0.04 % |
| Min. 6.2 Max. 119.8 Avg. 44.9 | WOB : 4.8 MT RPM(surf): 130 RPM(mot): N/A TRQ : 2.52 kft.lb | Chromatograph Analysis: C₁ : 0.0316% C₂ : 0.0018% C₃ : 0.0008% iC₄ : 0.0001% nC₄ : 0.0001% iC₅ : 0.0001% nC₅ : 0.0001% | Chromatograph Analysis: C₁ : 0.0142% C₂ : 0.0016% C₃ : 0.0006% iC₄ : 0.0% nC₄ : 0.0% iC₅ : 0.0% nC₅ : 0.0% |
| <p>SANDSTONE (5 - 95%): clear, translucent, light orange, loose, very fine to coarse, predominantly medium, medium to well sorted, sub-angular to sub-rounded, sub-spherical, rare silica cement, trace glauconite, trace lithics, trace pyrite, medium to good porosity, no shows.</p> <p>SANDY CLAYSTONE (5 - 95%): olive grey to light olive grey, very light to medium grey, brownish grey in place, greenish grey in place, soft to firm, sub-blocky, 20 to 30 % very fine to fine quartz grained, 10 to 20% silt, trace to rare glauconite, trace to locally rare carbonaceous specks, trace red lithics, trace micro mica.</p> | | | |

| Interpretative Depth 1090.0 - 1145.5mMDRT | | Lithology Interbedded SANDSTONE and SANDY CLAYSTONE. | |
|---|---|--|---|
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.07% | Average Formation Gas: 0.04% |
| Min. 4.1 Max. 79.6 Avg. 38.9 | WOB : 6.9MT RPM(surf): 134 RPM(mot): N/A TRQ : 2.61 kft.lb | Chromatograph Analysis: C ₁ : 0.0523% C ₂ : 0.0018% C ₃ : 0.0008 % iC ₄ : 0.0001 % nC ₄ : 0.0001 % iC ₅ : 0.0001 % nC ₅ : 0.0001% | Chromatograph Analysis: C ₁ : 0.0204% C ₂ : 0.0012% C ₃ : 0.0005% iC ₄ : 0.0000 % nC ₄ : 0.0000% iC ₅ : 0.0000 % nC ₅ : 0.0000 % |
| <p>SANDSTONE (5 - 95%): clear, translucent, light orange, loose, very fine to coarse, predominantly medium, medium to well sorted, sub-angular to sub-rounded, sub-spherical, rare silica cement, trace glauconite, trace lithics, trace pyrite, well developed porosity, no shows.</p> <p>SANDY CLAYSTONE (5 - 95%): olive grey to light olive grey, very light to medium grey, brownish grey in place, greenish grey in place soft to firm, sub-blocky, 20 to 30% very fine to fine quartz grained, 10 to 20% silt, trace to rare glauconite, trace to locally rare carbonaceous specks, trace red lithics, trace micro mica.</p> | | | |

| Interpretative Depth 1145.5 - 1265.0 mMDRT | | Lithology SILTY CLAYSTONE interbedded with SANDSTONE. | |
|--|---|--|---|
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 1.38% | Average Formation Gas: 0.15% |
| Min. 3.8 Max. 119.8 Avg. 30.3 | WOB : 4.6 MT RPM(surf): 152 RPM(mot): N/A TRQ : 2.89 | Chromatograph Analysis: C ₁ : 1.703% C ₂ : 0.0766% C ₃ : 0.4639 % iC ₄ : 0.0028 % nC ₄ : 0.0023 % iC ₅ : 0.0005 % nC ₅ : 0.0003 % | Chromatograph Analysis: C ₁ : 0.1345% C ₂ : 0.008% C ₃ : 0.003% iC ₄ : 0.003% nC ₄ : 0.003% iC ₅ : 0.0001% nC ₅ : 0.0% |
| <p>SILTY CLAYSTONE (5 - 100%): brownish grey to olive grey, light to medium grey, 20 to 30% silt 5 to 15% very fine sand, trace to minor glauconite, trace nodular pyrite, trace carbonaceous specks, sub-blocky to amorphous, soft.</p> <p>SANDSTONE (trace - 95%): clear, translucent, white, predominantly loose, very fine to coarse, predominantly fine, moderately sorted, angular to sub-rounded, sub-spherical, trace clay matrix, trace calcareous cement, trace to minor nodules pyrite, trace red lithics, moderately visible porosity, no shows.</p> | | | |

5.4 LITHOLOGICAL SUMMARY FOR HALLADALE-1 DW3

Following is a tabulated lithological summary of Halladale-1 DW3. The intervals have been determined on the basis of cuttings lithology and drilling parameters and are consistent with those delineated by the Wellsite Geologist.

| Interpretative Depth | | Lithology | |
|--|--|---|--|
| 1197.0 - 1210.0 mMDRT | | SANDSTONE with minor SILTY CLAYSTONE beds. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: | Average Formation Gas: |
| Min. 8.48 Max. 37.83 Avg. 26.59 | WOB : 2.4 RPM(surf): 125 RPM(mot): N/A TRQ : 3.43 | Gas: 0.05 % Chromatograph Analysis: C ₁ : 0.0050% C ₂ : 0.0007% C ₃ : 0.0004% iC ₄ : 0.0001% nC ₄ : 0.0001% iC ₅ : 0.0001% nC ₅ : 0.0002% | Gas: 0.02% Chromatograph Analysis: C ₁ : 0.0035 % C ₂ : 0.0006% C ₃ : 0.0000% iC ₄ : 0.0000 % nC ₄ : 0.0000% iC ₅ : 0.0000% nC ₅ : 0.0000% |
| <p>SANDSTONE (95 - 100%): clear, translucent, white, predominantly loose, very fine to coarse, predominantly fine, moderate sorted, angular to sub-rounded, sub-spherical, trace clay matrix, trace to minor nodular pyrite, moderate porosity, no shows.</p> <p>SILTY CLAYSTONE (0 - 5%): light grey to olive grey, light to medium grey, soft, sub-blocky to amorphous, 20 to 30% silt, trace very fine sand, trace glauconite, trace nodular pyrite, trace carbonaceous specks.</p> | | | |

| Interpretative Depth | | Lithology | |
|---|--|--|--|
| 1210.0 - 1324.0 mMDRT | | SILTY CLAYSTONE interbedded with SANDSTONE | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: | Average Formation Gas: |
| Min. 7.58 Max. 123.49 Avg. 39.65 | WOB : 5.5 RPM(surf): 138 RPM(mot): N/A TRQ : 3.58 | Gas: 1.09% Chromatograph Analysis: C ₁ : 0.5897% C ₂ : 0.0271% C ₃ : 0.0053% iC ₄ : 0.0011% nC ₄ : 0.0008% iC ₅ : 0.0003% nC ₅ : 0.0003% | Gas: 0.21% Chromatograph Analysis: C ₁ : 0.1173% C ₂ : 0.0068% C ₃ : 0.0016% iC ₄ : 0.0004% nC ₄ : 0.0003% iC ₅ : 0.0001% nC ₅ : 0.0001% |
| <p>SILTY CLAYSTONE (80 - 100%): light grey to olive grey, light to dark grey, soft, sub-blocky to amorphous, 20 to 30% silt, very fine sand, trace glauconite, trace nodular pyrite.</p> <p>SANDSTONE (0 - 20%): clear, translucent, light greyish, predominantly loose, medium to coarse, predominantly medium, well sorted, angular to sub-rounded, sub-spherical, trace nodular pyrite, fair visible porosity, no shows.</p> | | | |

| Interpretative Depth | | Lithology | |
|---|--|--|--|
| 1324.0 - 1384.0 mMDRT | | SILTY CLAYSTONE interbedded with SANDSTONE. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.37 % | Average Formation Gas: 0.13% |
| Min. 7.9 Max. 142.2 Avg. 42.84 | WOB : 6.0 MT RPM(surf): 142 RPM(mot): N/A TRQ : 3.95 kft.lb | Chromatograph Analysis: C ₁ : 0.2858% C ₂ : 0.0099% C ₃ : 0.0015% iC ₄ : 0.0006% nC ₄ : 0.0003% iC ₅ : 0.0002% nC ₅ : 0.0001% | Chromatograph Analysis: C ₁ : 0.0846% C ₂ : 0.0044% C ₃ : 0.0009% iC ₄ : 0.0002% nC ₄ : 0.0001% iC ₅ : 0.0001% nC ₅ : 0.0000% |
| <p>SILTY CLAYSTONE (0 - 95%): brownish grey to olive grey, light to medium grey, soft, sub-blocky to amorphous, 20 to 30% silt, 5 to 15% very fine sand, trace to minor glauconite, trace nodular pyrite, trace carbonaceous specks.</p> <p>SANDSTONE (5 - 100%): clear, translucent, white, predominantly loose, very fine to medium, predominantly fine, well sorted, angular to sub-rounded, sub-spherical, trace calcareous cement, trace nodular pyrite, trace red lithics, moderate visible porosity, no shows.</p> | | | |

| Interpretative Depth | | Lithology | |
|--|---|--|---|
| 1384.0 - 1460.0 mMDRT | | SILTY CLAYSTONE with trace SANDSTONE. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 3.65% | Average Formation Gas: 0.51 % |
| Min. 12.82 Max. 89.91 Avg. 28.9 | WOB : 8.6 MT RPM(surf): 13.9 RPM(mot): N/A TRQ : 3.78 kft.lb | Chromatograph Analysis: C ₁ : 2.8435% C ₂ : 0.0917% C ₃ : 0.0203% iC ₄ : 0.0028% nC ₄ : 0.0033% iC ₅ : 0.0005% nC ₅ : 0.0004% | Chromatograph Analysis: C ₁ : 0.3075% C ₂ : 0.0186% C ₃ : 0.0046% iC ₄ : 0.0007% nC ₄ : 0.0008% iC ₅ : 0.0001 % nC ₅ : 0.0001% |
| <p>SILTY CLAYSTONE (70 - 100%): olive grey to medium grey, soft, amorphous, sub-blocky, 20 to 30% silt, trace very fine sand, rare micro mica, trace to 5% glauconite.</p> <p>SANDSTONE (0 - 30%): clear, translucent, white, predominantly loose, very fine to medium, predominantly fine, well sorted, angular to sub-rounded, sub-spherical, trace calcareous cement, trace nodular pyrite, fair inferred porosity, no shows.</p> | | | |

| Interpretative Depth | | Lithology | |
|--|--|---|--|
| 1460.0 - 1548.0 mMDRT | | SILTY CLAYSTONE with minor SANDSTONE beds. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.98% | Average Formation Gas: 0.49% |
| Min. 2.16 Max. 118.68 Avg. 26.67 | WOB : 9.2 MT RPM(surf): 134 RPM(mot): N/A TRQ : 4.02 kft.lb | Chromatograph Analysis: C ₁ : 0.5973% C ₂ : 0.0453% C ₃ : 0.01555% iC ₄ : 0.0026% nC ₄ : 0.0033% iC ₅ : 0.0006% nC ₅ : 0.0004% | Chromatograph Analysis: C ₁ : 0.2920% C ₂ : 0.0216% C ₃ : 0.0069% iC ₄ : 0.0010% nC ₄ : 0.0013% iC ₅ : 0.0002% nC ₅ : 0.0002% |
| <p>SILTY CLAYSTONE (70 - 100%): olive grey to medium grey, soft, amorphous to sub-blocky, 20 to 30% silt, trace -10% very fine sand, trace to 5% glauconite.</p> <p>SANDSTONE (0 - 30%): clear, translucent, white, predominantly loose, very fine to medium, predominantly fine, well sorted, angular to sub-rounded, sub-spherical, trace calcareous cement, fair inferred porosity, no shows.</p> | | | |

| Interpretative Depth | | Lithology | |
|---|--|--|--|
| 1548.0 - 1570.0 mMDRT | | SILTY CLAYSTONE interbedded with SANDSTONE. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.32% | Average Formation Gas: 0.18% |
| Min. 1.7 Max. 12.4 Avg. 6.8 | WOB : 11.4 MT RPM(surf): 119 RPM(mot): N/A TRQ : 3.8 kft.lb | Chromatograph Analysis: C ₁ : 0.2412% C ₂ : 0.0141% C ₃ : 0.0057% iC ₄ : 0.0009% nC ₄ : 0.0010% iC ₅ : 0.0003% nC ₅ : 0.0004% | Chromatograph Analysis: C ₁ : 0.0839% C ₂ : 0.0059% C ₃ : 0.0017% iC ₄ : 0.0002% nC ₄ : 0.0002% iC ₅ : 0.0000% nC ₅ : 0.0000% |
| <p>SILTY CLAYSTONE (90 - 100%): olive grey to medium grey, soft, amorphous, sub-blocky, 20 - 30% silt, trace - 10% very fine sand, trace - 5% glauconite. Trace nodular pyrite.</p> <p>SANDSTONE (trace- 10%): clear, translucent, white, predominantly loose, very fine to fine, predominantly fine, well sorted, angular to sub-rounded, sub-spherical, trace calcareous cement, poor to fair porosity, no shows.</p> | | | |

| Interpretative Depth | | Lithology | |
|--|--|--|--|
| 1570.0 - 1640.0 mMDRT | | SILTY CLAYSTONE grading to GLAUCONITIC CLAYSTONE with minor SANDSTONE. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.30% | Average Formation Gas: 0.17% |
| Min. 4.5 Max. 40.1 Avg. 12.7 | WOB : 11.1 RPM(surf): 152 RPM(mot): N/A TRQ : 4.4 | Chromatograph Analysis: C ₁ : 0.2122% C ₂ : 0.0105% C ₃ : 0.0020% iC ₄ : 0.0003% nC ₄ : 0.0003% iC ₅ : 0.0001% nC ₅ : 0.0002% | Chromatograph Analysis: C ₁ : 0.1038% C ₂ : 0.0054% C ₃ : 0.0009% iC ₄ : 0.0001% nC ₄ : 0.0001% iC ₅ : 0.0000% nC ₅ : 0.0000% |
| <p>SILTY CLAYSTONE (85 - 100%): olive grey to medium grey, soft, amorphous, sub-blocky, 20 to 30% silt, trace to 10% very fine sand, trace to 5% glauconite, trace pyrite nodules.</p> <p>GLAUCONITIC CLAYSTONE (trace - 15%): light to dark greenish grey, soft to firm, sub-blocky, 10% silt, 10 to 20% glauconite.</p> <p>SANDSTONE (trace - 5%): clear, transparent, white, predominately loose, very fine to fine, predominately fine, well sorted, angular to sub-rounded, sub-spherical, trace calcite cement, fair inferred porosity, no shows.</p> | | | |

| Interpretative Depth | | Lithology | |
|---|--|--|--|
| 1640.0 - 1801.0 mMDRT | | SILTY CLAYSTONE grading to GLAUCONITIC CLAYSTONE with trace SANDSTONE. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.30% | Average Formation Gas: 0.19% |
| Min. 2.2 Max. 37.2 Avg. 10.8 | WOB : 11.2 MT RPM(surf): 121 RPM(mot): N/A TRQ : 4.7 kft.lb | Chromatograph Analysis: C ₁ : 0.2436% C ₂ : 0.0134% C ₃ : 0.0055% iC ₄ : 0.0006% nC ₄ : 0.0006% iC ₅ : 0.0005% nC ₅ : 0.0005% | Chromatograph Analysis: C ₁ : 0.1131% C ₂ : 0.0063% C ₃ : 0.0013% iC ₄ : 0.0001% nC ₄ : 0.0001% iC ₅ : 0.0000% nC ₅ : 0.0000% |
| <p>SILTY CLAYSTONE (85 - 100%): olive grey to medium grey, soft, amorphous, sub-blocky, 20 to 30% silt, trace to 10% very fine sand, trace to 5% glauconite, trace pyrite nodules.</p> <p>GLAUCONITIC CLAYSTONE (trace - 15%): light to dark greenish grey, soft to firm, sub-blocky, 10% silt, 10 to 20% glauconite.</p> <p>SANDSTONE (trace - 10%): clear, transparent, white, predominately loose, very fine to fine, predominately fine, well sorted, angular to sub-rounded, sub-spherical, trace calcite cement, fair inferred porosity, no shows.</p> | | | |

| Interpretative Depth | | Lithology | |
|--|--|--|--|
| 1801.0 - 1870.0 mMDRT | | SILTY CLAYSTONE grading to SILTSTONE and GLAUCONITIC CLAYSTONE. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.42% | Average Formation Gas: 0.24% |
| Min. 3.3 Max. 51.9 Avg. 16.9 | WOB : 10.1 MT RPM(surf): 149 RPM(mot): N/A TRQ : 5.6 kft.lb | Chromatograph Analysis: C ₁ : 0.3010% C ₂ : 0.0151% C ₃ : 0.0049% iC ₄ : 0.0007% nC ₄ : 0.0009% iC ₅ : 0.0002% nC ₅ : 0.0003% | Chromatograph Analysis: C ₁ : 0.1525% C ₂ : 0.0069% C ₃ : 0.0016% iC ₄ : 0.0002% nC ₄ : 0.0003% iC ₅ : 0.0001% nC ₅ : 0.0001% |
| <p>SILTY CLAYSTONE (40 - 100%): olive grey to medium grey, soft, amorphous to sub-blocky, 20 to 30% silt, trace to 5% very fine sand, trace to 5% glauconite, trace pyrite nodules.</p> <p>GLAUCONITIC CLAYSTONE (trace - 60%): light to dark greenish grey, soft to firm, sub-blocky, 10% silt, 10 to 20% glauconite.</p> <p>SILTSTONE (trace - 60%): medium to dark grey, brownish grey, trace pyrite, sub-blocky, firm to moderately hard.</p> | | | |

| Interpretative Depth | | Lithology | |
|--|---|--|--|
| 1870.0 - 1907.0 mMDRT | | SANDSTONE with minor SILTY CLAYSTONE beds. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 1.89% | Average Formation Gas: 0.57% |
| Min. 11.3 Max. 52.3 Avg. 26.8 | WOB : 5.3 MT RPM(surf): 147 RPM(mot): N/A TRQ : 7.1 kft.lb | Chromatograph Analysis: C ₁ : 1.9570% C ₂ : 0.0843% C ₃ : 0.0195% iC ₄ : 0.0031% nC ₄ : 0.0031% iC ₅ : 0.0004% nC ₅ : 0.0003% | Chromatograph Analysis: C ₁ : 0.4607% C ₂ : 0.0222% C ₃ : 0.0056% iC ₄ : 0.0008% nC ₄ : 0.0009% iC ₅ : 0.0001% nC ₅ : 0.0001% |
| <p>SANDSTONE (0 - 100%): clear, transparent, white, predominately loose, very fine to medium, predominately fine, moderately sorted, angular to sub-rounded, sub-spherical, trace clay matrix, trace to 50% rock flour, trace to minor nodular pyrite, good inferred porosity, no shows.</p> <p>SILTY CLAYSTONE (0 - 100%): olive grey, light to medium grey, soft, sub-blocky to amorphous, 20 to 30% silt, trace very fine sand, trace to 5% glauconite, trace nodular pyrite.</p> | | | |

| | | | |
|--|---|--|--|
| Interpretative Depth 1907.0 - 1969.0 mMDRT | | Lithology SILTY CLAYSTONE with minor SANDSTONE beds. | |
| ROP. (metre/hour) | Drilling Parameters (Avg) | Maximum Formation Gas: 0.60% | Average Formation Gas: 0.33% |
| Min. 8.5 Max. 48.4 Avg. 23.8 | WOB : 7.0 MT RPM(surf): 126 RPM(mot): - TRQ : 6.7 kft.lb | Chromatograph Analysis: C₁ : 0.4839% C₂ : 0.0282% C₃ : 0.0081% iC₄ : 0.0013% nC₄ : 0.0016% iC₅ : 0.0004% nC₅ : 0.0004% | Chromatograph Analysis: C₁ : 0.2194% C₂ : 0.0137% C₃ : 0.0038% iC₄ : 0.0005% nC₄ : 0.0006% iC₅ : 0.0001% nC₅ : 0.0001% |
| <p>SILTY CLAYSTONE (0 - 95%): medium grey to olive grey, soft, sub-blocky to amorphous, 10 to 30% silt, trace very fine sand, trace to 5% glauconite, trace nodular pyrite.</p> <p>SANDSTONE (5 - 100%): clear, transparent, white, predominately loose, very fine to medium, predominately fine, moderately sorted, angular to sub-rounded, sub-spherical, trace to 10% clay matrix, trace calcite cement, trace to 80% rock flour, trace nodular pyrite, good inferred porosity, no shows.</p> | | | |

6.0 BIT RECORDS

6.1 HALLADALE-1 DW1 (LOCATION BLACK WATCH)

| Bit Size | BIT | MAKE/TYPE | TFA | JETS | DEPTH IN | Metres Drilled | Eff Hrs On Btm | AV ROP | WOB | Surface RPM | KREV | SPP | FLOW -IN | TRQ | IADC BIT GRADING |
|----------|-----|------------------------------|-----------------|-------------|----------|----------------|----------------|--------|-----|-------------|------|------|----------|--------|--------------------|
| mm | | | in ² | | mMDRT | m | | m/hr | MT | | | psi | gpm | kft-lb | |
| 914 | 1 | Varel L1 11 | 2.36 | 3x32 | 66.3 | 2.7 | 0.4 | 15.7 | 2.7 | 47 | 0.7 | 152 | 239 | 6.3 | NOT GRADED |
| 445 | 2 | HC MX1 w/ 914 mm Hole opener | 0.86 | 2x20, 1x18 | 69.0 | 32.5 | 5 | 10.8 | 4.9 | 88 | 23.9 | 588 | 873 | 1.8 | 1 1 NO A E I NO TD |
| 445 | 3 | HC MX1 | 0.86 | 2X20 , 1X18 | 101.5 | 325.5 | 6.7 | 76.2 | 6.6 | 116 | 38.0 | 2533 | 1144 | 2.6 | 1 1 WT A 1 I NO TD |
| 311 | 4 | HC MXCO3 | 0.86 | 2X20 , 1X18 | 427.0 | 412.0 | 8.4 | 71.7 | 6.4 | 76 | 98.8 | 2313 | 917 | 2.3 | NOT GRADED |

6.2 HALLADALE-1 DW2

| Bit Size | BIT | MAKE/TYPE | TFA | JETS | DEPTH IN | Metres Drilled | Eff Hrs On Btm | AV ROP | WOB | Surface RPM | KREV | SPP | FLOW -IN | TRQ | IADC BIT GRADING |
|----------|-----|-----------------------------|-----------------|------|----------|----------------|----------------|--------|-----|-------------|-------|------|----------|--------|---------------------|
| mm | | | in ² | | mMDRT | m | | m/hr | MT | | | psi | gpm | kft-lb | |
| 216 | 1 | SMITH MA89BCTVP X PDC | 1.178 | 6X16 | 853.0 | 661.0 | 35.2 | 58.1 | 5.2 | 116 | 135.9 | 3092 | 734 | 3.3 | 1 2 BU A X I CT DTF |

6.3 HALLADALE-1 DW3

| Bit Size | BIT | MAKE/TYPE | TFA | JETS | DEPTH IN | Metres Drilled | Eff Hrs On Btm | AV ROP | WOB | Surface RPM | KREV | SPP | FLOW -IN | TRQ | IADC BIT GRADING |
|----------|-----|--------------------|-----------------|--------------|----------|----------------|----------------|--------|-----|-------------|-------|------|----------|--------|--------------------|
| mm | | | in ² | | mMDRT | m | | m/hr | MT | | | psi | gpm | kft-lb | |
| 216 | 1 | SEC FMF3553 PDC | 1.032 | 3X16 2X17 | 1197.0 | 772.0 | 53.3 | 23.8 | 8.6 | 135 | 413.1 | 3611 | 715.6 | 4.6 | 1 1 WT A X I CT TD |
| | | | | | | | | | | | | | | | |

7.0 BHA

7.1 HALLADALE-1 DW1 (LOCATION BLACK WATCH)

BHA-1

| DATE | BIT MFG | BIT TYPE | | |
|---------------------|----------------|--------------------|---------------|--------------------------|
| 21/03/05 | | Mill tooth No jets | | |
| ITEM | OD (Inches) | ID (Inches) | Length (m) | Cumulative Length (m) |
| 36" Bit | 36 | | 1.09 | |
| X/O | 12 | 3 ½ | 0.42 | 1.51 |
| 17 ½ NB Stabiliser | 9 | 3 | 1.56 | 3.07 |
| NMDC | 9 ½ | 3 | 8.37 | 11.44 |
| 17 ½ STR Stabiliser | 9 ½ | 3 | 1.90 | 13.34 |
| 9 ½ Drill Collar | 9 ½ | 3 | 9.35 | 22.69 |
| 17 ½ STR Stabiliser | 9 ½ | 3 | 2.20 | 24.89 |
| 9 ½ Drill Collar | 9 9/16 | 3 | 9.13 | 34.02 |
| Drill Collar | 8 15/16 | 3 | 9.00 | 43.02 |
| Drill Collar | 9 ½ | 3 | 9.22 | 52.24 |
| X/O | 9 3/8 ; 8 3/16 | 3 | 1.09 | 53.33 |
| 8" Drill Collar | 7 13/16 | 3 | 8.70 | 62.03 |
| Drill Collar | 7 13/16 | 2 7/8 | 8.98 | 71.01 |
| X/O | 8 3/16; 6 7/16 | 2 13/16 | 1.09 | 72.10 |
| HWDP | 6 ¼ | 3 | 9.34 | 81.44 |
| HWDP | 6 1/8 | 3 1/8 | 8.92 | 90.36 |
| HWDP | 6 3/8 | 3 1/8 | 9.25 | 99.61 |
| HWDP | 6 3/8 | 3 | 9.28 | 108.89 |
| HWDP | 6 ¼ | 3 | 9.39 | 118.28 |

BHA-2

| DATE | BIT MFG | BIT TYPE | | |
|--------------------|------------------------|------------------------|-----------------------|----------------------------------|
| 22/03/05 | VAREL | Mill tooth No jets | | |
| ITEM | OD (Inches) | ID (Inches) | Length (m) | Cumulative Length (m) |
| 36" Bit | 36 | | 1.09 | |
| X/O | 12 | 3 ½ | 0.42 | 1.51 |
| 17 ½ NB Stabiliser | 9 | 3 | 1.56 | 3.07 |
| NMDC | 9 ½ | 3 | 8.37 | 11.44 |
| 9 ½ Drill Collar | 9 ½ | 3 | 9.35 | 20.79 |
| Drill Collar | 9 9/16 | 3 | 9.13 | 29.92 |
| Drill Collar | 8 15/16 | 3 | 9.00 | 38.92 |
| Drill Collar | 9 ½ | 3 | 9.22 | 48.14 |
| X/O | 9 3/8 ; 8 3/16 | 3 | 1.09 | 49.23 |
| 8" Drill Collar | 7 13/16 | 3 | 8.70 | 57.93 |
| Drill Collar | 7 13/16 | 2 7/8 | 8.98 | 66.91 |
| X/O | 8 3/16; 6 7/16 | 2 13/16 | 1.09 | 68.00 |
| HWDP | 6 ¼ | 3 | 9.34 | 77.34 |
| HWDP | 6 1/8 | 3 1/8 | 8.92 | 86.26 |
| HWDP | 6 3/8 | 3 1/8 | 9.25 | 95.51 |
| HWDP | 6 3/8 | 3 | 9.28 | 104.79 |

BHA-3

| DATE | BIT MFG | BIT TYPE | | |
|-----------------------|------------------------|-------------------------|-----------------------|----------------------------------|
| 23/03/05 | HUGHES | MX-1 2x20, 1x18 JETS | | |
| ITEM | OD (Inches) | ID (Inches) | Length (m) | Cumulative Length (m) |
| 17.5" Bit | 17 ½ | | 0.4 | |
| Hole Opener 36" | 9 5/8 | 2 7/8 | 1.75 | 2.15 |
| NB Stabiliser w/Float | 9 | 3 | 1.56 | 3.71 |
| NMDC | 9 ½ | 3 | 8.37 | 12.08 |
| 9 ½ Drill Collar | 9 ½ | 3 | 9.35 | 21.43 |
| Drill Collar | 9 9/16 | 3 | 9.13 | 30.56 |
| Drill Collar | 8 15/16 | 3 | 9.00 | 39.56 |
| Drill Collar | 9 ½ | 3 | 9.22 | 48.78 |
| X/O | 9 3/8 ; 8 3/16 | 3 | 1.09 | 49.87 |
| 8" Drill Collar | 7 13/16 | 3 | 8.70 | 58.57 |
| Drill Collar | 7 13/16 | 2 7/8 | 8.98 | 67.55 |
| X/O | 8 3/16; 6 7/16 | 2 13/16 | 1.09 | 68.64 |
| HWDP | 6 ¼ | 3 | 9.34 | 77.98 |

BHA-4

| DATE | BIT MFG | BIT TYPE | | |
|---------------------|----------------|-------------------------|---------------|--------------------------|
| 24/03/05 | HUGHES | MX-1 2x20, 1x18 JETS | | |
| ITEM | OD (Inches) | ID (Inches) | Length (m) | Cumulative Length (m) |
| 17 ½" Bit | 17 ½ | | 0.4 | |
| 17 ½ NB Stabiliser | 9 | 3 | 1.56 | 1.96 |
| NMDC | 9 ½ | 3 | 8.37 | 10.33 |
| 17 ½ STR Stabiliser | 9 ½ | 3 | 1.90 | 12.23 |
| 9 ½ Drill Collar | 9 ½ | 3 | 9.35 | 21.58 |
| 17 ½ STR Stabiliser | 9 ½ | 3 | 2.20 | 23.78 |
| 9 ½ Drill Collar | 9 9/16 | 3 | 9.13 | 32.91 |
| Drill Collar | 8 15/16 | 3 | 9.00 | 41.91 |
| Drill Collar | 9 ½ | 3 | 9.22 | 51.13 |
| X/O | 9 3/8 ; 8 3/16 | 3 | 1.09 | 52.22 |
| 8" Drill Collar | 7 13/16 | 3 | 8.39 | 60.61 |
| Drill Collar | 7 ¾ | 2 15/16 | 8.57 | 69.18 |
| JARS | 8 | 3 | 9.94 | 79.12 |
| 8" Drill Collar | 7 13/16 | 3 | 8.70 | 87.82 |
| Drill Collar | 7 13/16 | 2 7/8 | 8.98 | 96.80 |
| X/O | 8 3/16; 6 7/16 | 2 13/16 | 1.09 | 97.89 |
| HWDP | 6 ¼ | 3 1/8 | 9.34 | 107.23 |
| HWDP | 6 1/8 | 3 1/8 | 8.92 | 116.15 |
| HWDP | 6 3/8 | 3 1/8 | 9.25 | 125.40 |
| HWDP | 6 3/8 | 3 | 9.28 | 134.68 |
| HWDP | 6 ¼ | 3 | 9.39 | 144.07 |
| HWDP | 6 ½ | 3 | 9.31 | 153.38 |
| HWDP | 6 3/8 | 3 | 9.23 | 162.61 |
| HWDP | 6 3/8 | 3 1/8 | 9.28 | 171.89 |
| HWDP | 6 3/8 | 3 1/8 | 9.41 | 181.30 |
| HWDP | 6 ¼ | 3 1/16 | 9.40 | 190.70 |

BHA-5

| DATE | BIT MFG | BIT TYPE | | |
|-----------------------------------|----------------|---------------------------|---------------|--------------------------|
| 27/03/05 | HUGHES | MX-CO3 2x20, 1x18 JETS | | |
| ITEM | OD (Inches) | ID (Inches) | Length (m) | Cumulative Length (m) |
| 12 ¼ "Bit | 12 ¼ | | 0.35 | |
| 9 5/8 Motor 12 1/8 Sleeve Stab | 9 5/8 | 6 | 8.57 | 8.92 |
| X/O | 9 5/8 – 8 | 3 | 1.06 | 9.98 |
| 12 ¼ STR Stab | 8 | 2 7/8 | 2.51 | 12.49 |
| MWD | 8 | 1 15/16 | 9.33 | 21.82 |
| NMDC | 8 | 2 7/8 | 8.80 | 30.62 |
| 12 ¼ Roller Reamer | 8 ¼ | 2 5/8 | 2.86 | 33.48 |
| 8" Drill Collar | 8 | 2 ¾ | 9.04 | 42.52 |
| PBL Circ Sub | 8 | - | 2.35 | 44.87 |
| 2 x 8" Drill Collar | 8 | 3 | 17.69 | 62.56 |
| Drill Collar | 7 7/8 | 2 7/8 | 9.00 | 71.56 |
| Drill Collar | 7 13/16 | 3 | 8.39 | 79.95 |
| Drill Collar | 7 13/16 | 2 15/16 | 8.70 | 88.65 |
| JARS | 8 | 2 ¾ | 9.79 | 98.44 |
| 2 x 8" Drill Collar | 7 13/16 | 3 | 17.68 | 116.12 |
| X/O | 8 3/16; 6 7/16 | 2 13/16 | 1.09 | 117.21 |
| 4 x HWDP | 6 ½ | 3 | 36.80 | 154.01 |
| 4 x HWDP | 6 3/8 | 3 | 37.05 | 191.06 |
| 2 x HWDP | 6 ¼ | 3 | 18.60 | 209.66 |
| 3 x HWDP | 6 3/8 | 3 1/8 | 27.94 | 237.6 |
| HWDP | 6 1/8 | 3 1/8 | 8.92 | 246.52 |
| HWDP | 6 3/8 | 3 1/16 | 9.4 | 255.92 |

7.2 HALLADALE-1 DW2

BHA-9

| DATE | BIT MFG | BIT TYPE | | |
|------------------------------|----------------|------------------------------|---------------|--------------------------|
| 09/04/05 | SMITH | MA89BCTVPXPDC 6 x 16 Jets | | |
| ITEM | OD (Inches) | ID (Inches) | Length (m) | Cumulative Length (m) |
| 8 ½ "PDC Bit | 8 ½ | 2 | 0.42 | |
| Geo Pilot | 6 ¾ | 1 5/8 | 7.09 | 7.51 |
| Flex Collar | 6 ¾ | | 2.80 | 10.31 |
| LWD | 6 ¾ | 1 15/16 | 8.58 | 18.89 |
| LWD w/ Radioactive Source | 6 ¾ | 1 15/16 | 8.66 | 27.55 |
| BAT SONIC | 6 ¾ | 1 15/16 | 6.75 | 34.30 |
| Hang Off Collar | 8 | 3 ¼ | 3.06 | 37.36 |
| Float Sub | 6 ¾ | 2 ½ | 0.62 | 37.98 |
| Rollar Reamer | 8 3/8 | 2 ¼ | 2.02 | 40.00 |
| PBL Sub | 6 ½ | 2 ½ | 2.28 | 42.28 |
| 6 ½ " Drill Collar | 6 ½ | 2 15/16 | 9.33 | 51.61 |
| 2 x Drill Collar | 6 3/8 | 2 13/16 | 18.68 | 70.29 |
| 2 x Drill Collar | 6 7/16 | 2 7/8 | 18.80 | 89.09 |
| 4 x Drill Collar | 6 3/8 | 2 7/8 | 37.07 | 126.16 |
| JARS | 6 ½ | 2 ½ | 9.80 | 135.96 |
| Drill Collar | 6 3/8 | 2 15/16 | 9.23 | 145.19 |
| Drill Collar | 6 ½ | 2 7/8 | 9.46 | 154.65 |
| 4 x HWDP | 6 ½ | 3 | 36.80 | 191.45 |
| 4 x HWDP | 6 3/8 | 3 | 37.05 | 228.50 |
| 2 x HWDP | 6 ¼ | 3 | 18.60 | 247.10 |
| HWDP | 6 1/8 | 3 1/8 | 8.92 | 256.02 |
| 3 x HWDP | 6 3/8 | 3 1/8 | 27.94 | 283.96 |
| HWDP | 6 ¼ | 3 1/16 | 9.40 | 293.36 |

7.3 HALLADALE-1 DW3**BHA-13**

| DATE | BIT MFG | BIT TYPE | | |
|------------------------------|------------------------|----------------------------------|-----------------------|----------------------------------|
| 21/04/05 | Security DBS | FMF 3553 3 x 16 ; 2 x 17 Jets | | |
| ITEM | OD (Inches) | ID (Inches) | Length (m) | Cumulative Length (m) |
| 8 ½ "PDC Bit | 8 ½ | 2 | 0.43 | |
| Geo Pilot | 6 ¾ | 1 5/8 | 7.09 | 7.52 |
| Flex Collar | 6 ¾ | | 2.80 | 10.32 |
| RLL | 6 ¾ | 1 15/16 | 8.48 | 18.80 |
| LWD w/ Radioactive Source | 6 ¾ | 1 15/16 | 8.66 | 27.46 |
| BAT SONIC | 6 ¾ | 1 15/16 | 6.75 | 34.21 |
| Hang Off Collar | 8 | 3 ¼ | 3.06 | 37.27 |
| Float Sub | 6 ¾ | 2 ½ | 0.62 | 37.89 |
| PBL Circulating Sub | 6 ½ | 2 ½ | 2.28 | 40.17 |
| 6 ½ " Drill Collar | 6 ½ | 2 15/16 | 9.33 | 49.50 |
| 2 x Drill Collar | 6 3/8 | 2 13/16 | 18.68 | 68.18 |
| 2 x Drill Collar | 6 7/16 | 2 7/8 | 18.80 | 86.98 |
| 4 x Drill Collar | 6 3/8 | 2 7/8 | 37.07 | 124.05 |
| Drill Collar | 6 3/8 | 3 | 9.46 | 133.51 |
| 2 x Drill Collar | 6 ½ | 2 7/8 | 18.50 | 152.01 |
| JARS | 6 ½ | 2 ½ | 9.73 | 161.74 |
| Drill Collar | 6 3/8 | 2 15/16 | 9.23 | 170.97 |
| Drill Collar | 6 ½ | 2 7/8 | 9.46 | 180.43 |
| 4 x HWDP | 6 ½ | 3 | 36.80 | 217.23 |
| 4 x HWDP | 6 3/8 | 3 | 37.05 | 254.28 |
| 2 x HWDP | 6 ¼ | 3 | 18.60 | 272.88 |
| HWDP | 6 1/8 | 3 1/8 | 8.92 | 281.80 |
| 3 x HWDP | 6 3/8 | 3 1/8 | 27.94 | 309.74 |
| HWDP | 6 ¼ | 3 1/16 | 9.40 | 319.14 |



RIG MONITORING
FORMATION EVALUATION LOG SCALE 1:500

Country : Australia
Field : Halladale
Location : Lat: 38° 34' 45.54" South
Long: 142° 43' 50.95" East
Well : Halladale -1 DW3
Company : Woodside Energy Ltd
Rig : Ocean Patriot

LOCATION

Company : Woodside Energy Ltd
Rig : Ocean Patriot
Well : Halladale -1 DW3
Field : Halladale
Country : Australia
DOE Number :

Latitude : 38° 34' 45.54" South
Longitude : 142° 43' 50.95" East
UTM Easting = 650,763.20 m
UTM Northing = 5,728,485.20 m

Other Services
FEWD
Directional Drilling

Permanent Datum : LAT

Elevation : 0.00 m

Elev. KB 0.00 m

Log Measured From : Drill Floor
Drilling Measured From : Drill Floor
Elevation : 21.50 m Above Permanent Datum

DF 21.50 m
GL 0.00 m
WD 44.80 m

Depth Logged : 66.30 m To 1,969.00 m
Date Logged : 22-Mar-05 To 23-Apr-05
Total Depth MD : 1,969.00 m TVD : 1,881.61 m

Unit No. : 197

Job No. : AUFEE0003325469

Spud Date : 22-Mar-05
Plot Type : Final
Plot Date : 28-Jun-05

| Run No. | Borehole Record (MD) | | Run No. | Borehole Record (MD) | |
|---------|----------------------|------------|---------|----------------------|----|
| | Size From | To | | Size From | To |
| 1 | 914,000 mm | 66.30 m | | | |
| 2 | 444,000 mm | 69.00 m | | | |
| 3 | 444,000 mm | 101.00 m | | | |
| 4 | 311,000 mm | 427.00 m | | | |
| 5 | 216,000 mm | 839.00 m | | | |
| 6 | 216,000 mm | 853.00 m | | | |
| 7 | 216,000 mm | 1,197.00 m | | | |

| Run No. | Casing Record (MD) | | Run No. | Casing Record (MD) | |
|---------|--------------------|-------------|---------|--------------------|----|
| | Size From | To | | Size From | To |
| | 762,000 mm | 488.00 kgpm | | | |
| | 340,000 mm | 101.00 kgpm | | | |
| | 244,000 mm | 70.00 kgpm | | | |

| SURFACE | | SURFACE | |
|---------|----------|----------|--|
| 99.50 m | 421.00 m | 834.00 m | |

LEGEND

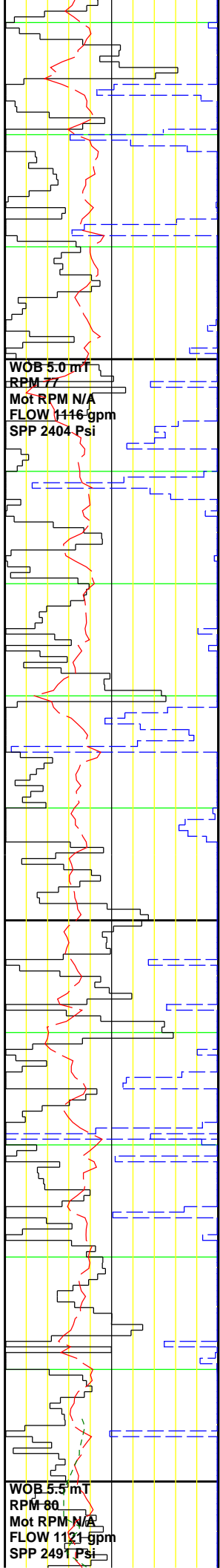
Abbreviations and Symbols

Lithology Symbols

| Drilling Data | | Mud Data | |
|---------------|-------------------------|-------------------------|--------------------------|
| BG | Background Gas | CI- Chloride Ion Conc | Rm Mud Resistivity |
| BHT | Bottomhole Temp | FC Filter Cake | Rmf Filtrate Resistivity |
| C | Carbide Test | FL Filtrate Loss | S Solids Content |
| CB | Core Bit | G Gels | Vis Funnel Viscosity |
| CG | Connection Gas | pH Hydrogen Ion Content | MW Mud Weight |
| CKF | Check For Flow | PV Plastic Viscosity | YP Yield Point |
| CO | Circulate Out | Engineering Data | |
| DB | Diamond Bit | | |
| DC | Depth Correction | Core No. | Water |
| DS | Direction Survey | DST No. | Salt Water |
| DST | Drillstem Test | Casing Seat | Fresh Water |
| FLT | Flowline Temp. | Side Wall Core | Hydrocarbons Smell |
| LAT | Logged After Trip | Gas Traces | H2S Smell |
| NB | New Bit | Gas | Interval Tester |
| NR | No Returns | Oil Traces | Wireline Log Run |
| PDC | Polycrystalline Diamond | Oil | Leakoff Test |
| PR | Compound Bit | | Pressure Integrity |
| RPM | Revs Per Minute | | |
| RRB | Rerun Bit | | |
| STG | Short Trip Gas | | |
| TB | Turbo Drill | | |
| TG | Trip Gas | | |
| U | Gas Units | | |
| WOB | Weight On Bit | | |

| | | | |
|--|------------------------|--|--------------------------|
| | Sandstone | | Sandy Claystone |
| | Calcareous Sandstone | | Silty Claystone |
| | Glauconitic Sandstone | | Calcarenite |
| | Silty Sandstone | | Argillaceous Calcarenite |
| | Argillaceous Sandstone | | Sandy Calcarenite |
| | Siltstone | | Calcsiltite |
| | Sandy Siltstone | | Calcilutite |
| | Argillaceous Siltstone | | Argillaceous Calcilutite |
| | Claystone | | Limestone |
| | Clacareous Claystone | | Dolomite |

| GAMMA (api) | | | | | |
|-------------------------|--|--|--|--|--|
| WOB (klb) | | | | | |
| ROP (m/hr) | | | | | |
| ROP WRAP (m/hr) | | | | | |
| RESISTIVITY (SHALLOW) | | | | | |
| RESISTIVITY (DEEP) | | | | | |
| TOTAL GAS | | | | | |
| CHROMATOGRAPH METHANE % | | | | | |
| ETHANE % | | | | | |
| PROPANE % | | | | | |
| ISO-BUTANE % | | | | | |
| N-BUTANE % | | | | | |
| ISO-PENTANE % | | | | | |
| N-PENTANE% | | | | | |
| CO2 % | | | | | |
| REMARKS | | | | | |



270 280 290 300 310 320 330 340 350 360 370 380 390 400

Dev @ 270.3 m Inc 0.5 deg
Az 358.4 deg

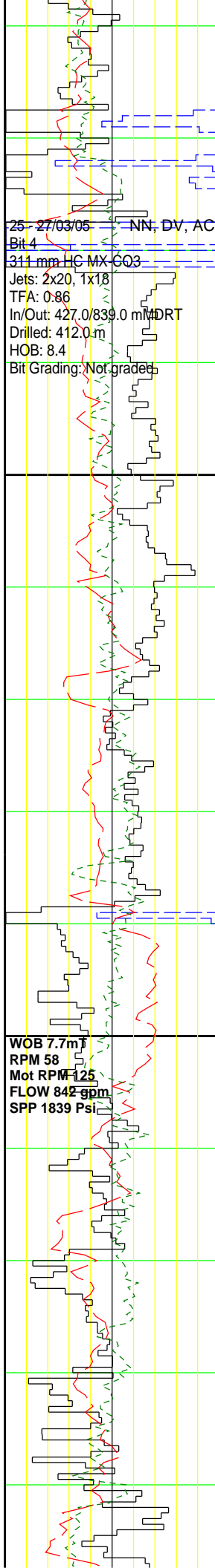
Dev @ 299.0 m Inc 0.5 deg
Az 348.1 deg

Dev @ 327.6 m Inc 0.8 deg
Az 2.3 deg

Dev @ 356.4 m Inc 0.6 deg
Az 10.6 deg

Dev @ 385.0 m Inc 0.7 deg
Az 350.3 deg

Drill with Seawater and Guar/Gel Sweeps
Returns to sea floor



410
420
430
440
450
460
470
480
490
500
510
520
530
540

Dev @ 413.8 m Inc 0.7 deg
Az 346.3 deg

Dev @ 436.8 m Inc 1.1 deg
Az 338.8 deg

Dev @ 465.9 m Inc 1.2 deg
Az 260.1 deg

Dev @ 494.7 m Inc 1.1 deg
Az 254.4 deg

Dev @ 522.7 m Inc 1.4 deg
Az 256.2 deg

MW: 1.11 sg
FV: 55
PV/YP 20/32
Gels: 7/11
Glv/W/S: 3.2/92/4.8

Displaced hole to unweighted Gel mud at TD.

Section TD 445mm (17½") hole section @ 427.0m MDRT (427.0m TVD).
Set 340mm csg at 421.0m MDRT (421.0m TVD).

Drill with AQUA-DRILL mud system

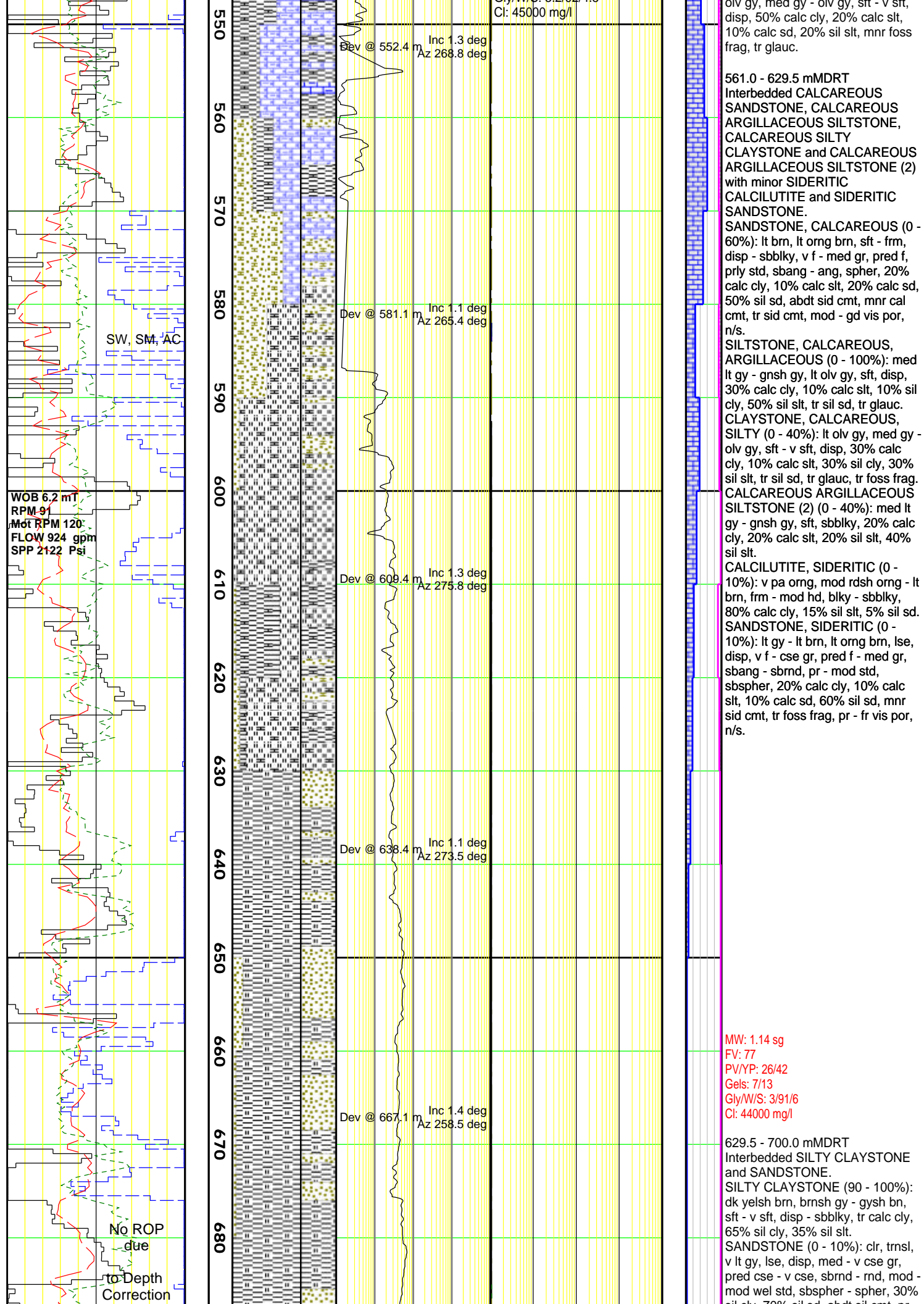
Start drilling 311 mm (12¼") hole 13:10 hrs 27/03/2005 @ 427.0m MDRT
Drilled to 430.0m MDRT, Performed FIT to 1.50sg @ 421.0m MDRT.

427.0 to 490.0 mMDRT
Interbedded CALCAREOUS CLAYSTONE and CALCAREOUS SILTY CLAYSTONE interbedded with minor CALCAREOUS SILTSTONE and localised ARGILLACEOUS CALCILUTITE. CLAYSTONE, CALCAREOUS (40 - 100%): med gnsh gy - lt gn, v lt gy i.p., sft - v sft, amor - sbfiss, 35% calc cly, 65% sil cly, 15% foss frag, tr mmic, tr glauc i.p.. CLAYSTONE, CALCAREOUS, SILTY (10 - 60%): wh - v lt gnsh gy, v sft, amor, disp, 30% calc cly, 10% calc slt, 30% sil cly, 30% sil slt. SILTSTONE, CALCAREOUS (10%): med gnsh gy - dk gnsh gy, sft - frm, sbbkly - sbfiss, 30% calc cly, 70% sil slt, 20% foss frag. ARGILLACEOUS CALCILUTITE (0 - 40%): med gnsh gy - lt gn, sft - v sft, disp, 55% calc cly, 15% calc slt, 15% sil cly, 15% sil slt, 10% foss frag, tr mic.

490.0 - 499.0 mMDRT
CALCAREOUS CLAYSTONE with minor ARGILLACEOUS CALCARENITE interbeds. CLAYSTONE, CALCAREOUS(1) (70%): med gnsh gy - lt gn, sft - v sft, disp, 30% calc cly, 10% calc slt, 40% sil cly, 20% sil slt, 10% foss frag, tr mic. CALCARENITE, ARGILLACEOUS (15%): yelsh brn - lt brnsh gy, sft - mod hd, disp - ang, 30% calc cly, 30% calc slt, 40% calc sd, tr - rr glauc, tr - rr lith frag, tr mic. CLAYSTONE, CALCAREOUS(2) (5%): dk brn - med brnsh gy, sft - v sft, disp, 30% calc cly, 10% calc slt, 60% sil cly, tr glauc, tr foss frag, tr mic.

499.0 - 509.0 mMDRT
CALCAREOUS CLAYSTONE. CLAYSTONE, CALCAREOUS (100%): lt gy - med bnsh gy, sft - v sft, disp, 40% calc cly, 10% calc slt, 30% sil cly, 20% sil slt, tr mic.

509.0 - 561.0 mMDRT
CALCAREOUS CLAYSTONE interbedded with SILTY CALCILUTITE. CALCAREOUS CLAYSTONE (60 - 100%): brnsh gy - lt olv gy, olv gy, sft - v sft, disp, 30% calc cly, 10% calc slt, 40% calc sd, 20% sil cly, tr mic, tr foss frag. SILTY CALCILUTITE (0 - 60%): lt

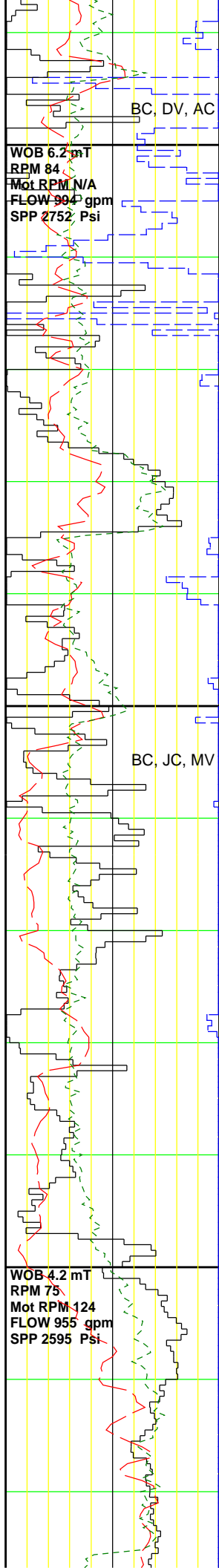


oil gy, med gy - olv gy, sft - v sft, disp, 50% calc cly, 20% calc slt, 10% calc sd, 20% sil silt, mnfr foss frag, tr glauc.

561.0 - 629.5 mMDRT
Interbedded CALCAREOUS SANDSTONE, CALCAREOUS ARGILLACEOUS SILTSTONE, CALCAREOUS SILTY CLAYSTONE and CALCAREOUS ARGILLACEOUS SILTSTONE (2) with minor SIDERITIC CALCILUTITE and SIDERITIC SANDSTONE.
SANDSTONE, CALCAREOUS (0 - 60%): lt brn, lt orng brn, sft - frm, disp - sbbly, v f - med gr, pred f, prly std, sbang - ang, spher, 20% calc cly, 10% calc slt, 20% calc sd, 50% sil sd, abdt sid cmt, mnfr cal cmt, tr sid cmt, mod - gd vis por, n/s.
SILTSTONE, CALCAREOUS, ARGILLACEOUS (0 - 100%): med lt gy - gnsh gy, lt olv gy, sft, disp, 30% calc cly, 10% calc slt, 10% sil cly, 50% sil silt, tr sil sd, tr glauc.
CLAYSTONE, CALCAREOUS, SILTY (0 - 40%): lt olv gy, med gy - olv gy, sft - v sft, disp, 30% calc cly, 10% calc slt, 30% sil cly, 30% sil silt, tr sil sd, tr glauc, tr foss frag.
CALCAREOUS ARGILLACEOUS SILTSTONE (2) (0 - 40%): med lt gy - gnsh gy, sft, sbbly, 20% calc cly, 20% calc slt, 20% sil silt, 40% sil slt.
CALCILUTITE, SIDERITIC (0 - 10%): v pa orng, mod rdsh orng - lt brn, frm - mod hd, blk - sbbly, 80% calc cly, 15% sil silt, 5% sil sd.
SANDSTONE, SIDERITIC (0 - 10%): lt gy - lt brn, lt orng brn, lse, disp, v f - cse gr, pred f - med gr, sbang - sbrnd, pr - mod std, sbspher, 20% calc cly, 10% calc slt, 10% calc sd, 60% sil sd, mnfr sid cmt, tr foss frag, pr - fr vis por, n/s.

MW: 1.14 sg
FV: 77
PV/YP: 26/42
Gels: 7/13
Gly/W/S: 3/91/6
CI: 44000 mg/l

629.5 - 700.0 mMDRT
Interbedded SILTY CLAYSTONE and SANDSTONE.
SILTY CLAYSTONE (90 - 100%): dk yelsh brn, brnsh gy - gysh bn, sft - v sft, disp - sbbly, tr calc cly, 65% sil cly, 35% sil silt.
SANDSTONE (0 - 10%): clr, trnsl, v lt gy, lse, disp, med - v cse gr, pred cse - v cse, sbrnd - rnd, mod - mod wel std, sbspher - spher, 30% sil cly, 30% sil silt, abdt sil cmt, tr



690
700
710
720
730
740
750
760
770
780
790
800
810
820

Dev @ 695.5 m Inc 2.1 deg
Az 241.0 deg

Dev @ 724.0 m Inc 2.2 deg
Az 237.2 deg

Dev @ 752.6 m Inc 2.9 deg
Az 218.7 deg

Dev @ 781.2 m Inc 4.6 deg
Az 213.1 deg

Dev @ 810.5 m Inc 4.6 deg
Az 213.3 deg

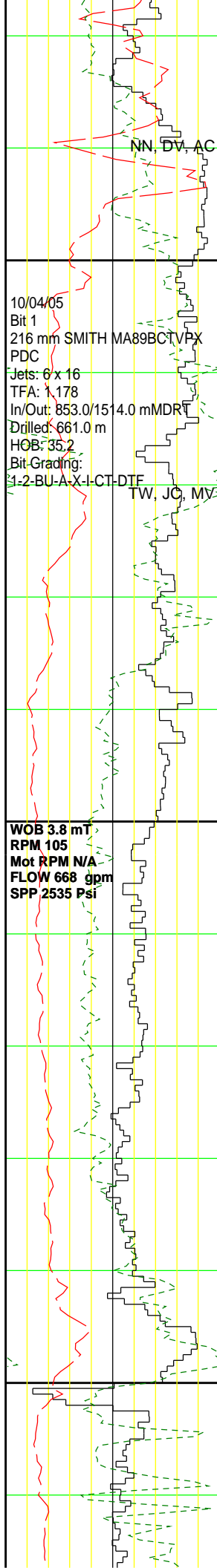
sil cly, 70% sil sd, abdt sil cmt, pr
vis por, n/s.

700.0 - 801.5 mMDRT
SANDSTONE with minor
interbedded ARGILLACEOUS
SILTSTONE.
SANDSTONE (90 - 100%): clr,
trns, v lt gy, v lt brn, lse, frm - mod
hd aggr, f - v cse gr, pred med -
cse, pr - mod std, sbang - sbrnd,
sbspher, tr sil cmt, tr pyr cmt, tr - rr
qtz ovgwth, tr pyr nod, fr - gd vis
por, n/s.
SILTSTONE, ARGILLACEOUS (0
- 10%): lt brnsh gy, lt grnsh gy - olv
gy, med brnsh gy, sft amor, com -
abdt v f - f qtz gr, 25% sil cly, 20%
sil sd, tr carb spec.

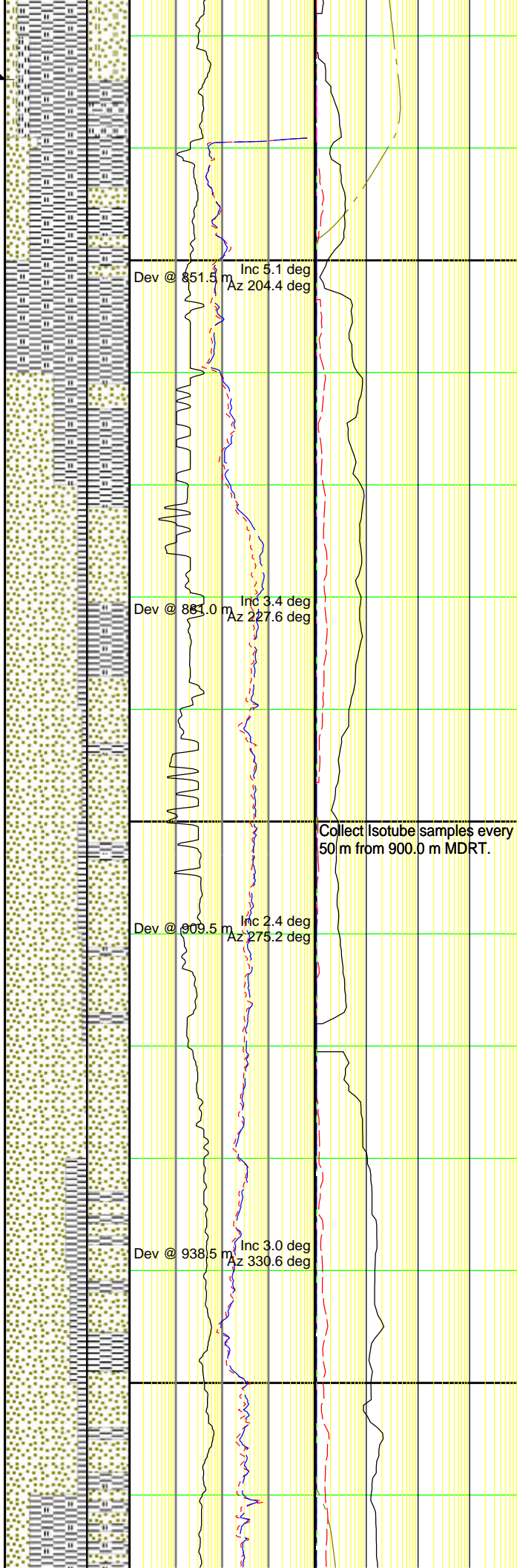
MW: 1.18 sg
FV: 71
PV/YP: 33/26
Gels: 6/14
Gly/W/S: 3/90/7
Ci: 43000 mg/l

801.5 - 853.0 mMDRT
SILTY CLAYSTONE with minor
ARGILLACEOUS SILTSTONE and
SILTY SANDSTONE interbeds.
SILTY CLAYSTONE (15 - 100%):
med brnsh gy - dk brnsh gy, olv gy,
sft, amor, abdt slt, tr - rr v f qtz gr,
tr carb, tr foss frag, tr nod pyr.
ARGILLACEOUS SILTSTONE (15
- 55%): med brnsh gy - dk brnsh gy,
olv gy i.p., sft amor, com - abdt v f -
f qtz gr, 25% sil cly, 20% sil sd, tr
carb spec.
SILTY SANDSTONE (0 - 50%): clr,
trns, v lt gy, v lt brn, lse, frm - mod
hd aggr, f - v cse gr, pred med -
cse, pr - mod std, sbang - sbrnd,
sbspher, 20% slt, tr sil cmt, tr pyr
cmt, tr - rr qtz ovgwth, tr pyr nod, fr
- gd vis por, n/s.

MW: 1.25 sg
FV: 63
PV/YP 34/27
Gels: 4/20
Gly/W/S: 3/87/12
Ci: 46000 mg/l



830
840
850
860
870
880
890
900
910
920
930
940
950
960



Section TD 311 mm (1 1/4") hole
 section @ 839.0 mMDRT (838.6
 mTVD).
 Set 244 mm csg at 834.0
 mMDRT (833.6 mTVD).

Start drilling 216 mm (8 1/2") hole
 18:01 hrs 30/03/2005 @ 839.0
 mMDRT
 Drilled to 842.0m MDRT,
 Performed LOT @ 834.0 m
 MDRT (EMW= 2.20sg).
 Halladale-1 DW1 (Location Black
 Watch) was drilled to a total
 depth of 1918.0 mMDRT prior to
 plugging back to 808.0 mMDRT.
 The cement plug was drilled out
 to 853.0 mMDRT where the
 sidetrack to Halladale-1 DW2
 was confirmed.

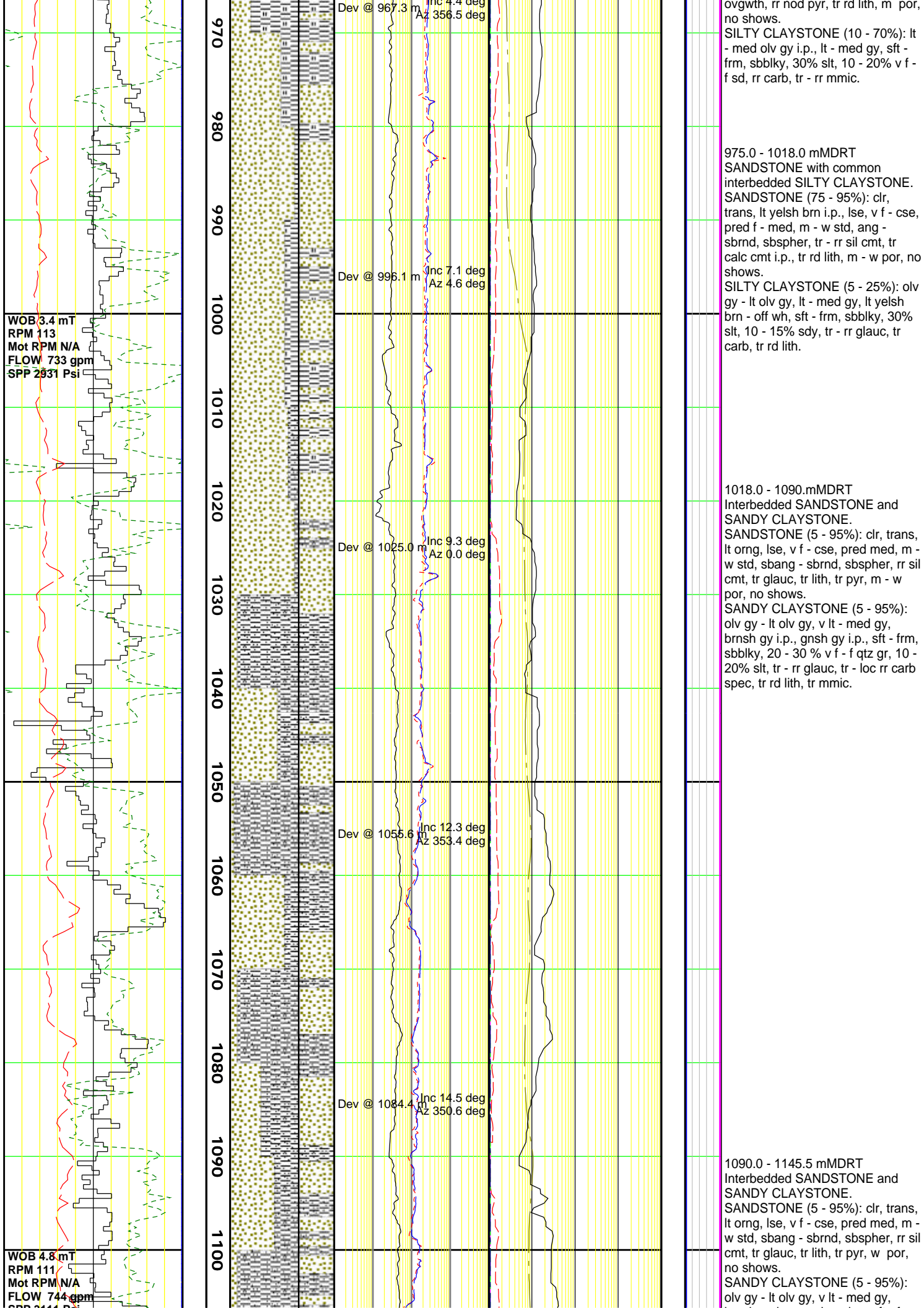
Started Side tracking 216 mm
 (8 1/2") hole 21:30 hrs 10/04/2005
 @ 853.0 mMDRT

853.0 - 886.0 mMDRT
 Interbedded SILTY CLAYSTONE
 and SANDSTONE.
 SILTY CLAYSTONE (60 - 70%): lt
 olv gy - olv gy, grnsh gy, brnsh gy.
 sft - frm, amor, 30% slt, 10% v f sd,
 tr - rr dk grn glauc, tr rd lith i.p..
 SANDSTONE (30 - 40%): clr, trnsl,
 lt gy - lt brn, pa orng brn, lse mod
 hd aggr, f - cse gr, pred med, pr -
 mod std, ang - sbrnd, sbspher, tr
 pyr cmt, tr sil cmt, rr foss frag, tr
 nod pyr, mod vis por, n/s.

886.0 - 933.0 mMDRT
 SANDSTONE with minor
 interbedded SILTY CLAYSTONE.
 SANDSTONE (90 - 100%): lt
 orngsh brn - lt brn, gysh orng,
 trans, clr, lse, v f - v cse, pred v f -
 med, p - m std, ang - sbrnd, occ
 rnd, sbspher, tr - rr sil cmt, tr - rr
 pyr, tr rd lith, m por, no shows.
 SILTY CLAYSTONE (0 - 10%):
 brnsh gy - med gy, med gnsh gy
 i.p., sft - frm, occ mod hd, amor -
 sbbkly, 30% slt, 10% sdy, tr glauc,
 tr mmic.

933.0 - 948.0 mMDRT
 Interbedded SANDSTONE and
 CLAYSTONE.
 SANDSTONE (75 - 80%): clr,
 trans, m std, lt yelsh brn, v f - cse,
 pred med, p - m std, ang - sbrnd,
 sbspher, tr - rr sil cmt, tr - rr nod
 pyr, m - w por, no shows.
 CLAYSTONE (20 - 25%): brnsh
 gy, off wh - lt gy, lt yelsh brn, lt olv
 gy - olv gy, gnsh gy i.p., sft, amor,
 10 - 20% slt, 5 - 10% sdy, tr - loc rr
 glauc.

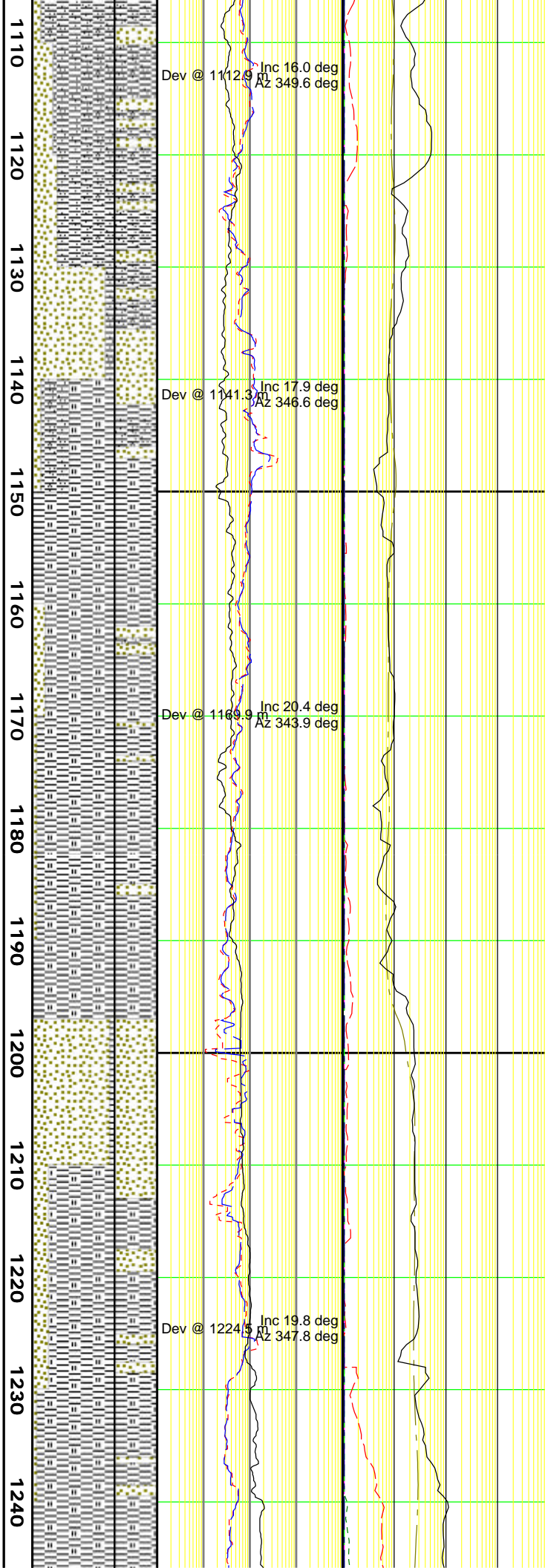
948.0 - 975.0 mMDRT
 Interbedded SANDSTONE and
 SILTY CLAYSTONE.
 SANDSTONE (30 - 90%): clr,
 trans, m std, lt yelsh brn, f - v cse,
 pred med - cse, p std, ang - sbrnd,
 sbspher, rr sil cmt, tr pyr cmt, tr qtz



SPP 3111 Psi

WOB 6.7 mT
RPM 139
Mot RPM N/A
FLOW 742 gpm
SPP 3239 Psi

21/04/05
Bit 1
216 mm SEC-FMF3553 PDC
Jets: 3 x 16; 2 X 17
TFA: 1.032
In/Out: 1197.0/1196.0 mMDRT
Drilled: 772.0 m
HOB: 53.3
Bit Grading: 1-1-WT-A-X-I-CT-TD



brnsh gy i.p., gnsh gy i.p., sft - frm, sbblky, 20 - 30 % v f - f qtz gr, 10 - 20% silt, tr - rr glauc, tr - loc rr carb spks, tr rd lith, tr mmic.

Recalibrated RPM to match GeoPilot rather than rigfloor.

1145.5 - 1197.0 mMDRT
SILTY CLAYSTONE interbedded with SANDSTONE.
SILTY CLAYSTONE (5 - 100%): brnsh gy - olv gy, lt - med gy, 20 - 30% silt, 5 - 15% vf sdy, tr - mnrglaur, tr nod pyr, tr carb spks, sbblky - amor, sft.
SANDSTONE (tr - 95%): clr, trans, wh, pred lse, vf - cse, pred f, m std, ang - sbrnd, sbspher, tr cly mtz, tr calc cmt, tr - mnrglaur, tr rd lith, m por, n/s.

MW: 1.26 sg
FV: 104
PV/YP: 37/28
Gels: 4/12
Gly/W/S: 3/85.5/0.5
CI: 52000 mg/l

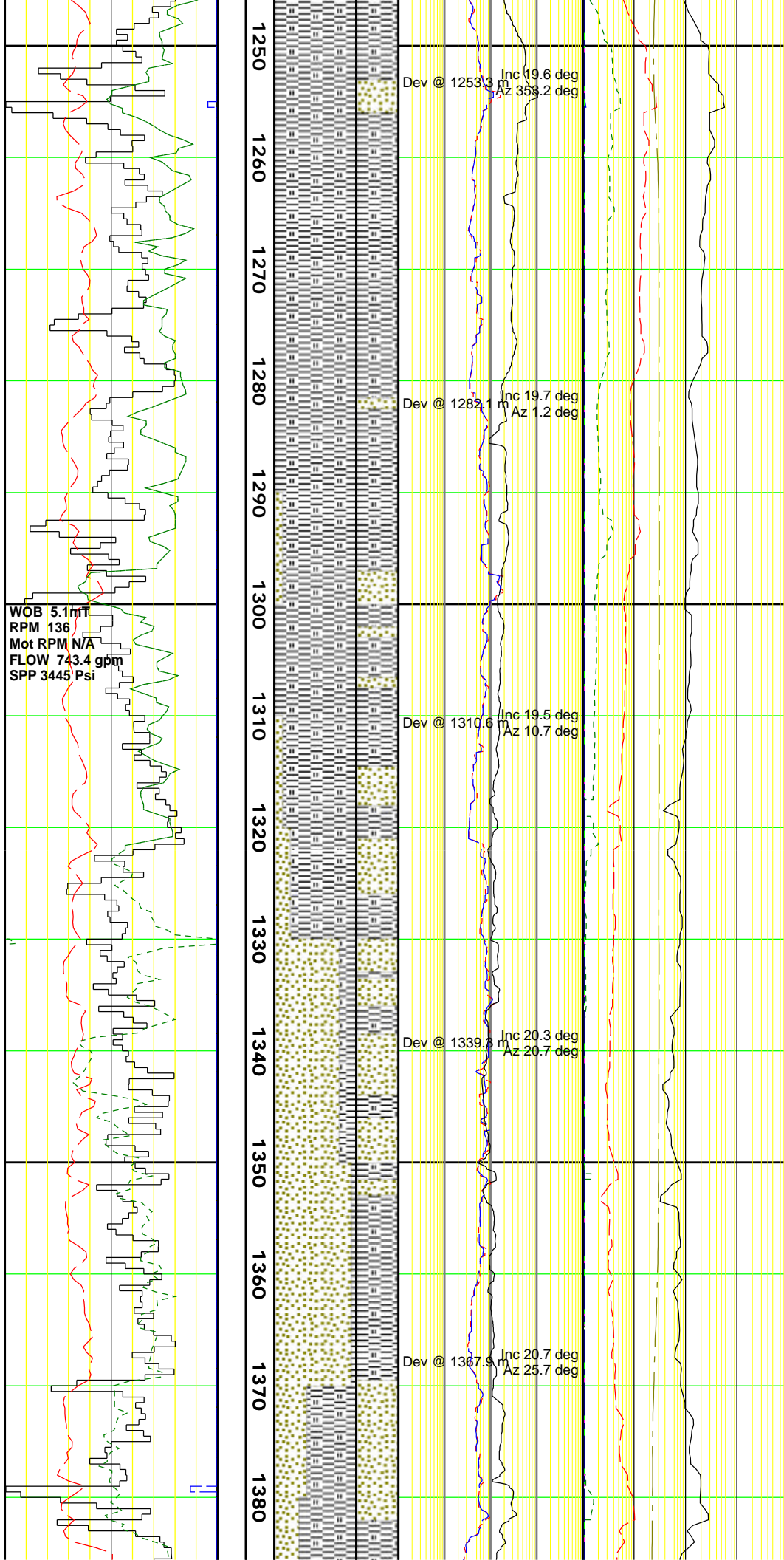
Halladale-1 DW2 was plugged back to 1179.0 mMDRT, drill out cement to 1197.0 mMDRT

Started Side tracking to Halladale-1 DW3 with 216 mm (8½") dia hole on 22/04/2005 at 02:30 hrs @ 1197.0 mMDRT

1197.0 - 1210.0 mMDRT
SANDSTONE with minor SILTY CLAYSTONE beds.
SANDSTONE (95 - 100%): clr, trans, wh, pred lse, vf - cse, pred f, m std, ang - sbrnd, sbspher, tr cly mtz, tr - mnrglaur, m por, n/s.
SILTY CLAYSTONE (0 - 5 %): lt gy - olv gy, lt - med gy, sft, sbblky - amor, 20 - 30% silt, vf sdy, tr glauc, tr nod pyr, tr carb spks.

1210.0 - 1324.0 mMDRT
SILTY CLAYSTONE interbedded with SANDSTONE.
SILTY CLAYSTONE (80 - 100%): lt gy - olv gy, lt - dk gy, sft, sbblky - amor, 20 - 30% silt, vf sdy, tr glauc, tr nod pyr.
SANDSTONE (0 - 20%): clr, trans, lt gys, pred lse, med - cse, pred med, w std, ang - sbrnd, sbspher,

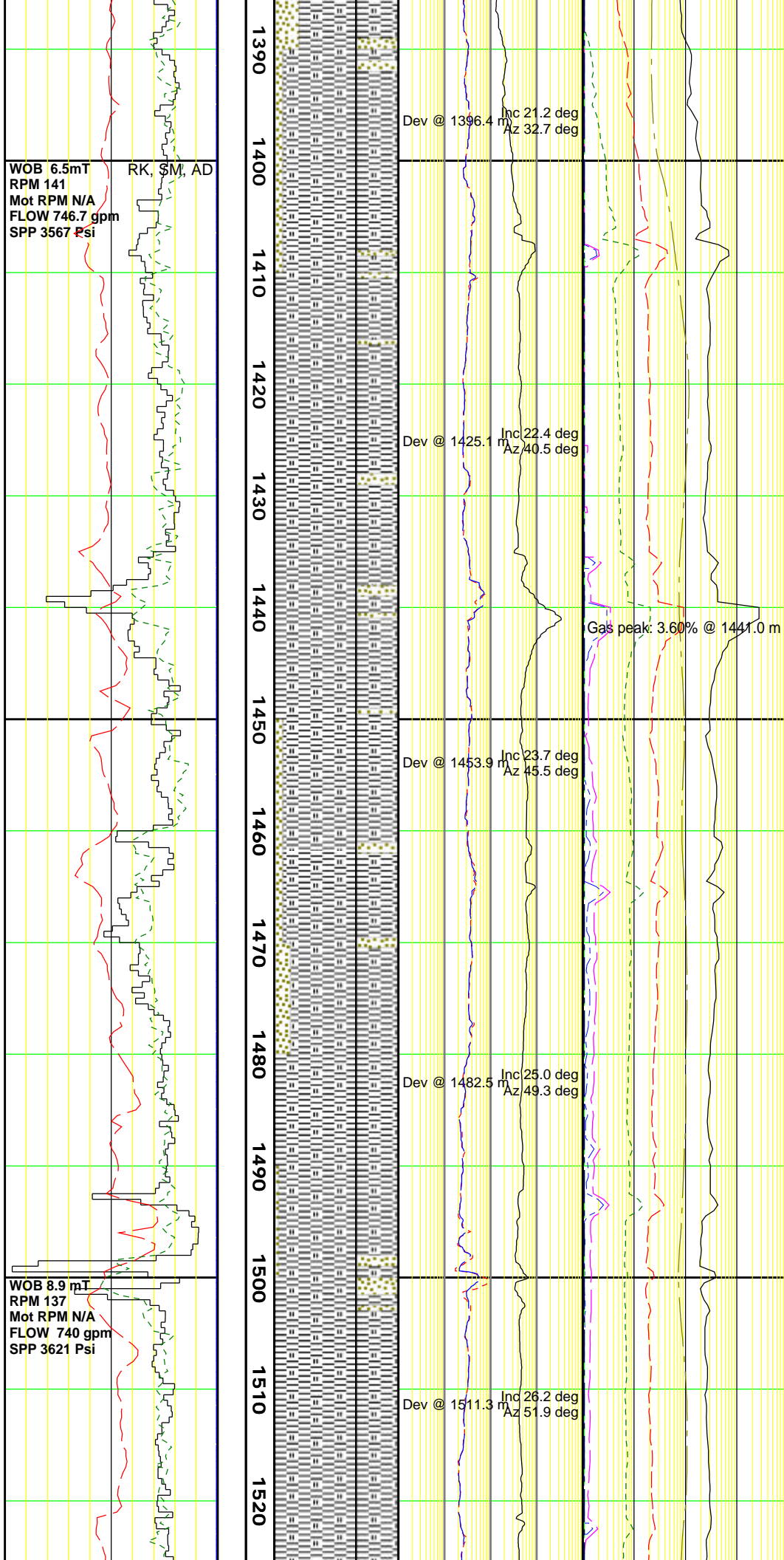
tr nod pyr, fr vis por, n/s.



1324.0 - 1384.0 mMDRT
SILTY CLAYSTONE interbedded
with SANDSTONE.
SILTY CLAYSTONE (0 - 95%):
brnsh gy - olv gy, lt - med gy, sft,
sbbly - amor, 20 - 30% slt, 5 -
15% v f sd, tr - mntr glauc, tr nod
pyr, tr carb spks.
SANDSTONE (5 - 100%): clr,
trans, wh, pred lse, v f - med, pred
f, w std, ang - sbrnd, sbspher, tr
calc cmt, tr nod pyr, tr rd lith, m vis
por, n/s.

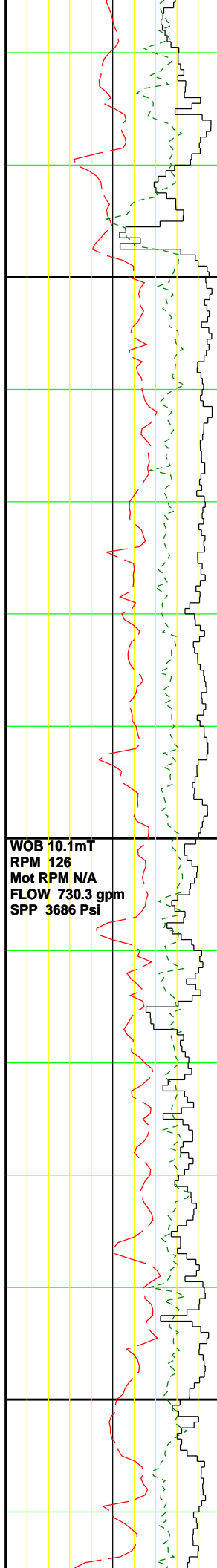
MW: 1.26 sg
FV: 72
PV/YP: 37/37
Gels: 5/18
Gly/W/S: 3/86/0.5
Cl: 45000 mg/l

1384.0 - 1460.0 mMDRT



1384.0 - 1460.0 mMDRT
SILTY CLAYSTONE with trace
SANDSTONE.
SILTY CLAYSTONE (70 - 100%):
olv gy - med gy, sft, amor - sbbiky,
20 - 30% slt, tr v f sd, rr mmic, tr -
5% glauc.
SANDSTONE (0 - 30%): clr, trans,
wh, pred lse, v f - med, pred f, w
std, ang - sbrnd, sbspher, tr calc
cmt, tr nod pyr, fr inf por, n/s.

1460.0 - 1542.0 mMDRT
SILTY CLAYSTONE with minor
SANDSTONE beds.
SILTY CLAYSTONE (70 - 100%):
olv gy - med gy, sft, amor - sbbiky,
20 - 30% slt, tr -10% v f sd, tr - 5%
glauc.
SANDSTONE (0 - 30%): clr, trans,
wh, pred lse, v f - med, pred f, w
std, ang - sbrnd, sbspher, tr calc
cmt, fr inf por, n/s.



1530
1540
1550
1560
1570
1580
1590
1600
1610
1620
1630
1640
1650
1660

Dev @ 1540.1 m Inc 28.2 deg
Az 55.3 deg

Dev @ 1568.7 m Inc 29.9 deg
Az 56.9 deg

Dev @ 1597.7 m Inc 30.3 deg
Az 57.1 deg

Dev @ 1626.3 m Inc 29.8 deg
Az 53.7 deg

Dev @ 1654.6 m Inc 29.9 deg
Az 56.0 deg

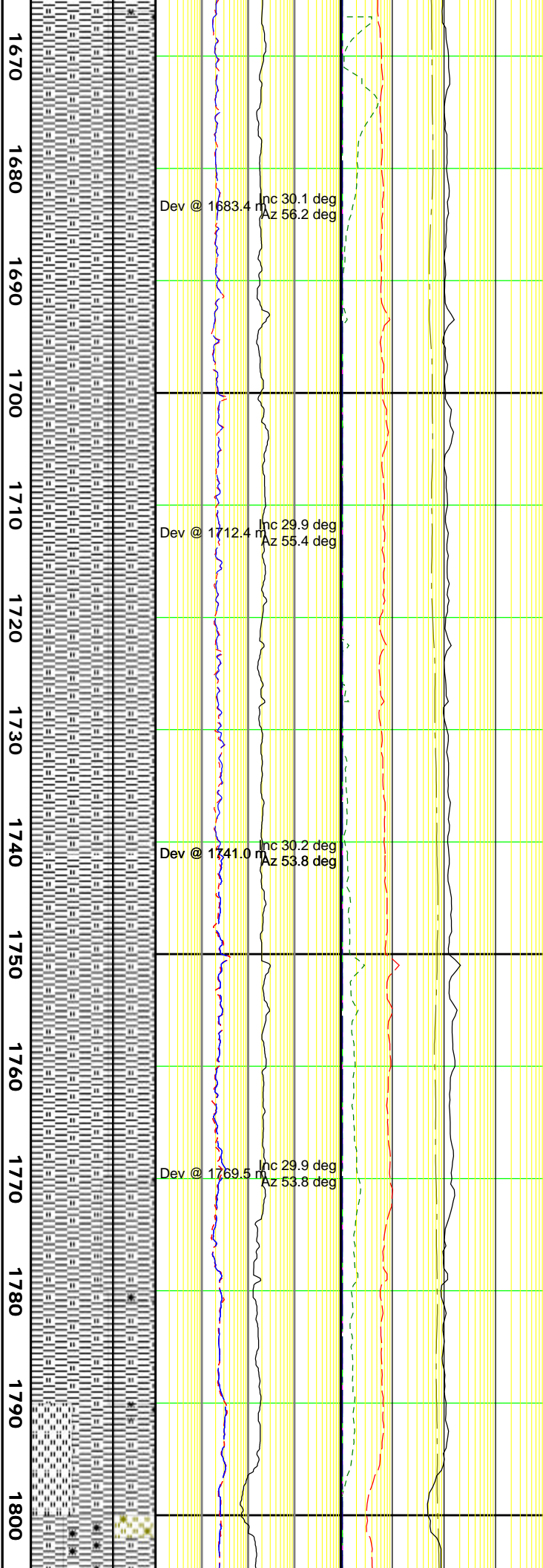
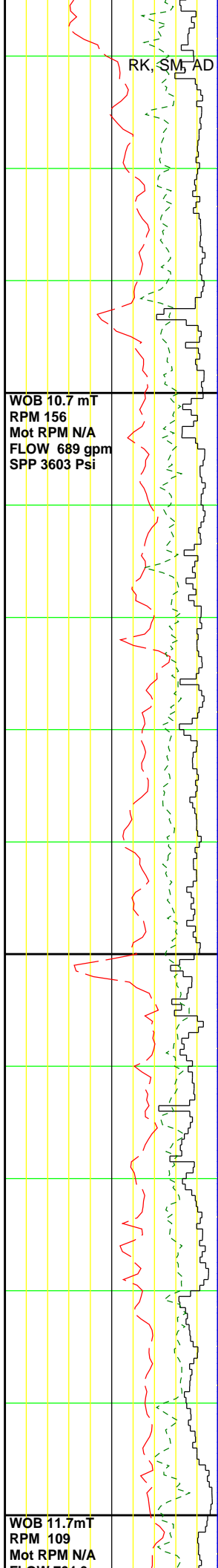
MW: 1.25 sg
FV: 68
PV/YP: 34/34
Gels: 6/12
Gly/W/S: 3/86.5/0.3
Cl: 47000 mg/l

1542.0 - 1548.0 mMDRT
SANDSTONE (0 - 30%): clr, trans, wh, pred lse, v f - med, pred f, w std, ang - sbrnd, sbspher, tr calc cmt, fr inf por, n/s.

1548.0 - 1570.0 mMDRT
SILTY CLAYSTONE inberbedded with SANDSTONE.
SILTY SANDSTONE (90 - 100%): olv gy - med gy, sft, amor - sbbiky, 20 - 30% slt, tr -10% v f sd, tr - 5% glauc, tr pyr nod.
SANDSTONE (tr - 10%): clr, trans, wh, pred lse, v f - f, pred f, w std, ang - sbrnd, sbspher, tr calc cmt, fr inf por, n/s.

1570.0 - 1640.0 mMDRT
SILTY CLAYSTONE grading to GLAUCONITIC CLAYSTONE with minor SANDSTONE.
SILTY CLAYSTONE (85 - 100%): olv gy - med gy, sft, amor - sbbiky, 20 - 30% slt, tr -10% v f sd, tr - 5% glauc. tr pyr nod.
GLAUCONITIC CLAYSTONE (tr - 15%): lt - dk gnsh gy, sft - frm, sbbiky, 10% slt, 10 - 20% glauc.
SANDSTONE (tr - 5%): clr, trans, wh, pred lse, v f - f, pred f, w std, ang - sbrnd, sbspher, tr calc cmt, fr inf por, n/s.

1640.0 - 1801.0 mMDRT
SILTY CLAYSTONE grading to GLAUCONITIC CLAYSTONE with trace SANDSTONE.
SILTY CLAYSTONE (85 - 100%): olv gy - med gy, sft, amor - sbbiky, 20 - 30% slt, tr -10% v f sd, tr - 5% glauc. tr pyr nod.
GLAUCONITIC CLAYSTONE (tr - 15%): lt - dk gnsh gy, sft - frm, sbbiky, 10% slt, 10 - 20% glauc.
SANDSTONE (tr - 10%): clr, trans, wh, pred lse, v f - f, pred f, w std, ang - sbrnd, sbspher, tr calc cmt, fr inf por, n/s.



Run Carbide @ 1663.0 m
Theor Ann Vol = 388 bbls
Act Ann Vol = 447 bbls
Ave Hole dia = 9.7" (247 mm)

MW: 1.26 sg
FV: 72
PV/YP: 38/42
Gels: 8/19
Gly/W/S: 3/86/0.2
Cl: 47000 mg/l

1801.0 - 1870.0 mMDRT
SILTY CLAYSTONE grading to
SILTSTONE and GLAUCONITIC

FLOW 704.6 gpm
SPP 3712Psi

WOB 8.7 mT
RPM 149
Mot RPM N/A
FLOW 663 gpm
SPP 3549 Psi

RK, SM, AD

1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910 1920 1930 1940

Dev @ 1827.2 m Inc 28.8 deg
Az 57.8 deg

Dev @ 1853.7 m Inc 28.4 deg
Az 56.4 deg

Dev @ 1882.1 m Inc 28.8 deg
Az 57.3 deg

Dev @ 1910.7 m Inc 28.7 deg
Az 58.1 deg

Gas peak: 1.90% @ 1877.0 m

CLAYSTONE.
SILTY CLAYSTONE (40 - 100%):
olv gy - med gy, sft, amor - sbblky,
20 - 30% slt, tr -5% v f sd, tr - 5%
glauc. tr pyr nod.
GLAUCONITIC CLAYSTONE (tr -
60%): lt - dk gnsh gy, sft - frm,
sbblky, 10% slt, 10 - 20% glauc.
SILTSTONE (tr - 60%): med - dk
gy, brnsh gy, tr pyr, sbblky, frm -
mod hd.

MW: 1.26 sg
FV: 69
PV/YP: 43/39
Gels: 6/18
Gly/W/S: 3/86/0.25
Cl: 51000 mg/l

1870.0 - 1907.0 mMDRT
SANDSTONE with minor SILTY
CLAYSTONE beds.
SANDSTONE (0 - 100%): clr,
trans, wh, pred lse, v f - med, pred
f, m std, ang - sbrnd, sbspher, tr
cly mtx, tr - 50% rk flr, tr - mntr nod
pyr, gd inf por, n/s.
SILTY CLAYSTONE (0 - 100%):
olv gy, lt - med gy, sft, sbblky -
amor, 20 - 30% slt, tr v f sd, tr - 5%
glauc, tr nod pyr.

1907.0 - 1969.0 mMDRT
SILTY CLAYSTONE with minor
SANDSTONE beds.
SILTY CLAYSTONE (0 - 95%):
med gy - olv gy, sft, sbblky - amor,
10 - 30% slt, tr v f sd, tr - 5% glauc,
tr nod pyr.
SANDSTONE (5 - 100%): clr,
trans, wh, pred lse, v f - med, pred
f, m std, ang - sbrnd, sbspher, tr -
10% cly mtx, tr calc cmt, tr - 80%
rk flr, tr nod pyr, gd inf por, n/s.

| | | | | | | | | |
|--|--|---|---------------------------|--|---|---|--|----------------|
| | | <p>1950</p> <p>1960</p> <p>1970</p> <p>1980</p> <p>1990</p> | | <p>Dev @ 1957.0 m</p> <p>Inc 26.2 deg</p> <p>Az 53.4 deg</p> | | | <p>MW: 1.26 sg</p> <p>FV: 74</p> <p>PV/YP: 40/32</p> <p>Gels: 7/15</p> <p>GlyW/S: 3/86/0.2</p> <p>Cl: 51000 mg/l</p> <p>Well TD 216 mm (8½") hole section @ 1969.0m MDRT (1881.3 m TVD) on 24/04/05 @ 15:14hrs.</p> <p>Wireline logs run at TD. Run 1: RCI-GR (10 Pressures)</p> | <p>REMARKS</p> |
| <p>GAMMA (api)</p> <p>WOB (klb)</p> <p>ROP (m/hr)</p> <p>ROP WRAP (m/hr)</p> | | <p>DEPTH mMDRT 1:500</p> | <p>LITHOLOGY CUTTINGS</p> | <p>INTERPRETED LITHOLOGY</p> | <p>RESISTIVITY (SHALLOW)</p> <p>RESISTIVITY (DEEP)</p> <p>TOTAL GAS</p> | <p>CHROMATOGRAPH</p> <p>METHANE %</p> <p>ETHANE %</p> <p>PROPANE %</p> <p>ISO-BUTANE %</p> <p>N-BUTANE %</p> <p>ISO-PENTANE %</p> <p>N-PENTANE %</p> <p>CO2 %</p> | <p>OIL FLUORESCENCE</p> <p>DOLOMITE</p> | <p>REMARKS</p> |



RIG MONITORING
DRILLING LOG 1:1000

Country : Australia
Field : Halladale
Location : Lat: 38° 34' 45.54" South
Long: 142° 43' 50.95" East
Well : Halladale -1 DW3
Company : Woodside Energy Ltd
Rig : Ocean Patriot

LOCATION

Company : Woodside Energy Ltd
Rig : Ocean Patriot
Well : Halladale -1 DW3
Field : Halladale
Country : Australia
DOE Number :

Latitude : 38° 34' 45.54" South
Longitude : 142° 43' 50.95" East
UTM Easting = 650,763.20 m
UTM Northing = 5,728,485.20 m

Other Services
FEWD
Directional Drilling

Permanent Datum : LAT

Elevation : 0.00 m

Elev. KB 0.00 m

Log Measured From : Drill Floor

21.50 m Above Permanent Datum

DF 21.50 m

Drilling Measured From : Drill Floor

MD LOG

GL 0.00 m
WD 44.80 m

Depth Logged : 66.30 m To 1,969.00 m

Unit No. : 197

Job No. : AU-FE-0003325469

Date Logged : 22-Mar-05 To 23-Apr-05

Total Depth MD : 1,969.00 m TVD: 1,881.61 m

Plot Type : Final














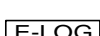




Plot Date : 28-Jun-05

| Run No. | Size | Borehole Record (MD) | Run No. | Size | Borehole Record (MD) |
|---------|------------|--------------------------|---------|------|----------------------|
| 1 | 914.000 mm | From 66.30 m To 69.00 m | | | |
| 2 | 444.000 mm | 69.00 m To 101.00 m | | | |
| 3 | 444.000 mm | 101.00 m To 427.00 m | | | |
| 4 | 311.000 mm | 427.00 m To 839.00 m | | | |
| 5 | 216.000 mm | 839.00 m To 853.00 m | | | |
| 6 | 216.000 mm | 853.00 m To 1,197.00 m | | | |
| 7 | 216.000 mm | 1,197.00 m To 1,969.00 m | | | |





















| Size | Casing Record (MD) | From | To |
|------------|--------------------|----------|----|
| 762.000 mm | SURFACE | 99.50 m | |
| 340.000 mm | SURFACE | 421.00 m | |
| 244.000 mm | SURFACE | 834.00 m | |

LEGEND

Abbreviations and Symbols

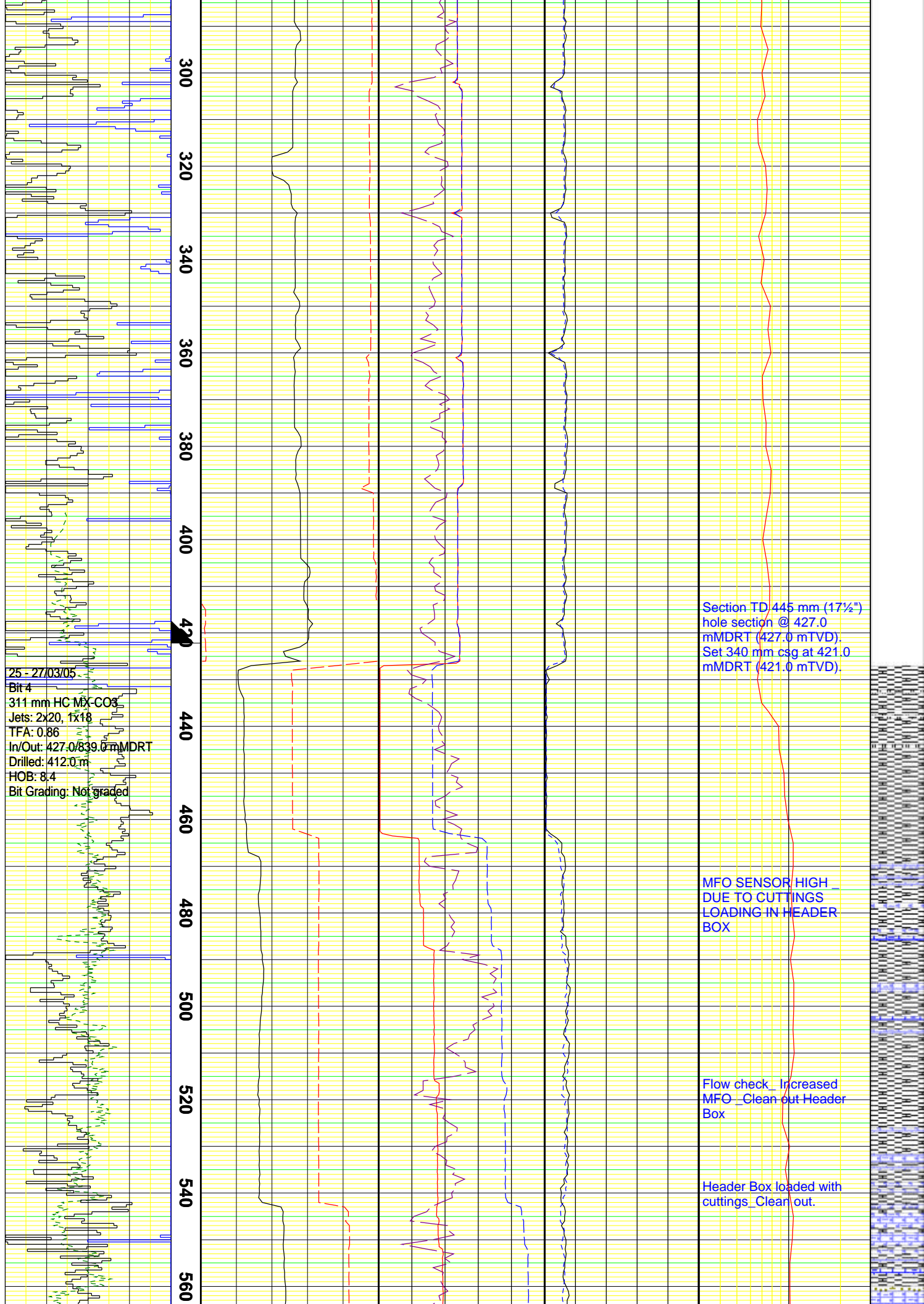
| Drilling Data | | Mud Data | | | |
|---------------|-------------------------|---|----------------------|---|----------------------|
| BG | Background Gas | Cl- | Chloride Ion Conc | Rm | Mud Resistivity |
| BHT | Bottomhole Temp | FC | Filter Cake | Rmf | Filtrate Resistivity |
| C | Carbide Test | FL | Filtrate Loss | S | Solids Content |
| CB | Core Bit | G | Gels | Vis | Funnel Viscosity |
| CG | Connection Gas | pH | Hydrogen Ion Content | MW | Mud Weight |
| CKF | Check For Flow | PV | Plastic Viscosity | YP | Yield Point |
| CO | Circulate Out | Engineering Data | | | |
| DB | Diamond Bit | | | | |
| DC | Depth Correction |  | Core No. |  | Water |
| DS | Direction Survey |  | DST No. |  | Salt Water |
| DST | Drillstem Test |  | Casing Seat |  | Fresh Water |
| FLT | Flowline Temp. |  | Side Wall Core |  | Hydrocarbons Smell |
| LAT | Logged After Trip |  | Gas Traces |  | H2S Smell |
| NB | New Bit |  | Gas |  | Interval Tester |
| NR | No Returns |  | Oil Traces |  | Wireline Log Run |
| PDC | Polycrystalline Diamond |  | Oil |  | Leakoff Test |
| PR | Partial Returns |  | |  | Pressure Integrity |
| RPM | Revs Per Minute | | | | |
| RRB | Rerun Bit | | | | |
| STG | Short Trip Gas | | | | |
| TB | Turbo Drill | | | | |
| TG | Trip Gas | | | | |
| U | Gas Units | | | | |
| WOB | Weight On Bit | | | | |

Lithology Symbols

| | | | |
|--|------------------------|---|--------------------------|
|  | Sandstone |  | Sandy Claystone |
|  | Calcareous Sandstone |  | Silty Claystone |
|  | Glaucconitic Sandstone |  | Calcarenite |
|  | Silty Sandstone |  | Argillaceous Calcarenite |
|  | Argillaceous Sandstone |  | Sandy Calcarenite |
|  | Siltstone |  | Calcisiltite |
|  | Sandy Siltstone |  | Calcilutite |
|  | Argillaceous Siltstone |  | Argillaceous Calcilutite |
|  | Claystone |  | Limestone |
|  | Clacareous Claystone |  | Dolomite |

Test

| | | |
|---|--|---|
| <p>22/03/05 Bit 1RR2 914 mm Varel L111 Jets: 3x32 TFA: 2.36 In/Out: 66.3/ 69.0 mMDRT Drilled: 2.7 m HOB: 0.4 Bit Grading: Not graded</p> <p>23/03/05 Bit 2 445 mm HC MX1 w/ 914 mm Hole Opener Jets: 2x20, 1x18 TFA: 0.86 In/Out: 69.0/101.5 mMDRT Drilled: 32.5 m HOB: 5.6 Bit Grading: 1-1 NO A-E-F-NO-TD</p> <p>24/03/05 Bit 3 445 mm HC MX1 Jets: 2x20, 1x18 TFA: 0.86 In/Out: 101.5/427.0 mMDRT Drilled: 325.5 m HOB: 6.7 Bit Grading: 1-1-WT-A-1-I-NO-TD</p> | | <p>RT - LAT 21.5 m Water Depth 44.8 m RT - Seabed 66.3 m Spud Halladale-1 DW1 (Location Black Watch) @ 66.3 mMDRT 12:30 hrs 22/03/05 Section TD 914 mm (36") hole section @ 101.0 mMDRT (101.0 mTVD). Set 762 mm x 508 mm Csg shoe @ 99.5 mMDRT (99.5 mTVD)</p> |
|---|--|---|



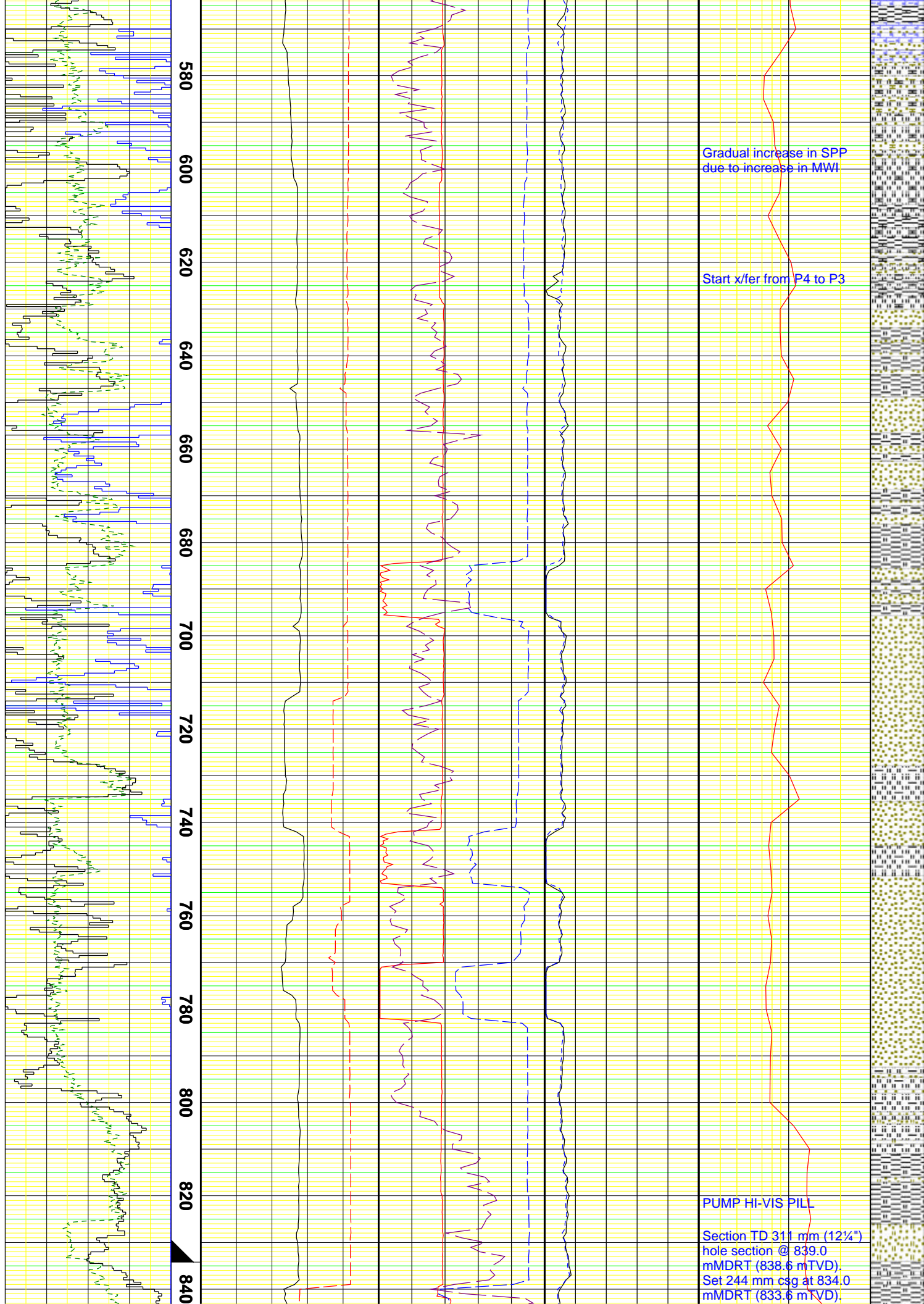
Section TD 445 mm (17 1/2")
hole section @ 427.0
mMDRT (427.0 mTVD).
Set 340 mm csg at 421.0
mMDRT (421.0 mTVD).

MFO SENSOR HIGH
DUE TO CUTTINGS
LOADING IN HEADER
BOX

Flow check Increased
MFO Clean out Header
Box

Header Box loaded with
cuttings Clean out.

25 - 27/03/05
Bit 4
311 mm HC MX-CO3
Jets: 2x20, 1x18
TFA: 0.86
In/Out: 427.0/839.0 mMDRT
Drilled: 412.0 m
HOB: 8.4
Bit Grading: Not graded



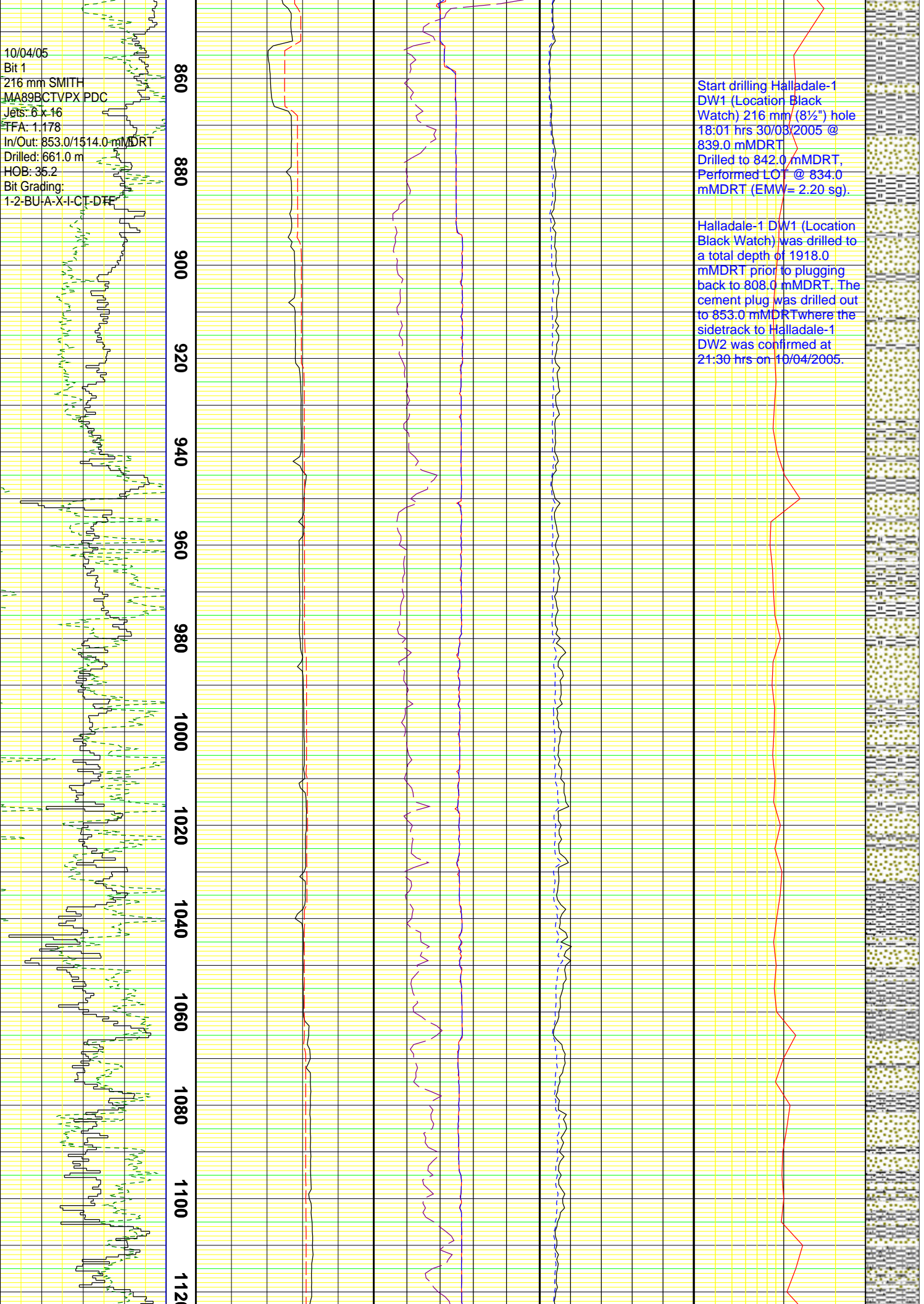
Gradual increase in SPP
due to increase in MWI

Start x/fer from P4 to P3

PUMP HI-VIS PILL

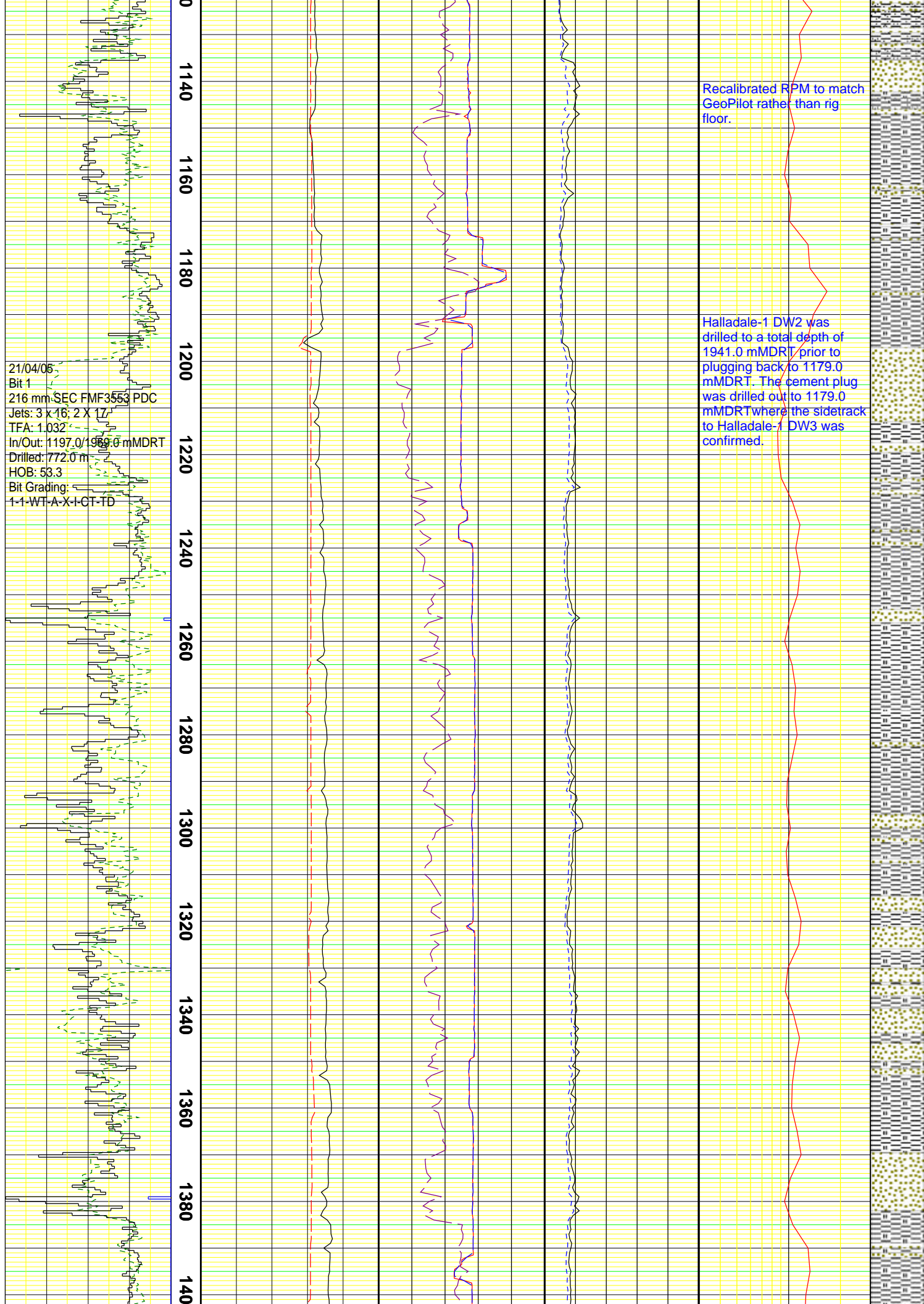
Section TD 311 mm (12 1/4")
hole section @ 839.0
mMDRT (838.6 mTVD).
Set 244 mm csg at 834.0
mMDRT (833.6 mTVD).

10/04/05
Bit 1
216 mm SMITH
MA89BCTVPX PDC
Jets: 6 x 16
TFA: 1.178
In/Out: 853.0/1514.0 mMDRT
Drilled: 661.0 m
HOB: 35.2
Bit Grading:
1-2-BU-A-X-I-CT-DH



Start drilling Halladale-1
DW1 (Location Black
Watch) 216 mm (8½") hole
18:01 hrs 30/03/2005 @
839.0 mMDRT
Drilled to 842.0 mMDRT,
Performed LOT @ 834.0
mMDRT (EMW= 2.20 sg).

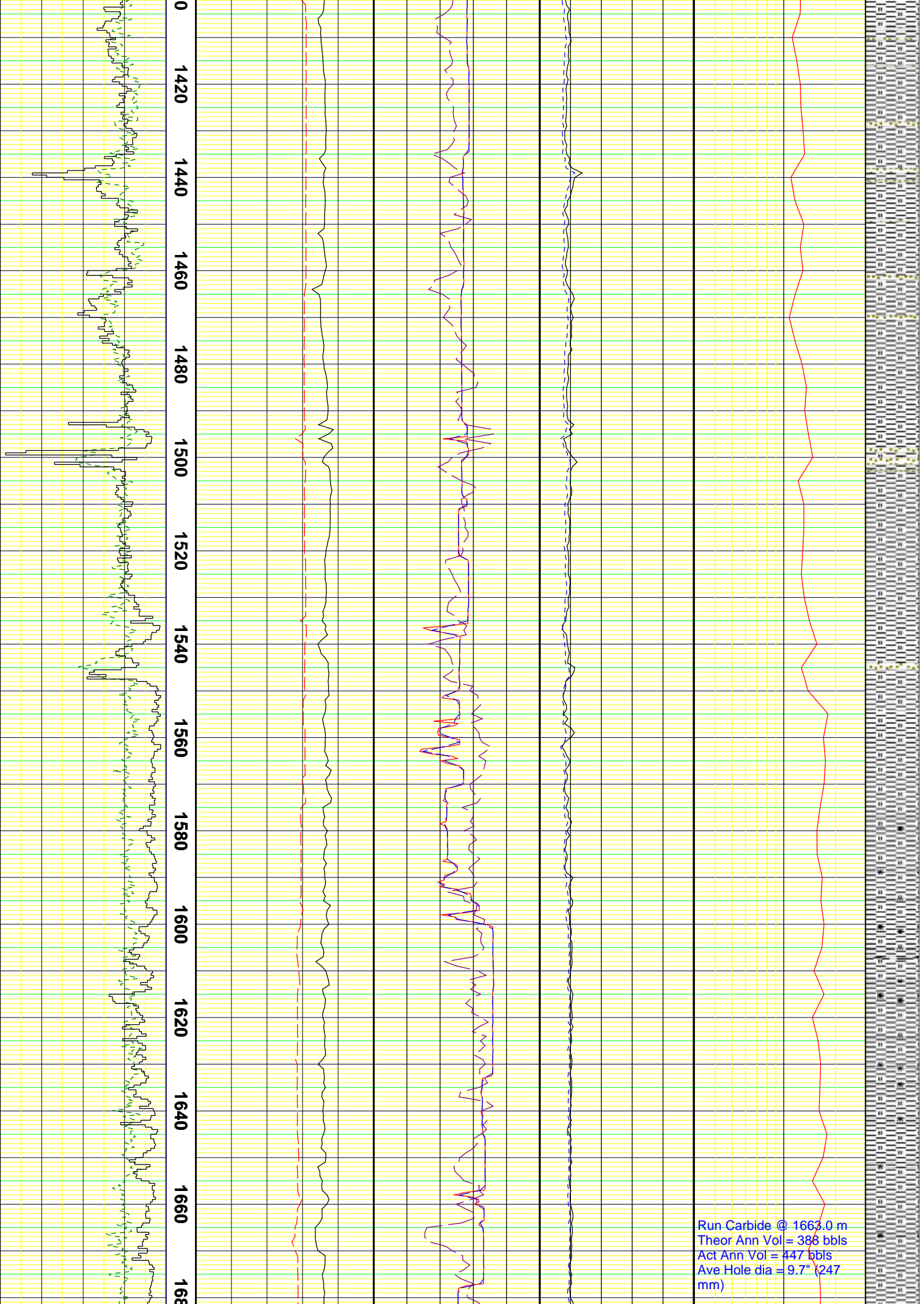
Halladale-1 DW1 (Location
Black Watch) was drilled to
a total depth of 1918.0
mMDRT prior to plugging
back to 808.0 mMDRT. The
cement plug was drilled out
to 853.0 mMDRT where the
sidetrack to Halladale-1
DW2 was confirmed at
21:30 hrs on 10/04/2005.



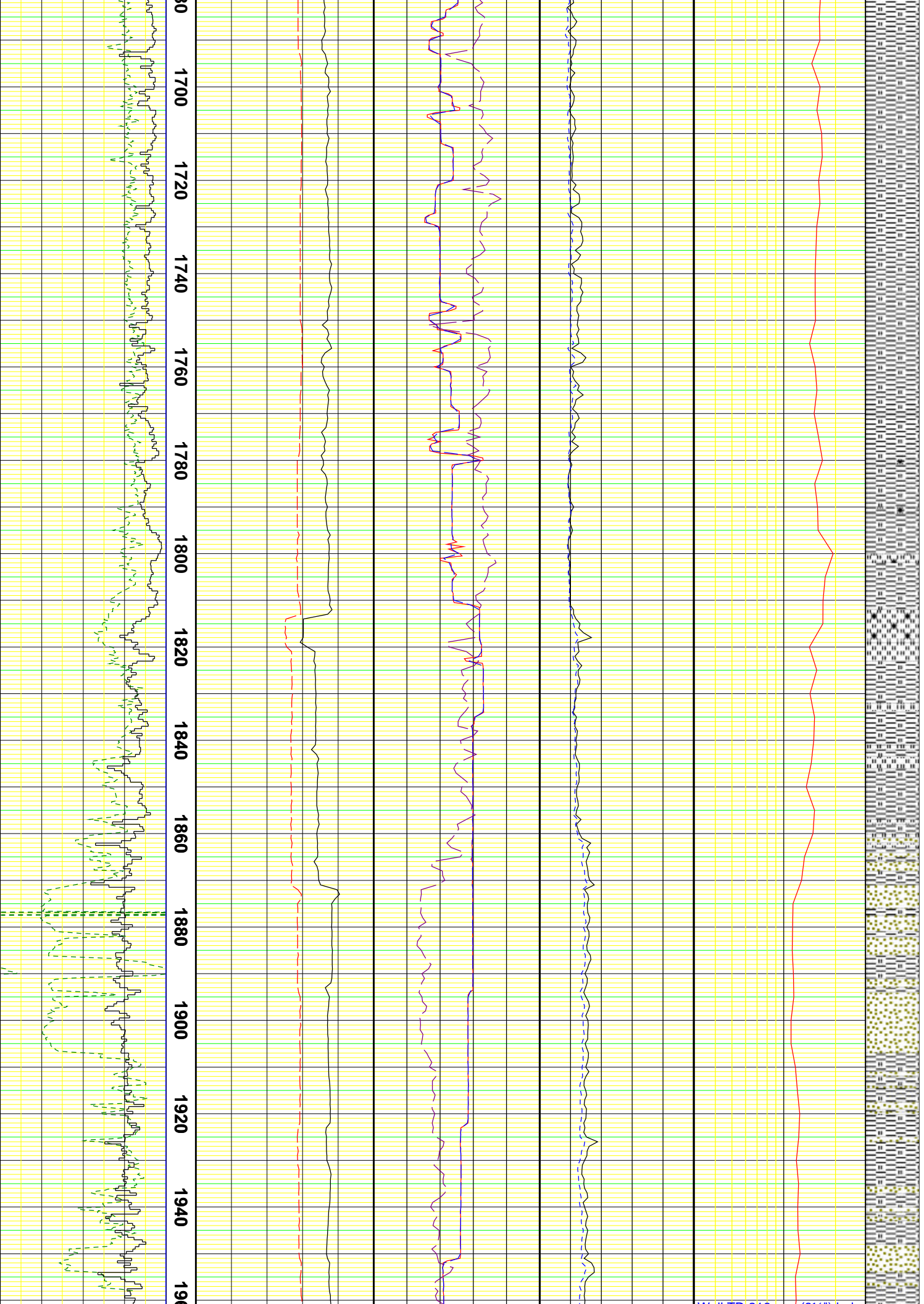
21/04/06
Bit 1
216 mm SEC FMF3553 PDC
Jets: 3 x 16, 2 x 17
TFA: 1.032
In/Out: 1197.0/1969.0 mMDRT
Drilled: 772.0 m
HOB: 53.3
Bit Grading:
1-1-WT-A-X-I-CT-TD

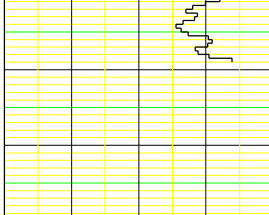
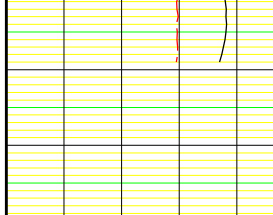
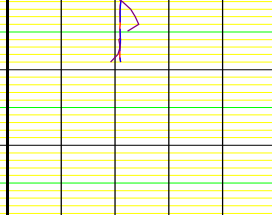

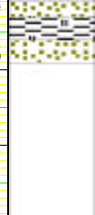
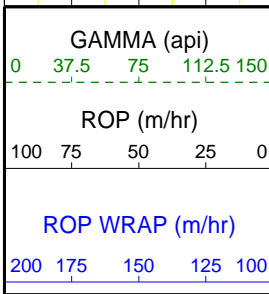
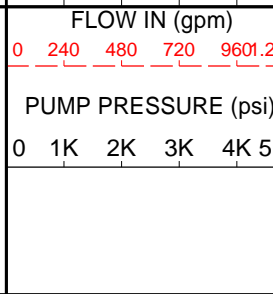
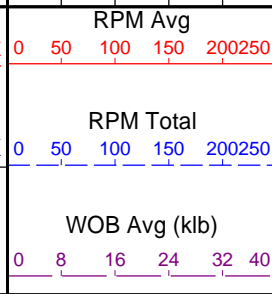
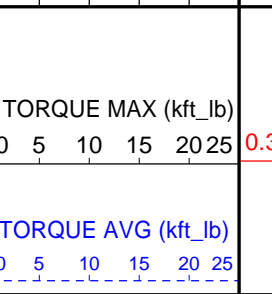

Recalibrated RPM to match
GeoPilot rather than rig
floor.

Halladale-1 DW2 was
drilled to a total depth of
1941.0 mMDRT prior to
plugging back to 1179.0
mMDRT. The cement plug
was drilled out to 1179.0
mMDRT where the sidetrack
to Halladale-1 DW3 was
confirmed.



Run Carbide @ 1663.0 m
Theor Ann Vol = 388 bbls
Act Ann Vol = 447 bbls
Ave Hole dia = 9.7" (247 mm)



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|---------------------|---|--|--|--|---|------|---|--|--|---|--|--|--|--|---|--|--|--|--|---------------------------------|--|---|--|--|-----------------------|--|--|--|--|
|  | | | | | 60 |  | | | | | 1980 |  | | | | |  | | | | | Well ID 216 mm (8½") hole section @ 1969.0 mMDRT (1881.3 mTVD) on 24/04/05 @ 15:14 hrs. | | | | |  | | | | | | | |
|  | | | | | 1980 |  | | | | | 1980 |  | | | | |  | | | | | Wireline logs run at TD. Run 1: RCI-GR (10 Pressures) | | | | |  | | | | | | | |
| <div>GAMMA (api)</div> <div>0 37.5 75 112.5 150</div> <div>-----</div> <div>ROP (m/hr)</div> <div>100 75 50 25 0</div> <div>ROP WRAP (m/hr)</div> <div>200 175 150 125 100</div> | | | | | DEPTH m MDRT 1:1000 | | | | | <div>FLOW IN (gpm)</div> <div>0 240 480 720 960 1.2K</div> <div>PUMP PRESSURE (psi)</div> <div>0 1K 2K 3K 4K 5K</div> | | | | | <div>RPM Avg</div> <div>0 50 100 150 200 250</div> <div>RPM Total</div> <div>0 50 100 150 200 250</div> <div>WOB Avg (klb)</div> <div>0 8 16 24 32 40</div> | | | | | <div>TORQUE MAX (kft_lb)</div> <div>0 5 10 15 20 25</div> <div>TORQUE AVG (kft_lb)</div> <div>0 5 10 15 20 25</div> | | | | | <div>DXC</div> <div>0.3 3</div> | | | | | INTERPRETED LITHOLOGY | | | | |



RIG MONITORING
PRESSURE LOG 1:2500

Country : Australia
Field : Halladale
Location : Lat: 38° 34' 45.54" South
Long: 142° 43' 50.95" East
Well : Halladale -1 DW3
Company : Woodside Energy Ltd
Rig : Ocean Patriot

Company : Woodside Energy Ltd
Rig : Ocean Patriot
Well : Halladale -1 DW3
Field : Halladale
Country : Australia
DOE Number :
LOCATION
Latitude : 38° 34' 45.54" South
Longitude : 142° 43' 50.95" East
UTM Easting = 650,763.20 m
UTM Northing = 5,728,485.20 m

Other Services
FEWD
Directional Drilling

Permanent Datum : LAT
Log Measured From : Drill Floor
Drilling Measured From : Drill Floor
Elevation : 0.00 m
21.50 m Above Permanent Datum
TVD LOG



















Elev. KB 0.00 m
DF 21.50 m
GL 0.00 m
WD 44.80 m

Depth Logged : 66.30 m To 1,969.00 m
Date Logged : 22-Mar-05 To 23-Apr-05
Unit No. : 197
Job No. : AU-FE-0003325469

Total Depth MD : 1,969.00 m TVD : 1,881.61 m
Spud Date : 22-Mar-05
Plot Type : Final
Plot Date : 28-Jun-05

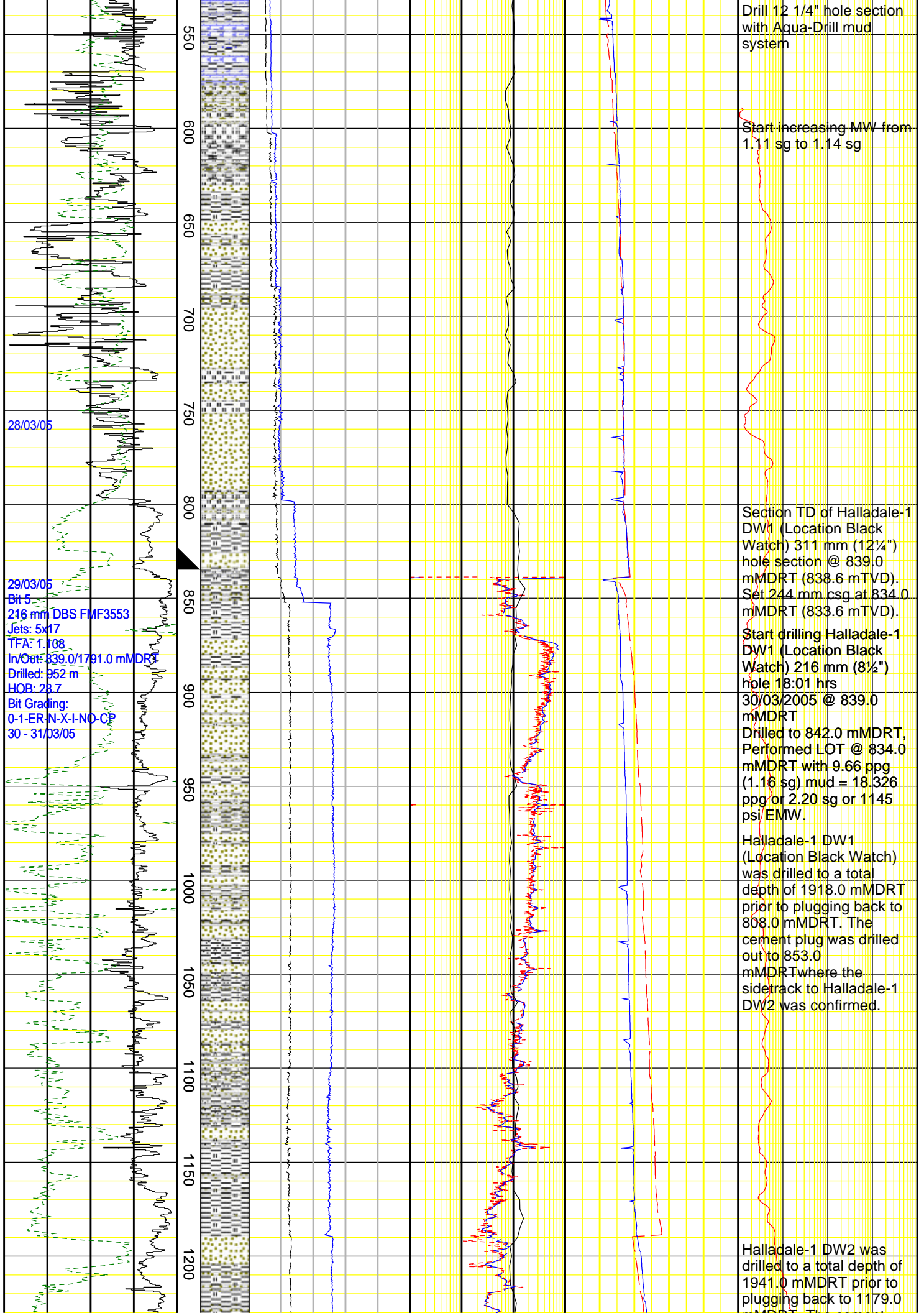
| Run No. | Size | Borehole Record (TVD) | Run No. | Size | Borehole Record (TVD) |
|---------|------------|--------------------------|---------|------|-----------------------|
| 1 | 914,000 mm | From 66.30 m To 69.00 m | | | |
| 2 | 444,000 mm | 69.00 m To 101.00 m | | | |
| 3 | 444,000 mm | 101.00 m To 426.98 m | | | |
| 4 | 311,000 mm | 426.98 m To 838.62 m | | | |
| 5 | 216,000 mm | 838.62 m To 852.56 m | | | |
| 6 | 216,000 mm | 852.56 m To 1,189.09 m | | | |
| 7 | 216,000 mm | 1,189.09 m To 1,881.61 m | | | |

Abbreviations and Symbols

| Drilling Data | | Mud Data | | | |
|---------------|-------------------------|---|----------------------|---|-------------------------|
| BG | Background Gas | Cl- | Chloride Ion Conc | Rm | Mud Resistivity |
| BHT | Bottomhole Temp | FC | Filter Cake | Rmf | Filtrate Resistivity |
| C | Carbide Test | FL | Filtrate Loss | S | Solids Content |
| CB | Core Bit | G | Gels | Vis | Funnel Viscosity |
| CG | Connection Gas | pH | Hydrogen Ion Content | MW | Mud Weight |
| CKF | Check For Flow | PV | Plastic Viscosity | YP | Yield Point |
| CO | Circulate Out | Engineering Data | | | |
| DB | Diamond Bit | | | | |
| DC | Depth Correction |  | Core No. |  | Water |
| DS | Direction Survey |  | DST No. |  | Salt Water |
| DST | Drillstem Test |  | Casing Seat |  | Fresh Water |
| FLT | Flowline Temp. |  | Side Wall Core |  | Hydrocarbons Smell |
| LAT | Logged After Trip |  | Gas Traces |  | H2S Smell |
| NB | New Bit |  | Gas |  | Interval Tester |
| NR | No Returns |  | Oil Traces |  | Wireline Log Run |
| PDC | Polycrystalline Diamond |  | Oil |  | Leakoff Test |
| | Compound Bit |  | Bitumen |  | Pressure Integrity Test |
| PR | Partial Returns | | | | |
| RPM | Revs Per Minute | | | | |
| RRB | Rerun Bit | | | | |
| STG | Short Trip Gas | | | | |
| TB | Turbo Drill | | | | |
| TG | Trip Gas | | | | |
| U | Gas Units | | | | |
| WOB | Weight On Bit | | | | |

Lithology Symbols

| | | | |
|--|------------------------|--|--------------------------|
| | Sandstone | | Sandy Claystone |
| | Calcareous Sandstone | | Silty Claystone |
| | Glaucconitic Sandstone | | Calcarenite |
| | Silty Sandstone | | Argillaceous Calcarenite |
| | Argillaceous Sandstone | | Sandy Calcarenite |
| | Siltstone | | Calcisiltite |
| | Sandy Siltstone | | Calcilutite |
| | Argillaceous Siltstone | | Argillaceous Calcilutite |
| | Claystone | | Limestone |
| | Clacareous Claystone | | Dolomite |



Drill 12 1/4" hole section with Aqua-Drill mud system

Start increasing MW from 1.11 sg to 1.14 sg

28/03/05

29/03/05
Bit 5
216 mm DBS FMF3553
Jets: 5x17
TFA: 1.108
In/Out: 839.0/1791.0 mMDRT
Drilled: 952 m
HOB: 28.7
Bit Grading:
0-1-ER-N-X-I-NO-CP
30 - 31/03/05

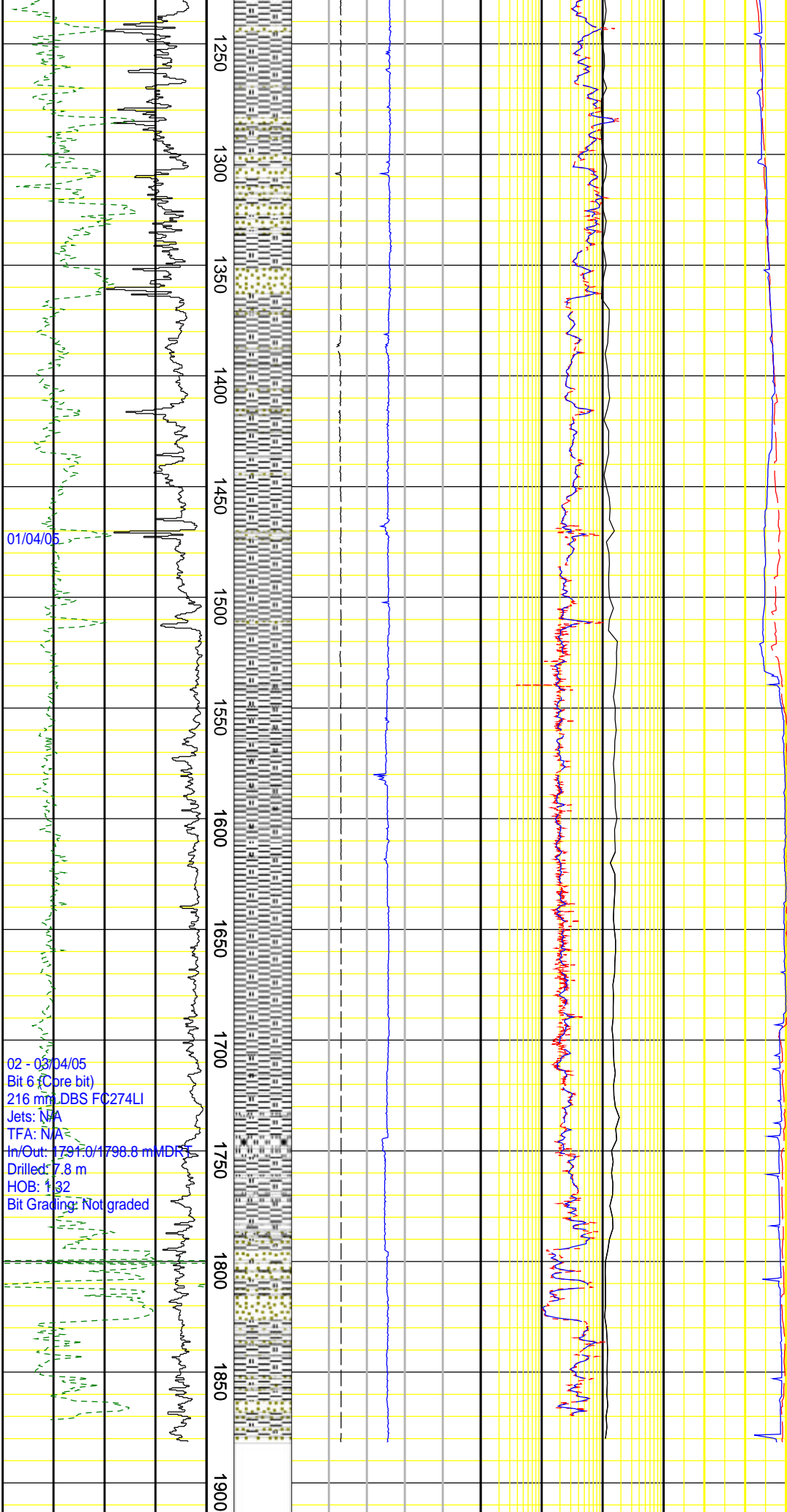
Section TD of Halladale-1 DW1 (Location Black Watch) 311 mm (12 1/4") hole section @ 839.0 mMDRT (838.6 mTVD). Set 244 mm csg at 834.0 mMDRT (833.6 mTVD).

Start drilling Halladale-1 DW1 (Location Black Watch) 216 mm (8 1/2") hole 18:01 hrs 30/03/2005 @ 839.0 mMDRT
Drilled to 842.0 mMDRT, Performed LOT @ 834.0 mMDRT with 9.66 ppg (1.16 sg) mud = 18,326 ppg or 2.20 sg or 1145 psi EMW.

Halladale-1 DW1 (Location Black Watch) was drilled to a total depth of 1918.0 mMDRT prior to plugging back to 808.0 mMDRT. The cement plug was drilled out to 853.0 mMDRT where the sidetrack to Halladale-1 DW2 was confirmed.

Halladale-1 DW2 was drilled to a total depth of 1941.0 mMDRT prior to plugging back to 1179.0 mMDRT.

mMDRT. The cement
plug was drilled out to
1197.0 mMDRT where
the sidetrack to DW3 was
confirmed.



Well TD 216 mm (8½")
hole section @ 1969.0
mMDRT (1881.6 mTVD)
on 24/04/05 @ 15:14 hrs.

Wireline logs run at TD.
Run 1: RCI-GR
(10 Pressures)

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MWD End of Well Report



HALLIBURTON

Sperry Drilling Services

End of Well Report

for

Woodside Energy Ltd

Halladale-1 DW3

Rig: Ocean Patriot

Field:

Country: Australia

Job No: AU-FE-0003325469

Date: 21st April 2005

HALLIBURTON

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General Information

| | |
|-----------------------------|---|
| Company: | Woodside Energy Ltd |
| Rig: | Ocean Patriot |
| Well: | Halladale-1 DW3 |
| Field: | |
| Country: | Australia |
| API Number: | |
| Sperry Job Number: | AU-FE-0003325469 |
| Job start date: | 21-Apr-05 |
| Job end date: | 25-Apr-05 |
| North reference: | Grid |
| Declination: | 10.896 deg |
| Dip angle: | -69.812 deg |
| Total magnetic field: | 60815.348 nT |
| Date of magnetic data: | 21-Apr-05 |
| Wellhead coordinates N: | 38 deg. 34 min 45.54 sec South GDA94 |
| Wellhead coordinates E: | 142 deg. 43 min 50.92 sec East GDA94 |
| Vertical section direction: | 33.730 deg |
| MWD Engineers: | M.Saunders J.Lau J.Nicolson A.Nijhof |

Company Representatives: D.Thorpe

Company Geologist: S.Billeau
Lease Name: Vic54P
Unit Number: 197
State: Victoria
County:

Operational Overview

Sperry Drilling Services were contracted by Woodside Energy Ltd to provide Logging While Drilling (LWD) services for the drilling of the exploration well Halladale-1 DW3 from the Ocean Patriot. Halladale-1 DW3 was kicked off from the well bore of Halladale-1 DW2 at 1197.0 mMDRT.

216 mm Hole Section:

This hole section was drilled to well TD at 1969.0 mMDRT in one bit run using Sperry's Formation Evaluation tool suite (FEWD) comprising Dual Gamma Ray (DGR), Electromagnetic Wave Resistivity (EWR-P4), Pressure while Drilling (PWD), Stabilized Litho-Density (SLD), Compensated Thermal Neutron (CTN), and Bi-Modal Acoustic Tool (BAT Sonic) for logging purposes and a Directional Monitor (DM) for directional control. The run utilised Sperry's Rotary Steerable tool Geo-Pilot with At Bit Inclination (ABI).

| | | | | | | | |
|--------|-------|--------|--------|-------|-------|---|---|
| TOTALS | ====> | 772.00 | 116.66 | 92.90 | 71.50 | 0 | 0 |
|--------|-------|--------|--------|-------|-------|---|---|

Bitrun Summary

| Run Time Data | | Drilling Data | | Mud Data | | | | |
|---|-----------------|------------------|------------|-----------------|------------|-----------|--|--|
| MWD Run : | 0100 | Start Depth : | 1197.00 m | Mud Type : | AQUA-DRILL | | | |
| Rig Bit No: | 1 | End Depth : | 1969.00 m | Weight / Visc : | 1.26 sg / | 74.00 spl | | |
| Hole Size : | 216.00 mm | Footage : | 772.00 m | Chlorides : | 51000 ppm | | | |
| Run Start : | 20-Apr-05 18:20 | Avg. Flow Rate : | 740 gpm | PV / YP : | 40.00 cp / | 32.00 pa | | |
| Run End : | 25-Apr-05 15:00 | Avg. RPM : | 135 rpm | Solids/Sand : | 8.5 % / | 0.2 % | | |
| BRT Hrs : | 116.66 | Avg. WOB : | 15.00 klb | %Oil / O:W : | N/A % / | 0:100 | | |
| Circ. Hrs : | 71.50 | Avg. ROP : | 14.48 m/hr | pH/Fluid Loss: | 9.50 pH / | 4.00 cptm | | |
| Oper. Hrs : | 92.90 | Avg. SPP : | 3700 psig | Max. Temp. : | 82.00 degC | | | |
| MWD Schematics | | BHA Schematics | | | | | | |
| <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div>10. Positive Pulser</div><div>SN : 8047</div></div> <div><div>9. TM</div><div>SN : 160772</div></div> <div><div>8. BAT</div><div>SN : 145079</div><div>101.05 m From Bit</div></div> <div><div>7. CTN</div><div>SN : 173972</div><div>26.00 m From Bit</div></div> <div><div>6. SLD</div><div>SN : 182726</div><div>21.95 m From Bit</div></div> <div><div>5. HCIM</div><div>SN : 160772</div></div> <div><div>4. PWD</div><div>SN : 121626</div><div>16.34 m From Bit</div></div> <div><div>3. EWR-P4</div><div>SN : 74703</div><div>13.81 m From Bit</div></div> <div><div>2. DGR</div><div>SN : 176691</div><div>11.51 m From Bit</div></div> <div><div>1. GeoPilot</div><div>SN : GP0850TL088</div><div>4.36 m From Bit</div></div> | | Component | | Length | O.D. | I.D. | | |
| | | | | (m) | (mm) | (mm) | | |
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Directional Survey Data

| Measured Depth (metres) | Inclination (degrees) | Direction (degrees) | Vertical Depth (metres) | Latitude (metres) | Departure (metres) | Vertical Section (metres) | Dogleg (deg/30m) |
|----------------------------|--------------------------|------------------------|----------------------------|----------------------|-----------------------|------------------------------|---------------------|
| 1169.86 | 20.36 | 343.90 | 1163.64 | 39.87 N | 22.11 W | 20.88 | TIE-IN |
| 1195.73 | 21.42 | 342.38 | 1187.81 | 48.70 N | 24.79 W | 26.73 | 1.38 |
| 1224.52 | 19.80 | 347.77 | 1214.76 | 58.47 N | 27.41 W | 33.41 | 2.60 |
| 1253.28 | 19.60 | 353.21 | 1241.84 | 68.03 N | 29.01 W | 40.46 | 1.92 |
| 1282.05 | 19.67 | 1.17 | 1268.94 | 77.66 N | 29.49 W | 48.21 | 2.79 |
| 1310.63 | 19.51 | 10.69 | 1295.87 | 87.16 N | 28.50 W | 56.66 | 3.35 |
| 1339.28 | 20.34 | 20.73 | 1322.81 | 96.52 N | 25.85 W | 65.92 | 3.68 |
| 1367.86 | 20.72 | 25.64 | 1349.58 | 105.73 N | 21.91 W | 75.76 | 1.85 |
| 1396.40 | 21.18 | 32.71 | 1376.24 | 114.62 N | 16.93 W | 85.92 | 2.70 |
| 1425.09 | 22.39 | 40.47 | 1402.89 | 123.14 N | 10.59 W | 96.53 | 3.26 |
| 1453.92 | 23.69 | 45.54 | 1429.42 | 131.37 N | 2.89 W | 107.65 | 2.47 |
| 1482.54 | 24.97 | 49.30 | 1455.50 | 139.34 N | 5.80 E | 119.10 | 2.11 |
| 1511.34 | 26.21 | 51.92 | 1481.47 | 147.23 N | 15.41 E | 131.00 | 1.75 |
| 1540.05 | 28.20 | 55.29 | 1507.01 | 155.00 N | 25.98 E | 143.34 | 2.63 |
| 1568.69 | 29.91 | 56.92 | 1532.04 | 162.75 N | 37.53 E | 156.19 | 1.97 |
| 1597.67 | 30.33 | 57.12 | 1557.11 | 170.67 N | 49.73 E | 169.55 | 0.45 |
| 1626.34 | 29.77 | 53.70 | 1581.93 | 178.81 N | 61.54 E | 182.89 | 1.89 |
| 1654.59 | 29.91 | 56.01 | 1606.43 | 186.90 N | 73.04 E | 196.00 | 1.23 |
| 1683.39 | 30.14 | 56.14 | 1631.37 | 194.94 N | 84.99 E | 209.32 | 0.25 |
| 1712.45 | 29.91 | 55.42 | 1656.53 | 203.12 N | 97.02 E | 222.80 | 0.44 |
| 1741.01 | 30.22 | 53.85 | 1681.25 | 211.40 N | 108.68 E | 236.17 | 0.89 |
| 1769.54 | 29.87 | 53.80 | 1705.94 | 219.83 N | 120.22 E | 249.58 | 0.37 |
| 1827.21 | 28.76 | 57.77 | 1756.23 | 235.72 N | 143.54 E | 275.74 | 1.16 |
| 1853.71 | 28.37 | 56.40 | 1779.51 | 242.60 N | 154.18 E | 287.38 | 0.86 |
| 1882.13 | 28.81 | 57.39 | 1804.46 | 250.03 N | 165.57 E | 299.88 | 0.68 |
| 1910.69 | 28.69 | 58.09 | 1829.50 | 257.36 N | 177.19 E | 312.43 | 0.38 |
| 1957.00 | 26.16 | 53.45 | 1870.61 | 269.32 N | 194.83 E | 332.17 | 2.14 |
| 1969.00 | 26.20 | 53.45 | 1881.38 | 272.47 N | 199.08 E | 337.15 | 0.10 |

Directional Survey Data

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 33.73 DEGREES (GRID)

A TOTAL CORRECTION OF 11.98 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.

HORIZONTAL DISPLACEMENT(CLOSURE) AT 1969.00 METRES

IS 337.45 METRES ALONG 36.15 DEGREES (GRID)

RT-LAT=21.5m

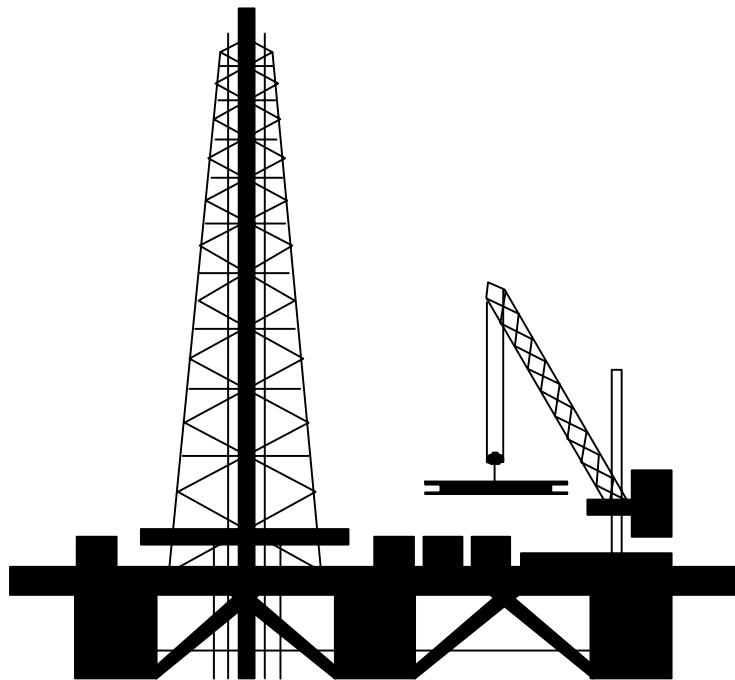
All surveys are SUCOP axial corrected

DW3 was sidetracked from the well bore of DW2 at 1197.0 mMDRT

Final Survey Projected to TD



Woodside Energy Ltd.



Directional Drilling End of Well Report

Well : Halladale #1 DW3

Date: April 2005

HALLIBURTON
Sperry Drilling Services

Table of Contents

1. Well Summary
 2. Definitive Survey Report and A4 Plot
 3. Survey and Drilling Parameters
 4. BHA Data
 5. Motor Performance Reports
 6. Daily Directional Drilling Reports
-

Client : Woodside Energy Ltd.

Well Name : Halladale #1 DW-3

Job Objectives:

Halladale #1 DW-3 was required due to insufficient information obtained from DW-2 and DW-1.

Halladale #1 DW-3 is a contingent exploration well within the Otway Basin and all the 3 exploration wells are drilled from a single surface location 4km offshore of the Victorian coastline.

Summary of Results:

One run GP7600 sidetracked from 1180m to TD at 1969mMD. Again backreaming was required when tripping out of hole. ROP was remarked as better than DW-2.

Discussion:

BHA Summary:

Run1: GP7600 sidetracked from 1180m to 1969mMD.

| BHA # | Bit # | Motor Run # | Hole Size (in) | MD In (m) | MD Out (m) | TVD In (m) | TVD Out (m) | Inc In (deg) | Inc Out (deg) | Azi In (deg) | Azi Out (deg) | Drlg hrs | Circ hrs |
|-------|-------|-------------|----------------|-----------|------------|------------|-------------|--------------|---------------|--------------|---------------|----------|----------|
| 12 | 7 | ? | 8.500 | 1175 | 1969 | 1168 | 1881 | 20.6 | 28.2 | 343 | 58 | 64 | 10 |

Table 1 - BHA Summary

| Motor Run # | Manufacturer | Type | Lobe | OD (in) | Gauge (in) | Bend (deg) | Adj | DLS (Ori) (°/30m) | ROP (Ori) (m/hr) | ROP (Rot) (m/hr) |
|-------------|--------------|-------------|------|---------|------------|------------|-----|-------------------|------------------|------------------|
| ? | SSDS | SperryDrill | 6/7 | 6.750 | | 0.00 | N | 1.70 | 15 | 9 |

Table 2 - Motor Run Summary

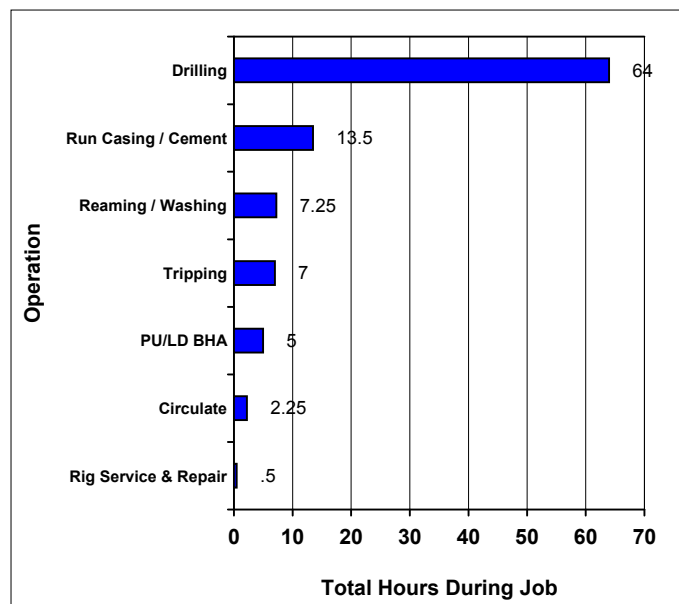
Bit Run Summary:

Run1: Rerun SDBS FMF 3553 (3 x 16/32", 2 x 17/32")

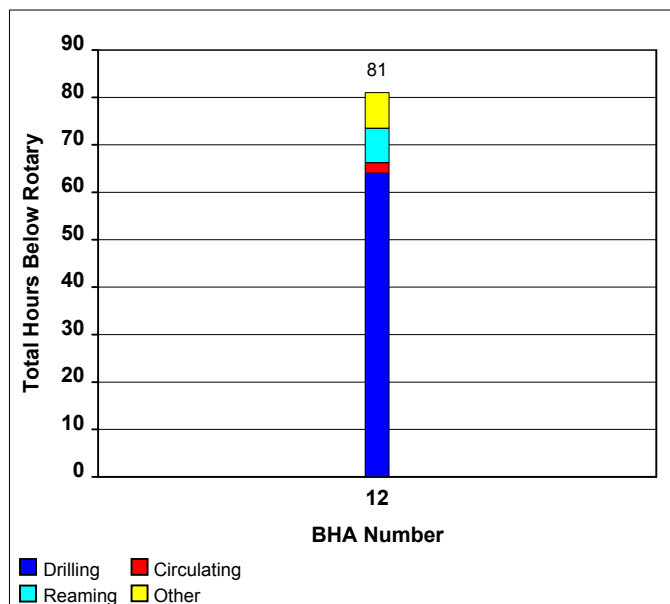
| Bit # | Manufacturer | Style | OD (in) | Gge Len (in) | Nozzles (/32's) | TFA (in²) | Dull Grades I O D L B G O R | Ftge (m) | Drlg hrs | ROP (m/hr) |
|-------|--------------|---------|---------|--------------|-----------------|-----------|-----------------------------|----------|----------|------------|
| 7 | DBS | FMF3553 | 8.500 | | 3x16, 2x17 | 1.032 | | 794 | 64.00 | 12 |

Table 3 - Bit Run Summary

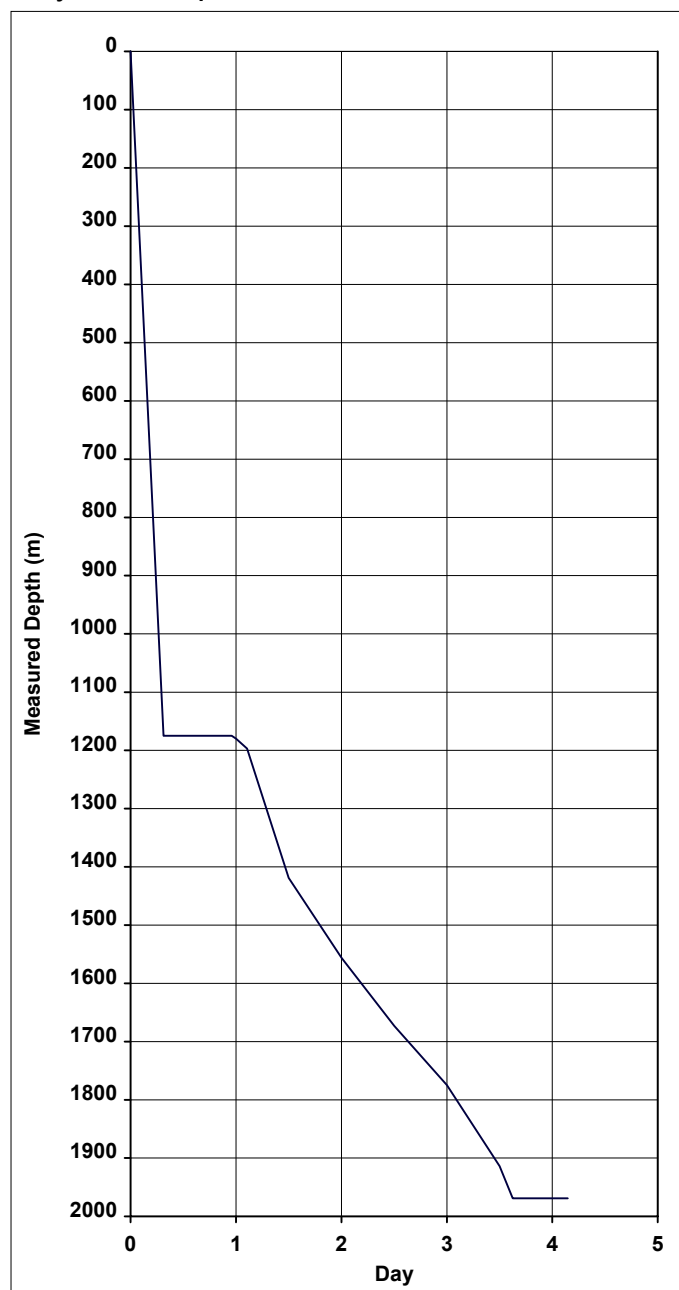
Hours by Operation Summary



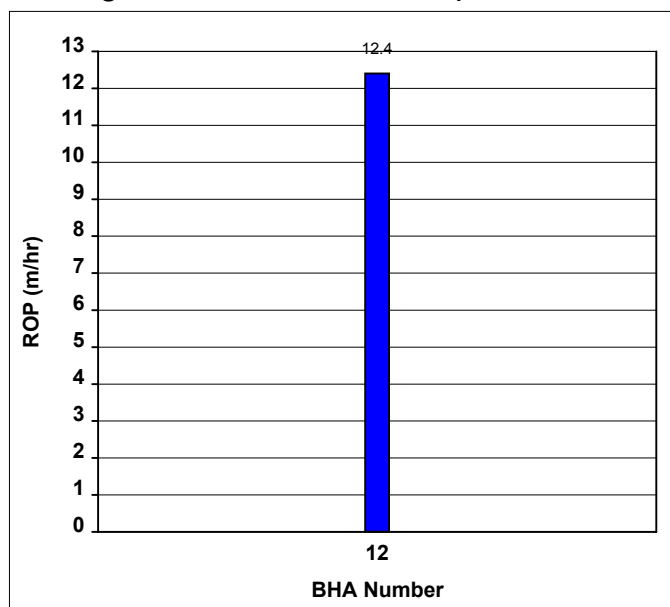
Hours per BHA Breakdown



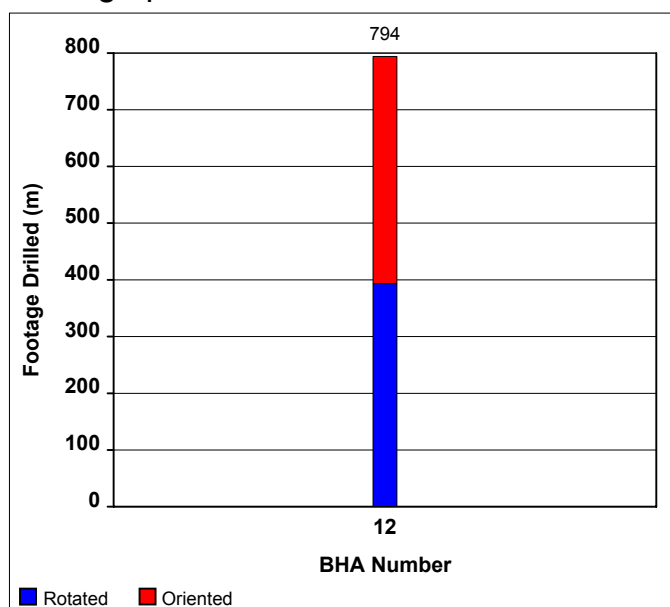
Days vs. Depth



Average Rate of Penetration per BHA



Footage per BHA



| MD (m) | Formation Name MD/TVD | <div>Inclination —</div> <div>DLS —</div> | Bit Data | Drilling Parameters | Motor | BHA Stabilizers | Comments | BHA ID |
|-----------|--------------------------|---|---|---|-----------------------------|--|--------------|------------|
| 0 | | 0 10 20 30 40 | | | | | | @ 0 |
| 100 | | | | | | | | |
| 200 | | | | | | | | |
| 300 | | | | | | | | |
| 400 | | | | | | | | |
| 500 | | | | | | | | |
| 600 | | | | | | | | |
| 700 | | | | | | | | |
| 800 | | | | | | | | |
| 900 | | | | | | | | |
| 1000 | | | | | | | | |
| 1100 | | | | | | | | |
| 1200 | | | | | | | | #12 @ 1175 |
| 1300 | | | FMF3553 3x16, 2x17 /32's 0.68 ft/min 64.00 hrs | WOB 19 klbs RPM 137 FLO 721 gpm SPP 3537 psi | 6-3/4" SperryDrill 6/7 L | 4.400 in @ 10.62 m 7.400 in @ 22.00 m | TD @ 1969mts | |
| 1400 | | | | | | | | |
| 1500 | | | | | | | | |
| 1600 | | | | | | | | |
| 1700 | | | | | | | | |
| 1800 | | | | | | | | |
| 1900 | | | | | | | | |
| 2000 | | 0 1 2 3 4 | | | | | | |

Halliburton Company

Survey Report

| | | | | | | | | |
|--|--|--|-----------------------------------|--|---|--|-------------------|--|
| Company: WOODSIDE ENERGY | | | Date: 24/05/2005 | | Time: 10:35:06 | | Page: 1 | |
| Field: Otway Basin | | | Co-ordinate(NE) Reference: | | Site: Halladale Exploration, Grid North | | | |
| Site: Halladale Exploration | | | Vertical (TVD) Reference: | | SITE 21.5 | | | |
| Well: Halladale | | | Section (VS) Reference: | | Site (0.00N,0.00E,33.73Azi) | | | |
| Wellpath: Halladale-1 DW3 (Halladale 1) | | | Survey Calculation Method: | | Minimum Curvature | | Db: Sybase | |

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|--|--|--|--|--|--|--|--|--|
| Field: Otway Basin South East Margin Australia | | | Map System: Universal Transverse Mercator | | | Map Zone: UTM Zone 54, South 138E to 144E | | |
| Geo Datum: GDA94 - Australia (GRS80) | | | Coordinate System: Site Centre | | | | | |
| Sys Datum: Mean Sea Level | | | Geomagnetic Model: bggm2004 | | | | | |

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|--|---------|-------------------------------|--------------------------|-----------|----|--------|---|--|
| Site: Halladale Exploration VICP37V South East Margin | | | | | | | | |
| Site Position: | | Northing: 5728485.20 m | Latitude: | 38 | 34 | 45.538 | S | |
| From: Map | | Easting: 650763.20 m | Longitude: | 142 | 43 | 50.947 | E | |
| Position Uncertainty: | 10.00 m | | North Reference: | Grid | | | | |
| Water Depth: | 45.90 m | | Grid Convergence: | -1.08 deg | | | | |

| | | | | | | | | |
|--|--------------|-------------------------------|-------------------|-----|----|--------|---|--|
| Well: Halladale 3 x subsurface targets penetrated 1 surface locn | | | Slot Name: | | | | | |
| Well Position: | +N/-S 0.00 m | Northing: 5728485.20 m | Latitude: | 38 | 34 | 45.538 | S | |
| | +E/-W 0.00 m | Easting: 650763.20 m | Longitude: | 142 | 43 | 50.947 | E | |
| Position Uncertainty: | 5.00 m | | | | | | | |

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|--|---------|------|--|--|--|----------------------|--|--|
| Wellpath: Halladale-1 DW3 (Halladale 1) Primary Wellbore Targetting Halladale-1 High | | | Drilled From: Halladale 1 DW2 (Halladale-2) | | | | | |
| Current Datum: SITE | | | Tie-on Depth: 1197.00 m | | | | | |
| Magnetic Data: 19/04/2005 | | | Above System Datum: Mean Sea Level | | | | | |
| Field Strength: 60815 nT | | | Declination: 10.90 deg | | | | | |
| Vertical Section: Depth From (TVD) | | | Mag Dip Angle: -69.81 deg | | | | | |
| | +N/-S m | | +E/-W m | | | Direction deg | | |
| | 0.00 | 0.00 | 0.00 | | | 33.73 | | |

| | | | | | | | | |
|---|----------------|--------------------------------|---------------|-----------------|-------------------|------------------|--|--|
| Survey Program for Definitive Wellpath | | | | | Version: 9 | | | |
| Date: 20/05/2005 | | Validated: No | | Toolcode | | Tool Name | | |
| Actual From m | To m | Survey | | | | | | |
| 0.00 | 413.76 | 17½" EMS (0.00-413.76) (2) | good magnetic | orig WdeW tool | | | | |
| 436.82 | 810.51 | 12¼" MWD + SAG (436.82-810.51) | SSMWD | Sperry-sun MWD | | | | |
| 852.56 | 1936.36 | 8.5 MWD Surveys (852.56-1936.3 | SSMWD | Sperry-sun MWD | | | | |
| 1936.54 | 1969.00 | DW3 8 1/2" Survey (1198.20-196 | SSMWD | Sperry-sun MWD | | | | |

| Survey | | | | | | | | | | |
|---------|-------------|-------------|----------|------------|------------|---------|----------------|------------------|-----------------|---------------|
| MD m | Incl deg | Azim deg | TVD m | +N/-S m | +E/-W m | VS m | DLS deg/30m | Build deg/30m | Turn deg/30m | Tool/Comment |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | TIE LINE |
| 66.30 | 0.00 | 0.00 | 66.30 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | good magnetic |
| 103.40 | 0.44 | 6.73 | 103.40 | 0.14 | 0.02 | 0.13 | 0.359 | 0.359 | 0.000 | 30" |
| 128.10 | 0.74 | 6.73 | 128.10 | 0.40 | 0.05 | 0.36 | 0.359 | 0.359 | 0.000 | good magnetic |
| 156.03 | 0.54 | 3.81 | 156.03 | 0.71 | 0.08 | 0.63 | 0.218 | -0.215 | -3.136 | good magnetic |
| 184.12 | 0.46 | 12.06 | 184.12 | 0.95 | 0.11 | 0.85 | 0.115 | -0.085 | 8.811 | good magnetic |
| 212.77 | 0.63 | 7.07 | 212.76 | 1.22 | 0.15 | 1.10 | 0.185 | 0.178 | -5.225 | good magnetic |
| 241.48 | 0.51 | 359.79 | 241.47 | 1.50 | 0.17 | 1.34 | 0.146 | -0.125 | -7.607 | good magnetic |
| 270.27 | 0.49 | 358.43 | 270.26 | 1.75 | 0.17 | 1.55 | 0.024 | -0.021 | -1.417 | good magnetic |
| 298.97 | 0.46 | 348.09 | 298.96 | 1.99 | 0.14 | 1.73 | 0.095 | -0.031 | -10.808 | good magnetic |
| 327.62 | 0.81 | 2.30 | 327.61 | 2.30 | 0.12 | 1.99 | 0.399 | 0.366 | 14.880 | good magnetic |
| 356.37 | 0.61 | 10.58 | 356.36 | 2.66 | 0.16 | 2.30 | 0.234 | -0.209 | 8.640 | good magnetic |
| 385.05 | 0.69 | 350.26 | 385.03 | 2.98 | 0.16 | 2.57 | 0.254 | 0.084 | -21.255 | good magnetic |
| 413.76 | 0.70 | 346.34 | 413.74 | 3.32 | 0.09 | 2.81 | 0.051 | 0.010 | -4.096 | good magnetic |
| 421.00 | 0.83 | 343.17 | 420.98 | 3.41 | 0.06 | 2.87 | 0.554 | 0.526 | -13.152 | 13 3/8" |
| 436.82 | 1.11 | 338.79 | 436.80 | 3.66 | -0.02 | 3.03 | 0.554 | 0.537 | -8.298 | SSMWD |
| 465.91 | 1.21 | 260.09 | 465.89 | 3.87 | -0.43 | 2.98 | 1.519 | 0.103 | -81.162 | SSMWD |
| 494.67 | 1.15 | 254.40 | 494.64 | 3.74 | -1.01 | 2.55 | 0.137 | -0.063 | -5.935 | SSMWD |
| 522.99 | 1.38 | 256.19 | 522.95 | 3.59 | -1.61 | 2.09 | 0.247 | 0.244 | 1.896 | SSMWD |
| 552.40 | 1.33 | 268.81 | 552.35 | 3.49 | -2.30 | 1.63 | 0.308 | -0.051 | 12.873 | SSMWD |
| 581.06 | 1.13 | 265.37 | 581.01 | 3.46 | -2.91 | 1.26 | 0.223 | -0.209 | -3.601 | SSMWD |
| 609.44 | 1.26 | 275.79 | 609.38 | 3.47 | -3.50 | 0.94 | 0.267 | 0.137 | 11.015 | SSMWD |
| 638.37 | 1.09 | 273.55 | 638.31 | 3.52 | -4.09 | 0.66 | 0.183 | -0.176 | -2.323 | SSMWD |
| 667.10 | 1.36 | 258.51 | 667.03 | 3.47 | -4.70 | 0.28 | 0.436 | 0.282 | -15.705 | SSMWD |
| 695.51 | 2.10 | 241.02 | 695.43 | 3.15 | -5.48 | -0.42 | 0.951 | 0.781 | -18.469 | SSMWD |

Halliburton Company

Survey Report

| | | | |
|--|---|---|-------------------------------------|
| Company: WOODSIDE ENERGY Field: Otway Basin Site: Halladale Exploration Well: Halladale Wellpath: Halladale-1 DW3 (Halladale 1) | Date: 24/05/2005 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method: | Time: 10:35:06 Site: Halladale Exploration, Grid North SITE 21.5 Site (0.00N,0.00E,33.73Azi) Minimum Curvature | Page: 2 Db: Sybase |
|--|---|---|-------------------------------------|

Survey

| MD m | Incl deg | Azim deg | TVD m | +N/-S m | +E/-W m | VS m | DLS deg/30m | Build deg/30m | Turn deg/30m | Tool/Comment |
|---------|-------------|-------------|----------|------------|------------|---------|----------------|------------------|-----------------|------------------|
| 724.03 | 2.15 | 237.24 | 723.93 | 2.61 | -6.39 | -1.38 | 0.157 | 0.053 | -3.976 | SSMWD |
| 752.64 | 2.88 | 218.67 | 752.51 | 1.76 | -7.29 | -2.59 | 1.138 | 0.765 | -19.472 | SSMWD |
| 781.23 | 4.56 | 213.05 | 781.04 | 0.24 | -8.36 | -4.44 | 1.802 | 1.763 | -5.897 | SSMWD |
| 810.51 | 4.59 | 213.32 | 810.22 | -1.71 | -9.64 | -6.77 | 0.038 | 0.031 | 0.277 | SSMWD |
| 834.00 | 4.67 | 216.15 | 833.64 | -3.27 | -10.72 | -8.67 | 0.309 | 0.101 | 3.611 | 9 5/8" |
| 852.56 | 4.74 | 218.31 | 852.14 | -4.48 | -11.64 | -10.19 | 0.309 | 0.114 | 3.496 | SSMWD |
| 881.04 | 3.38 | 227.59 | 880.54 | -5.97 | -12.99 | -12.18 | 1.586 | -1.433 | 9.775 | SSMWD |
| 909.54 | 2.36 | 275.21 | 909.01 | -6.48 | -14.19 | -13.27 | 2.629 | -1.074 | 50.126 | SSMWD |
| 938.46 | 2.99 | 330.60 | 937.90 | -5.77 | -15.16 | -13.22 | 2.643 | 0.654 | 57.459 | SSMWD |
| 967.34 | 4.38 | 356.47 | 966.73 | -4.01 | -15.59 | -12.00 | 2.217 | 1.444 | 26.873 | SSMWD |
| 996.06 | 7.12 | 4.58 | 995.30 | -1.14 | -15.52 | -9.57 | 2.978 | 2.862 | 8.471 | SSMWD |
| 1024.96 | 9.29 | 0.02 | 1023.90 | 2.97 | -15.38 | -6.07 | 2.350 | 2.253 | -4.734 | SSMWD |
| 1055.56 | 12.32 | 353.37 | 1053.96 | 8.69 | -15.75 | -1.52 | 3.207 | 2.971 | -6.520 | SSMWD |
| 1084.42 | 14.52 | 350.57 | 1082.03 | 15.32 | -16.70 | 3.46 | 2.384 | 2.287 | -2.911 | SSMWD |
| 1112.89 | 16.05 | 349.61 | 1109.49 | 22.71 | -18.00 | 8.89 | 1.634 | 1.612 | -1.012 | SSMWD |
| 1141.34 | 17.92 | 346.59 | 1136.70 | 30.84 | -19.72 | 14.69 | 2.180 | 1.972 | -3.185 | SSMWD |
| 1169.86 | 20.36 | 343.90 | 1163.64 | 39.87 | -22.11 | 20.88 | 2.729 | 2.567 | -2.830 | SSMWD |
| 1197.00 | 21.52 | 340.20 | 1188.99 | 49.09 | -25.11 | 26.88 | 1.940 | 1.279 | -4.085 | Paaratte |
| 1198.20 | 21.57 | 340.05 | 1190.10 | 49.51 | -25.26 | 27.14 | 1.940 | 1.324 | -3.864 | SSMWD |
| 1224.52 | 19.80 | 347.77 | 1214.73 | 58.41 | -27.85 | 33.11 | 3.702 | -2.017 | 8.799 | SSMWD |
| 1253.28 | 19.60 | 353.21 | 1241.81 | 67.96 | -29.46 | 40.16 | 1.924 | -0.209 | 5.675 | SSMWD |
| 1282.05 | 19.67 | 1.17 | 1268.91 | 77.60 | -29.93 | 47.91 | 2.788 | 0.073 | 8.300 | SSMWD |
| 1310.63 | 19.51 | 10.69 | 1295.84 | 87.10 | -28.94 | 56.36 | 3.351 | -0.168 | 9.993 | SSMWD |
| 1339.28 | 20.34 | 20.73 | 1322.79 | 96.46 | -26.29 | 65.62 | 3.682 | 0.869 | 10.513 | SSMWD |
| 1367.86 | 20.72 | 25.64 | 1349.55 | 105.66 | -22.35 | 75.46 | 1.850 | 0.399 | 5.154 | SSMWD |
| 1384.00 | 20.94 | 29.68 | 1364.64 | 110.75 | -19.68 | 81.17 | 2.699 | 0.417 | 7.500 | Skull Creek |
| 1396.40 | 21.18 | 32.71 | 1376.21 | 114.56 | -17.38 | 85.62 | 2.699 | 0.570 | 7.342 | SSMWD |
| 1425.09 | 22.39 | 40.47 | 1402.86 | 123.08 | -11.03 | 96.23 | 3.264 | 1.265 | 8.114 | SSMWD |
| 1453.92 | 23.69 | 45.54 | 1429.39 | 131.31 | -3.33 | 107.35 | 2.467 | 1.353 | 5.276 | SSMWD |
| 1482.54 | 24.97 | 49.30 | 1455.47 | 139.28 | 5.36 | 118.80 | 2.106 | 1.342 | 3.941 | SSMWD |
| 1511.34 | 26.21 | 51.92 | 1481.45 | 147.16 | 14.97 | 130.70 | 1.748 | 1.292 | 2.729 | SSMWD |
| 1540.05 | 28.20 | 55.29 | 1506.98 | 154.94 | 25.54 | 143.04 | 2.629 | 2.079 | 3.521 | SSMWD |
| 1548.00 | 28.67 | 55.76 | 1513.97 | 157.08 | 28.66 | 146.55 | 1.974 | 1.784 | 1.774 | Belfast |
| 1568.69 | 29.91 | 56.92 | 1532.01 | 162.69 | 37.09 | 155.89 | 1.974 | 1.794 | 1.682 | SSMWD |
| 1597.67 | 30.33 | 57.12 | 1557.08 | 170.61 | 49.29 | 169.25 | 0.447 | 0.435 | 0.207 | SSMWD |
| 1626.34 | 29.77 | 53.70 | 1581.90 | 178.75 | 61.10 | 182.59 | 1.885 | -0.586 | -3.579 | SSMWD |
| 1654.59 | 29.91 | 56.01 | 1606.41 | 186.84 | 72.59 | 195.70 | 1.230 | 0.149 | 2.453 | SSMWD |
| 1683.39 | 30.14 | 56.14 | 1631.34 | 194.88 | 84.55 | 209.03 | 0.249 | 0.240 | 0.135 | SSMWD |
| 1712.45 | 29.91 | 55.42 | 1656.50 | 203.06 | 96.58 | 222.50 | 0.441 | -0.237 | -0.743 | SSMWD |
| 1741.01 | 30.22 | 53.85 | 1681.22 | 211.34 | 108.24 | 235.87 | 0.888 | 0.326 | -1.649 | SSMWD |
| 1769.54 | 29.87 | 53.80 | 1705.92 | 219.77 | 119.77 | 249.28 | 0.369 | -0.368 | -0.053 | SSMWD |
| 1801.00 | 29.25 | 55.93 | 1733.28 | 228.71 | 132.46 | 263.76 | 1.164 | -0.591 | 2.033 | Flaxmans |
| 1827.21 | 28.76 | 57.77 | 1756.20 | 235.66 | 143.10 | 275.45 | 1.164 | -0.561 | 2.104 | SSMWD |
| 1853.71 | 28.37 | 56.40 | 1779.48 | 242.54 | 153.74 | 287.08 | 0.863 | -0.442 | -1.551 | SSMWD |
| 1879.92 | 28.78 | 57.31 | 1802.50 | 249.39 | 164.24 | 298.61 | 0.682 | 0.464 | 1.046 | DW3 Rev Drillers |
| 1880.00 | 28.78 | 57.32 | 1802.57 | 249.41 | 164.27 | 298.64 | 0.682 | 0.468 | 1.033 | Waarre A,B,C |
| 1882.13 | 28.81 | 57.39 | 1804.43 | 249.97 | 165.13 | 299.58 | 0.682 | 0.468 | 1.031 | SSMWD |
| 1910.69 | 28.69 | 58.09 | 1829.47 | 257.30 | 176.75 | 312.13 | 0.375 | -0.126 | 0.735 | SSMWD |
| 1957.00 | 26.16 | 53.45 | 1870.58 | 269.26 | 194.39 | 331.87 | 2.144 | -1.639 | -3.006 | SSMWD |
| 1969.00 | 26.20 | 53.45 | 1881.35 | 272.41 | 198.64 | 336.86 | 0.100 | 0.100 | 0.000 | SSMWD |

Targets

| Name | Description Dip. | Dir. | TVD m | +N/-S m | +E/-W m | Map Northing m | Map Easting m | <--- Latitude ---> Deg Min Sec | | | <--- Longitude ---> Deg Min Sec | | |
|--|---------------------|------|----------|------------|------------|----------------------|---------------------|-----------------------------------|----|----------|------------------------------------|----|----------|
| DW3 Revised 1781 -Rectangle (50x50) | | | 1802.50 | 249.80 | 166.80 | 5728735.00 | 650930.00 | 38 | 34 | 37.335 S | 142 | 43 | 57.643 E |
| DW3 Rev Drillers -Rectangle (39x31) | | | 1802.50 | 249.80 | 166.80 | 5728735.00 | 650930.00 | 38 | 34 | 37.335 S | 142 | 43 | 57.643 E |

Halliburton Company

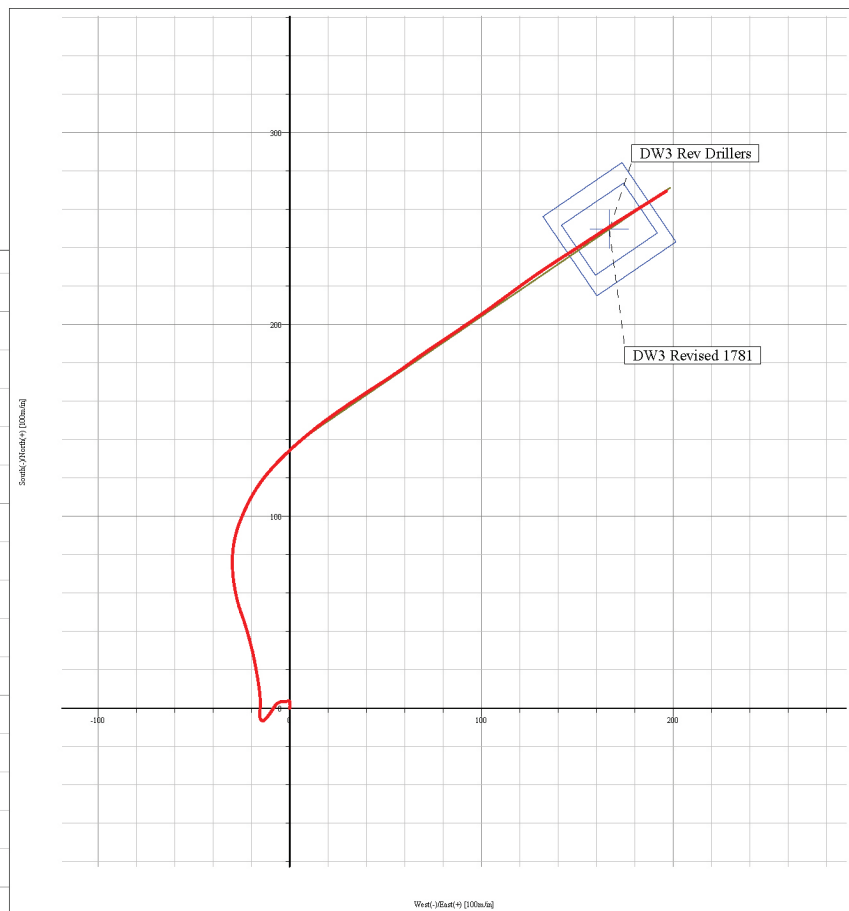
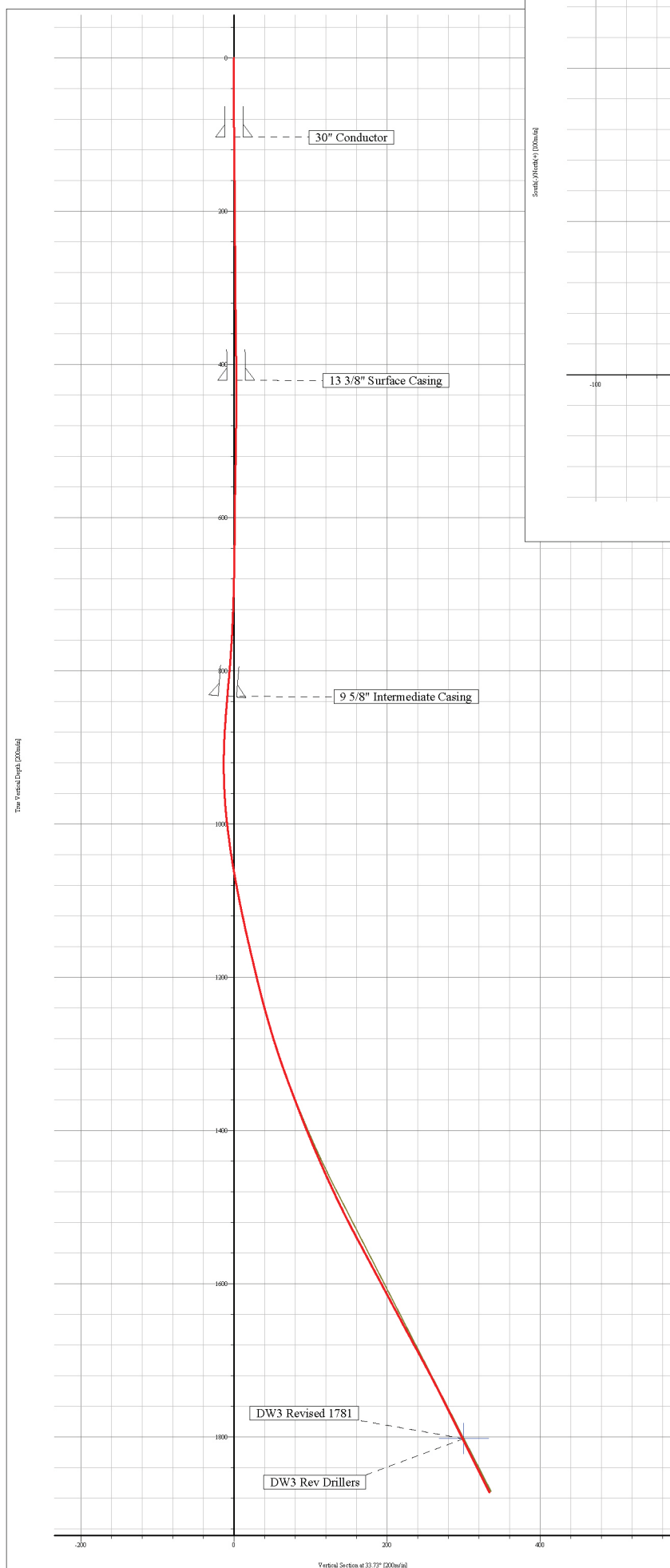
Survey Report

| | | | |
|--|-----------------------------------|---|-------------------|
| Company: WOODSIDE ENERGY | Date: 24/05/2005 | Time: 10:35:06 | Page: 3 |
| Field: Otway Basin | Co-ordinate(NE) Reference: | Site: Halladale Exploration, Grid North | |
| Site: Halladale Exploration | Vertical (TVD) Reference: | SITE 21.5 | |
| Well: Halladale | Section (VS) Reference: | Site (0.00N,0.00E,33.73Azi) | |
| Wellpath: Halladale-1 DW3 (Halladale 1) | Survey Calculation Method: | Minimum Curvature | Db: Sybase |

Casing Points

| MD m | TVD m | Diameter in | Hole Size in | Name |
|---------|----------|----------------|-----------------|---------|
| 103.40 | 103.40 | 30.000 | 36.000 | 30" |
| 421.00 | 420.98 | 13.375 | 17.500 | 13 3/8" |
| 834.00 | 833.64 | 9.625 | 12.250 | 9 5/8" |

Field: Otway Basin
Site: Halladale Exploration
Well: Halladale
Wellpath: Halladale-1 DW3 (Halladale 1)



| WELLBORE SURVEY | | | | | | | | | | DRILLING PARAMETERS | | | | | | | | | | Comment |
|--------------------|------------------|---------------|--------------------|----------------------|-----------------------------|-------|-------------|--------------------|-------------------|---------------------|-----|-----------------|------------------|-----------------------------|------|-----------------|------------|-------------|-------|---------|
| Measured Depth (m) | Incl Angle (deg) | Azi Dir (deg) | Vertical Depth (m) | Vertical Section (m) | Coordinates N/S (m) E/W (m) | | DLS (°/30m) | Build Rate (°/30m) | Turn Rate (°/30m) | WOB (klbs) | RPM | Flow Rate (gpm) | Stand Pipe (psi) | Orientation From (m) To (m) | | Tool Face (deg) | ROP (m/hr) | BHA No. (#) | | |
| 1169.86 | 20.36 | 343.90 | 1163.6 | 20.9 | 39.9 | -22.1 | 0.00 | 0.00 | 0.00 | 2 | 20 | 500 | 1880 | | | | 20 | | Tieon | |
| 1198.20 | 21.57 | 340.05 | 1190.1 | 27.1 | 49.5 | -25.3 | 1.94 | 1.28 | -4.08 | 5 | | 730 | 3200 | 1180 | 1198 | 110R | 5 | 12 | | |
| 1224.52 | 19.80 | 347.77 | 1214.7 | 33.1 | 58.4 | -27.9 | 3.70 | -2.02 | 8.80 | 10 | | 650 | 2900 | 1198 | 1208 | 110R | 25 | 12 | | |
| | | | | | | | | | | | | | | 1208 | 1225 | 110R | | 12 | | |
| 1253.28 | 19.60 | 353.21 | 1241.8 | 40.2 | 68.0 | -29.5 | 1.92 | -0.21 | 5.67 | 10 | | 750 | 3400 | 1225 | 1237 | 110R | 30 | 12 | | |
| | | | | | | | | | | | | | | 1237 | 1253 | 70R | | 12 | | |
| 1282.05 | 19.67 | 1.17 | 1268.9 | 47.9 | 77.6 | -29.9 | 2.79 | 0.07 | 8.30 | 15 | | 750 | 3400 | 1253 | 1265 | 70R | 40 | 12 | | |
| | | | | | | | | | | | | | | 1265 | 1282 | 50R | | 12 | | |
| 1310.63 | 19.51 | 10.69 | 1295.8 | 56.4 | 87.1 | -28.9 | 3.35 | -0.17 | 9.99 | 15 | | 750 | 3500 | 1282 | 1294 | 50R | 40 | 12 | | |
| | | | | | | | | | | | | | | 1294 | 1311 | 60R | | 12 | | |
| 1339.28 | 20.34 | 20.73 | 1322.8 | 65.6 | 96.5 | -26.3 | 3.68 | 0.87 | 10.51 | 15 | | 750 | 3500 | 1311 | 1323 | 60R | 40 | 12 | | |
| | | | | | | | | | | | | | | 1323 | 1339 | 60R | | 12 | | |
| 1367.86 | 20.72 | 25.64 | 1349.6 | 75.5 | 105.7 | -22.3 | 1.85 | 0.40 | 5.15 | 15 | | 750 | 3500 | 1339 | 1351 | 60R | 40 | 12 | | |
| | | | | | | | | | | | | | | 1351 | 1368 | 50R | | 12 | | |
| 1396.40 | 21.18 | 32.71 | 1376.2 | 85.6 | 114.6 | -17.4 | 2.70 | 0.48 | 7.43 | 15 | | 750 | 3500 | 1368 | 1380 | 50R | 40 | 12 | | |
| | | | | | | | | | | | | | | 1380 | 1396 | 50R | | 12 | | |
| 1425.09 | 22.39 | 40.47 | 1402.9 | 96.2 | 123.1 | -11.0 | 3.26 | 1.27 | 8.11 | 15 | | 750 | 3500 | 1396 | 1409 | 50R | 20 | 12 | | |
| | | | | | | | | | | | | | | 1409 | 1425 | 32R | | 12 | | |
| 1453.92 | 23.69 | 45.54 | 1429.4 | 107.4 | 131.3 | -3.3 | 2.47 | 1.35 | 5.28 | 15 | | 750 | 3600 | 1425 | 1437 | 32R | 20 | 12 | | |
| | | | | | | | | | | | | | | 1437 | 1454 | 24R | | 12 | | |
| 1482.54 | 24.97 | 49.30 | 1455.5 | 118.8 | 139.3 | 5.4 | 2.11 | 1.34 | 3.94 | 18 | | 750 | 3600 | 1454 | 1466 | 24R | 20 | 12 | | |
| | | | | | | | | | | | | | | 1466 | 1483 | 9R | | 12 | | |
| 1511.34 | 26.21 | 51.92 | 1481.4 | 130.7 | 147.2 | 15.0 | 1.75 | 1.29 | 2.73 | 25 | | 750 | 3600 | 1483 | 1495 | 9R | 20 | 12 | | |
| | | | | | | | | | | | | | | 1495 | 1511 | 9R | | 12 | | |
| 1540.05 | 28.20 | 55.29 | 1507.0 | 143.0 | 154.9 | 25.5 | 2.63 | 2.08 | 3.52 | 20 | | 720 | 3500 | 1511 | 1524 | 9R | 25 | 12 | | |
| | | | | | | | | | | | | | | 1524 | 1540 | 9R | | 12 | | |
| 1568.69 | 29.91 | 56.92 | 1532.0 | 155.9 | 162.7 | 37.1 | 1.97 | 1.79 | 1.71 | 20 | | 745 | 3600 | 1540 | 1552 | 9R | 20 | 12 | | |
| | | | | | | | | | | | | | | 1552 | 1569 | 9R | | 12 | | |
| 1597.67 | 30.33 | 57.12 | 1557.1 | 169.3 | 170.6 | 49.3 | 0.45 | 0.43 | 0.21 | 20 | 140 | 750 | 3600 | 1569 | 1581 | 9R | 20 | 12 | | |
| 1626.34 | 29.77 | 53.70 | 1581.9 | 182.6 | 178.7 | 61.1 | 1.89 | -0.59 | -3.58 | 25 | 180 | 700 | 3500 | | | | 15 | 12 | | |

Client : Woodside Energy Ltd.
Well Name : Halladale #1 DW-3
Rig : Ocean Patriot

Field : Otway Basin
Location : Halladale 1
Job # : AU-DD-0003325469

Page : 2

North Ref : Grid

Declination : °

VS Dir : 33.73° (from Wellhead)

| WELLBORE SURVEY | | | | | | | | | | DRILLING PARAMETERS | | | | | | | | | |
|--------------------------|------------------------|---------------------|--------------------------|----------------------------|-------------|------------|----------------|--------------------------|-------------------------|---------------------|-----|-----------------------|------------------------|-------------|-----------|-----------------------|---------------|-------------------|---------|
| Measured Depth (m) | Incl Angle (deg) | Azi Dir (deg) | Vertical Depth (m) | Vertical Section (m) | Coordinates | | DLS (°/30m) | Build Rate (°/30m) | Turn Rate (°/30m) | WOB (klbs) | RPM | Flow Rate (gpm) | Stand Pipe (psi) | Orientation | | Tool Face (deg) | ROP (m/hr) | BHA No. (#) | Comment |
| | | | | | N/S (m) | E/W (m) | | | | | | | | From (m) | To (m) | | | | |
| 1654.59 | 29.91 | 56.01 | 1606.4 | 195.7 | 186.8 | 72.6 | 1.23 | 0.15 | 2.45 | 25 | 180 | 700 | 3500 | | | | 15 | 12 | |
| 1683.39 | 30.14 | 56.14 | 1631.3 | 209.0 | 194.9 | 84.6 | 0.25 | 0.24 | 0.14 | 25 | 165 | 700 | 3500 | | | | 15 | 12 | |
| 1712.45 | 29.91 | 55.42 | 1656.5 | 222.5 | 203.1 | 96.6 | 0.44 | -0.24 | -0.74 | 25 | 110 | 700 | 3600 | | | | 10 | 12 | |
| 1741.01 | 30.22 | 53.85 | 1681.2 | 235.9 | 211.3 | 108.2 | 0.89 | 0.33 | -1.65 | 25 | 110 | 700 | 3700 | | | | 10 | 12 | |
| 1769.54 | 29.87 | 53.80 | 1705.9 | 249.3 | 219.8 | 119.8 | 0.37 | -0.37 | -0.05 | 25 | 115 | 710 | 3750 | | | | 10 | 12 | |
| 1827.21 | 28.76 | 57.77 | 1756.2 | 275.4 | 235.7 | 143.1 | 1.16 | -0.58 | 2.07 | 30 | 130 | 710 | 3700 | | | | 5 | 12 | |
| 1853.71 | 28.37 | 56.40 | 1779.5 | 287.1 | 242.5 | 153.7 | 0.86 | -0.44 | -1.55 | 25 | 120 | 700 | 3700 | | | | 15 | 12 | |
| 1883.13 | 28.81 | 57.39 | 1805.3 | 300.0 | 250.2 | 165.5 | 0.66 | 0.45 | 1.01 | 20 | 150 | 700 | 3700 | | | | 30 | 12 | |
| 1910.69 | 28.69 | 58.09 | 1829.5 | 312.1 | 257.3 | 176.7 | 0.39 | -0.13 | 0.76 | 20 | 140 | 700 | 3700 | | | | 30 | 12 | |
| 1960.00 | 28.26 | 57.61 | 1872.8 | 333.6 | 269.8 | 196.6 | 0.30 | -0.26 | -0.29 | 20 | 140 | 700 | 3700 | | | | 30 | 12 | |

sperry-sun

DRILLING SERVICES

BHA Report

Client : Woodside Energy Ltd.
Well Name : Halladale #1 DW-3
Field : Otway Basin
Location : Halladale 1
Rig : Ocean Patriot
Job # : AU-DD-0003325469

BHA# 12

BHA# 12 : Date In :21/04/200 MD In (m) : 1175 TVD In (m) : 1168 Date Cur: 25/04/200 MD Cur (m): 1969 TVD Cur (m): 1881

BIT DATA

| Bit # | OD (in) | MFR | Style | Serial# | Nozzles (/32's) | TFA (in ²) | Dull Condition |
|-------|---------|-----|---------|----------|-----------------|------------------------|----------------|
| 7 | 8.500 | DBS | FMF3553 | 10702627 | 3x16, 2x17 | 1.032 | |

MOTOR DATA

| Run # | OD (in) | MFR | Model | Serial# | Bend | Nzl (/32's) | Avg Dif (psi) | Cum Circ Hrs |
|-------|---------|------|-------------|------------|-------|-------------|---------------|--------------|
| 6.750 | | SSDS | SperryDrill | GP850TL088 | 0.00° | | 98 | 153.40 |

COMPONENT DATA

| Item # | Description | Serial # | OD (in) | ID (in) | Gauge (in) | Weight (lbs/ft) | Top Con | Length (m) | Bit - Center Blade (m) |
|--------|--------------------------------|------------|---------|---------|------------|-----------------|-------------|------------|------------------------|
| 1 | FMF3553 PDC (3x16, 2x17) | 10702627 | 8.500 | 3.000 | 8.500 | 169.30 | P 4-1/2" IF | 0.43 | |
| 2 | 6-3/4" Geo-Pilot 7600 Series | GP850TL088 | 6.750 | 1.620 | | 114.93 | B 4-1/2" IF | 7.09 | |
| 3 | Non-Mag Flex Pony collar w/dir | CP850TL084 | 6.750 | 2.250 | | 108.00 | B 4-1/2" IF | 2.80 | |
| 4 | 6-3/4" RLL w/DGR + EWR+ PWD | 90088312 | 6.750 | 1.920 | 4.400 | 112.09 | B 4-1/2" IF | 8.48 | |
| 5 | 6-3/4" RLL w/SLD + CTN | 90069866 | 6.750 | 1.920 | 7.400 | 112.09 | B 4-1/2" IF | 8.66 | |
| 6 | 6-3/4" Bat Sonic | 6702306 | 6.750 | 1.920 | | 112.09 | B 4-1/2" IF | 6.75 | |
| 7 | 6-3/4" HOC w/TM | 203846 | 6.750 | 3.250 | | 94.00 | B 4-1/2" IF | 3.06 | |
| 8 | Non-Mag Float Sub | A-225 | 6.750 | 2.810 | | 100.82 | B 4-1/2" IF | 0.62 | |
| 9 | PBL Circulating Sub | 235661 | 6.750 | 2.500 | | 105.23 | B 4-1/2" IF | 2.28 | |
| 10 | 12x Spiral Drill collar | | 6.750 | 2.813 | | 101.00 | B 4-1/2" IF | 111.84 | |
| 11 | Drilling Jar | DAH02381 | 6.750 | 2.500 | | 105.23 | B 4-1/2" IF | 9.73 | |
| 12 | 2x Spiral Drill collar | | 6.750 | 2.813 | | 101.00 | B 4-1/2" IF | 18.69 | |
| 13 | 15x HWDP | | 5.000 | 3.000 | | 49.30 | B 4-1/2" IF | 138.71 | |
| | | | | | | | | 319.14 | |

| Parameter | Min | Max | Ave |
|--------------|------|------|------|
| WOB (klbs) : | 2 | 30 | 19 |
| RPM (rpm) : | 20 | 180 | 137 |
| Flow (gpm) : | 500 | 750 | 721 |
| SPP (psi) : | 1880 | 3750 | 3537 |

| Activity | Hrs |
|--------------|-------|
| Drilling : | 64.00 |
| Reaming : | 7.25 |
| Circ-Other : | 2.25 |
| Total : | 73.50 |

| BHA Weight | (lb) |
|---------------------|-------|
| in Air (Total) : | 83673 |
| in Mud (Total) : | 70276 |
| in Air (Bel Jars) : | 51685 |
| in Mud (Bel Jars) : | 43410 |

| Drill String | OD(in) | Len (m) |
|-----------------------|--------|---------|
| DP(S)-NC50(XH)-19.50# | 5.000 | 1650 |

PERFORMANCE

| | In | Out |
|-------------------|--------|-------|
| Inclination (deg) | 20.57 | 28.18 |
| Azimuth (deg) | 343.17 | 57.52 |

| | Distance (m) | ROP (m/hr) | Build (°/30m) | Turn (°/30m) | DLS (°/30m) |
|------------|--------------|------------|---------------|--------------|-------------|
| Oriented : | 401.00 | 15 | | | 1.70 |
| Rotated : | 393.00 | 9 | 0.20 | 0.50 | |
| Total : | 794.00 | 12 | 0.29 | 2.81 | 1.12 |

COMMENTS

TD @ 1969mts

OBJECTIVES:

DW-3 is essentially a sidetrack from DW-2 , kicking off at 1200m turning right and building to the revised DW-3 target a course length of approximately 700m. An FEWD/ Geo-Pilot assembly (the same as used in DW-1) will be used for this run.

RESULTS:

The Geo-Pilot 7600 series was picked up after cementing off DW-2 up to 1180m, where cement was tagged with the cement stinger. At 1182 metres the GeoPilot tool was initialise at 100% with a TF setting of 110R for 15mts and then reduced to 80%. At 1197m shows of 100% formation at the shale shaker were present. This depth was chosen as our official KOP.

DW-3 was kicked off according to plan staying right of the proposal, however the initial doglegs at 80% were only achieving 2.4°/30m. Deflection setting of the GP was increased to 90% and with back to back continous deflection setttings 3.3 and 3.6°/30m were seen, showing a 4°/30m doglegs. The deflection was reduced to 80% showing only 1.85°/30m dogleg. Again the deflection setting was initialized back to 90% with a 3.3°/30m result. Keeping this setting constant throughout the build & turn section. The tangent section went well initialising the tool in cruise mode with slight 20% turn setttings L/R throughtout the tangent to control walking tendencies.

The build and turn went as per proposal staying within a metre of the plan and the ROP through the bottom of the Paaratte formation and then Skull Creek was a respectable 20 to 50 m/hr with the occasional hard stringer, however once into the Belfast at 1520m ROP slowed to 5 to 15 m/hr picking up again once into the reservoir as it did in DW-2, various parameters were tried to try to improve ROP with limited success. ROP picked up to 30m/hr once into the Flaxsman fromation by six metres. This continued throught to the Warree A, B&C formations. The Warree formation showed wet shows on resitivity once penetrated with no gas shows at surface.

| | |
|--|---|
| Motor Serial # : GP850TL088 | Job # : AU-DD-0003325469 |
| Directional Driller(s) : A.Pritchett, T.Walton | Client : Woodside Energy Ltd. |
| Location : Halladale 1 | Rig : Ocean Patriot |
| Well Name : Halladale #1 DW-3 | Bit Run # : 7 BHA # : 12 Motor Run # : |
| Depth In/Out : 1175 / 1969 m | Date In/Out : 21/04/2005 / 25/04/2005 Hole Size : 8.500 in |
| Application Details : | |

MOTOR CONFIGURATION

| | From Bit (m) | Component | Type | Diam In/Out (in) |
|---|--------------|-------------------------|------|------------------|
| 1 | 7.52 | Sleeve Stab/Pad | No | |
| 2 | | Bent Housing | No | |
| 3 | | Housing Tool Used | No | |
| 4 | | Stator Elastomer | | |
| 5 | | Bent Sub / 2nd Bent Hsg | No | |
| 6 | | Lower String Stab | No | |
| 7 | | Upper String Stab | No | |

| | |
|--|---|
| Additional Features : Flex Collar : No Short Brg Pack : No Rtr Noz / Size : /32's Brg Cfg (Off/On) : Lobe Cfg : 6/7 BHA OD/ID : 6.750 / 2.250 in | Arr Ret Pick Up Sub : No No Bit Box Protr : Yes Yes |
|--|---|

MOTOR RUN DATA

| | | | |
|---|--|--------------------|-----------------------------|
| Max Dogleg While Rotating : °/30m | RPM : | Motor Stalled : No | Prev Job/Well Hrs : 79.90 |
| Max Dogleg Overpulled In : °/30m | Force : lbf | Float Valve : No | Drilling Hrs : 64.00 |
| Max Dogleg Pushed Through : °/30m | Force : lbf | DP Filter : No | Circ Hrs : 2.25 |
| Hole Azimuth Start / End : 343.17° / 57.52° | Inc Start / End : 20.57° / 28.18° | | Reaming Hrs : 7.25 |
| Interval Oriented / Rot. : 401 / 393 m | Directional Perf Ori / Rot : 1.70 / 0.29 °/30m | | Total Hrs This Run : 73.50 |
| Jarring Occured : No | | | New Cumulative Hrs : 153.40 |

| | Diff Press (psi) | Str RPM | Rotn Torque (ft-lbs) | Drag Up/Dn (lbf) | WOB (klbs) | ROP Oriented (m/hr) | ROP Rotated (m/hr) |
|-------|------------------|---------|----------------------|------------------|------------|---------------------|--------------------|
| Avg : | 98 | 137 | 4545 | / | 19 | 15 | 9 |
| Max : | 100 | 180 | 6000 | / | 30 | 40 | 30 |

PRE-RUN TESTS

| | |
|-----------------------------------|----------------------------|
| Motor Tested Pre-Run : Yes | with : 2 Collars, Bit, MWD |
| Dump Sub Operating : N/A | Brg Play : mm |
| Flow 1 : 600 gpm | Pressure 1 : 1800 psi |
| Flow 2 : gpm | Pressure 2 : psi |
| Driveshaft Rotation Observed : No | |
| Bearing Leakage Observed : No | |

POST-RUN TESTS

| | |
|--------------------------------------|------------------|
| Motor Tested Post-Run : No | with : |
| Dump Sub Operating : N/A | Brg Play : mm |
| Flow 1 : gpm | Pressure 1 : psi |
| Flow 2 : gpm | Pressure 2 : psi |
| Driveshaft Rotation Observed : No | |
| Bearing Leakage Observed : No | |
| Driveshaft Rotated to Drain Mud : No | |
| Fluid Flushed : No | Fluid Used : |

MUD DATA

| | | | |
|---|----------------------------------|------------------------------|--|
| Base : Water | Additives : | Mud Wt : 1.26 sg | SPP Start/End : 3200 / 3700 psi |
| % Oil/Water : / | % Solids : 8.51 | % Sand : 0.20 | PV : 38 cp YP : 42.0 lbf/100ft² pH : 9.0 |
| DH Temp Avg/Max : 75.6 / 78.0 | FlowRate Avg/Max : 721 / 750 gpm | Chloride Content : 47000 ppm | |
| Principle Formation Name(s) : Paaratte, Skull Creeck, Belfast, Flaxmans, Waarre A,B,C | Lithology : Mudstone, Sands | | |

BIT DATA

| | | | | | | | | | | | |
|--------------------------------------|-------------------------|-------------------------|------------|-----|---|---|---|---|---|---|---|
| Make : DBS | Type : FMF3553 | Serial # : 10702627 | Dull Grade | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Pre Existing Hours From Other Wells: | | | In | NEW | | | | | | | |
| Prev Drilling Hrs : 0.00 | Prev Reaming Hrs : 0.00 | No of Runs This Bit : 1 | Out | | | | | | | | |
| Jet Sizes (/32's) : 3x16, 2x17 | TFA : 1.032 in² | Gage Length : in | | | | | | | | | |

PERFORMANCE COMMENTS

| | | | |
|--|-------------------|------------------------|-------------------------|
| Problem Perceived : No | Problem Date : | Service Interrupt : No | Service Interrupt Hrs : |
| Performance Motor : Yes | Tandem Motor : No | LIH : No | PPR Ref # : |
| | | | |
| Customer Representative's Signature (optional) : | | Date: | |

sperry-sun

DRILLING SERVICES

Daily Drilling Report

Client : Woodside Energy Ltd.
Well Name : Halladale #1 DW-3
Field : Otway Basin
Location : Halladale 1
Rig : Ocean Patriot
Job # : AU-DD-0003325469

CURRENT STATUS Report # 1 21/04/2005

| | | |
|--------------------------------|------------------------------|--|
| Total Depth (m) : 1180 | Casing Depth (m) : 834.00 | Operator Reps : Dave Thorpe, Andrew Clennett |
| Drilled last 24 hrs (m) : 1180 | Casing Diameter (in) : 9.625 | SSDS Reps : A.Pritchett (1), T.Walton (1) |
| Hole Size (in) : 8.500 | Casing ID (in) : 8.681 | |

LAST SURVEY

| Depth (m) | Inclination | Azimuth | TVD (m) | Displ (m) | Direction |
|-----------|-------------|---------|---------|-----------|-----------|
| 1169.86 | 20.36 | 343.90 | 1163.64 | 45.59 | N29.01W |

LAST FORMATION TOP

| Formation Name | MD Top (m) | TVD Top (m) |
|----------------|------------|-------------|
| | | |

BHA SUMMARY

BHA 12: 319.14 m; Bit #7 (1. hrs), PDM # (80.9 hrs), Pony, MWD, MWD, MWD, Pony, Sub, Sub, 12x DC, Jar, 2x DC, 15x HWDP

MUD DATA

| Type | Weight (sg) | FV (sec) | PV (cp) | YP (lbf/100ft ²) | Gels | Fluid Loss | pH | Solids (%) | Sand (%) | Oil (%) |
|-------------|-------------|----------|---------|------------------------------|------------|------------|------|------------|----------|---------|
| KCl/Polymer | 1.26 | 104 | 37 | 28.0 | 4.0 / 12.0 | 3 | 12.0 | 11.50 | 0.50 | |

TIME BREAKDOWN

| From | To | Hours | TMD (m) | BHA # | Activity |
|-------|-------|-------|---------|-------|--|
| 00:00 | 07:30 | 7.50 | 1175.00 | | Complete cement job |
| 07:30 | 09:00 | 1.50 | 1175.00 | | Lay out rotary BHA components , pick up HOC , check float sub |
| 09:00 | 14:30 | 5.50 | 1175.00 | | RIH and tag cement at 1179m, POOH with cement stinger |
| 14:30 | 15:00 | 0.50 | 1175.00 | | Offical start of DW-3 , Break down cement assy and rack back stand |
| 15:00 | 16:00 | 1.00 | 1175.00 | | Make up 8-1/2" Geo-Pilot BHA |
| 16:00 | 18:30 | 2.50 | 1175.00 | | Initialize FEWD and load radioactive sources |
| 18:30 | 20:00 | 1.50 | 1175.00 | 12 | Trip In with drill collars and HWDP and shallow test FEWD |
| 20:00 | 21:30 | 1.50 | 1175.00 | 12 | Trip In to shoe at 834m |
| 21:30 | 22:00 | 0.50 | 1175.00 | 12 | Service top drive |
| 22:00 | 23:00 | 1.00 | 1175.00 | 12 | Trip In to 1122m |
| 23:00 | 00:00 | 1.00 | 1180.00 | 12 | Wash down & tag cmt at 1175m , dress cement to 1180m |

COMMENTS

| | | | |
|-------------|-----------|---------|------------------|
| | Daily Hrs | Run Hrs | Total Hrs(DW2&3) |
| GP 850TL088 | 1.3 | 1.3 | 81.2 |



Daily Drilling Report

Client : Woodside Energy Ltd.
Well Name : Halladale #1 DW-3
Field : Otway Basin
Location : Halladale 1
Rig : Ocean Patriot
Job # : AU-DD-0003325469

CURRENT STATUS Report # 2 22/04/2005

| | | | | | | | |
|----------------------------|-------------|---------|------------------------|-------------|----------|----------------------|---------------------------------|
| Total Depth | (m) | : 1556 | Casing Depth | (m) | : 834.00 | Operator Reps | : Dave Thorpe, Andrew Clennett |
| Drilled last 24 hrs | (m) | : 376 | Casing Diameter | (in) | : 9.625 | SSDS Reps | : A.Pritchett (2), T.Walton (2) |
| Hole Size | (in) | : 8.500 | Casing ID | (in) | : 8.681 | | |

LAST SURVEY

| Depth (m) | Inclination | Azimuth | TVD (m) | Displ (m) | Direction |
|-----------|-------------|---------|---------|-----------|-----------|
| 1540.05 | 28.20 | 55.29 | 1506.98 | 157.03 | N09.36E |

LAST FORMATION TOP

| Formation Name | MD Top (m) | TVD Top (m) |
|----------------|------------|-------------|
| Belfast | 1548.00 | 1513.97 |

BHA SUMMARY

BHA 12: 319.14 m: Bit #7 (25. hrs), PDM # (104.9 hrs), Pony, MWD, MWD, MWD, Pony, Sub, Sub, 12x DC, Jar, 2x DC, 15x HWDP

MUD DATA

| Type | Weight (sg) | FV (sec) | PV (cp) | YP (lb/100ft²) | Gels | Fluid Loss | pH | Solids (%) | Sand (%) | Oil (%) |
|-------------|-------------|----------|---------|----------------|------------|------------|------|------------|----------|---------|
| KCl/Polymer | 1.26 | 104 | 37 | 28.0 | 4.0 / 12.0 | 3 | 12.0 | 11.50 | 0.50 | |

TIME BREAKDOWN

| From | To | Hours | TMD (m) | BHA # | Activity |
|-------|-------|-------|---------|-------|---------------------------------------|
| 00:00 | 02:30 | 2.50 | 1197.00 | 12 | Drill cement 1180m to 1197m |
| 02:30 | 12:00 | 9.50 | 1419.00 | 12 | Drilling 8.5" dev hole 1197m to 1419m |
| 12:00 | 00:00 | 12.00 | 1556.00 | 12 | Drilling 8.5" dev hole 1419m to 1556m |

COMMENTS

| | Daily Hrs | Run Hrs | Total Hrs(DW2&3) |
|-------------|-----------|---------|------------------|
| GP 850TL088 | 17.5 | 18.8 | 98.7 |



Client : Woodside Energy Ltd.
Well Name : Halladale #1 DW-3
Field : Otway Basin
Location : Halladale 1
Rig : Ocean Patriot
Job # : AU-DD-0003325469

| | | | | | | | |
|----------------------------|-------------|---------|------------------------|-------------|----------|----------------------|---------------------------------|
| Total Depth | (m) | : 1775 | Casing Depth | (m) | : 834.00 | Operator Reps | : Dave Thorpe, Damien |
| Drilled last 24 hrs | (m) | : 219 | Casing Diameter | (in) | : 9.625 | SSDS Reps | : A.Pritchett (3), T.Walton (3) |
| Hole Size | (in) | : 8.500 | Casing ID | (in) | : 8.681 | | |

| Depth (m) | Inclination | Azimuth | TVD (m) | Displ (m) | Direction |
|-----------|-------------|---------|---------|-----------|-----------|
| 1769.54 | 29.87 | 53.80 | 1705.92 | 250.29 | N28.59E |

| Formation Name | MD Top (m) | TVD Top (m) |
|----------------|------------|-------------|
| Belfast | 1548.00 | 1513.97 |

BHA 12: 319.14 m; Bit #7 (49. hrs), PDM # (128.9 hrs), Pony, MWD, MWD, MWD, Pony, Sub, Sub, 12x DC, Jar, 2x DC, 15x HWDP

| Type | Weight (sg) | FV (sec) | PV (cp) | YP (lbf/100ft²) | Gels | Fluid Loss | pH | Solids (%) | Sand (%) | Oil (%) |
|-------------|-------------|----------|---------|-----------------|------------|------------|-----|------------|----------|---------|
| KCl/Polymer | 1.25 | 68 | 34 | 34.0 | 6.0 / 12.0 | 4 | 9.0 | 10.50 | 0.30 | |

| From | To | Hours | TMD (m) | BHA # | Activity |
|-------|-------|-------|---------|-------|---------------------------------------|
| 00:00 | 12:00 | 12.00 | 1673.00 | 12 | Drilling 8.5" dev hole 1556m to 1673m |
| 12:00 | 00:00 | 12.00 | 1775.00 | 12 | Drilling 8.5" dev hole 1673m to 1775m |

| | Daily Hrs | Run Hrs | Total Hrs(DW2&3) |
|-------------|-----------|---------|------------------|
| GP 850TL088 | 21.3 | 40.1 | 138.8 |

sperry-sun

DRILLING SERVICES

Daily Drilling Report

Client : Woodside Energy Ltd.
Well Name : Halladale #1 DW-3
Field : Otway Basin
Location : Halladale 1
Rig : Ocean Patriot
Job # : AU-DD-0003325469

CURRENT STATUS Report # 4 24/04/2005

| | | | | | |
|---------------------------|-------|------------------------|--------|-----------------|-------------------------------|
| Total Depth (m) : | 1969 | Casing Depth (m) : | 834.00 | Operator Reps : | Dave Thorpe, Damien |
| Drilled last 24 hrs (m) : | 194 | Casing Diameter (in) : | 9.625 | SSDS Reps : | A.Pritchett (4), T.Walton (4) |
| Hole Size (in) : | 8.500 | Casing ID (in) : | 8.681 | | |

LAST SURVEY

| Depth (m) | Inclination | Azimuth | TVD (m) | Displ (m) | Direction |
|-----------|-------------|---------|---------|-----------|-----------|
| 1960.00 | 28.26 | 57.61 | 1872.82 | 333.87 | N36.09E |

LAST FORMATION TOP

| Formation Name | MD Top (m) | TVD Top (m) |
|----------------|------------|-------------|
| Waarre A,B,C | 1880.00 | 1802.57 |

BHA SUMMARY

BHA 12: 319.14 m; Bit #7 (68. hrs), PDM # (149.9 hrs), Pony, MWD, MWD, MWD, Pony, Sub, Sub, 12x DC, Jar, 2x DC, 15x HWDP

MUD DATA

| Type | Weight (sg) | FV (sec) | PV (cp) | YP (lbf/100ft ²) | Gels | Fluid Loss | pH | Solids (%) | Sand (%) | Oil (%) |
|-------------|-------------|----------|---------|------------------------------|------------|------------|-----|------------|----------|---------|
| KCl/Polymer | 1.26 | 74 | 38 | 42.0 | 8.0 / 19.0 | 4 | 9.0 | 8.51 | 0.20 | |

TIME BREAKDOWN

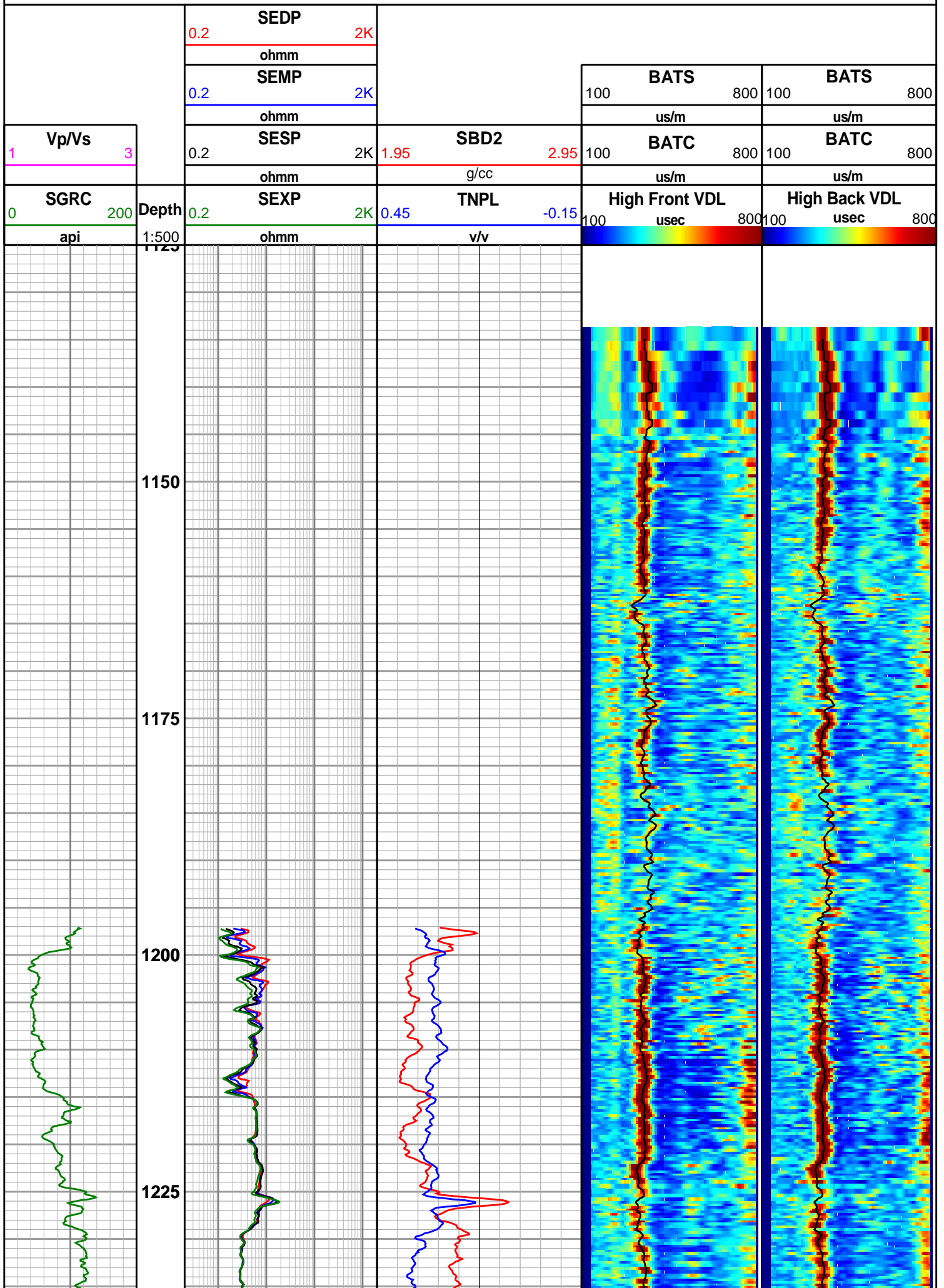
| From | To | Hours | TMD (m) | BHA # | Activity |
|-------|-------|-------|---------|-------|---|
| 00:00 | 12:00 | 12.00 | 1914.00 | 12 | Drill 8-1/2" dev hole 1775m to 1914m |
| 12:00 | 15:00 | 3.00 | 1969.00 | 12 | Drill 8-1/2" dev hole 1914m to 1969m |
| 15:00 | 16:00 | 1.00 | 1969.00 | 12 | Trip Out to 1897mts |
| 16:00 | 16:30 | 0.50 | 1969.00 | 12 | Trip in to 1969mts, (re-log f/1897mts-1922mts) |
| 16:30 | 18:30 | 2.00 | 1969.00 | 12 | Circulate & condition wellbore-circulating system till 1.27sg |
| 18:30 | 19:30 | 1.00 | 1969.00 | 12 | Trip Out to 1887, encountered 25k |
| 19:30 | 20:30 | 1.00 | 1969.00 | 12 | Back-ream out to 1696mts |
| 20:30 | 21:00 | 0.50 | 1969.00 | 12 | Trip Out to 1500mts encounter 25k |
| 21:00 | 00:00 | 3.00 | 1969.00 | 12 | back- ream out to 1225mts, @ 1373mts jar free w/ 40K down wt. |

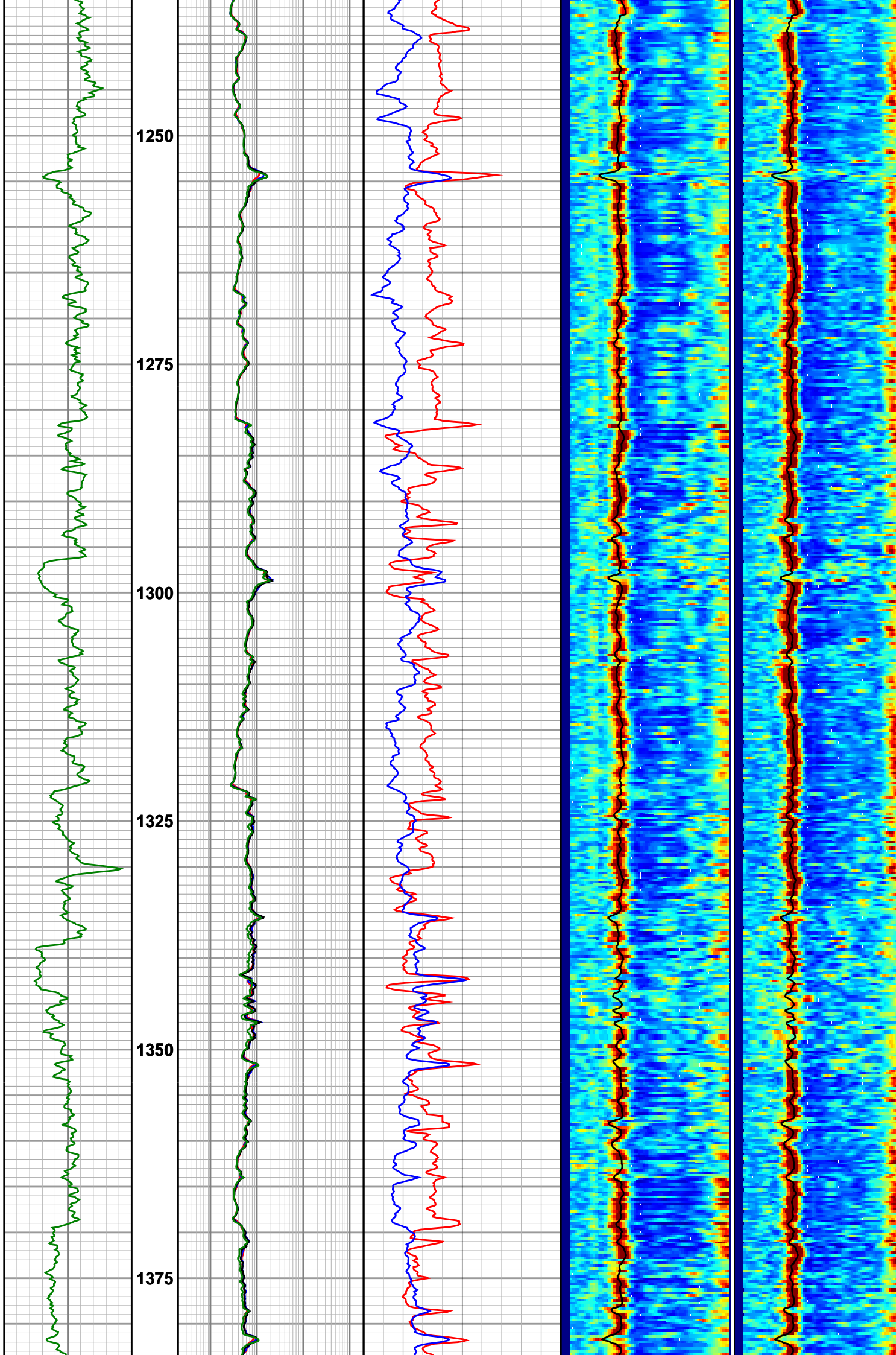
COMMENTS

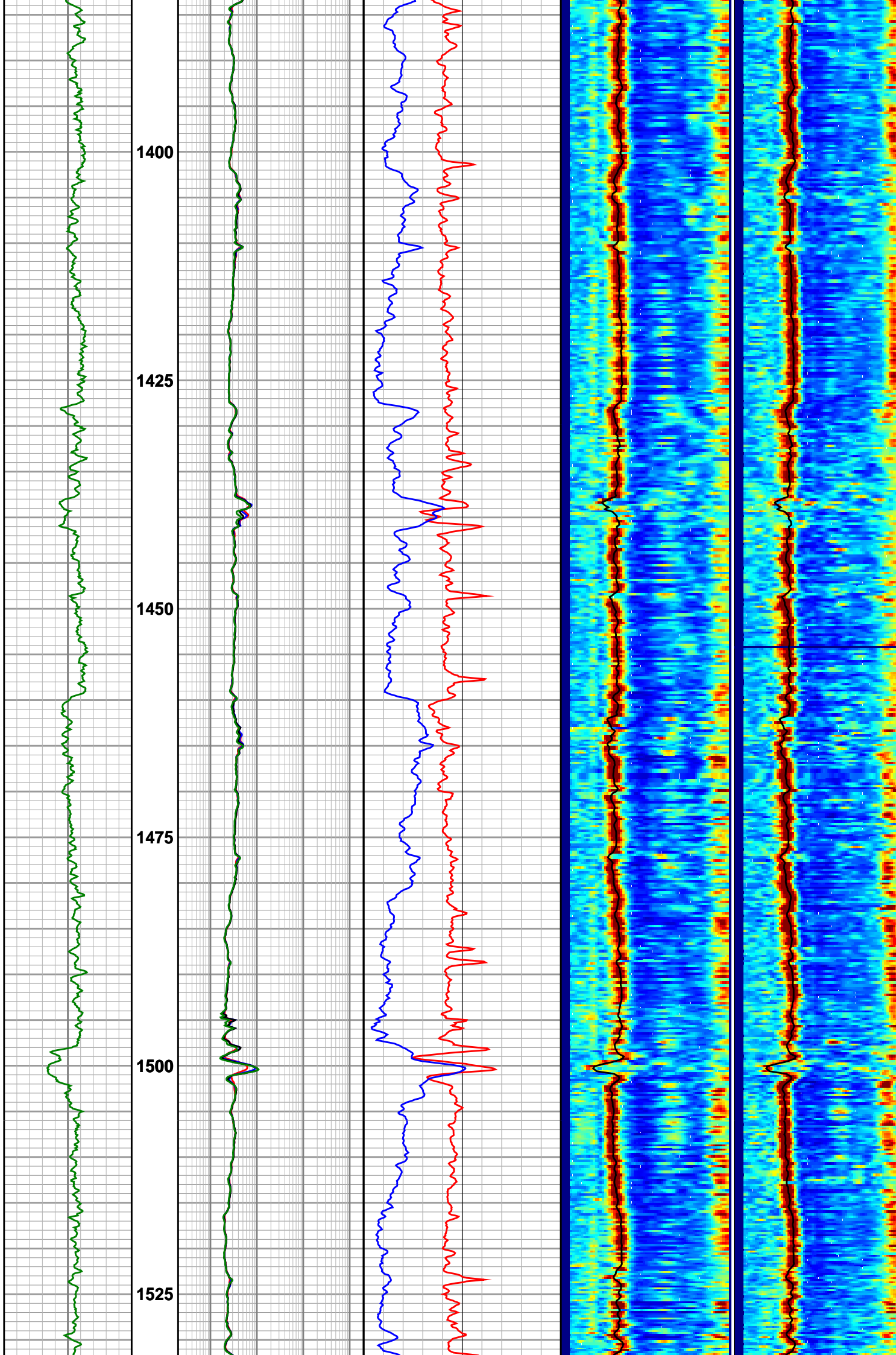
| | | | |
|-------------|-----------|---------|------------------|
| | Daily Hrs | Run Hrs | Total Hrs(DW2&3) |
| GP 850TL088 | 20.1 | 60.2 | 158.9 |

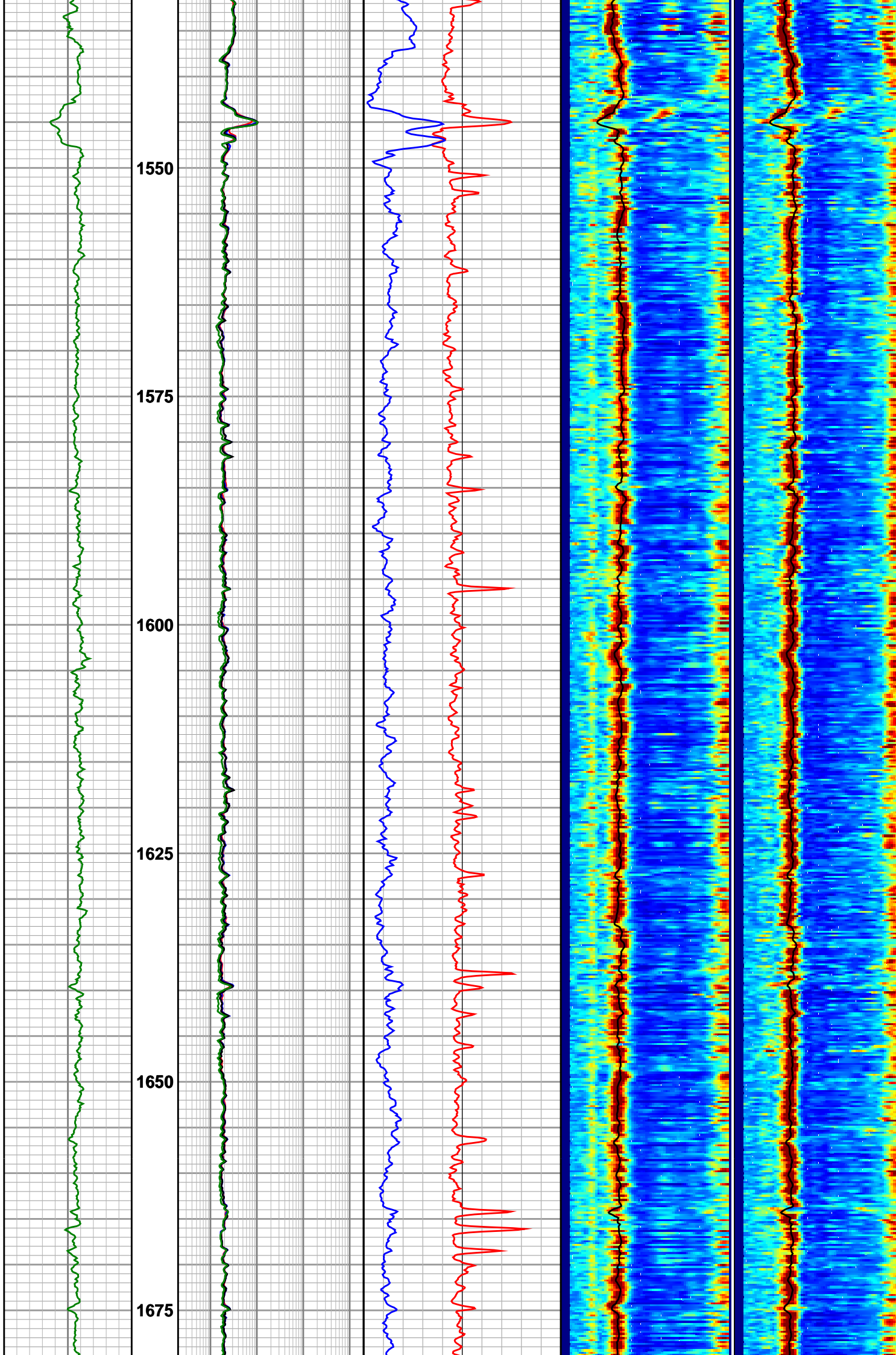
Halladale-1 BAT QC

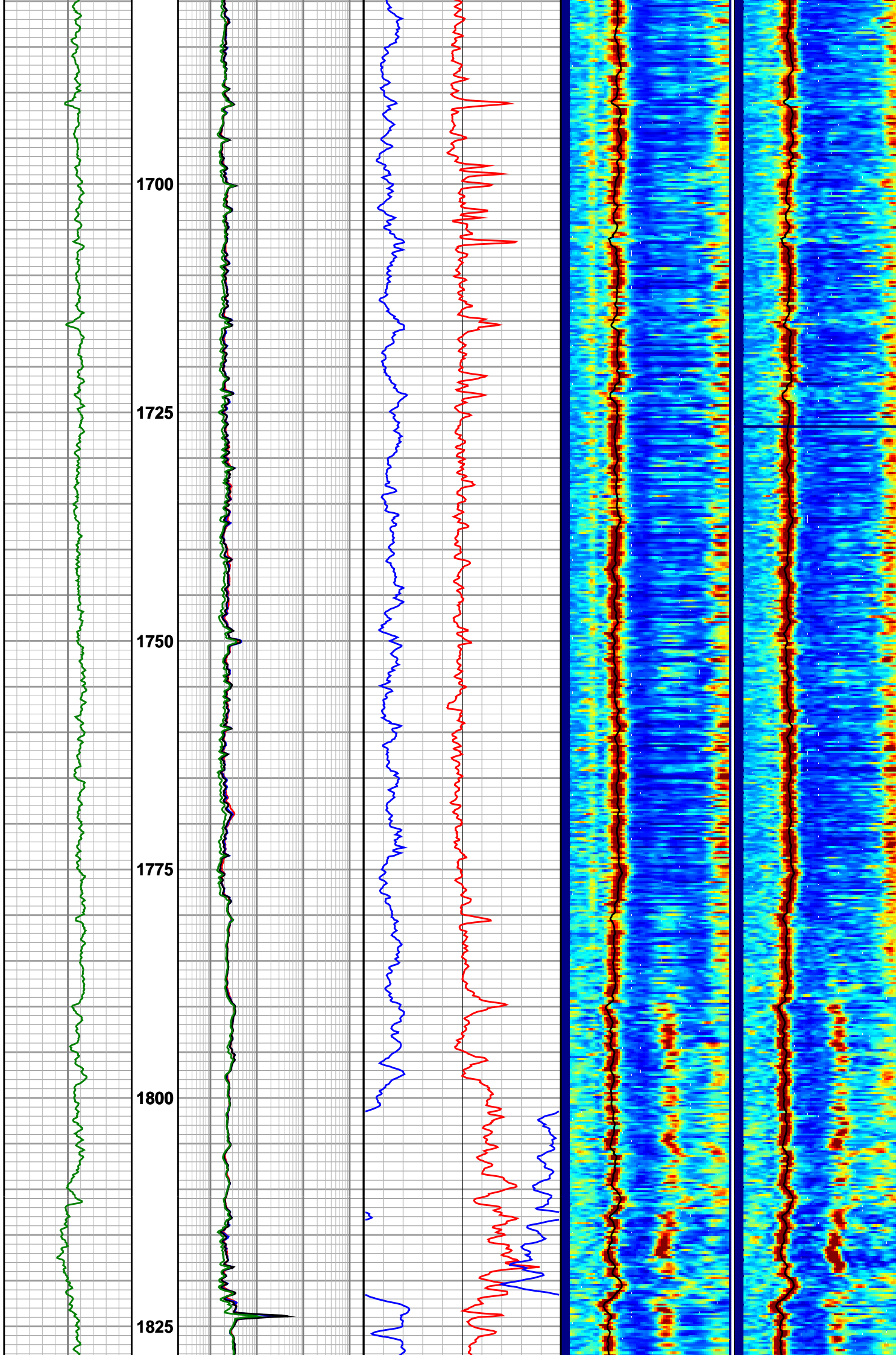
8.5" Hole Section

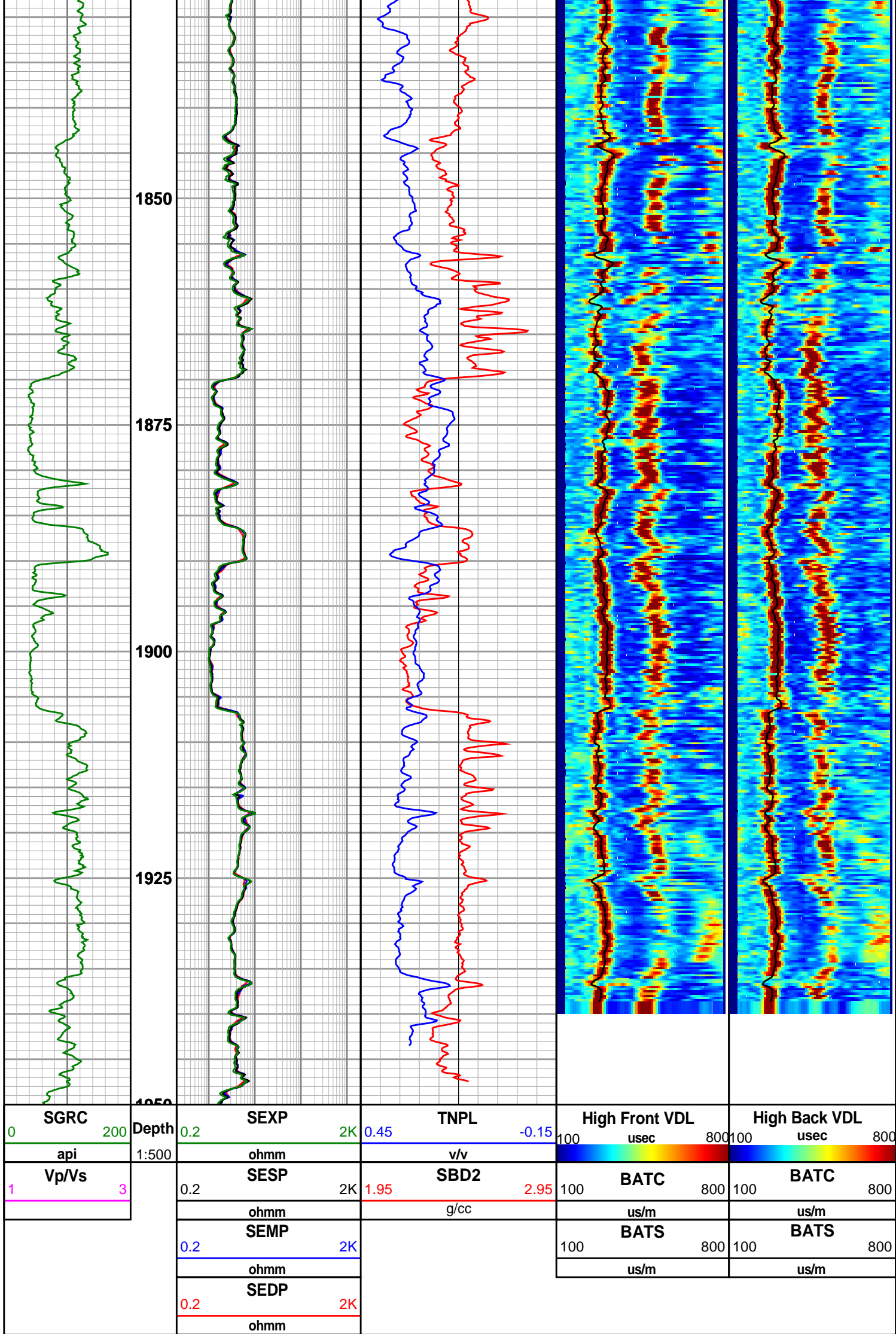














| | | | | | |
|------------------------|---------------|-------------|-----------------------|-------|---------|
| Permanent Datum | : LAT | Elevation : | 0.00 m | Elev. | KB |
| Log Measured From | : Drill Floor | 21.50 m | Above Permanent Datum | DF | 21.50 m |
| Drilling Measured From | : Drill Floor | MD LOG | | GL | WD |
| | | | | | 44.80 m |

[illegible]

| | | | | | |
|--------------------------------|---------------------|--|--|--|--|
| MWD Run Number | 100 | | | | |
| Date run completed | 25-Apr-05 | | | | |
| Rig Bit Number | 1 | | | | |
| Bit Size (mm) | 216 | | | | |
| Tool Nominal OD (mm) | 171 | | | | |
| Log Start Depth (MD, m) | 1,197.00 | | | | |
| Log End Depth (MD, m) | 1,969.00 | | | | |
| Drill or Wipe | Drilling | | | | |
| Drill/Wipe Start Date and Time | 22-Apr-05 02:30 | | | | |
| Drill/Wipe End Date and Time | 24-Apr-05 15:15 | | | | |
| Min Inc (deg) @ Depth (MD, m) | 19.51 @ 1,310.63 | | | | |
| Max Inc (deg) @ Depth (MD, m) | 30.33 @ 1,597.67 | | | | |
| Bit TFA(in2) / Bit Type | 1.030 / DBS FMF3553 | | | | |
| Flow Rate (gpm) | 740 | | | | |
| Max AV (mpm) / CV (mpm) @ MWD | 689.0 / 754.0 | | | | |
| Fluid Type | AQUA-DRILL | | | | |
| Density (sg) / Viscosity (spl) | 1.3 / 74.00 | | | | |
| Filtrate CL (ppm) | 51,000 | | | | |
| pH / Fluid Loss (cptm) | 9.50 / 4.0 | | | | |
| PV (cp) / YP (pa) | 40 / 32.00 | | | | |
| % Solids / % Sand | 8.5 / 0.2 | | | | |
| % Oil / Oil:Water Ratio | N/A / 0:100 | | | | |
| Rm @ Measured Temp (degC) | 0.03 @ 28.00 | | | | |
| Rmf @ Measured Temp (degC) | 0.01 @ 26.00 | | | | |
| Rmc @ Measured Temp (degC) | 0.08 @ 25.00 | | | | |
| Max Tool Temp (degC) / Source | 82.00 / EWR-P4 | | | | |
| Rm @ Max Tool Temp (degC) | 0.01 @ 82.00 | | | | |
| Lead MWD Engineer | M.Saunders | | | | |
| Customer Representative | D.Thorpe | | | | |

SENSOR INFORMATION

Downhole Processor Information

| | | | | | |
|------------------------------|-----------------|--|--|--|--|
| Tool Type | HCIM | | | | |
| Software Version | 68.18 | | | | |
| Sub Serial Number | 10562757 | | | | |
| Insert Serial Number | 160772 | | | | |
| Logging String Serial Number | 90069312HWRGV6 | | | | |
| Date and Time Initialized | 16-Apr-05 21:50 | | | | |
| Date and Time Read | 01-Jan-70 00:00 | | | | |

Directional Sensor Information

| | | | | | |
|-----------------------------|--------|--|--|--|--|
| Tool Type | DM | | | | |
| Distance From Bit (m) | 8.98 | | | | |
| Software Version | 3.15 | | | | |
| Sub Serial Number | 783004 | | | | |
| Sonde Serial Number | 87896 | | | | |
| Sensor ID Number | N/A | | | | |
| Survey String Serial Number | N/A | | | | |
| Toolface Offset (deg) | 0 | | | | |

Gamma Ray Sensor Information

| | | | | | |
|------------------------------|--------|--|--|--|--|
| Tool Type | DGR | | | | |
| Distance From Bit (m) | 11.51 | | | | |
| Recorded Sample Period (sec) | 12 | | | | |
| Software Version | N/A | | | | |
| Sub Serial Number | 131257 | | | | |
| Insert/Sonde Serial Number | 176691 | | | | |

Drillstring Dynamics Sensor Information

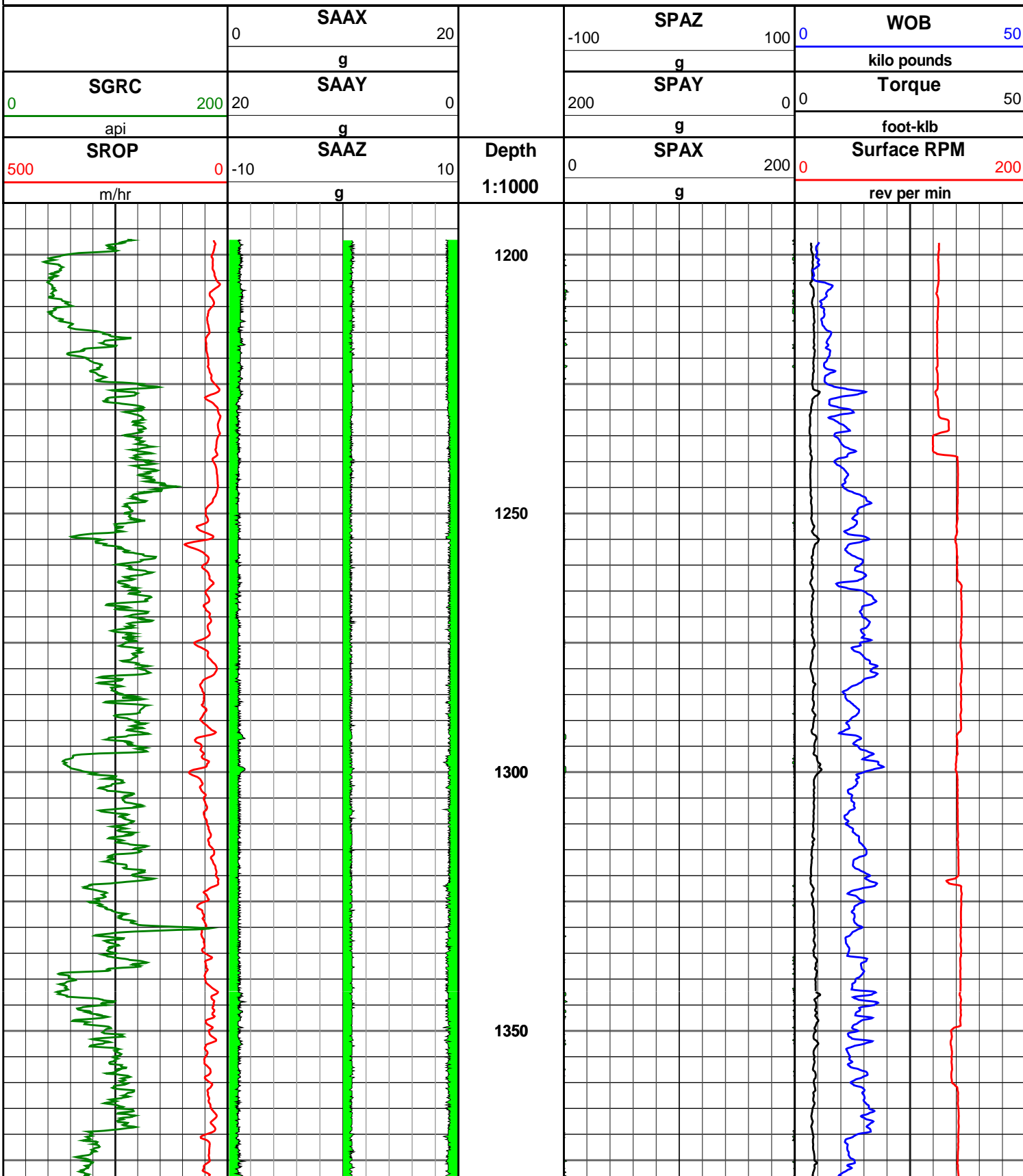
| | | | | | |
|------------------------------|--------|--|--|--|--|
| Tool Type | DDS | | | | |
| Distance From Bit (m) | 0 | | | | |
| Recorded Sample Period (sec) | 12 | | | | |
| Software Version | .50 | | | | |
| Sub Serial Number | 131257 | | | | |
| Insert Serial Number | 622 | | | | |
| Sensor ID Number | 622 | | | | |

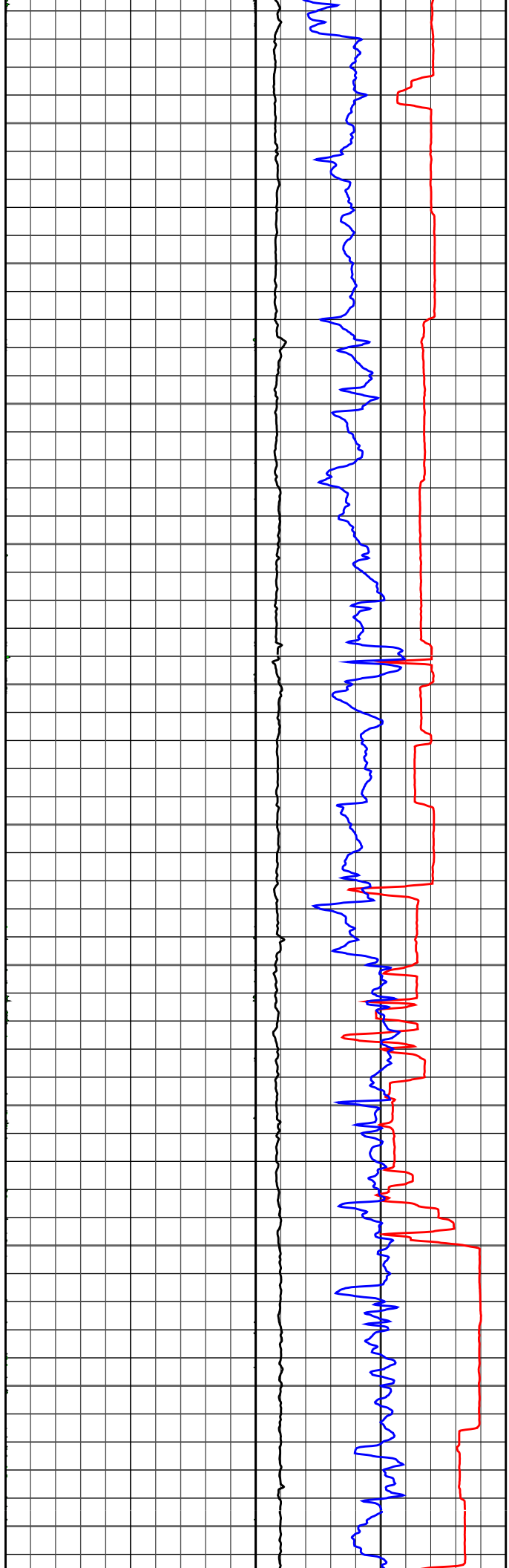
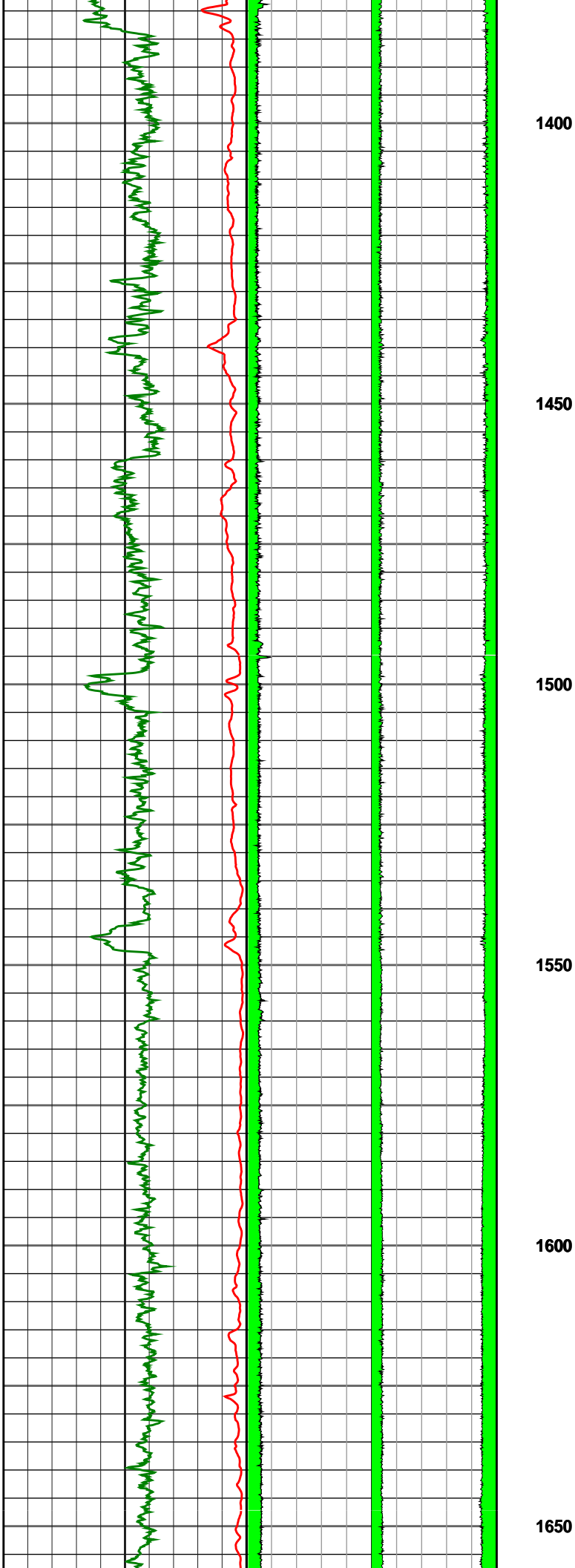
REMARKS

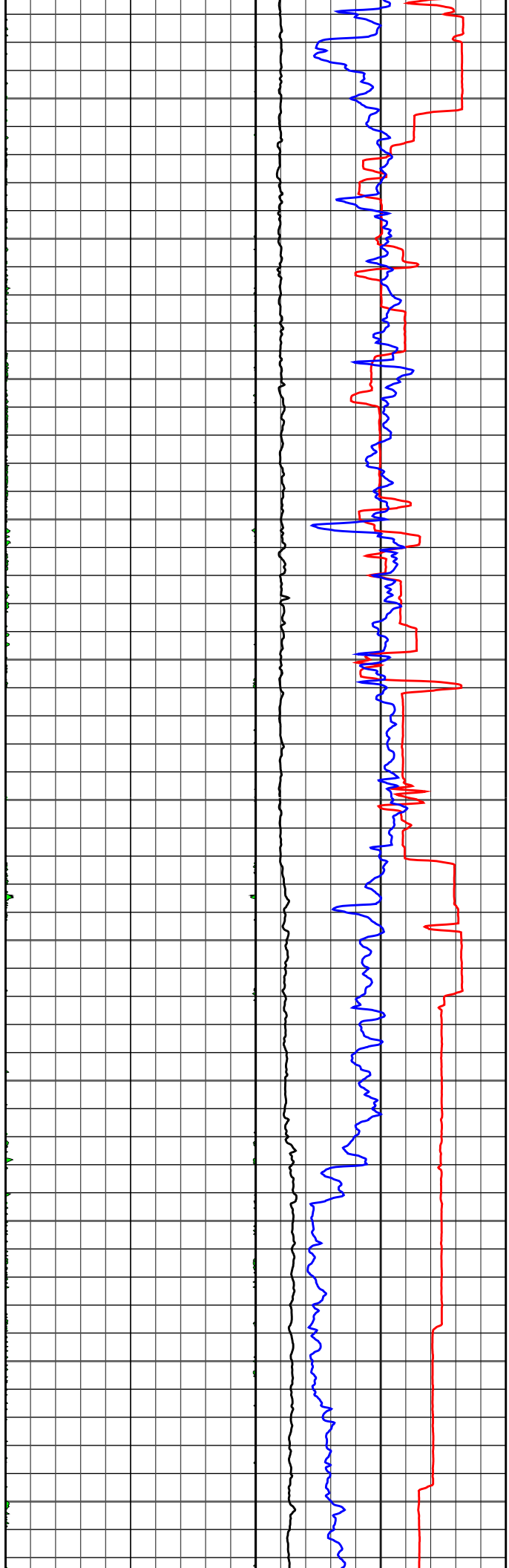
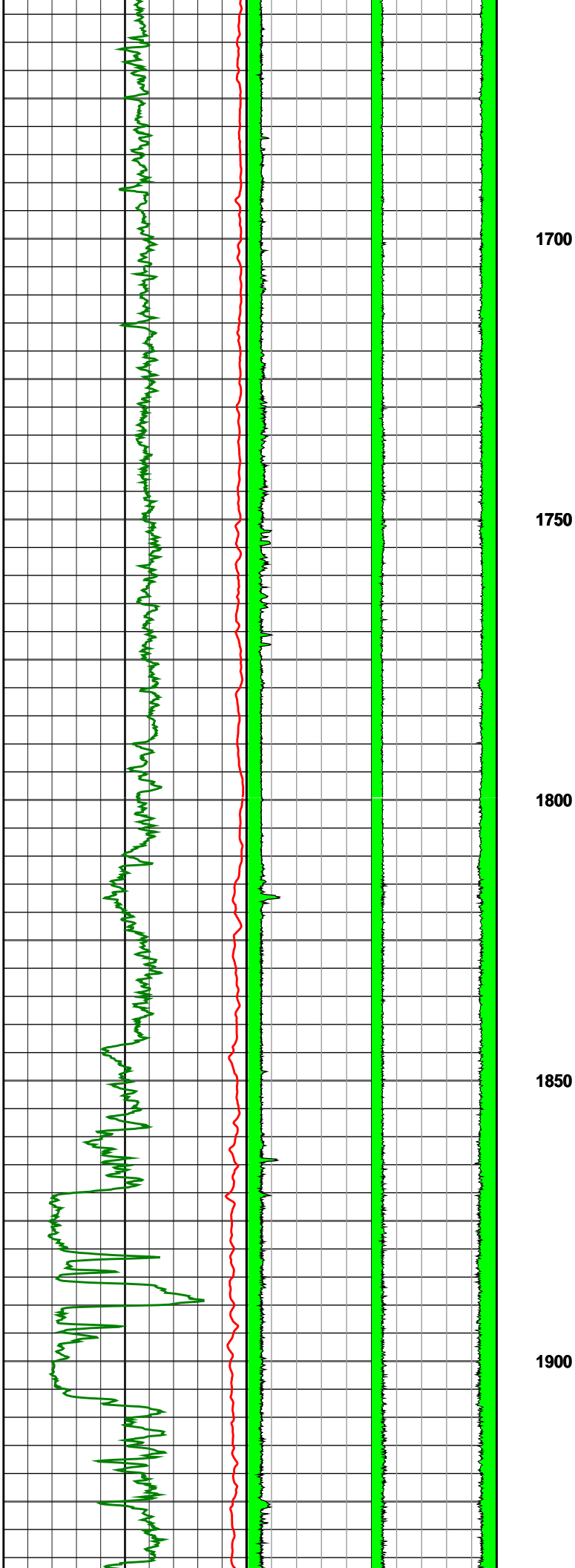
1. All depths are bit depths and referenced to the drillers pipe tally.
2. AV/CV is calculated at the MWD collar using the Powers Law for water based muds and is in m/min.
3. Curve mnemonics are:
 - SGRC - Smoothed Gamma Ray Combined, api
 - SROP - Smoothed Rate of Penetration, m/hr
 - SAAX - Smoothed Average X-Axis Accelerometer, g's
 - SAAY - Smoothed Average Y-Axis Accelerometer, g's
 - SAAZ - Smoothed Average Z-Axis Accelerometer, g's
 - SPAX - Smoothed Peak X-Axis Accelerometer, g's
 - SPAY - Smoothed Peak Y-Axis Accelerometer, g's
 - SPAZ - Smoothed Peak Z-Axis Accelerometer, g's
 - WOB - Weight on Bit, klb
 - RPM - Surface Drillstring Revolutions Per Minute, rpm
 - TORQUE - Surface Torque, ft-klbs

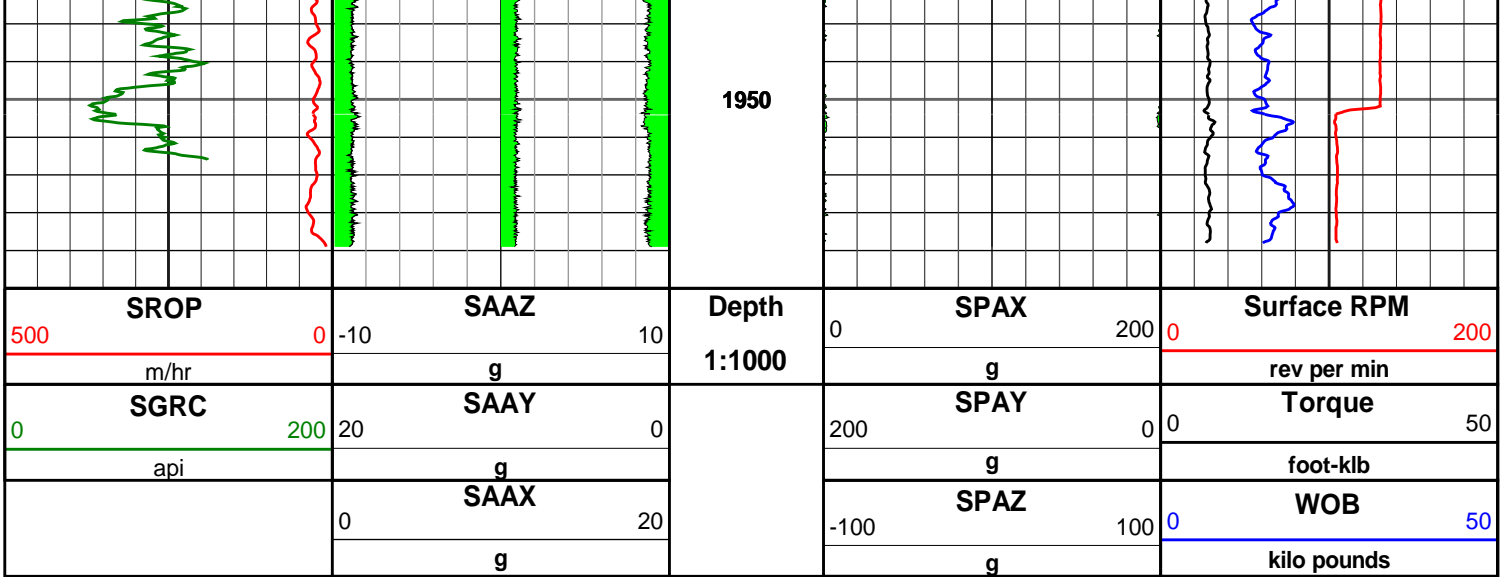
WARRANTY

HALLIBURTON ENERGY SERVICES (HES) WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HES CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES SHOULD ANY SUCH INFORMATION OR INTERPRETATION BE RELIED UPON AS THE SOLE BASIS FOR ANY DRILLING, COMPLETION, PRODUCTION, OR FINANCIAL DECISION OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING VENTURE, DRILLING RIG OR ITS CREW OR ANY OTHER THIRD PARTY. THE CUSTOMER HAS FULL RESPONSIBILITY FOR ALL DRILLING, COMPLETION AND PRODUCTION OPERATION. HES MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE SERVICES RENDERED. IN NO EVENT WILL HES BE LIABLE FOR FAILURE TO OBTAIN ANY PARTICULAR RESULTS OR FOR ANY DAMAGES, INCLUDING, BUT NOT LIMITED TO, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OF ANY INFORMATION OR INTERPRETATION PROVIDED BY HES.









HALLIBURTON

DIRECTIONAL SURVEY REPORT

Woodside Energy Ltd

Halladale-1 DW3

Victoria

Australia

AU-FE-0003325469

Final survey projected to TD. RT-LAT=21.5m

| Measured Depth (metres) | Inclination (degrees) | Direction (degrees) | Vertical Depth (metres) | Latitude (metres) | Departure (metres) | Vertical Section (metres) | Dogleg (deg/30m) |
|-------------------------|-----------------------|---------------------|-------------------------|-------------------|--------------------|---------------------------|------------------|
| 1169.860 | 20.36 | 343.90 | 1163.640 | 39.870 N | 22.110 W | 20.881 | TIE-IN |
| 1195.730 | 21.42 | 342.38 | 1187.809 | 48.696 N | 24.788 W | 26.735 | 1.38 |
| 1224.520 | 19.80 | 347.77 | 1214.758 | 58.474 N | 27.413 W | 33.409 | 2.60 |
| 1253.280 | 19.60 | 353.21 | 1241.837 | 68.025 N | 29.015 W | 40.463 | 1.92 |
| 1282.050 | 19.67 | 1.17 | 1268.939 | 77.660 N | 29.487 W | 48.213 | 2.79 |
| 1310.630 | 19.51 | 10.69 | 1295.872 | 87.161 N | 28.503 W | 56.661 | 3.35 |
| 1339.280 | 20.34 | 20.73 | 1322.815 | 96.522 N | 25.852 W | 65.918 | 3.68 |
| 1367.860 | 20.72 | 25.64 | 1349.581 | 105.726 N | 21.906 W | 75.764 | 1.85 |
| 1396.400 | 21.18 | 32.71 | 1376.239 | 114.617 N | 16.934 W | 85.919 | 2.70 |
| 1425.090 | 22.39 | 40.47 | 1402.885 | 123.137 N | 10.586 W | 96.530 | 3.26 |
| 1453.920 | 23.69 | 45.54 | 1429.417 | 131.372 N | 2.887 W | 107.654 | 2.47 |
| 1482.540 | 24.97 | 49.30 | 1455.497 | 139.339 N | 5.798 E | 119.102 | 2.11 |
| 1511.340 | 26.21 | 51.92 | 1481.472 | 147.226 N | 15.413 E | 131.001 | 1.75 |
| 1540.050 | 28.20 | 55.29 | 1507.006 | 155.000 N | 25.982 E | 143.335 | 2.63 |
| 1568.690 | 29.91 | 56.92 | 1532.041 | 162.752 N | 37.529 E | 156.193 | 1.97 |
| 1597.670 | 30.33 | 57.12 | 1557.108 | 170.668 N | 49.728 E | 169.551 | 0.45 |
| 1626.340 | 29.77 | 53.70 | 1581.927 | 178.812 N | 61.544 E | 182.886 | 1.89 |
| 1654.590 | 29.91 | 56.01 | 1606.432 | 186.902 N | 73.037 E | 195.995 | 1.23 |
| 1683.390 | 30.14 | 56.14 | 1631.367 | 194.944 N | 84.994 E | 209.324 | 0.25 |
| 1712.450 | 29.91 | 55.42 | 1656.528 | 203.121 N | 97.018 E | 222.801 | 0.44 |
| 1741.010 | 30.22 | 53.85 | 1681.246 | 211.403 N | 108.685 E | 236.166 | 0.89 |
| 1769.540 | 29.87 | 53.80 | 1705.942 | 219.834 N | 120.215 E | 249.581 | 0.37 |
| 1827.210 | 28.76 | 57.77 | 1756.231 | 235.717 N | 143.543 E | 275.744 | 1.16 |
| 1853.710 | 28.37 | 56.40 | 1779.505 | 242.601 N | 154.180 E | 287.375 | 0.86 |
| 1882.130 | 28.81 | 57.39 | 1804.460 | 250.028 N | 165.572 E | 299.878 | 0.68 |
| 1910.690 | 28.69 | 58.09 | 1829.499 | 257.360 N | 177.189 E | 312.427 | 0.38 |
| 1957.000 | 26.16 | 53.45 | 1870.606 | 269.319 N | 194.831 E | 332.168 | 2.14 |
| 1969.000 | 26.20 | 53.45 | 1881.375 | 272.472 N | 199.084 E | 337.152 | 0.10 |

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 33.73 DEGREES (GRID)
A TOTAL CORRECTION OF 11.98 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 1969.000 METRES
IS 337.454 METRES ALONG 36.15 DEGREES (GRID)

MWD RUN 100 - BHA

MWD RUN 100 - MWD

| | | Cumulative Length (m) | | | Sensor Measure Point Distance To Bit (m) |
|--------------|---|-----------------------------|-----------------|---|---|
| Drill Pipe |  | 1167.19 | Positive Pulser |  | |
| HWDP |  | 313.75 | TM |  | |
| Drill Collar |  | 175.04 | BAT |  | |
| Jar |  | 156.35 | CTN |  | 26.000 |
| Drill Collar |  | 146.62 | SLD |  | 21.950 |
| Sub |  | 34.78 | HCIM |  | |
| Reamer |  | 32.50 | PWD |  | 16.340 |
| Sub |  | 30.89 | | | |
| Stabilizer |  | 30.27 | EWR-P4 |  | 13.810 |
| Drill Collar |  | 29.60 | DGR |  | 11.510 |
| MWD |  | 26.80 | | | |

MWD

Bit



0.43

GeoPilot



1.330



WELL INFORMATION

| | | | | | |
|--------------------------------|---------------------|--|--|--|--|
| MWD Run Number | 100 | | | | |
| Date run completed | 25-Apr-05 | | | | |
| Rig Bit Number | 1 | | | | |
| Bit Size (mm) | 216 | | | | |
| Tool Nominal OD (mm) | 171 | | | | |
| Log Start Depth (MD, m) | 1,197.00 | | | | |
| Log End Depth (MD, m) | 1,969.00 | | | | |
| Drill or Wipe | Drilling | | | | |
| Drill/Wipe Start Date and Time | 22-Apr-05 02:30 | | | | |
| Drill/Wipe End Date and Time | 24-Apr-05 15:15 | | | | |
| Min Inc (deg) @ Depth (MD, m) | 19.51 @ 1,310.63 | | | | |
| Max Inc (deg) @ Depth (MD, m) | 30.33 @ 1,597.67 | | | | |
| Bit TFA(in2) / Bit Type | 1.030 / DBS FMF3553 | | | | |
| Flow Rate (gpm) | 740 | | | | |
| Max AV (mpm) / CV (mpm) @ MWD | 689.0 / 754.0 | | | | |
| Fluid Type | AQUA-DRILL | | | | |
| Density (sg) / Viscosity (spl) | 1.25 / 74.00 | | | | |
| Filtrate CL (ppm) | 51,000 | | | | |
| pH / Fluid Loss (cptm) | 9.50 / 4.0 | | | | |
| PV (cp) / YP (pa) | 40 / 32.00 | | | | |
| % Solids / % Sand | 8.5 / 0.2 | | | | |
| % Oil / Oil:Water Ratio | N/A / 0:100 | | | | |
| Rm @ Measured Temp (degC) | 0.03 @ 28.00 | | | | |
| Rmf @ Measured Temp (degC) | 0.01 @ 26.00 | | | | |
| Rmc @ Measured Temp (degC) | 0.08 @ 25.00 | | | | |
| Max Tool Temp (degC) / Source | 82.00 / EWR-P4 | | | | |
| Rm @ Max Tool Temp (degC) | 0.01 @ 82.00 | | | | |
| Lead MWD Engineer | M.Saunders | | | | |
| Customer Representative | D.Thorpe | | | | |

SENSOR INFORMATION

Downhole Processor Information

| | | | | | |
|------------------------------|--------------------|--|--|--|--|
| Tool Type | HCIM | | | | |
| Software Version | 68.18 | | | | |
| Sub Serial Number | 10562757 | | | | |
| Insert Serial Number | 160772 | | | | |
| Logging String Serial Number | 90069312HWRGV6 | | | | |
| Date and Time Initialized | 16-Apr-05 21:50 | | | | |
| Date and Time Read | 25-Apr-05 15:08:57 | | | | |

Directional Sensor Information

| | | | | | |
|-----------------------------|--------|--|--|--|--|
| Tool Type | DM | | | | |
| Distance From Bit (m) | 8.98 | | | | |
| Software Version | 3.15 | | | | |
| Sub Serial Number | 783004 | | | | |
| Sonde Serial Number | 87896 | | | | |
| Sensor ID Number | N/A | | | | |
| Survey String Serial Number | N/A | | | | |
| Toolface Offset (deg) | N/A | | | | |

Gamma Ray Sensor Information

| | | | | | |
|------------------------------|--------|--|--|--|--|
| Tool Type | DGR | | | | |
| Distance From Bit (m) | 11.51 | | | | |
| Recorded Sample Period (sec) | 12 | | | | |
| Software Version | N/A | | | | |
| Sub Serial Number | 131257 | | | | |
| Insert/Sonde Serial Number | 176691 | | | | |

Resistivity Sensor Information

| | | | | | |
|----------------------------------|--------|--|--|--|--|
| Tool Type | EWR-P4 | | | | |
| Distance From Bit (m) | 13.81 | | | | |
| Recorded Sample Period (sec) | 12 | | | | |
| Software Version | 1.38 | | | | |
| Sub Serial Number | 197652 | | | | |
| Receiver Insert Serial Number | 74703 | | | | |
| Transmitter Insert Serial Number | 62499 | | | | |
| Receiver Orientation | Down | | | | |

Neutron Sensor Information

| | | | | | |
|------------------------------|--------|--|--|--|--|
| Tool Type | CTN | | | | |
| Distance From Bit (m) | 26.00 | | | | |
| Recorded Sample Period (sec) | 12 | | | | |
| Sub Serial Number | 185450 | | | | |
| Insert Serial Number | 173972 | | | | |
| Source Serial Number | 0102NN | | | | |
| Source Factor | N/A | | | | |
| Pin Orientation | Up | | | | |

Density Sensor Information

| | | | | | |
|------------------------------|--------|--|--|--|--|
| Tool Type | SLD | | | | |
| Distance From Bit (m) | 21.95 | | | | |
| Recorded Sample Period (sec) | 12 | | | | |
| Software Version | 11.00 | | | | |
| Sub Serial Number | 105252 | | | | |
| Insert Serial Number | 182726 | | | | |
| Sensor ID Number | 226 | | | | |

| | | | | | |
|----------------------------|--------|--|--|--|--|
| Source Serial Number | 2615GW | | | | |
| Pin Orientation | Up | | | | |
| Stabilizer Blade O.D. (mm) | 209.55 | | | | |
| DPA Offset | N/A | | | | |

| Caliper Sensor Information | | | | | |
|----------------------------|--------|--|--|--|--|
| Tool Type | ACAL | | | | |
| Distance From Bit (m) | 25.17 | | | | |
| Software Version | 2.05 | | | | |
| Sub Serial Number | 185450 | | | | |
| Insert Serial Number | 173972 | | | | |

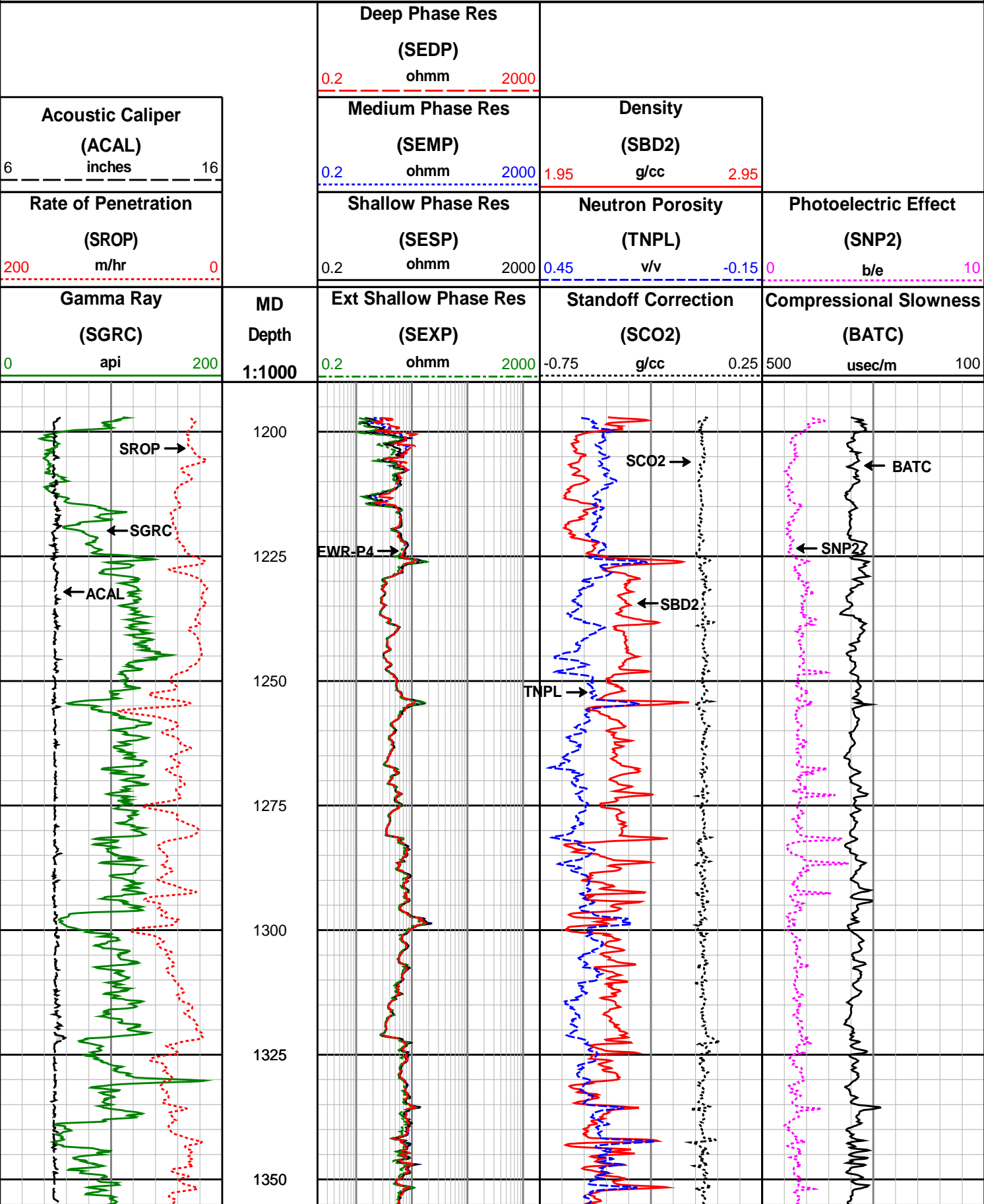
| Sonic Sensor Information | | | | | |
|----------------------------------|--------|--|--|--|--|
| Tool Type | BAT | | | | |
| Distance From Bit (m) | 30.80 | | | | |
| Recorded Sample Period (sec) | 16 | | | | |
| Software Version | 4.00 | | | | |
| Sub Serial Number | 179393 | | | | |
| Receiver Insert Serial Number | 145079 | | | | |
| Transmitter Insert Serial Number | 190321 | | | | |

| GeoPilot Sensor Information | | | | | |
|-----------------------------|-------------|--|--|--|--|
| Tool Type | GP | | | | |
| Distance From Bit (m) | 1.33 | | | | |
| Software Version | 3 | | | | |
| Sub Serial Number | GP0850TL088 | | | | |

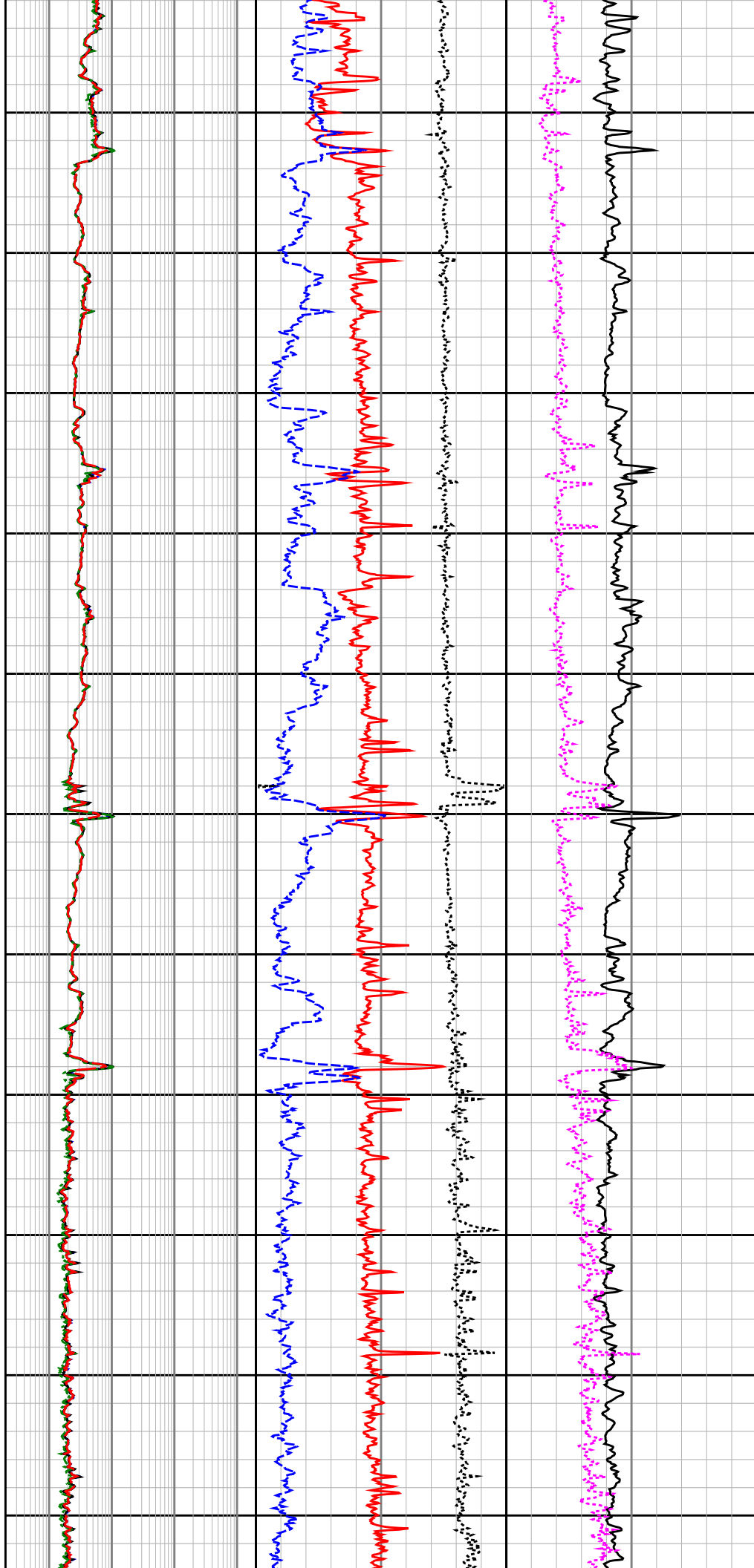
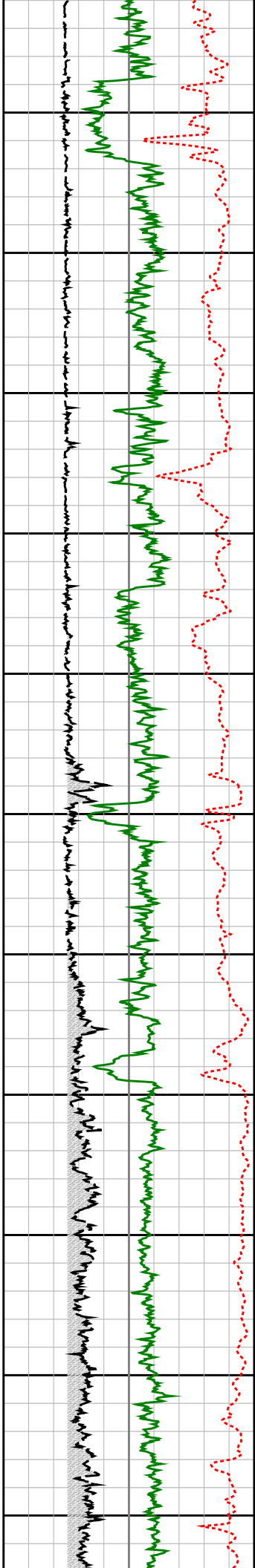
| REMARKS | | | | | |
|---|--|--|--|--|--|
| <p>1. All depths are bit depths and referenced to the drillers pipe tally.</p> <p>2. AV/CV is calculated at the MWD collar using the Powers Law for water based muds and the Bingham's Plastic Law for oil based muds.</p> <p>3. Curve mnemonics are:</p> <p>SGRC - Smoothed Gamma Ray Combined, api</p> <p>SEXP - Smoothed Extra Shallow Phase Resistivity, ohm-m</p> <p>SESP - Smoothed Shallow Phase Resistivity, ohm-m</p> <p>SEMP - Smoothed Medium Phase Resistivity, ohm-m</p> <p>SEDP - Smoothed Deep Phase Resistivity, ohm-m</p> <p>SRDP - Smoothed Rate of Penetration, m/hr</p> <p>ACAL - Acoustic Caliper, inches</p> <p>SBD2 - Smoothed Best Bin Bulk Density Compensated, g/cc</p> <p>TNPL - Smoothed CTN Neutron Porosity corrected for Salinity, Temperature and Pressure, v/v</p> <p>SCO2 - Smoothed Best Bin Stand-off Correction, g/cc</p> <p>SNP2 - Smoothed Best Bin Near Photoelectric Effect, b/e</p> <p>BATC - Bi-Modal Acoustic Compressional Sonic, us/m</p> <p>RUN_SPD - Smoothed Running Speed, m/hr</p> <p>4. CTN data has been processed using the following parameters:</p> <p>MW = 1.25 - 1.26 sg</p> <p>Formation Salinity = 50000 ppm, Cl</p> <p>Mud Salinity = 46000 - 51000 ppm, Cl</p> <p>Matrix Density = 2.71 g/cc</p> <p>Fluid Density = 1.00 g/cc</p> <p>5. CTN data has been reprocessed using data from the Caliper tool for borehole diameter.</p> | | | | | |

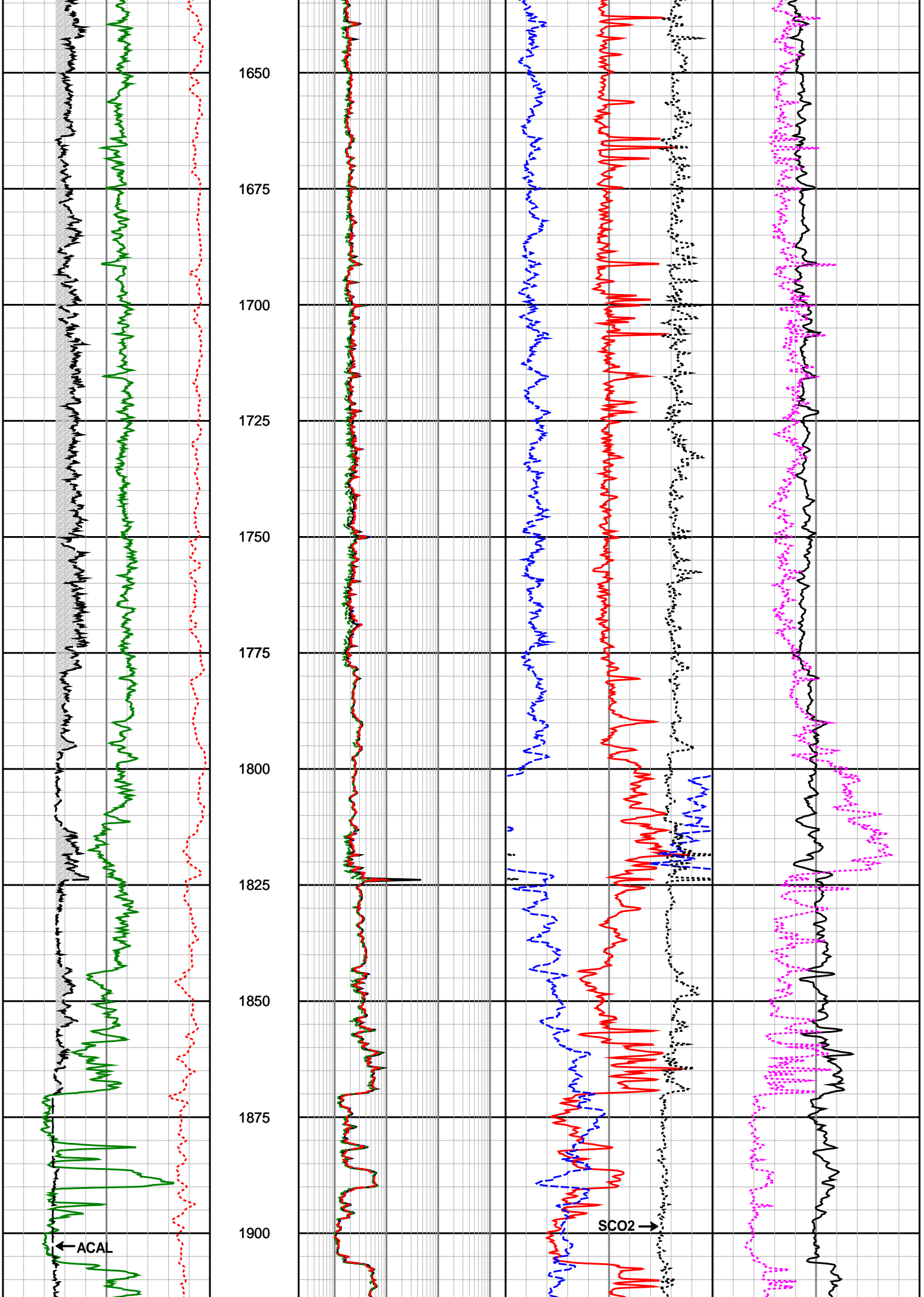
| WARRANTY | | | | | |
|---|--|--|--|--|--|
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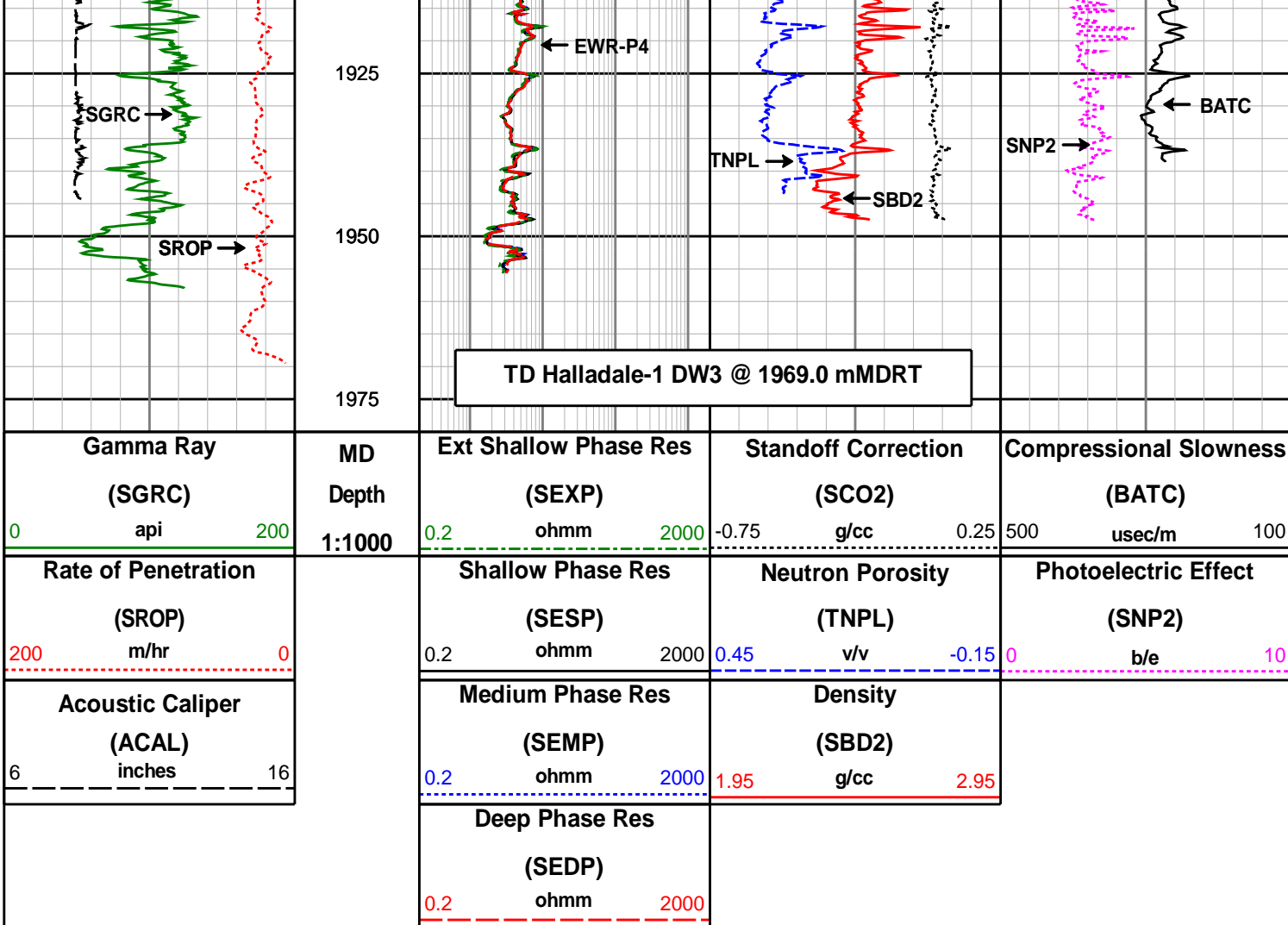
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1375
1400
1425
1450
1475
1500
1525
1550
1575
1600
1625



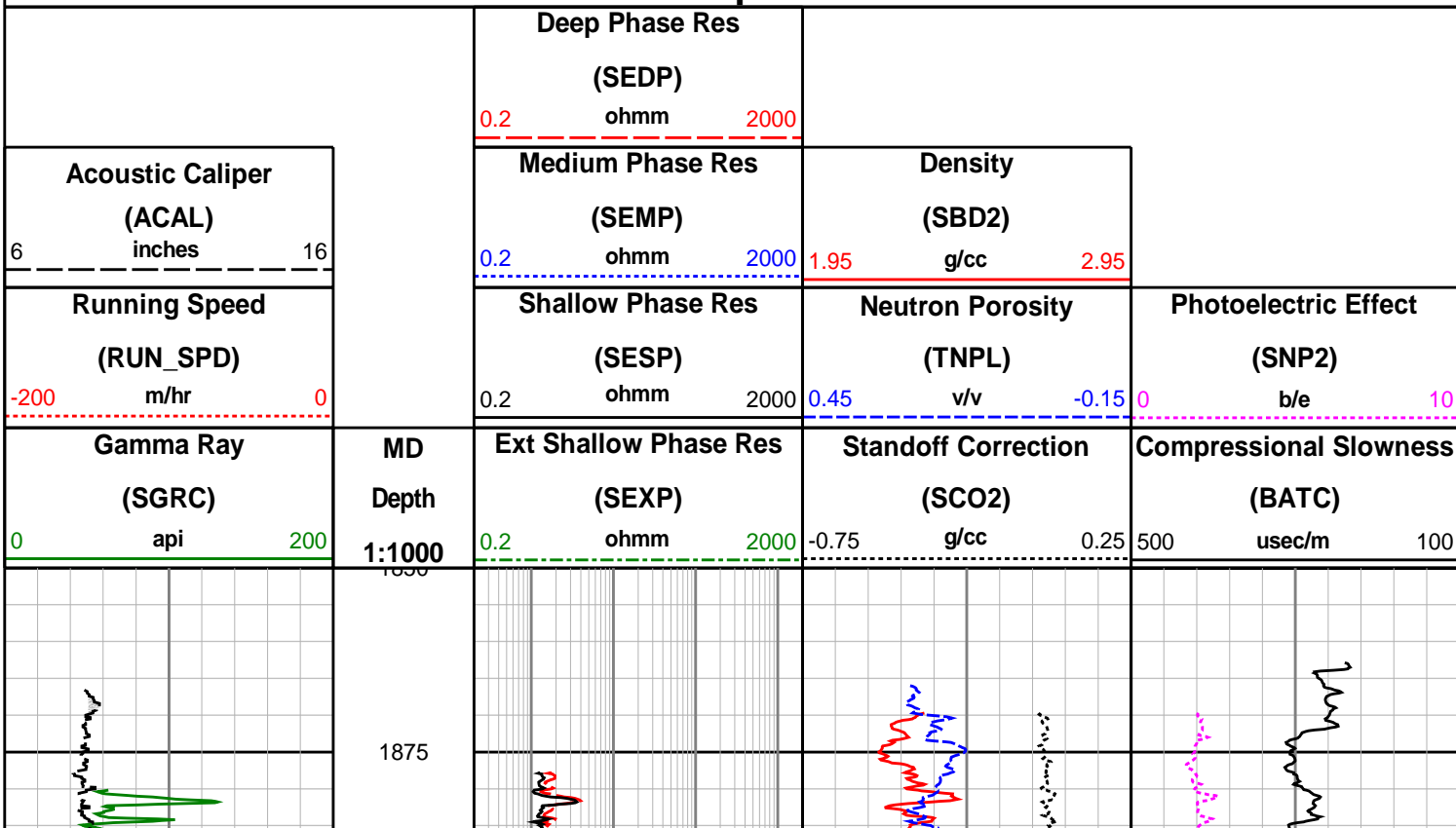


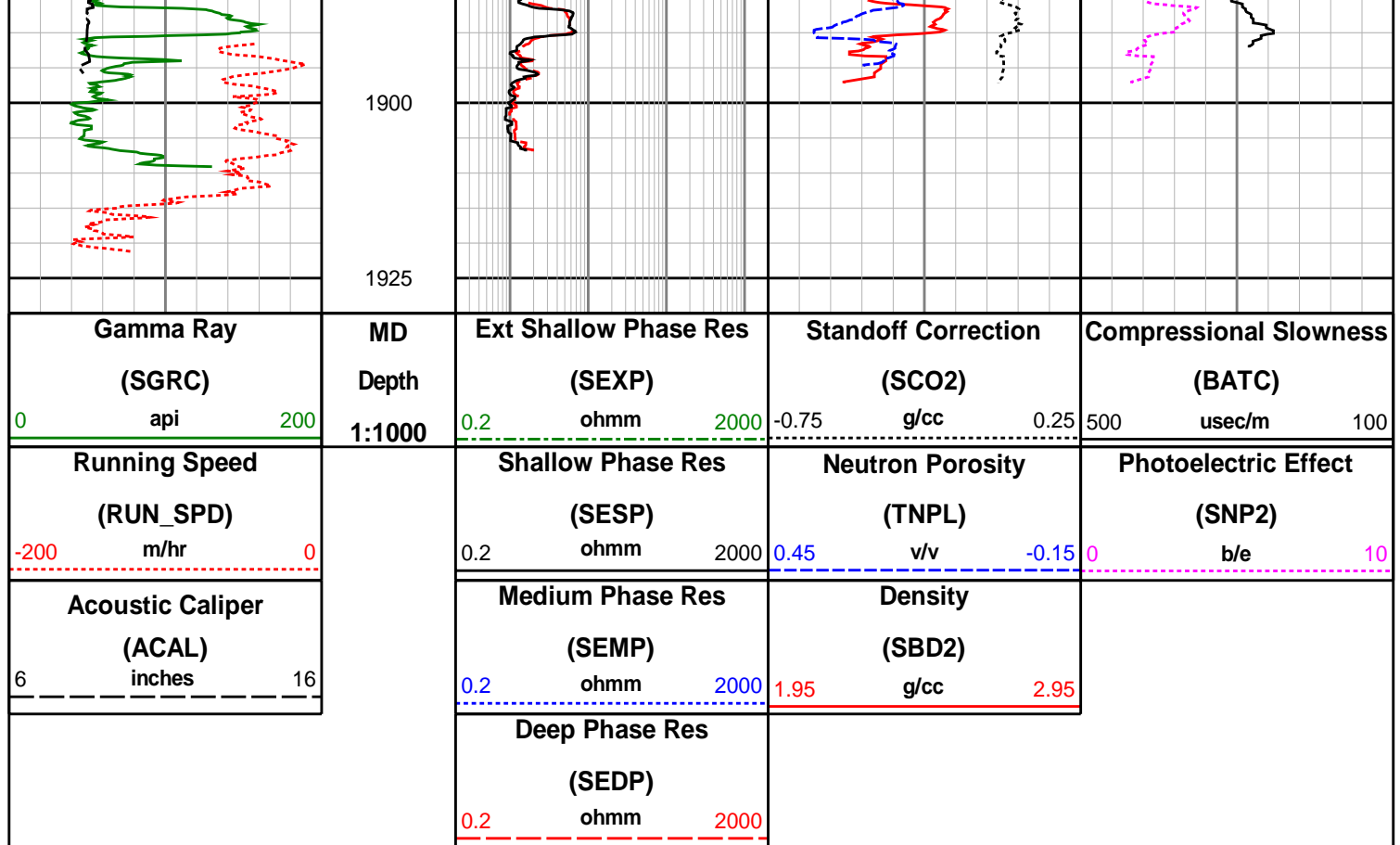


Repeat Section 1

Wiped after TD while POOH while pumping and rotating

From 1923.0 - 1893.0 mMDRT on 24th April 2005 from 15:54 to 16:16 hrs





HALLIBURTON

DIRECTIONAL SURVEY REPORT

Woodside Energy Ltd
Halladale-1 DW3

Victoria
Australia

AU-FE-0003325469

Final survey has been projected to TD. RT-LAT=21.5m

| Measured Depth (metres) | Inclination (degrees) | Direction (degrees) | Vertical Depth (metres) | Latitude (metres) | Departure (metres) | Vertical Section (metres) | Dogleg (deg/30m) |
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| | | | | | | | |
|----------|-------|-------|----------|-----------|-----------|---------|------|
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| 1957.000 | 26.16 | 53.45 | 1870.606 | 269.319 N | 194.831 E | 332.168 | 2.14 |
| 1969.000 | 26.20 | 53.45 | 1881.375 | 272.472 N | 199.084 E | 337.152 | 0.10 |

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HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 1969.000 METRES
IS 337.454 METRES ALONG 36.15 DEGREES (GRID)

MWD RUN 100 - BHA

MWD RUN 100 - MWD

Drill Pipe (E)

HWDP

Spiral Drill collar

Drilling Jars

Spiral Drill collar

Circulating Sub

3-Point String Reamer

Float Sub

Integral Blade Stabilizer

Positive Pulser

TM

BAT

CTN

SLD

HCIM

PWD

EWR-P4

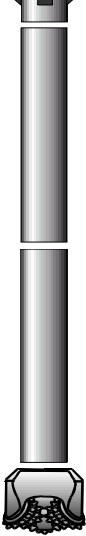

Sensor
Measure
Point
Distance
To Bit
(m)

26.000

21.950

16.340

13.810

| | | | | |
|-------------|---|----------|---|--------|
| |  | |  | 10.510 |
| Flex Collar | | DGR | | 11.510 |
| MWD | | GeoPilot | | 1.330 |
| PDC | | | | |

1 : 1000



| | | |
|------------|---|---------------------|
| Company | : | Woodside Energy Ltd |
| Rig | : | Ocean Patriot |
| Well | : | Halladale-1 DW/3 |
| Field | : | |
| Country | : | Australia |
| DOE Number | : | |

| | | | | | |
|------------------------|---------------|-------------|-----------------------|-------|---------|
| Permanent Datum | : LAT | Elevation : | 0.00 m | Elev. | KB |
| Log Measured From | : Drill Floor | 21.50 m | Above Permanent Datum | DF | 21.50 m |
| Drilling Measured From | : Drill Floor | TVD LOG | | GL | WD |
| | | | | | 44.80 m |

| Run No. | Borehole Record (TVD) | | | Run No. | Borehole Record (TVD) | | |
|---------|-----------------------|------------|------------|---------|-----------------------|------|----|
| | Size | From | To | | Size | From | To |
| 1 | 216,000 mm | 1,188.99 m | 1,881.38 m | | | | |

[illegible]

| | | | | | |
|---------------------------------------|---------------------|--|--|--|--|
| MWD Run Number | 100 | | | | |
| Date run completed | 25-Apr-05 | | | | |
| Rig Bit Number | 1 | | | | |
| Bit Size (mm) | 216 | | | | |
| Tool Nominal OD (mm) | 171 | | | | |
| Log Start Depth (TVD, m) | 1,188.99 | | | | |
| Log End Depth (TVD, m) | 1,881.38 | | | | |
| Drill or Wipe | Drilling | | | | |
| Drill/Wipe Start Date and Time | 22-Apr-05 02:30 | | | | |
| Drill/Wipe End Date and Time | 24-Apr-05 15:15 | | | | |
| Min Inc (deg) @ Depth (TVD, m) | 19.51 @ 1,295.87 | | | | |
| Max Inc (deg) @ Depth (TVD, m) | 30.33 @ 1,557.11 | | | | |
| Bit TFA(in2) / Bit Type | 1.030 / DBS FMF3553 | | | | |
| Flow Rate (gpm) | 740 | | | | |
| Max AV (mpm) / CV (mpm) @ MWD | 689.0 / 754.0 | | | | |
| Fluid Type | AQUA-DRILL | | | | |
| Density (sg) / Viscosity (spl) | 1.25 / 74.00 | | | | |
| Filtrate CL (ppm) | 51,000 | | | | |
| pH / Fluid Loss (cptm) | 9.50 / 4 | | | | |
| PV (cp) / YP (pa) | 40 / 32.00 | | | | |
| % Solids / % Sand | 8.5 / 0.2 | | | | |
| % Oil / Oil:Water Ratio | N/A / 0:100 | | | | |
| Rm @ Measured Temp (degC) | 0.03 @ 28.00 | | | | |
| Rmf @ Measured Temp (degC) | 0.01 @ 26.00 | | | | |
| Rmc @ Measured Temp (degC) | 0.08 @ 25.00 | | | | |
| Max Tool Temp (degC) / Source | 82.00 / EWR-P4 | | | | |
| Rm @ Max Tool Temp (degC) | 0.01 @ 82.00 | | | | |
| Lead MWD Engineer | M.Saunders | | | | |
| Customer Representative | D.Thorpe | | | | |

SENSOR INFORMATION

Downhole Processor Information

| | | | | | |
|------------------------------|--------------------|--|--|--|--|
| Tool Type | HCIM | | | | |
| Software Version | 68.18 | | | | |
| Sub Serial Number | 10562757 | | | | |
| Insert Serial Number | 160772 | | | | |
| Logging String Serial Number | 90069312HWRGV6 | | | | |
| Date and Time Initialized | 16-Apr-05 21:50 | | | | |
| Date and Time Read | 25-Apr-05 15:08:57 | | | | |

Directional Sensor Information

| | | | | | |
|-----------------------------|--------|--|--|--|--|
| Tool Type | DM | | | | |
| Distance From Bit (m) | 8.98 | | | | |
| Software Version | 3.15 | | | | |
| Sub Serial Number | 783004 | | | | |
| Sonde Serial Number | 87896 | | | | |
| Sensor ID Number | N/A | | | | |
| Survey String Serial Number | N/A | | | | |
| Toolface Offset (deg) | N/A | | | | |

Gamma Ray Sensor Information

| | | | | | |
|------------------------------|--------|--|--|--|--|
| Tool Type | DGR | | | | |
| Distance From Bit (m) | 11.51 | | | | |
| Recorded Sample Period (sec) | 12 | | | | |
| Software Version | N/A | | | | |
| Sub Serial Number | 131257 | | | | |
| Insert/Sonde Serial Number | 176691 | | | | |

Resistivity Sensor Information

| | | | | | |
|----------------------------------|--------|--|--|--|--|
| Tool Type | EWR-P4 | | | | |
| Distance From Bit (m) | 13.81 | | | | |
| Recorded Sample Period (sec) | 12 | | | | |
| Software Version | 1.38 | | | | |
| Sub Serial Number | 197652 | | | | |
| Receiver Insert Serial Number | 74703 | | | | |
| Transmitter Insert Serial Number | 62499 | | | | |
| Receiver Orientation | Down | | | | |

Neutron Sensor Information

| | | | | | |
|------------------------------|--------|--|--|--|--|
| Tool Type | CTN | | | | |
| Distance From Bit (m) | 26.00 | | | | |
| Recorded Sample Period (sec) | 12 | | | | |
| Sub Serial Number | 185450 | | | | |
| Insert Serial Number | 173972 | | | | |
| Source Serial Number | 0102NN | | | | |
| Source Factor | N/A | | | | |
| Pin Orientation | Up | | | | |

Density Sensor Information

| | | | | | |
|------------------------------|--------|--|--|--|--|
| Tool Type | SLD | | | | |
| Distance From Bit (m) | 21.95 | | | | |
| Recorded Sample Period (sec) | 12 | | | | |
| Software Version | 11.00 | | | | |
| Sub Serial Number | 105252 | | | | |
| Insert Serial Number | 182726 | | | | |
| Sensor ID Number | 226 | | | | |

| | | | | | |
|----------------------------|--------|--|--|--|--|
| Source Serial Number | 2615GW | | | | |
| Pin Orientation | Up | | | | |
| Stabilizer Blade O.D. (mm) | 209.55 | | | | |
| DPA Offset | N/A | | | | |

| Caliper Sensor Information | | | | | |
|----------------------------|--------|--|--|--|--|
| Tool Type | ACAL | | | | |
| Distance From Bit (m) | 25.17 | | | | |
| Software Version | 2.05 | | | | |
| Sub Serial Number | 185450 | | | | |
| Insert Serial Number | 173972 | | | | |

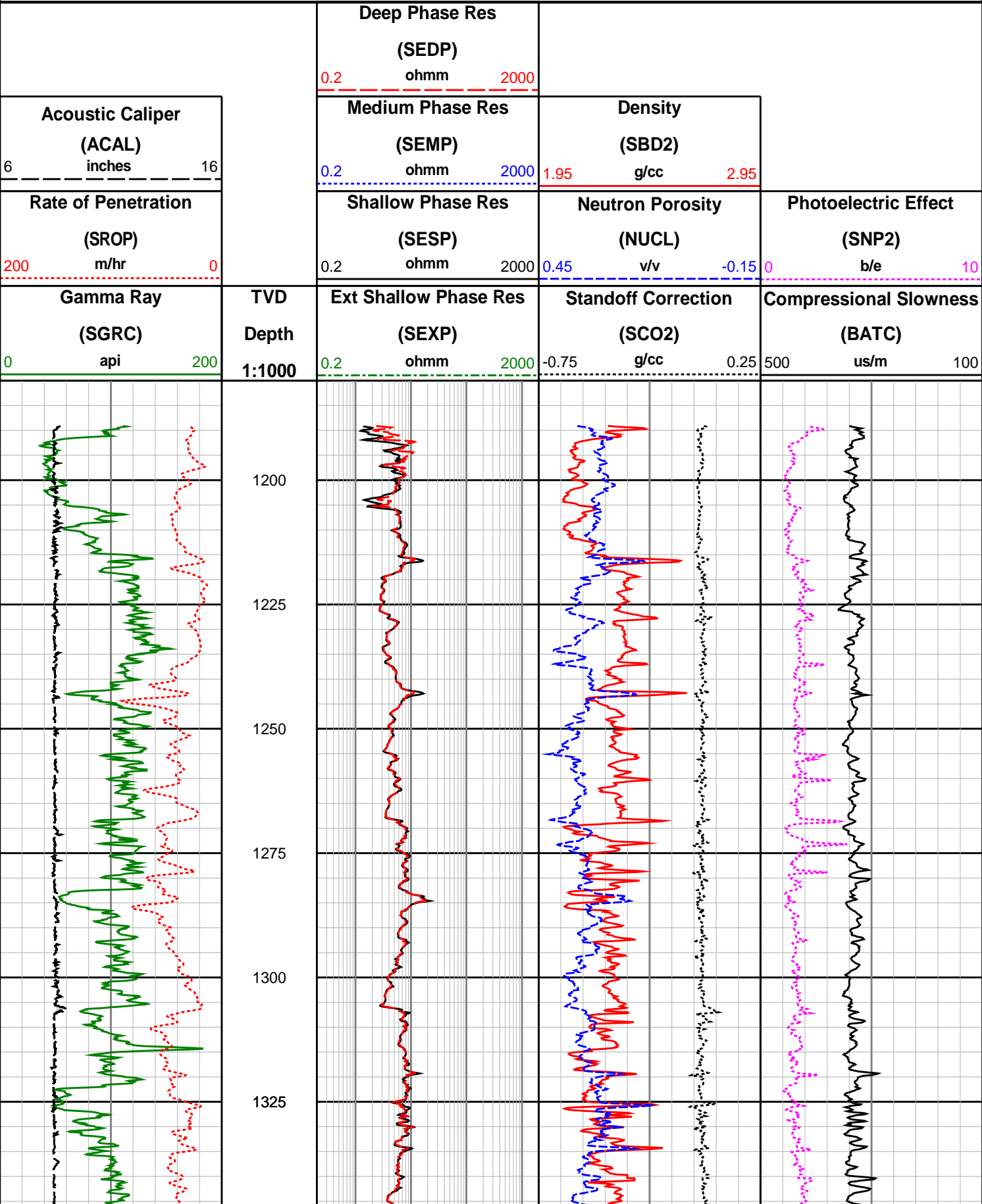
| Sonic Sensor Information | | | | | |
|----------------------------------|--------|--|--|--|--|
| Tool Type | BAT | | | | |
| Distance From Bit (m) | 30.80 | | | | |
| Recorded Sample Period (sec) | 16 | | | | |
| Software Version | 4.00 | | | | |
| Sub Serial Number | 179393 | | | | |
| Receiver Insert Serial Number | 145079 | | | | |
| Transmitter Insert Serial Number | 190321 | | | | |

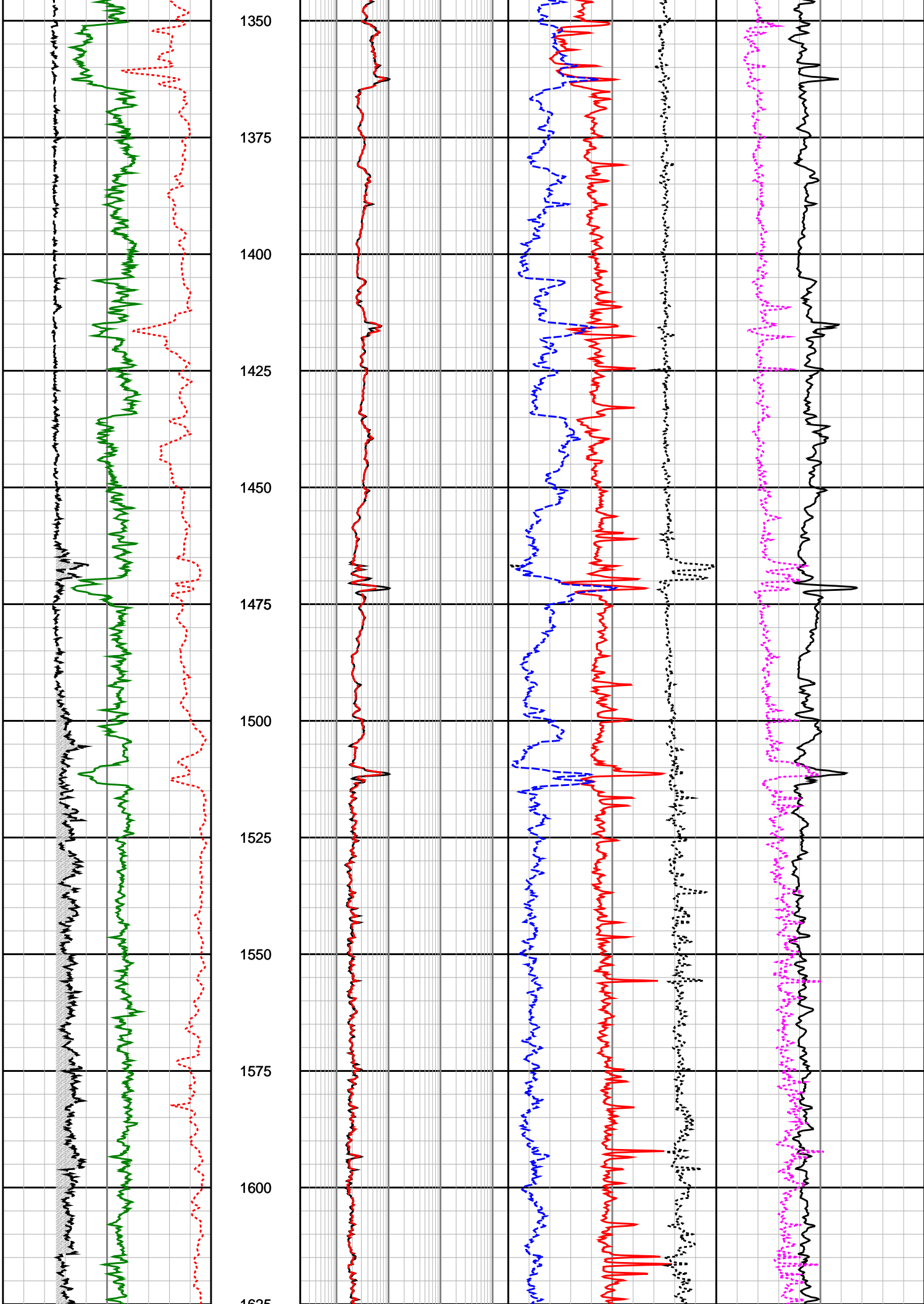
| GeoPilot Sensor Information | | | | | |
|-----------------------------|-------------|--|--|--|--|
| Tool Type | GP | | | | |
| Distance From Bit (m) | 1.33 | | | | |
| Software Version | 3 | | | | |
| Sub Serial Number | GP0850TL088 | | | | |

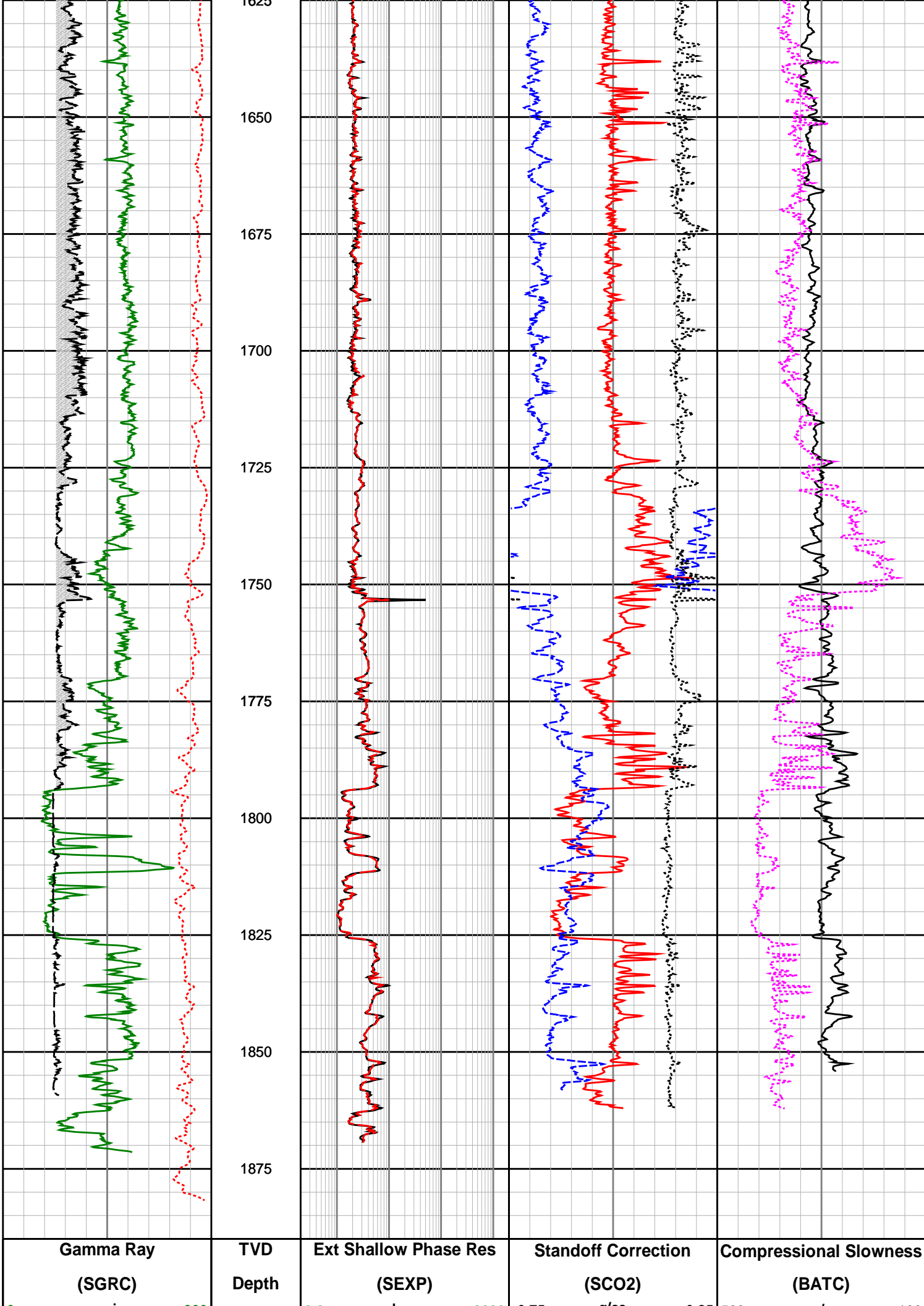
| REMARKS | | | | | |
|--|--|--|--|--|--|
| <p>1. All depths are bit depths and referenced to the drillers pipe tally.</p> <p>2. AV/CV is calculated at the MWD collar using the Powers Law for water based muds and the Bingham's Plastic Law for oil based muds.</p> <p>3. Curve mnemonics are:</p> <p>SGRC - Smoothed Gamma Ray Combined, api</p> <p>SEXP - Smoothed Extra Shallow Phase Resistivity, ohm-m</p> <p>SESP - Smoothed Shallow Phase Resistivity, ohm-m</p> <p>SEMP - Smoothed Medium Phase Resistivity, ohm-m</p> <p>SEDP - Smoothed Deep Phase Resistivity, ohm-m</p> <p>SROP - Smoothed Rate of Penetration, m/hr</p> <p>ACAL - Acoustic Caliper, inches</p> <p>SBD2 - Smoothed Best Bin Bulk Density Compensated, g/cc</p> <p>TNPL - Smoothed CTN Neutron Porosity corrected for Salinity, Temperature and Pressure, v/v</p> <p>SCO2 - Smoothed Best Bin Stand-off Correction, g/cc</p> <p>SNP2 - Smoothed Best Bin Near Photoelectric Effect, b/e</p> <p>BATC - Smoothed Bi-Modal Acoustic Compressional Slowness, us/m</p> <p>RUN_SPD - Smoothed Running Speed, m/hr</p> <p>4. CTN data processed using the following parameters:</p> <p>MW = 1.25 - 1.26 sg</p> <p>Formation Salinity = 50000 ppm, Cl</p> <p>Mud Salinity = 46000 - 51000 ppm, Cl</p> <p>Matrix Density = 2.71 g/cc</p> <p>Fluid Density = 1.00 g/cc</p> <p>5. CTN data has been reprocessed using data from the Caliper tool for borehole diameter.</p> | | | | | |

| WARRANTY | | | | | |
|---|--|--|--|--|--|
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| | | | | | | | | | |
|---------------------------------------|--|--------|-------------------------------------|--|-----------------------------------|--|---------------------------------------|---------|--|
| api200 | | 1:1000 | 0.2ohmm2000 | | -0.75g/cc0.25 | | 500 | us/m100 | |
| Rate of Penetration (SROP) m/hr | | | Shallow Phase Res (SESP) ohmm | | Neutron Porosity (NUCL) v/v | | Photoelectric Effect (SNP2) b/e | | |
| 2000 | | | 0.22000 | | 0.45-0.150 | | 10 | | |
| Acoustic Caliper (ACAL) inches | | | Medium Phase Res (SEMP) ohmm | | Density (SBD2) g/cc | | | | |
| 616 | | | 0.2ohmm2000 | | 1.952.95 | | | | |
| | | | Deep Phase Res (SEDP) ohmm | | | | | | |
| | | | 0.2ohmm2000 | | | | | | |

Repeat Section 1

Wiped after TD whilst POOH, pumping and rotating

From 1840.33 - 1813.99 mTVDRT on 24th April from 15:54 - 16:16 hrs

| | | | | | | | |
|--------------------------------------|--|---|--|------|--|--|--|
| | | Deep Phase Res (SEDP) ohmm | | 2000 | | | |
| Acoustic Caliper (ACAL) inches | | Medium Phase Res (SEMP) ohmm | | 2000 | | Density (SBD2) g/cc | |
| Running Speed (RUN_SPD) m/hr | | Shallow Phase Res (SESP) ohmm | | 2000 | | Neutron Porosity (NUCL) v/v | |
| Gamma Ray (SGRC) api | | Ext Shallow Phase Res (SEXP) ohmm | | 2000 | | Standoff Correction (SCO2) g/cc | |
| TVD Depth 1:1000 | | | | | | Compressional Slowness (BATC) us/m | |
| 1800 | | | | | | 100 | |
| 1825 | | | | | | | |
| Gamma Ray (SGRC) api | | Ext Shallow Phase Res (SEXP) ohmm | | 2000 | | Standoff Correction (SCO2) g/cc | |
| Running Speed (RUN_SPD) m/hr | | Shallow Phase Res (SESP) ohmm | | 2000 | | Neutron Porosity (NUCL) v/v | |
| | | | | | | Photoelectric Effect (SNP2) b/e | |

| | | |
|---|---|-------------------------------------|
| Acoustic Caliper (ACAL) 6 inches 16 | Medium Phase Res (SEMP) 0.2 ohmm 2000 | Density (SBD2) 1.95 g/cc 2.95 |
| | Deep Phase Res (SEDP) 0.2 ohmm 2000 | |



HALLIBURTON

DIRECTIONAL SURVEY REPORT

Woodside Energy Ltd
Halladale-1 DW3
Victoria
Australia

AU-FE-0003325469

Final survey has been projected to TD. RT-LAT=21.5m

| <i>Measured Depth (metres)</i> | <i>Inclination (degrees)</i> | <i>Direction (degrees)</i> | <i>Vertical Depth (metres)</i> | <i>Latitude (metres)</i> | <i>Departure (metres)</i> | <i>Vertical Section (metres)</i> | <i>Dogleg (deg/30m)</i> |
|--|----------------------------------|--------------------------------|--|------------------------------|-------------------------------|--|-----------------------------|
| 1169.860 | 20.36 | 343.90 | 1163.640 | 39.870 N | 22.110 W | 20.881 | TIE-IN |
| 1195.730 | 21.42 | 342.38 | 1187.809 | 48.696 N | 24.788 W | 26.735 | 1.38 |
| 1224.520 | 19.80 | 347.77 | 1214.758 | 58.474 N | 27.413 W | 33.409 | 2.60 |
| 1253.280 | 19.60 | 353.21 | 1241.837 | 68.025 N | 29.015 W | 40.463 | 1.92 |
| 1282.050 | 19.67 | 1.17 | 1268.939 | 77.660 N | 29.487 W | 48.213 | 2.79 |
| 1310.630 | 19.51 | 10.69 | 1295.872 | 87.161 N | 28.503 W | 56.661 | 3.35 |
| 1339.280 | 20.34 | 20.73 | 1322.815 | 96.522 N | 25.852 W | 65.918 | 3.68 |
| 1367.860 | 20.72 | 25.64 | 1349.581 | 105.726 N | 21.906 W | 75.764 | 1.85 |
| 1396.400 | 21.18 | 32.71 | 1376.239 | 114.617 N | 16.934 W | 85.919 | 2.70 |
| 1425.090 | 22.39 | 40.47 | 1402.885 | 123.137 N | 10.586 W | 96.530 | 3.26 |
| 1453.920 | 23.69 | 45.54 | 1429.417 | 131.372 N | 2.887 W | 107.654 | 2.47 |
| 1482.540 | 24.97 | 49.30 | 1455.497 | 139.339 N | 5.798 E | 119.102 | 2.11 |
| 1511.340 | 26.21 | 51.92 | 1481.472 | 147.226 N | 15.413 E | 131.001 | 1.75 |
| 1540.050 | 28.20 | 55.29 | 1507.006 | 155.000 N | 25.982 E | 143.335 | 2.63 |
| 1568.690 | 29.91 | 56.92 | 1532.041 | 162.752 N | 37.529 E | 156.193 | 1.97 |
| 1597.670 | 30.33 | 57.12 | 1557.108 | 170.668 N | 49.728 E | 169.551 | 0.45 |
| 1626.340 | 29.77 | 53.70 | 1581.927 | 178.812 N | 61.544 E | 182.886 | 1.89 |
| 1654.590 | 29.91 | 56.01 | 1606.432 | 186.902 N | 73.037 E | 195.995 | 1.23 |
| 1683.390 | 30.14 | 56.14 | 1631.367 | 194.944 N | 84.994 E | 209.324 | 0.25 |
| 1712.450 | 29.91 | 55.42 | 1656.528 | 203.121 N | 97.018 E | 222.801 | 0.44 |
| 1741.010 | 30.22 | 53.85 | 1681.246 | 211.403 N | 108.685 E | 236.166 | 0.89 |
| 1769.540 | 29.87 | 53.80 | 1705.942 | 219.834 N | 120.215 E | 249.581 | 0.37 |
| 1827.210 | 28.76 | 57.77 | 1756.231 | 235.717 N | 143.543 E | 275.744 | 1.16 |
| 1853.710 | 28.37 | 56.40 | 1779.505 | 242.601 N | 154.180 E | 287.375 | 0.86 |
| 1882.130 | 28.81 | 57.39 | 1804.460 | 250.028 N | 165.572 E | 299.878 | 0.68 |
| 1910.690 | 28.69 | 58.09 | 1829.499 | 257.360 N | 177.189 E | 312.427 | 0.38 |
| 1957.000 | 26.16 | 53.45 | 1870.606 | 269.319 N | 194.831 E | 332.168 | 2.14 |
| 1969.000 | 26.20 | 53.45 | 1881.375 | 272.472 N | 199.084 E | 337.152 | 0.10 |

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 33.73 DEGREES (GRID)
A TOTAL CORRECTION OF 11.98 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 1969.000 METRES
IS 337.454 METRES ALONG 36.15 DEGREES (GRID)

MWD RUN 100 - BHA

MWD RUN 100 - MWD

Sensor

Mud Gas Isotopes

Provisional GC Data

Job 6584

Halladale-1 DW3

IsoTubes

| Isotech Lab No. | Sample Date | Sample Time | Depth 1 Meters | Gas Units % | GC Date | O ₂ + Ar ppm | CO ₂ ppm | N ₂ ppm | CO ppm | C ₁ ppm | C ₂ ppm | C ₂ H ₄ ppm | C ₃ ppm | C ₃ H ₆ ppm | iC ₄ ppm | nC ₄ ppm | iC ₅ ppm | nC ₅ ppm | C ₆ + ppm |
|--------------------|----------------|----------------|-------------------|----------------|------------|----------------------------|------------------------|-----------------------|-----------|-----------------------|-----------------------|--------------------------------------|-----------------------|--------------------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| 89666 | 4/22/2005 | 5:40 | 1250.2 | 0.57 | 9/30/2005 | 216000 | 240 | 780400 | 0 | 3160 | 142 | 0 | 30 | 0 | 7 | 5 | 2 | 1 | 9 |
| 89667 | 4/22/2005 | 7:21 | 1300 | 0.142 | 9/30/2005 | 216700 | 310 | 781700 | 0 | 1210 | 53 | 1 | 13 | 0 | 4 | 3 | 2 | 1 | 6 |
| 89668 | 4/22/2005 | 9:22 | 1350 | 0.06 | 9/30/2005 | 208300 | 330 | 790700 | 0 | 582 | 27 | 1 | 9 | 0 | 6 | 3 | 3 | 1 | 8 |
| 89669 | 4/22/2005 | 11:17 | 1400 | 0.32 | 9/30/2005 | 216100 | 1700 | 780000 | 0 | 2060 | 106 | 0 | 24 | 0 | 4 | 4 | 2 | 1 | 5 |
| 89670 | 4/22/2005 | 13:50 | 1450 | 0.65 | 9/30/2005 | 216100 | 2400 | 778600 | 0 | 2600 | 162 | 0 | 56 | 0 | 9 | 13 | 4 | 3 | 13 |
| 89671 | 4/22/2005 | 16:20 | 1500 | 0.35 | 9/30/2005 | 215700 | 3000 | 779000 | 0 | 2060 | 142 | 0 | 66 | 0 | 12 | 16 | 4 | 4 | 15 |
| 89672 | 4/22/2005 | 20:23 | 1550 | 0.16 | 9/30/2005 | 216800 | 1700 | 780400 | 0 | 988 | 60 | 0 | 22 | 0 | 4 | 5 | 2 | 1 | 7 |
| 89673 | 4/23/2005 | 4:45 | 1600 | 0.17 | 9/30/2005 | 217400 | 830 | 780800 | 0 | 877 | 35 | 0 | 5 | 0 | 1 | 1 | 0 | 0 | 2 |
| 89674 | 4/23/2005 | 9:38 | 1650 | 0.19 | 9/30/2005 | 217300 | 1200 | 780400 | 0 | 1090 | 36 | 0 | 4 | 0 | 1 | 1 | 0 | 0 | 2 |
| 89675 | 4/23/2005 | 15:25 | 1700 | 0.19 | 9/30/2005 | 216800 | 1500 | 780500 | 0 | 1100 | 45 | 0 | 6 | 0 | 1 | 1 | 1 | 0 | 2 |
| 89676 | 4/23/2005 | 21:30 | 1750 | 0.21 | 9/30/2005 | 217000 | 1900 | 779800 | 0 | 1270 | 62 | 0 | 12 | 0 | 1 | 1 | 0 | 0 | 2 |
| 89677 | 4/24/2005 | 4:09 | 1800 | 0.06 | 9/30/2005 | 217200 | 1900 | 780300 | 0 | 567 | 24 | 0 | 8 | 0 | 1 | 2 | 0 | 0 | 1 |
| 89678 | 4/24/2005 | 8:03 | 1836.6 | 0.21 | 9/30/2005 | 216900 | 2000 | 779600 | 0 | 1390 | 59 | 0 | 15 | 0 | 2 | 3 | 1 | 1 | 2 |
| 89679 | 4/24/2005 | 9:21 | 1855.9 | 0.2 | 9/30/2005 | 217100 | 1900 | 779300 | 0 | 1650 | 67 | 0 | 19 | 0 | 2 | 4 | 1 | 1 | 4 |
| 89680 | 4/24/2005 | 10:49 | 1883.8 | 0.37 | 9/30/2005 | 216900 | 2000 | 778800 | 0 | 2190 | 96 | 0 | 27 | 0 | 3 | 5 | 1 | 1 | 8 |
| 89681 | 4/24/2005 | 14:30 | 1900.04 | 0.32 | 9/30/2005 | 217000 | 1900 | 778800 | 0 | 2180 | 91 | 0 | 29 | 0 | 4 | 6 | 2 | 2 | 10 |
| 89682 | 4/24/2005 | 14:30 | 1950 | 0.31 | 9/30/2005 | 216200 | 2500 | 778500 | 0 | 2660 | 111 | 1 | 35 | 0 | 5 | 6 | 2 | 2 | 10 |
| 89683 | 4/24/2005 | 16:20 | 1969 | 0.25 | 9/30/2005 | 217100 | 2100 | 778600 | 0 | 2030 | 100 | 1 | 29 | 0 | 3 | 4 | 1 | 1 | 4 |

Chemical analysis based on standards accurate to within 2%

Rig Positioning Report



REPORT FOR THE OCEAN PATRIOT RIG MOVE TO THE HALLADALE-1 LOCATION

FUGRO SURVEY JOB NO. - P0195

Client : Woodside Energy Ltd
240 St George's Terrace
Perth 6000
Western Australia

Date of Survey : 18 – 26 March 2005

| | | | | |
|-----|-------------|---------|----------|--------------|
| | | | | |
| | | | | |
| 0 | Final | | | 4 April 2005 |
| Rev | Description | Checked | Approved | Date |

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ABSTRACT

Between 18 and 24 March 2005, Fugro Survey Pty Ltd (Fugro) provided equipment and personnel for the semi-submersible Mobile Offshore Drilling Unit Ocean Patriot rig move from Zane Grey-1 to Halladale-1 location in Permit VIC/P37(v) in the Otway Basin, Victoria.

Surface positioning was provided by Fugro's Multiple Reference Differential Global Positioning System (MRDGPS) and Starfix Seis Navigation Software.

The final position for the drill stem derived from DGPS observations at Halladale-1 location is:

| Location Name: | Halladale-1 |
|----------------|-------------------|
| Easting (m): | 650763.17 |
| Northing (m): | 5728485.21 |
| Latitude: | 38° 34' 45.54" S |
| Longitude: | 142° 43' 50.95" E |
| Rig Heading: | 69.6° (True) |

This position is 5.3m on a bearing of 36.9° (Grid) from the proposed Halladale-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 54 (CM 141° E), unless otherwise stated.

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

1.0 INTRODUCTION

Fugro Survey Pty Ltd (Fugro) was contracted by Woodside Energy Ltd (Woodside) to provide navigation and positioning survey services on board the semi-submersible Mobile Offshore Drilling Unit (MODU) *Ocean Patriot*, during the rig move to Halladale-1 location in Permit VIC/P37(v) in the Otway Basin, Victoria.

A general location diagram is shown as 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 of compact inclinometer on the Permanent Guide Base (PGB) prior to shipment offshore.
- Calibration and function testing of the survey equipment on board the rig and the two Anchor Handling Vessels (AHVs).
- Surface navigation for the *Ocean Patriot*, using Fugro's MRDGPS (Multi Reference DGPS) and Starfix Spot DGPS services.
- Surface navigation for AHVs during anchoring operations, using Starfix Spot DGPS.
- Final rig surface positioning for the Halladale-1 location using DGPS observations.
- Observation of PGB inclination (pitch & roll) during PGB deployment, cementing and stacking of BOP.
- Final reporting of the positioning results.

1.2 Sequence of Events

On 15 March 2005, R. Risah and J. Richards joined the *Ocean Patriot* to commence the anchor recovery at Zane Grey-1 whilst the rig was contracted to Bass Strait Oil Company (BSOC).

On 18 March 2005, the rig was handed over to Woodside and the tow to Halladale-1 commenced. Between 21 and 22 March 2005, the rig was positioned on location at Halladale-1. Fugro personnel departed the rig on 22 and 26 March 2005.

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



GENERAL LOCATION DIAGRAM

FIGURE 1-1

2.0 RESULTS

2.1 Final Position

The final position of the *Ocean Patriot* drill stem was established by calculating the mean position from 180 minutes of DGPS data logged between 07:43 and 10:43 on 23 March 2005. During this period, calculated drill stem coordinates from the primary and secondary positioning systems were logged at a ten second interval in Starfix Seis. Data from the primary positioning system were used for the final position calculation.

Differential GPS corrections were derived using a multi-reference solution with base station data from Melbourne, Cobar and Bathurst.

GDA94 geographical positions for the Halladale-1 location are shown in Table 2-1.

| GDA94 | | | |
|-----------------------|--------|------------------|-------------------|
| Position | Method | Latitude | Longitude |
| Drill Stem at Surface | MRDGPS | 38° 34' 45.54" S | 142° 43' 50.95" E |
| Proposed Location | - | 38° 34' 45.67" S | 142° 43' 50.82" E |

TABLE 2-1 : GEOGRAPHICAL POSITIONS FOR HALLADALE-1

GDA94 grid coordinates (CM 141° E) for Halladale-1 location are shown in Table 2-2.

| GDA94, MGA, CM141°E | | | |
|-----------------------|--------|-------------|--------------|
| Position | Method | Easting (m) | Northing (m) |
| Drill Stem at Surface | MRDGPS | 650763.17 | 5728485.21 |
| Proposed Location | - | 650760 | 5728481 |

TABLE 2-2 : GRID COORDINATES FOR HALLADALE-1

This position is 5.3m at a bearing of 36.9° (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 *Ocean Patriot* was established by calculating the average heading during 180 minutes of corrected gyro compass readings logged between 07:43 and 10:43 on 23 March 2005. During this period, gyro readings were logged at a ten second interval in Starfix Seis.

The *Ocean Patriot's* heading is shown in Table 2-3.

| Description | Method | True | Grid |
|------------------|--------|--------|--------|
| Rig Heading | Gyro | 69.63° | 70.71° |
| Proposed Heading | - | 70.00° | 71.08° |

TABLE 2-3 : RIG HEADING

2.3 Anchor Positions

The approximate locations of the *Ocean Patriot's* anchors are shown in Table 2-4.

| GDA94, MGA, CM117°E | | | | |
|---------------------|-------------|--------------|---------|-------------------------|
| Anchor | Easting (m) | Northing (m) | Azimuth | Deployed By |
| 1 | 652058 | 5728206 | 101.9° | <i>Far Grip</i> |
| 2 | 651812 | 5727633 | 129.8° | <i>Far Grip</i> |
| 3 | 650406 | 5727198 | 195.5° | <i>Pacific Wrangler</i> |
| 4 | 649836 | 5727502 | 224.1° | <i>Far Grip</i> |
| 5 | 649396 | 5728819 | 283.2° | <i>Far Grip</i> |
| 6 | 649726 | 5729405 | 311.8° | <i>Pacific Wrangler</i> |
| 7 | 651010 | 5729727 | 10.5° | <i>Pacific Wrangler</i> |
| 8 | 651601 | 5729524 | 39.2° | <i>Far Grip</i> |

TABLE 2-4 : ANCHOR POSITIONS

The approximate coordinates of the *Ocean Patriot'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 the onboard chain counter, corrected for catenary.

2.4 PGB Level

The final PGB level was recorded at 05:50 on 26 March 2005, when the Blow-Out Preventor (BOP) landed and locked onto the PGB. A series of six observations were taken by interrogating the compact inclinometer on the PGB by using the lightweight command unit (LCU).

The final PGB level is shown in Table 2-5.

| | Pitch (+ve = bow up) | Roll (+ve = port up) |
|----------------------|----------------------|----------------------|
| Permanent Guide Base | + 0.49° | - 0.03° |

TABLE 2-5 : PGB LEVEL

3.0 SAFETY

All work undertaken by Fugro personnel during the project was performed within the guidelines of Fugro's Safety Policy, as defined in Fugro's Safety Manual (SMS-P01) and Offshore Survey Safety Practices (SMS-SP26).

Fugro personnel worked within all project safety guidelines and plans adopted by Woodside and Diamond Offshore.

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

Fugro personnel attended a vessel induction, pre-rig move meeting and muster drill whilst on board.

A Project Specific Safety Plan was developed for positioning services on board the *Ocean Patriot* for the Halladale-1 rig move.

4.0 SURVEY OPERATIONS

4.1 Mobilisation

The survey team arrived on board the rig on 15 March 2005, whilst it was located at Zane Grey-1 for BSOC. Following an arrival briefing, the survey equipment on board was powered up and system and function tests completed.

4.2 General Survey Procedures

The tow was conducted with the *Pacific Wrangler* connected to the main tow bridle.

About two nautical miles from Anchor #4 drop point, Anchor #4 was passed to the *Far Grip* for deployment. The *Pacific Wrangler* maneuvered the rig onto the approach 'run-in' line passing Anchor #4 drop point through to the proposed well location. After Anchor #6 had been deployed by the *Far Grip*, the *Pacific Wrangler* continued towing and positioned the rig over the proposed Halladale-1 location.

After establishing that Anchor #4 was holding and the rig was maintaining its position at Halladale-1, the *Far Grip* then ran Anchors #8, #1 and #5. Once the primary anchors were laid and pre-tensioned, the *Pacific Wrangler* was released of her tow duties and assisted the *Far Grip* in deploying the remaining anchors.

During the pre-tensioning tests of the primary and secondary anchors, Anchors #5, #2 and #6 began losing hold of the seabed. These anchors were recovered, re-deployed and pre-tensioned accordingly.

During the deployment of each anchor, the AHVs were provided with a waypoint and the corresponding run line via the Wombat telemetry system. The AHVs ran out the anchor chain along this line to the desired drop point. The anchor chain was stretched out and the anchor lowered to the seabed. After confirming that the anchor was holding, the vessel then stripped the chain chaser back to the rig.

The *Ocean Patriot* was positioned over the Halladale-1 location with all anchoring and pre-tensioning completed at 23:05 on 21 March 2005. Final position data were logged between 07:43 and 10:43 on 23 March 2005. A rig positioning field report was issued to the Woodside Survey representative and the Well Site Manager (see Appendix B).

At 18:00 on 23 March 2005, the Permanent Guide Base (PGB), which was fitted with a Sonardyne acoustic inclinometer, was deployed on the seabed at the spud well. The pitch and roll of the PGB was continuously monitored by observing the verticality of the acoustic inclinometer. A total of 12 sets of observations were recorded. The final observation of the PGB was conducted at 05:50 on 26 March 2005 when the Blow-Out Preventor (BOP) stacked on the PGB. The final PGB level was +0.49° pitch and -0.03° roll.

Details of the PGB observations are provided in Appendix D.

4.3 Demobilisation

The navigation system on board the *Ocean Patriot* was remained on-line and operational to monitor the rig's position at Halladale-1 for the duration of the drilling campaign.

The navigation systems on board the AHVs were switched off upon completion of the anchor deployment operations and left on board the vessels for the anchor recovery at Halladale-1.

J. Richards and R. Risah departed rig to return to Perth on 22 and 26 March 2005, respectively.

5.0 EQUIPMENT CALIBRATIONS

5.1 DGPS Navigation Integrity Check

In order to check the correct operation of the navigation systems installed on board the *Ocean Patriot*, DGPS data were logged for 30 minutes on 16 March 2005, whilst the rig was located at Zane Grey-1.

A comparison of the primary and secondary DGPS was also conducted. The results from both of these tests are provided in Table 5-1.

| GDA94, MGA, CM 141°E | | |
|------------------------------|-------------|--------------|
| | Easting (m) | Northing (m) |
| Established Well Coordinates | 586163.94 | 5730040.91 |
| Observed Coordinates | 586163.92 | 5730042.35 |
| Difference | + 0.02 | - 1.44 |
| Primary Navigation | 586163.92 | 5730042.35 |
| Secondary Navigation | 586.165.32 | 5730042.01 |
| Difference | - 1.40 | + 0.34 |

TABLE 5-1 : DGPS NAVIGATION INTEGRITY CHECK

The DGPS check described above demonstrated that the navigation systems on board the *Ocean Patriot* were set up and working correctly.

A positioning checklist was completed at Halladale-1 location to confirm the proposed rig position and to ensure that the correct geodetic datum, transformation and projection parameters were being used. Geodetic calculations were performed using both Starfix Seis and the off-line geodetic calculation package GEO.

Details of all positioning checks are provided in Appendix C.

5.2 Gyro Compass Calibration

The calibration of the survey gyro compass was carried out on 17 March 2005, whilst the rig was located at Zane Grey-1.

A series of observations were made to the sun from which the rig heading was calculated. The calculated values were then compared to the observed gyro compass values logged in Starfix Seis and a mean C-O value of -0.04° was determined. This correction was applied in the navigation suite.

Details of the gyro calibration are included in Appendix C.

5.3 PGB / Compatt Inclinometer Calibration

The PGB / compatt inclinometer calibration was performed on 7 February 2005, while the PGB was on the wharf in Melbourne, prior to shipment to the rig.

A series of observations of the inclination (Observed) of the compatt unit installed in the PGB bucket were made and the actual level (Calculated) of PGB was measured with a calibrated digital level. Mean pitch and roll corrections of $+0.61^\circ$ and -0.74° respectively, were determined and these corrections were applied during the PGB observations.

Details of the PGB calibrations are included in Appendix D

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 2005.50) 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 2005.50) coordinates to GDA94 coordinates. These parameters are calculated from the 14 parameter transformation defined by Geoscience Australia. Fugro follows the Coordinate Frame Rotation convention (as defined by UKOOA) for datum transformations.

| Transformation Parameters from WGS84 (ITRF2000 Epoch 2005.50) to GDA94 | | | |
|--|----------|----|--------------|
| dX | -0.0156m | rX | +0.01445" |
| dY | -0.0348m | rY | +0.013050" |
| dZ | -0.0513m | rZ | +0.015037" |
| | | dS | +0.004977ppm |

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 : Transverse Mercator
Latitude of Origin : 0°
Central Meridian : 141° E (UTM Zone 54)
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 ITRF2000 (Epoch 2005.50) datum and are shown in Table 6-2.

| ITRF 2000, EPOCH 2005.50 | | | | | |
|--------------------------|-----|---------------------|----------------------|------------|-------------|
| Station | Id | Latitude | Longitude | Height (m) | Uplink |
| Melbourne | 385 | 37° 48' 29.00892" S | 144° 57' 48.02816" E | 82.058 | Optus/APSat |
| Bathurst | 336 | 33° 25' 46.88293" S | 149° 34' 01.96793" E | 756.659 | Optus/APSat |
| Cobar | 316 | 31° 29' 57.43508" S | 145° 50' 20.34346" E | 270.163 | Optus/APSat |

TABLE 6-2 : DGPS REFERENCE STATIONS

6.3 Project Coordinates and Tolerances

Project target coordinates and surface tolerance for Halladale-1 location were supplied by Woodside and are shown in Table 6-3. Project procedures are provided in Appendix E.

| GDA94, MGA, CM 141°E | | | |
|----------------------|-------------|--------------|------------|
| Location | Easting (m) | Northing (m) | Tolerances |
| Halladale-1 | 650760 | 5728481 | 40m radius |

TABLE 6-3 : PROJECT DESIGN COORDINATES

7.0 SURVEY EQUIPMENT, VESSEL AND PERSONNEL

7.1 Equipment Listing

Survey equipment used for the positioning of the *Ocean Patriot* was as follows:

Ocean Patriot

- 2 x Starfix satellite demodulator (1 Optus link, 1 APSat link)
- 2 x Trimble 4000 series GPS receivers
- 2 x Pentium 4 computers, running Fugro's Starfix Seis navigation software suite (1 spare)
- 4 x 17" monitors (2 Seis, 1 Helm, 1 spare)
- 1 x SG Brown gyro compass
- 1 x Tokimec gyro compass (spare)
- 2 x Uninterruptible power supply units (UPS)
- 1 x Teledesign radio/modem
- 1 x Theodolite, tripod and dark glass
- 1 x Printer
- 1 x Trimble 4000 SSE (dual frequency) GPS receiver
- 2 x Sonardyne MF compatts with inclinometer end-caps (1 spare)
- 2 x Sonardyne LCU systems (1 spare)

AHVs (complete system per vessel, plus one complete set of spares)

- 1 x Pentium computers, running Starfix Display/Wombat
- 1 x Monitors
- 1 x Starfix VBS units
- 1 x Fluxgate compasses
- 1 x Teledesign radio/modems

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 *Ocean Patriot* and Figure 7-2 for the equipment flow diagram for the AHVs.

7.2 Vessels

The vessels used for anchor handling and towing the *Ocean Patriot* were the *Pacific Wrangler* and the *Far Grip*. Refer to Figure 7-3, Figure 7-4 and Figure 7-5 for the vessel offset diagrams.

7.3 Personnel

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

| | | |
|-------------|---------------------------------|---------------------|
| R. Risah | Party Chief/Surveyor | 7 – 8 February 2005 |
| | | 18 – 26 March 2005 |
| C. Kennedy | Surveyor (PGB calibration only) | 7 – 8 February 2005 |
| J. Richards | Technician | 18 – 22 March 2005 |

Woodside was represented during the rig move by:

| | | |
|-------------|--------------------------|--------------------|
| N. Harrison | Survey QC Representative | 18 – 24 March 2005 |
|-------------|--------------------------|--------------------|

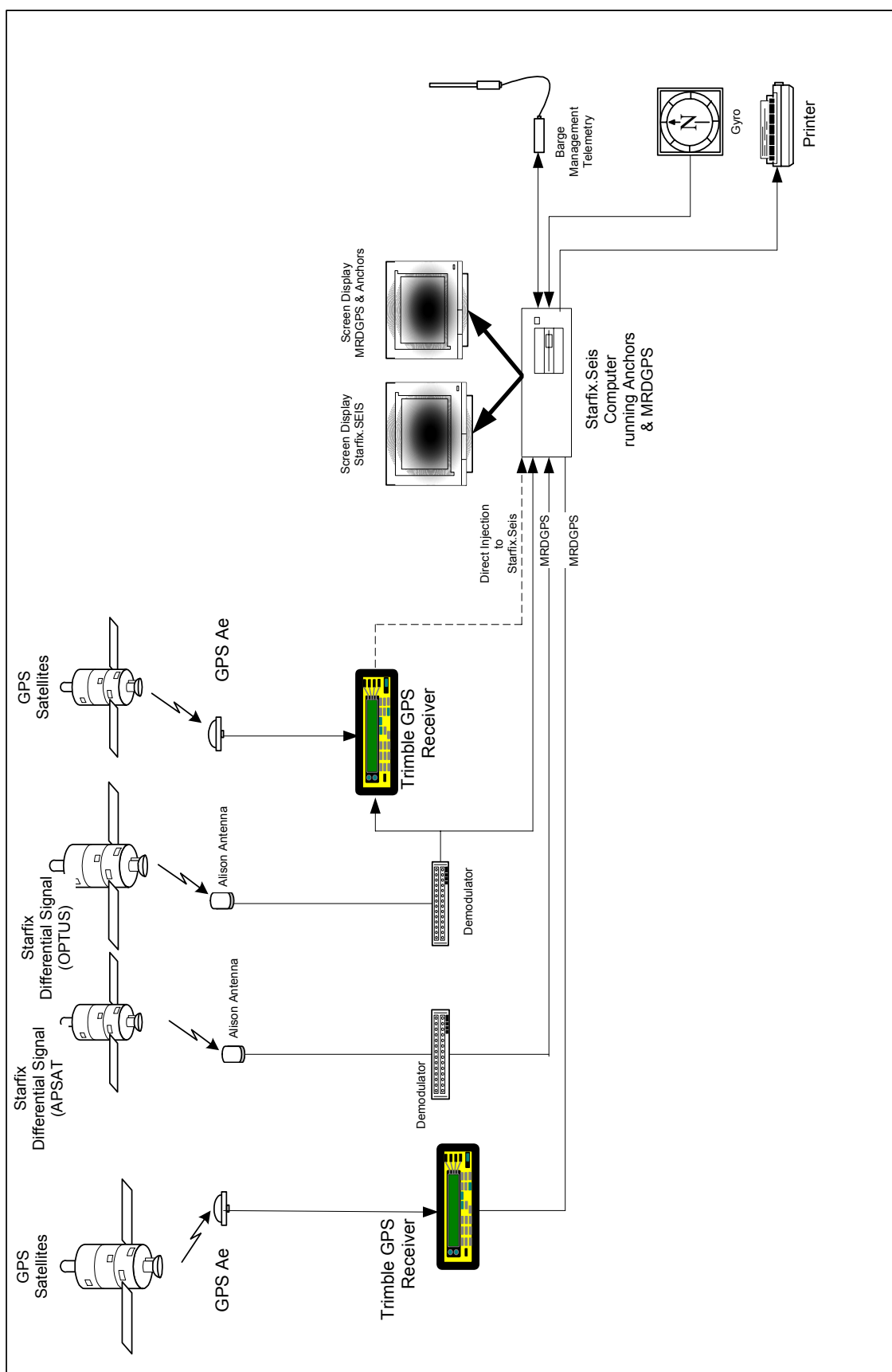


FIGURE 7-1 : EQUIPMENT FLOW DIAGRAM – MODU *SEDCO 703*

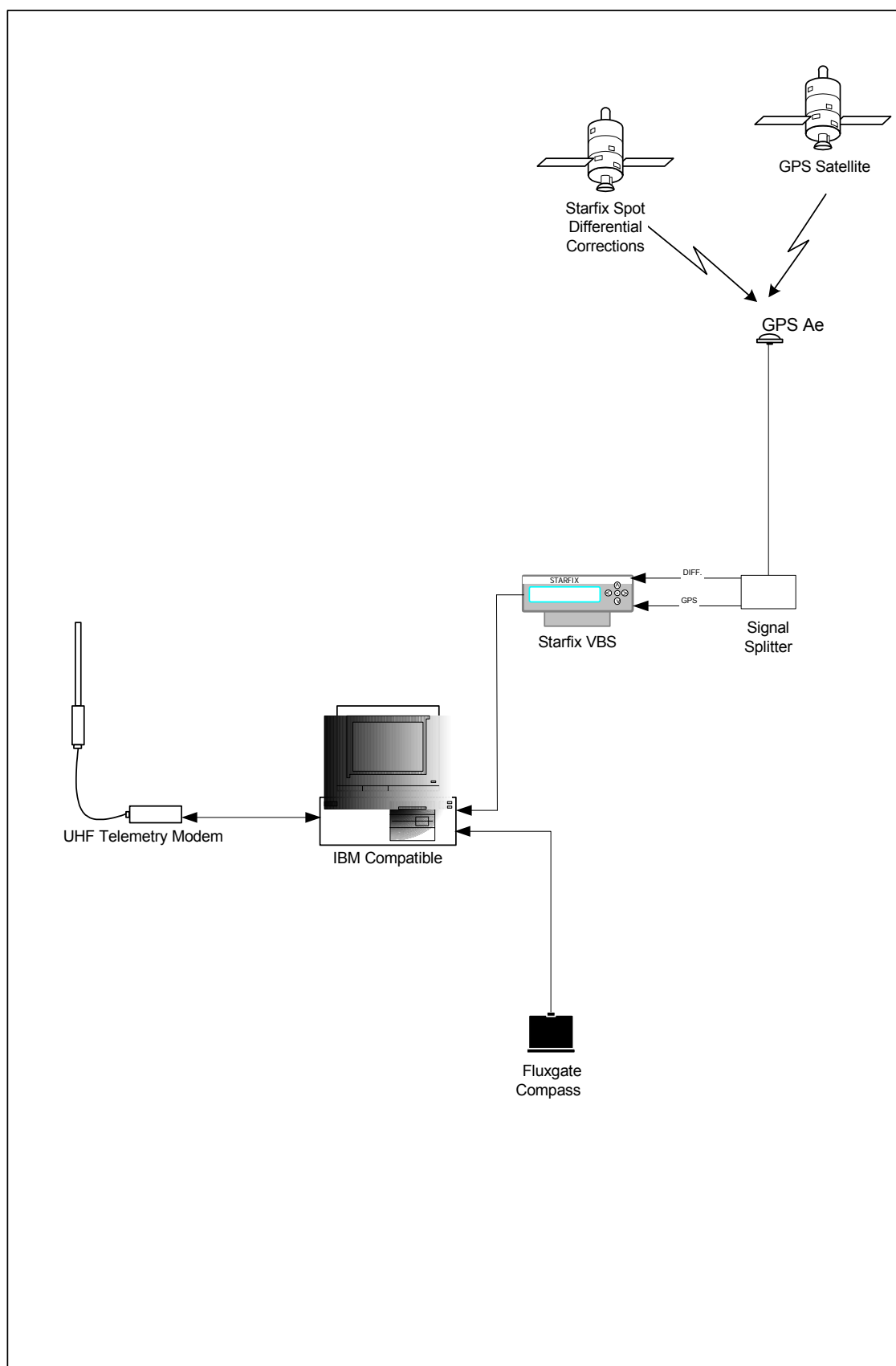
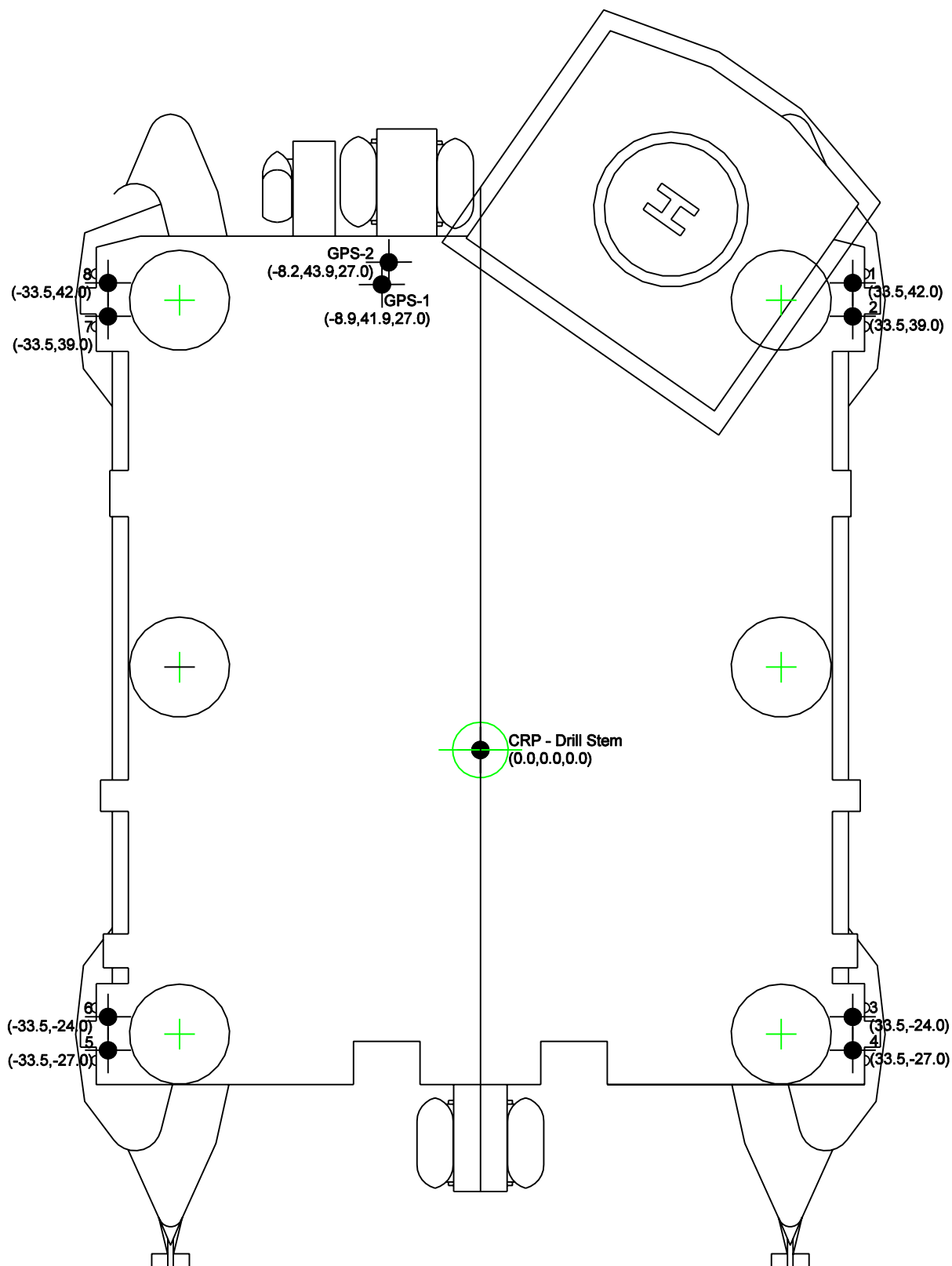


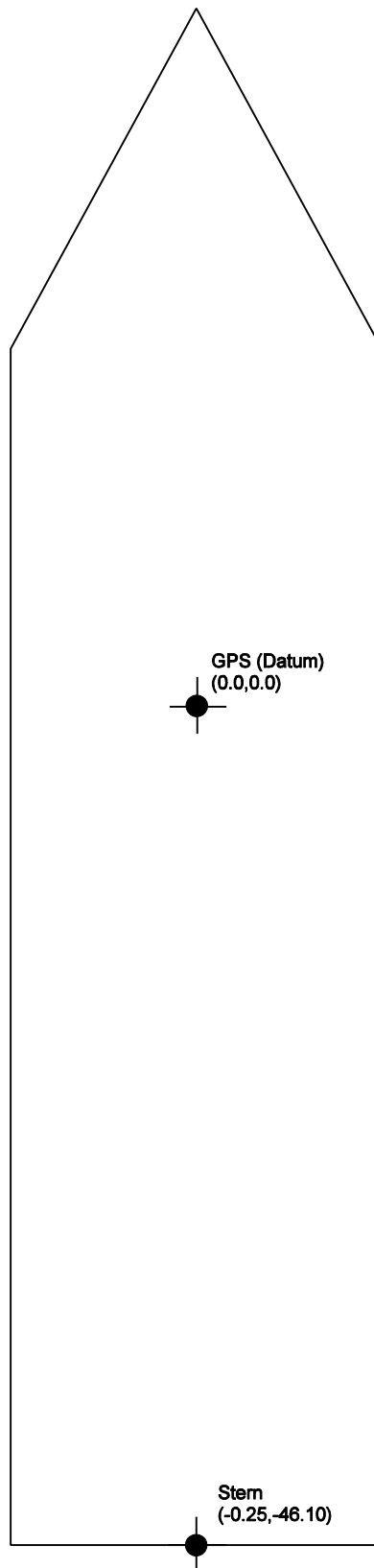
FIGURE 7-2 : EQUIPMENT FLOW DIAGRAM – AHVS



VESSEL OFFSET DIAGRAM – OCEAN PATRIOT

FIGURE 7-3





VESSEL OFFSET DIAGRAM – FAR GRIP

FIGURE 7-5

8.0 CONCLUSIONS AND RECOMMENDATIONS

- The *Ocean Patriot* was successfully positioned during the towing and anchoring operations and at Halladale-1.
- The *Pacific Wrangler* and *Far Grip* were successfully positioned during the towing and anchoring operations.
- The surface position of the Halladale-1 well was established.
- The PGB level was successfully observed and deployed within specified tolerance.

9.0 DISTRIBUTION

Copies of this report have been distributed as follows:

| | |
|----------------------|---------------------|
| Woodside Energy Ltd | : 3 paper copies |
| Attn: Mr. P. Wademan | : 1 electronic copy |

| | |
|----------------------|---------------------|
| Fugro Survey Pty Ltd | : 1 paper copy |
| | : 1 electronic copy |

APPENDIX A
DAILY OPERATIONS REPORTS

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[illegible]

[illegible]

Fugro Marine Division
FSHY01-1
DAILY OPERATIONS REPORT


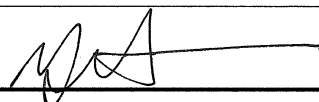


| | | | | | |
|--|------------|--|------------|--------------------------|---------------|
| CLIENT: WOODSIDE | | LOCATION: HALLADALE-1 | | DATE: 21 MAR 2005 | |
| PROJECT: RIG MOVE | | VESSEL: OCEAN PATRIOT | | JOB NO: P0195 | |
| FROM | TO | SUMMARY OF OPERATIONS | | | |
| 0000 | 0520 | Rig undertow to Halladale-1 location | | | |
| 0520 | | #4 anchor deployed by Far Grip E649793 N5727420 | | | |
| 0707 | | #8 anchor deployed by Far Grip E651624 N5729592 | | | |
| 0822 | | #1 anchor deployed by Far Grip E652124 N5728217 | | | |
| 0936 | | #5 anchor deployed by Far Grip E649408 N5728766 | | | |
| 0945 | 1005 | Pre-tensioning primary anchors, #5 anchor not holding ground | | | |
| 1240 | | #5 anchor re-deployed by Far Grip E6494346 N5728804 | | | |
| 1345 | 1355 | Pre-tensioning primary anchors #1 & #5 | | | |
| 1410 | | Pacific Wrangler disconnects from tow bridle | | | |
| 1432 | | #6 anchor deployed by Far Grip E649708 N5729394 | | | |
| 1615 | | #7 anchor deployed by P. Wrangler E651018 N5729907 | | | |
| 1644 | | #2 anchor deployed by Far Grip E651834 N5727614 | | | |
| 1751 | | #2 anchor re-deployed by Far Grip E651906 N5727589 | | | |
| 1810 | | #3 anchor deployed by P. Wrangler E650410 N5727119 | | | |
| 2151 | | #6 anchor deployed by P. Wrangler E649641 N5729443 | | | |
| 2225 | 2310 | Pre-tensioning secondary anchors | | | |
| 2340 | 2359 | Ballasting down to drilling draft | | | |
| RIG EQUIPMENT | NO. | AHV EQUIPMENT | NO. | PERSONNEL | TITLE |
| Starfix.Seis | 2 | Starfix.Seis (remote) | 3 | R. Risah | Surveyor / PC |
| Starfix.Spot DGPS | 2 | Fluxgate compass | 3 | J. Richards | Technician |
| Gyro Compass | 2 | Radio Modem | 3 | | |
| Radio Modem | 2 | ADDITIONAL EQUIP | NO. | | |
| UPS | 2 | Trimble 4000 SSE | 1 | | |
| Theodolite | 1 | Compatt Inclinometer | 2 | | |
| Printer | 1 | LCU & Dunker | 2 | | |
| VEHICLES: | | | | | |
| CONSUMABLES: | | | | | |
| ACCOMMODATION: | | | | | |
| AUTHORISED CONTRACT CHANGES / COMMENTS: | | | | | |
| Party Chief Signature: | | Client Representative Signature: | | D O R Number | |
| | | | | P0195-06 | |

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Fugro Marine Division
FSHY01-1
DAILY OPERATIONS REPORT



| | | | | | |
|---|------------|--|------------|--------------------------|---------------|
| CLIENT: WOODSIDE | | LOCATION: HALLADALE-1 | | DATE: 23 MAR 2005 | |
| PROJECT: RIG MOVE | | VESSEL: OCEAN PATRIOT | | JOB NO: P0195 | |
| FROM | TO | SUMMARY OF OPERATIONS | | | |
| 0000 | 0200 | Spudding operation | | | |
| 0200 | 0300 | TGB not holding orientation, recovering TGB | | | |
| 0430 | 0445 | Rig move back to original spud location | | | |
| 0600 | | Resume spudding operation | | | |
| 0743 | 1043 | Logging final drill stem position for Halladale-1 | | | |
| 1100 | | Issue rig position field report to client | | | |
| 1705 | 1800 | Deployment of PGB | | | |
| 1800 | 1830 | Inclinometer reading of PGB – landed on seabed | | | |
| 1900 | 1915 | Inclinometer reading of PGB – prior to cementing | | | |
| 2100 | 2115 | Inclinometer reading of PGB – during cementing @ 21:00hr | | | |
| 2200 | 2215 | Inclinometer reading of PGB – during cementing @ 22:00hr | | | |
| 2300 | 2315 | Inclinometer reading of PGB – during cementing @ 23:00hr | | | |
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| | | | | | |
| RIG EQUIPMENT | NO. | AHV EQUIPMENT | NO. | PERSONNEL | TITLE |
| Starfix.Seis | 2 | Starfix.Seis (remote) | 3 | R. Risah | Surveyor / PC |
| Starfix.Spot DGPS | 2 | Fluxgate compass | 3 | | |
| Gyro Compass | 2 | Radio Modem | 3 | | |
| Radio Modem | 2 | ADDITIONAL EQUIP | NO. | | |
| UPS | 2 | Trimble 4000 SSE | 1 | | |
| Theodolite | 1 | Compatt Inclinometer | 2 | | |
| Printer | 1 | LCU & Dunker | 2 | | |
| VEHICLES: | | | | | |
| CONSUMABLES: | | | | | |
| ACCOMMODATION: | | | | | |
| AUTHORISED CONTRACT CHANGES / COMMENTS: | | | | | |
| | | | | | |
| Party Chief Signature: | | Client Representative Signature: | | D O R Number | |
|  | |  | | P0195-08 | |

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Approved by Dave Scott, Operations Manager – 08/05/01
Note – To ensure that this is the latest version check the Electronic Master File

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APPENDIX B
FINAL POSITIONING DATA

RIG POSITION FIELD REPORT

Halladale-1



Client : Woodside Energy

Job Number : P0195

Rig : MODU Ocean Patriot

Date: 23-Mar-05

Project : Rig move to Halladale-1 location, Permit VIC/P37(v) Australia

Attention : Stuart Job Well Site Manager

Nick Harrison Survey Representative

The surface location of the drill stem on the Ocean Patriot was derived from 180 minutes of observations of the Primary Differential GPS data, between 07:43 hrs and 10:43 hrs on completion of all anchor pre-tensioning and spudding operations.
The results of the observations are as follows:

| Geographical Coordinates | | Grid Coordinates | |
|--------------------------|-------------------------|------------------|------------|
| Latitude | 38 ° 34 ' 45.54 " South | Easting | 650763.17 |
| Longitude | 142 ° 43 ' 50.95 " East | Northing | 5728485.21 |

The drill stem position is 5.3 m at a bearing of 36.9 ° Grid from the design location.

The Client supplied design location for Halladale-1:

| Geographical Coordinates | | Grid Coordinates | |
|--------------------------|-------------------------|------------------|------------|
| Latitude | 38 ° 34 ' 45.68 " South | Easting | 650760.00 |
| Longitude | 142 ° 43 ' 50.82 " East | Northing | 5728481.00 |

The Ocean Patriot's rig heading, derived from the mean of 180 minutes observation of the gyro heading is:

69.63 ° True 70.71 ° Grid

All coordinates in this field report are quoted in the following coordinate system:

| | | | |
|------------|--------------------|-------------------------|---------------|
| Datum : | GDA 94 (ITRF 2000) | Projection : | MGA |
| Spheroid : | GRS80 | Zone (Central Meridian) | 54 141 ° East |

The approximate positions of the rig anchors corrected for catenary are as follows:

| Anchor | Easting | Northing | Azimuth(°) |
|--------|---------|----------|------------|
| 1 | 652058 | 5728206 | 101.9 ° |
| 2 | 651812 | 5727633 | 129.8 |
| 3 | 650406 | 5727198 | 195.5 ° |
| 4 | 649836 | 5727502 | 224.1 ° |
| 5 | 649396 | 5728819 | 283.2 ° |
| 6 | 649726 | 5729405 | 311.8 ° |
| 7 | 651010 | 5729727 | 10.5 ° |
| 8 | 651601 | 5729524 | 39.2 ° |

Party Chief/Surveyor:

Bazak Risah

Survey Representative:

Nick Harrison

APPENDIX C
DGPS AND GYRO CHECKS

RIG POSITIONING



GEODESY AND COORDINATE CHECK LIST

Client : Woodside Energy Job Number : P0195
Rig : MODU Ocean Patriot Date: 18/March/2005
Project : Rig move to Halladale-1 location, Permit VIC/P37(v) Australia

1. CONFIRMATION OF PROPOSED RIG COORDINATES and HEADING.

Well Name Halladale-1 Ensure agreement with Client onsite prior to any positioning
Well Location – Latitude 38 34 45.6761 S Operations. OK (?) ☒ N.
Well Location – Longitude 142 43 50.818 E
Rig Heading (True) 70 ° T

2. GEODETIC PARAMETERS (WGS84 to LOCAL DATUM)

DATUM: Dx -0.02 Ensure agreement with Client onsite prior to positioning Operations.
(WGS84 to Dy -0.03 OK (?) ☒ N.
Local Datum) Dz -0.05
Rx 0.0145
Projection: Ry 0.0131
Rz 0.0150
Ds 0.0050 ppm
UTM Zone 54
Central Meridian 141 ° East

3. CHECK TRANSFORMATION OF SITE COORDINATES.

Well Location – Easting 650760.0 Ensure agreement with PCNav / Starfix.Seis. OK (?) ☒ N
Well Location – Northing 5728481.0 If not, CHECK and RECALC.
Convergence at Location 1.08
Rig Heading (° Grid) 71.08

4. MEAS. ANT. OFFSETS from ANT. TO D/STEM (Rel. to Datum) NAV #1 SYSTEM NAV #2 SYSTEM

(Measure two (2) separate directions, verifying closure.)

| | NAV #1 SYSTEM | NAV #2 SYSTEM |
|--|---------------|---------------|
| Delta X(m) | -8.9 | -8.2 |
| Delta Y(m) | 41.9 | 43.9 |
| Angle between Rig Centreline and Antenna(s) (Grid) | 348.008 | 349.4 |
| Distance between Drill Stem and Antenna(s) | 42.83 | 44.66 |

5. MANUAL COORDINATE VERIFICATION FOR ANTENNAS NAV #1 SYSTEM NAV #2 SYSTEM

| | NAV #1 SYSTEM | NAV #2 SYSTEM |
|--|------------------|------------------|
| Proposed Drill Stem Position Easting | 650760.0 | 650760.0 |
| Northing | 5728481.0 | 5728481.0 |
| Drill Stem to Antenna Proposed Hdg (G) | 71.08 | 71.08 |
| Brg (G) = Prop. Hdg. + Angle btwn centreline and antenna | 59.09 | 60.50 |
| Distance (m) | 42.83 | 44.66 |
| Calculated Antenna Easting | 650796.75 | 650798.87 |
| Coordinates (Local) Northing | 5728503.01 | 5728502.99 |
| Latitude | 38 34 44.9401 S | 38 34 44.9392 S |
| Longitude | 142 43 52.3191 E | 142 43 52.4066 E |

| | NAV #1 SYSTEM | NAV #2 SYSTEM |
|--|------------------|------------------|
| Calculated Proposed Antenna Coords (WGS 84) Latitude | 38 34 44.9194 S | 38 34 44.9186 S |
| Longitude | 142 43 52.3297 E | 142 43 52.4173 E |

Surveyor : Razak Risah Client Rep Nick Harrison Date : 19/03/2005

6. POST RIG MOVE – OBSERVED ANTENNA COORD

| | NAV.SYS #1 | NAV.SYS #2 |
|---|-------------------|-------------------|
| Observed WGS84 Antenna Positions Latitude | 38° 34' 44.80 "S | 38° 34' 44.78 "S |
| Longitude | 142° 43' 52.49 "E | 142° 43' 52.51 "E |

Ensure agreement between calculated and observed coordinates. If NO, check calcs., antenna offsets. OK (?) ☒ N

Surveyor : Razak Risah Client Rep Nick Harrison Date : 23/03/2005

RIG POSITIONING

DGPS CHECK LIST (PRE RIG MOVE)



Client : Woodside Energy

Job Number : P0195

Rig : MODU Ocean Patriot

Date: 17-Mar-05

Project : Rig move to Halladale-1 location, Permit VIC/P37(v) Australia

1) ESTABLISHED WELL COORDINATES

The surface location of the drill stem on the Ocean Patriot was observed for 30 minutes between 18:35hrs and 19:05hrs (UTC) on 16 March 2005 to verify the accuracy of the DGPS system against the established well coordinates.

| | Easting | Northing |
|------------------------------|-----------|------------|
| Established Well Coordinates | 586163.94 | 5730040.91 |
| Observed Coordinates | 586163.92 | 5730042.35 |
| Differences | 0.02 | -1.44 |

Ensure agreement OK(☒ Y) ☐ N

If No, Check and ensure that rig has not moved off location.

2) PRIMARY/SECONDARY NAV SYSTEMS

From the data logged above, compare the observed coordinates for both Primary and Secondary navigation systems.

| | Easting | Northing |
|----------------------|-----------|------------|
| Primary Navigation | 586163.92 | 5730042.35 |
| Secondary Navigation | 586165.32 | 5730042.01 |
| Differences | -1.41 | 0.33 |

Ensure agreement OK(☒ Y) ☐ N

If No, Check antenna offsets and gyro calibration.

Party Chief/Surveyor:

Razak Risah

Client Representative :

Nick Harrison

GYRO COMPASS CALIBRATION - CALCULATION SUMMARY





Client : Woodside Energy Job Number : P0195
Rig : MODU Ocean Patriot Date: 18-Mar-05
Project : Rig move to Halladale-1 location, Permit VIC/P37(v) Australia

| Deg | Min | Sec |
|-----|-----|-----|
| 0 | 0 | 0 |

Correction Angle (RO to Lubberline)

| Obs. No. | Date | UTC | Instrument Position | | | | | | Calculated Sun Azimuth at UTC | | | | | | Observed Direction to Sun | | | | Calc'd Vessel Hdg | Obs'd Vessel Hdg | Sun Semi Diameter | (C-O) Degrees |
|----------|-----------|---------|---------------------|-----|-----|-----------|-----|-----|-------------------------------|-----|-----|----------|-----|-----|---------------------------|----------|--------|------|-------------------|------------------|-------------------|---------------|
| | | | Latitude | | | Longitude | | | Deg | Min | Sec | Dec. Deg | Deg | Min | Sec | Dec. Deg | | | | | | |
| | | | Deg | Min | Sec | Deg | Min | Sec | | | | | | | | | | | | | | |
| 1 | 17-Mar-05 | 6:30:37 | -38 | 34 | 24 | 147 | 59 | 22 | 286 | 12 | 25 | 286.207 | 244 | 43 | 48 | 244.730 | 41.477 | 41.5 | 0.2683 | -0.02 | | |
| 2 | 17-Mar-05 | 6:34:14 | -38 | 34 | 24 | 147 | 59 | 22 | 285 | 34 | 12 | 285.570 | 244 | 1 | 30 | 244.025 | 41.545 | 41.5 | 0.2683 | 0.05 | | |
| 3 | 17-Mar-05 | 6:34:36 | -38 | 34 | 24 | 147 | 59 | 22 | 285 | 30 | 21 | 285.506 | 243 | 59 | 19 | 243.989 | 41.517 | 41.7 | 0.2683 | -0.18 | | |
| 4 | 17-Mar-05 | 6:34:55 | -38 | 34 | 24 | 147 | 59 | 22 | 285 | 27 | 1 | 285.450 | 243 | 58 | 16 | 243.971 | 41.479 | 41.5 | 0.2683 | -0.02 | | |
| 5 | 17-Mar-05 | 6:35:11 | -38 | 34 | 24 | 147 | 59 | 22 | 285 | 24 | 13 | 285.404 | 243 | 57 | 46 | 243.963 | 41.441 | 41.5 | 0.2683 | -0.06 | | |
| 6 | 17-Mar-05 | 6:35:37 | -38 | 34 | 24 | 147 | 59 | 22 | 285 | 19 | 40 | 285.328 | 243 | 49 | 56 | 243.832 | 41.496 | 41.5 | 0.2683 | 0.00 | | |
| 7 | 17-Mar-05 | 6:36:12 | -38 | 34 | 24 | 147 | 59 | 22 | 285 | 13 | 33 | 285.226 | 243 | 49 | 1 | 243.817 | 41.409 | 41.5 | 0.2683 | -0.09 | | |
| 8 | 17-Mar-05 | 6:36:43 | -38 | 34 | 24 | 147 | 59 | 22 | 285 | 8 | 9 | 285.136 | 243 | 34 | 7 | 243.569 | 41.567 | 41.7 | 0.2683 | -0.13 | | |
| 9 | 17-Mar-05 | 6:37:18 | -38 | 34 | 24 | 147 | 59 | 22 | 285 | 2 | 3 | 285.034 | 243 | 31 | 8 | 243.519 | 41.515 | 41.5 | 0.2683 | 0.02 | | |
| 10 | 17-Mar-05 | 6:37:46 | -38 | 34 | 24 | 147 | 59 | 22 | 284 | 57 | 11 | 284.953 | 243 | 26 | 56 | 243.449 | 41.504 | 41.5 | 0.2683 | 0.00 | | |
| 11 | 17-Mar-05 | 6:38:22 | -38 | 34 | 24 | 147 | 59 | 22 | 284 | 50 | 55 | 284.849 | 243 | 21 | 11 | 243.353 | 41.496 | 41.5 | 0.2683 | 0.00 | | |

Surveyor :  Razak Risah
Client Rep :  Nick Harrison

Required Starfix.Seis Gyro Correction =

| | |
|----------------|-------|
| Mean | -0.04 |
| Std. Deviation | 0.07 |
| Maximum | 0.05 |
| Minimum | -0.18 |
| Range | 0.23 |

NOTE: Gyro correction of +0.00°
Entered During calibration
Hence new correction -0.04

APPENDIX D
PGB CALIBRATION AND OBSERVATIONS

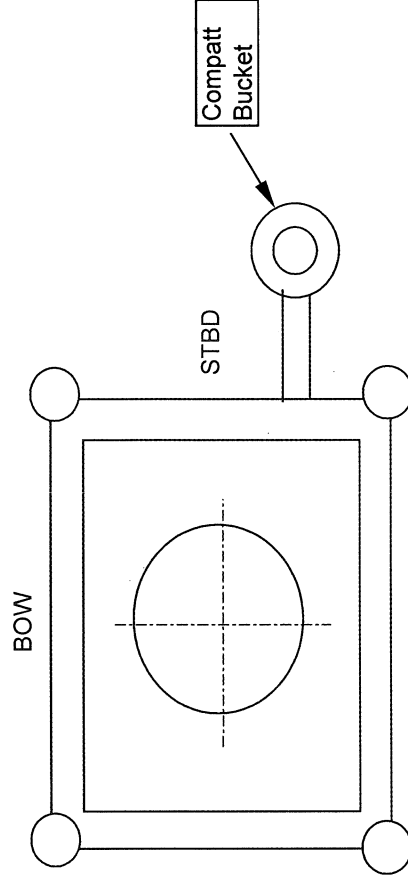


Permanant Guide Base (PGB) Level Calibration

Project : Ocean Patriot Rig Move
 Well Name : Halladale
 Location : Bass Strait, Vic
 PGB #1

Job No.: P0195
 Date : 8-Feb-05

| Compatt 306 | | | s/n: 30417-03 | | PGB # 1 | | s/n: 06349/1-01 | | Corrections | |
|----------------------------|-----------------------------|---------------------------------------|---------------------------------------|---|---|--------------------|---------------------|--|-------------|--|
| Roll Voltage Reading volts | Pitch Voltage Reading volts | Observed Roll (+ve = port up) degrees | Observed Pitch (+ve = bow up) degrees | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll (C-O) degrees | Pitch (C-O) degrees | | | |
| 0.721 | -0.156 | 2.58 | -0.56 | 1.85 | 0.05 | -0.73 | 0.61 | | | |
| 0.721 | -0.156 | 2.58 | -0.56 | 1.85 | 0.05 | -0.73 | 0.61 | | | |
| 0.727 | -0.156 | 2.60 | -0.56 | 1.85 | 0.05 | -0.75 | 0.61 | | | |
| 0.721 | -0.156 | 2.58 | -0.56 | 1.85 | 0.05 | -0.73 | 0.61 | | | |
| 0.721 | -0.154 | 2.58 | -0.55 | 1.85 | 0.05 | -0.73 | 0.60 | | | |
| Mean | | | | | | -0.74 | 0.61 | | | |



Surveyor / Party Chief : R. Risah

Date : 8 FEB-05

Permant Guide Base (PGB) Level 1st Observation - PGB Landed on Seabed



Project : Rig Move to Halladale-1
Vessel: Ocean Patriot
Well Name : Halladale-1
Location : Otway Basin, Victoria

Job No.: P0195
Date : 23-Mar-05
Time : 18:00hr

Compatt s/n: 30417-03

PGB s/n:

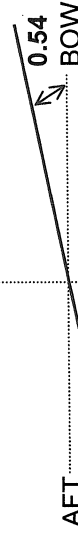
06349/1-01

Compatt ID : 306

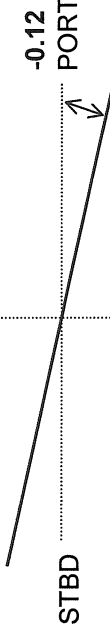
Orientation : 0 degrees (bucket on stbd side)

| Roll Voltage Reading volts | Pitch Voltage Reading volts | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll Correction (from calibration) degrees | Pitch Correction (from calibration) degrees | Corrected Roll (+ve = port up) degrees | Corrected Pitch (+ve = bow up) degrees |
|----------------------------|-----------------------------|---|---|--|---|--|--|
| 0.173 | 0.000 | 0.62 | 0.00 | -0.74 | 0.61 | -0.12 | 0.61 |
| 0.161 | -0.048 | 0.58 | -0.17 | -0.74 | 0.61 | -0.16 | 0.44 |
| 0.193 | -0.016 | 0.69 | -0.06 | -0.74 | 0.61 | -0.05 | 0.55 |
| 0.161 | -0.036 | 0.58 | -0.13 | -0.74 | 0.61 | -0.16 | 0.48 |
| 0.197 | -0.006 | 0.71 | -0.02 | -0.74 | 0.61 | -0.03 | 0.59 |
| 0.159 | -0.014 | 0.57 | -0.05 | -0.74 | 0.61 | -0.17 | 0.56 |
| | | | | Mean | Mean | -0.12 | 0.54 |

PGB Pitch



PGB Roll



Surveyor / Party Chief : R. Risah

Date : 23-MARCH-2005

Permanant Guide Base (PGB) Level 2nd Observation - Prior to Cementing



Project : Rig Move to Halladale-1
Vessel : Ocean Patriot
Well Name : Halladale-1
Location : Otway Basin, Victoria

Job No.: P0195
Date : 23-Mar-05
Time : 19:00hr

Compatt s/n: 30417-03

PGB s/n:

06349/1-01

Compatt ID : 306

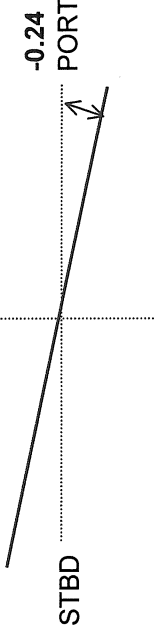
Orientation : 0 degrees (bucket on stbd side)

| Roll Voltage Reading volts | Pitch Voltage Reading volts | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll Correction (from calibration) degrees | Pitch Correction (from calibration) degrees | Corrected Roll (+ve = port up) degrees | Corrected Pitch (+ve = bow up) degrees |
|----------------------------|-----------------------------|---|---|--|---|--|--|
| 0.141 | -0.094 | 0.50 | -0.34 | -0.74 | 0.61 | -0.24 | 0.27 |
| 0.127 | -0.034 | 0.45 | -0.12 | -0.74 | 0.61 | -0.29 | 0.49 |
| 0.117 | -0.090 | 0.42 | -0.32 | -0.74 | 0.61 | -0.32 | 0.29 |
| 0.153 | -0.122 | 0.55 | -0.44 | -0.74 | 0.61 | -0.19 | 0.17 |
| 0.153 | -0.048 | 0.55 | -0.17 | -0.74 | 0.61 | -0.19 | 0.44 |
| 0.143 | -0.076 | 0.51 | -0.27 | -0.74 | 0.61 | -0.23 | 0.34 |
| Mean | | | | | | -0.24 | 0.33 |

PGB Pitch



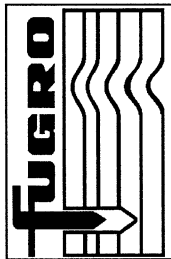
PGB Roll



Surveyor / Party Chief : R. Risah

Date : 23-MARCH-2005

Permantent Guide Base (PGB) Level 3rd Observation - During Cementing



Project : Rig Move to Halladale-1
Vessel: Ocean Patriot
Well Name : Halladale-1
Location : Otway Basin, Victoria

Job No.: P0195
Date : 23-Mar-05
Time : 21:00hr

Compatt s/n: 30417-03

PGB s/n:

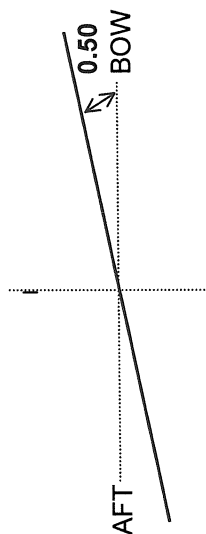
06349/1-01

Compatt ID : 306

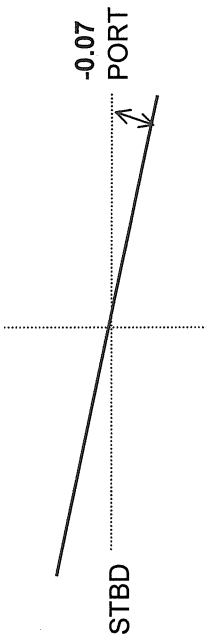
Orientation : 0 degrees (bucket on stbd side)

| Roll Voltage Reading volts | Pitch Voltage Reading volts | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll Correction (from calibration) degrees | Pitch Correction (from calibration) degrees | Corrected Roll (+ve = port up) degrees | Corrected Pitch (+ve = bow up) degrees |
|----------------------------|-----------------------------|---|---|--|---|--|--|
| 0.169 | -0.010 | 0.61 | -0.04 | -0.74 | 0.61 | -0.13 | 0.57 |
| 0.209 | -0.030 | 0.75 | -0.11 | -0.74 | 0.61 | 0.01 | 0.50 |
| 0.169 | -0.034 | 0.61 | -0.12 | -0.74 | 0.61 | -0.13 | 0.49 |
| 0.201 | -0.004 | 0.72 | -0.01 | -0.74 | 0.61 | -0.02 | 0.60 |
| 0.171 | -0.064 | 0.61 | -0.23 | -0.74 | 0.61 | -0.13 | 0.38 |
| 0.201 | -0.040 | 0.72 | -0.14 | -0.74 | 0.61 | -0.02 | 0.47 |
| | | | | | | Mean | 0.50 |

PGB Pitch



PGB Roll



Surveyor / Party Chief : R. Risah

Date : 23-MARCH-2005

Permantent Guide Base (PGB) Level 4th Observation - During Cementing



Project : Rig Move to Halladale-1
Vessel: Ocean Patriot
Well Name : Halladale-1
Location : Otway Basin, Victoria

Job No.: P0195
Date : 23-Mar-05
Time : 22:00hr

Compatt s/n: 30417-03

PGB s/n:

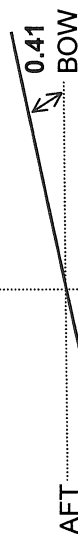
06349/1-01

Compatt ID : 306

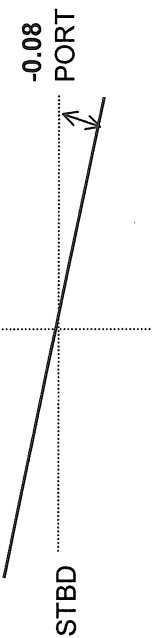
Orientation : 0 degrees (bucket on stbd side)

| Roll Voltage Reading volts | Pitch Voltage Reading volts | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll Correction (from calibration) degrees | Pitch Correction (from calibration) degrees | Corrected Roll (+ve = port up) degrees | Corrected Pitch (+ve = bow up) degrees |
|----------------------------------|-----------------------------------|--|--|--|--|---|---|
| 0.181 | -0.060 | 0.65 | -0.21 | -0.74 | 0.61 | -0.09 | 0.40 |
| 0.207 | -0.070 | 0.74 | -0.25 | -0.74 | 0.61 | 0.00 | 0.36 |
| 0.209 | -0.048 | 0.75 | -0.17 | -0.74 | 0.61 | 0.01 | 0.44 |
| 0.169 | -0.068 | 0.61 | -0.24 | -0.74 | 0.61 | -0.13 | 0.37 |
| 0.169 | -0.048 | 0.61 | -0.17 | -0.74 | 0.61 | -0.13 | 0.44 |
| 0.177 | -0.036 | 0.63 | -0.13 | -0.74 | 0.61 | -0.11 | 0.48 |
| | | | | Mean | | -0.08 | 0.41 |

PGB Pitch



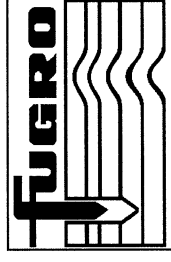
PGB Roll



Surveyor / Party Chief : R. Risah

Date : 23- MARCH -2005

Permantent Guide Base (PGB) Level 5th Observation - During Cementing



Project : Rig Move to Halladale-1
Vessel: Ocean Patriot
Well Name : Halladale-1
Location : Otway Basin, Victoria

Job No.: P0195
Date : 23-Mar-05
Time : 23:00hr

Compatt s/n: 30417-03

PGB s/n:

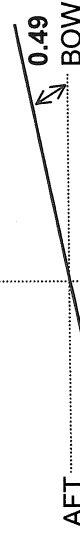
06349/1-01

Compatt ID : 306

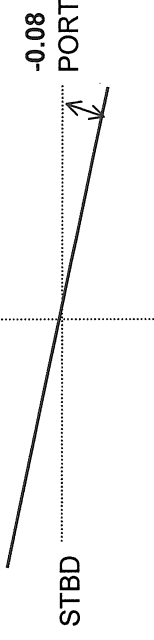
Orientation : 0 degrees (bucket on stbd side)

| Roll Voltage Reading volts | Pitch Voltage Reading volts | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll Correction (from calibration) degrees | Pitch Correction (from calibration) degrees | Corrected Roll (+ve = port up) degrees | Corrected Pitch (+ve = bow up) degrees |
|----------------------------|-----------------------------|---|---|--|---|--|--|
| 0.171 | -0.068 | 0.61 | -0.24 | -0.74 | 0.61 | -0.13 | 0.37 |
| 0.171 | -0.014 | 0.61 | -0.05 | -0.74 | 0.61 | -0.13 | 0.56 |
| 0.211 | -0.008 | 0.76 | -0.03 | -0.74 | 0.61 | 0.02 | 0.58 |
| 0.173 | -0.070 | 0.62 | -0.25 | -0.74 | 0.61 | -0.12 | 0.36 |
| 0.171 | -0.026 | 0.61 | -0.09 | -0.74 | 0.61 | -0.13 | 0.52 |
| 0.201 | -0.008 | 0.72 | -0.03 | -0.74 | 0.61 | -0.02 | 0.58 |
| | | | | Mean | | -0.08 | 0.49 |

PGB Pitch



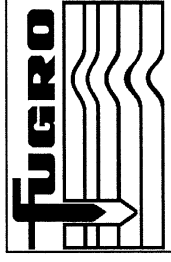
PGB Roll



Surveyor / Party Chief : R. Risah

Date : 23-MARCH-2005

Permantent Guide Base (PGB) Level 6th Observation - During Cementing



Project : Rig Move to Halladale-1
Vessel: Ocean Patriot
Well Name : Halladale-1
Location : Otway Basin, Victoria

Job No.: P0195
Date : 24-Mar-05
Time : 00:00hr

Compatt s/n: 30417-03

PGB s/n:

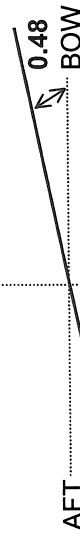
06349/1-01

Compatt ID : 306

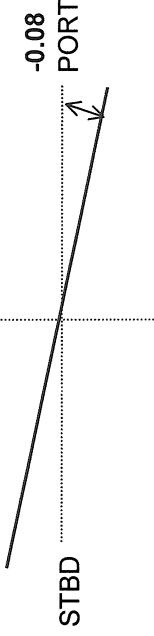
Orientation : 0 degrees (bucket on stbd side)

| Roll Voltage Reading volts | Pitch Voltage Reading volts | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll Correction (from calibration) degrees | Pitch Correction (from calibration) degrees | Corrected Roll (+ve = port up) degrees | Corrected Pitch (+ve = bow up) degrees |
|----------------------------|-----------------------------|---|---|--|---|--|--|
| 0.171 | -0.018 | 0.61 | -0.06 | -0.74 | 0.61 | -0.13 | 0.55 |
| 0.211 | -0.030 | 0.76 | -0.11 | -0.74 | 0.61 | 0.02 | 0.50 |
| 0.171 | -0.020 | 0.61 | -0.07 | -0.74 | 0.61 | -0.13 | 0.54 |
| 0.197 | -0.066 | 0.71 | -0.24 | -0.74 | 0.61 | -0.03 | 0.37 |
| 0.177 | -0.070 | 0.63 | -0.25 | -0.74 | 0.61 | -0.11 | 0.36 |
| 0.171 | -0.020 | 0.61 | -0.07 | -0.74 | 0.61 | -0.13 | 0.54 |
| Mean | | | | | | -0.08 | 0.48 |

PGB Pitch



PGB Roll



Surveyor / Party Chief : R. Risah

Date : 24-MARCH-2005



Permanant Guide Base (PGB) Level 7th Observation - During Cementing

Project : Rig Move to Halladale-1
Vessel : Ocean Patriot
Well Name : Halladale-1
Location : Otway Basin, Victoria

Job No.: P0195
Date : 24-Mar-05
Time : 01:00hr

Compatt s/n: 30417-03

PGB s/n:

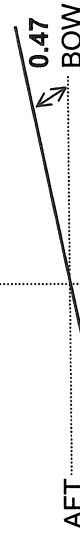
06349/1-01

Compatt ID : 306

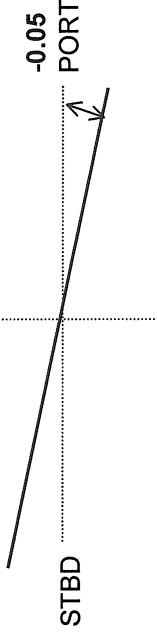
Orientation : 0 degrees (bucket on stbd side)

| Roll Voltage Reading volts | Pitch Voltage Reading volts | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll Correction (from calibration) degrees | Pitch Correction (from calibration) degrees | Corrected Roll (+ve = port up) degrees | Corrected Pitch (+ve = bow up) degrees |
|----------------------------------|-----------------------------------|---|---|--|--|--|--|
| 0.183 | -0.006 | 0.66 | -0.02 | -0.74 | 0.61 | -0.08 | 0.59 |
| 0.215 | -0.050 | 0.77 | -0.18 | -0.74 | 0.61 | 0.03 | 0.43 |
| 0.197 | -0.064 | 0.71 | -0.23 | -0.74 | 0.61 | -0.03 | 0.38 |
| 0.171 | -0.018 | 0.61 | -0.06 | -0.74 | 0.61 | -0.13 | 0.55 |
| 0.209 | -0.068 | 0.75 | -0.24 | -0.74 | 0.61 | 0.01 | 0.37 |
| 0.173 | -0.024 | 0.62 | -0.09 | -0.74 | 0.61 | -0.12 | 0.52 |
| Mean | | | | | | -0.05 | 0.47 |

PGB Pitch



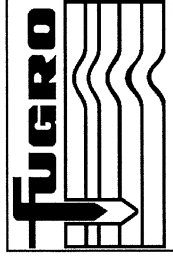
PGB Roll



Surveyor / Party Chief : R. Risah

Date : 24-MARCH-2005

Permanant Guide Base (PGB) Level 8th Observation - During Cementing



Project : Rig Move to Halladale-1
Vessel: Ocean Patriot
Well Name : Halladale-1
Location : Otway Basin, Victoria

Job No.: P0195
Date : 24-Mar-05
Time : 02:00hr

Compatt s/n: 30417-03

PGB s/n:

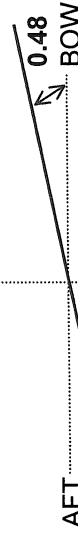
06349/1-01

Compatt ID : 306

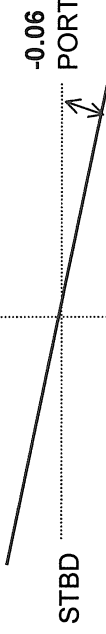
Orientation : 0 degrees (bucket on stbd side)

| Roll Voltage Reading volts | Pitch Voltage Reading volts | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll Correction (from calibration) degrees | Pitch Correction (from calibration) degrees | Corrected Roll (+ve = port up) degrees | Corrected Pitch (+ve = bow up) degrees |
|----------------------------|-----------------------------|---|---|--|---|--|--|
| 0.181 | -0.026 | 0.65 | -0.09 | -0.74 | 0.61 | -0.09 | 0.52 |
| 0.207 | -0.068 | 0.74 | -0.24 | -0.74 | 0.61 | 0.00 | 0.37 |
| 0.189 | -0.050 | 0.68 | -0.18 | -0.74 | 0.61 | -0.06 | 0.43 |
| 0.177 | -0.006 | 0.63 | -0.02 | -0.74 | 0.61 | -0.11 | 0.59 |
| 0.171 | -0.020 | 0.61 | -0.07 | -0.74 | 0.61 | -0.13 | 0.54 |
| 0.215 | -0.056 | 0.77 | -0.20 | -0.74 | 0.61 | 0.03 | 0.41 |
| | | | | Mean | | -0.06 | 0.48 |

PGB Pitch

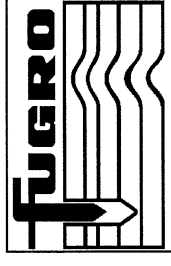


PGB Roll



Surveyor / Party Chief : R. Risah

Date : 24-MARCH-2005



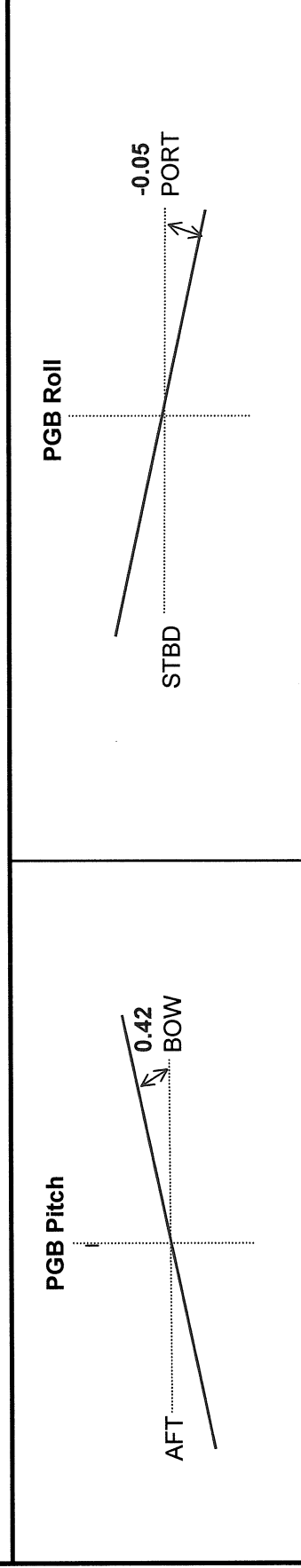
Permanant Guide Base (PGB) Level **9th Observation - Completion of Cementing**

Project : Rig Move to Halladale-1
Vessel: Ocean Patriot
Well Name : Halladale-1
Location : Otway Basin, Victoria

Job No.: P0195
Date : 24-Mar-05
Time : 08:30hr

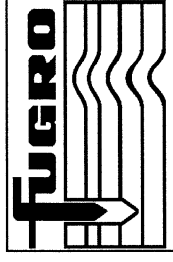
Compatt s/n: 30417-03 PGB s/n: 06349/1-01

| Orientation : 0 degrees (bucket on stbd side) | | | | |
|---|-----------------------------|---|---|--|
| Compatt ID : 306 | | | | |
| Roll Voltage Reading volts | Pitch Voltage Reading volts | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll Correction (from calibration) degrees |
| 0.207 | -0.058 | 0.74 | -0.21 | -0.74 |
| 0.177 | -0.050 | 0.63 | -0.18 | -0.74 |
| 0.205 | -0.036 | 0.73 | -0.13 | -0.74 |
| 0.217 | -0.060 | 0.78 | -0.21 | -0.74 |
| 0.171 | -0.044 | 0.61 | -0.16 | -0.74 |
| 0.183 | -0.068 | 0.66 | -0.24 | -0.74 |
| | | | | Mean |
| | | | | -0.05 |
| | | | | Corrected Roll (+ve = port up) degrees |
| | | | | 0.00 |
| | | | | Corrected Pitch (+ve = bow up) degrees |
| | | | | 0.40 |
| | | | | 0.43 |
| | | | | 0.48 |
| | | | | 0.40 |
| | | | | 0.45 |
| | | | | 0.37 |
| | | | | 0.42 |



Surveyor / Party Chief : R. Risah

Date : 24-MARCH-2005



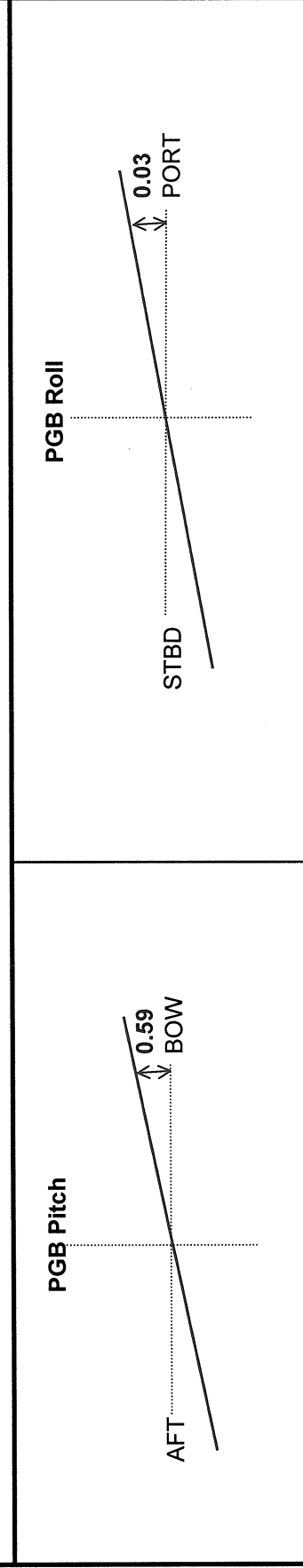
Permanent Guide Base (PGB) Level 10th Observation - Completion of Casing Installation

Project : Rig Move to Halladale-1
Vessel : Ocean Patriot
Well Name : Halladale-1
Location : Otway Basin, Victoria

Job No.: P0195
Date : 25-Mar-05
Time : 09:30hr

Compatt s/n: 30417-03 PGB s/n: 06349/1-01

| Orientation : 0 degrees (bucket on stbd side) | | | | | |
|---|-----------------------------|---|---|--|---|
| Compatt ID : 306 | | | | | |
| Roll Voltage Reading volts | Pitch Voltage Reading volts | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll Correction (from calibration) degrees | Pitch Correction (from calibration) degrees |
| 0.215 | -0.006 | 0.77 | -0.02 | -0.74 | 0.61 |
| 0.215 | -0.006 | 0.77 | -0.02 | -0.74 | 0.61 |
| 0.211 | -0.006 | 0.76 | -0.02 | -0.74 | 0.61 |
| 0.215 | -0.006 | 0.77 | -0.02 | -0.74 | 0.61 |
| 0.211 | -0.006 | 0.76 | -0.02 | -0.74 | 0.61 |
| 0.215 | -0.006 | 0.77 | -0.02 | -0.74 | 0.61 |
| | | | | Mean | 0.03 |
| | | | | | 0.59 |



Surveyor / Party Chief : R. Risah

Date : 25-MARCH-2005



Permantent Guide Base (PGB) Level

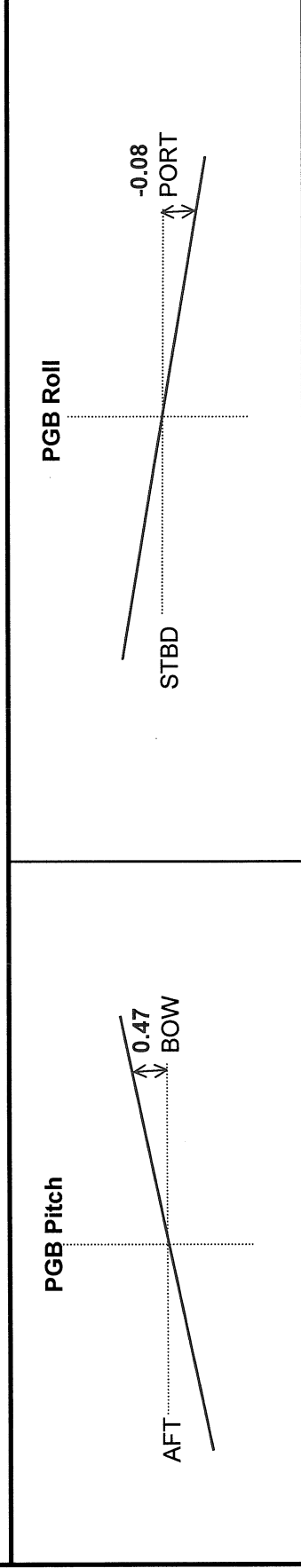
11th Observation - Prior to BOP Deployment, Guide Wire Slackened

Project : Rig Move to Halladale-1
Vessel: Ocean Patriot
Well Name : Halladale-1
Location : Otway Basin, Victoria

Job No.: P0195
Date : 25-Mar-05
Time : 15:00hr

Compatt s/n: 30417-03 PGB s/n: 06349/1-01

| Orientation : 0 degrees (bucket on stbd side) | | | | | |
|---|-----------------------------|---|---|--|---|
| Compatt ID : 306 | | | | | |
| Roll Voltage Reading volts | Pitch Voltage Reading volts | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll Correction (from calibration) degrees | Pitch Correction (from calibration) degrees |
| 0.183 | -0.040 | 0.66 | -0.14 | -0.74 | 0.61 |
| 0.183 | -0.040 | 0.66 | -0.14 | -0.74 | 0.61 |
| 0.183 | -0.040 | 0.66 | -0.14 | -0.74 | 0.61 |
| 0.183 | -0.040 | 0.66 | -0.14 | -0.74 | 0.61 |
| 0.183 | -0.040 | 0.66 | -0.14 | -0.74 | 0.61 |
| 0.183 | -0.040 | 0.66 | -0.14 | -0.74 | 0.61 |
| | | | | Mean | 0.47 |
| | | | | Corrected Roll (+ve = port up) degrees | Corrected Pitch (+ve = bow up) degrees |
| | | | | -0.08 | 0.47 |
| | | | | -0.08 | 0.47 |
| | | | | -0.08 | 0.47 |
| | | | | -0.08 | 0.47 |
| | | | | -0.08 | 0.47 |
| | | | | -0.08 | 0.47 |



Surveyor / Party Chief : R. Risah

Date : 25-MARCH-2005



Permanant Guide Base (PGB) Level Final Observation - BOP Stacks on PGB

Project : Rig Move to Halladale-1
Vessel: Ocean Patriot
Well Name : Halladale-1
Location : Otway Basin, Victoria

Job No.: P0195
Date : 26-Mar-05
Time : 05:50hr

Compatt s/n: 30417-03

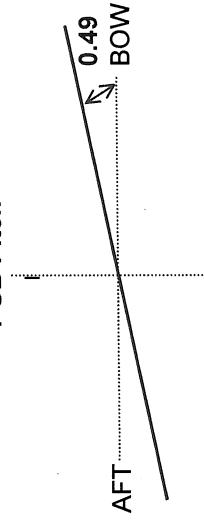
PGB s/n: 06349/1-01

Compatt ID : 306

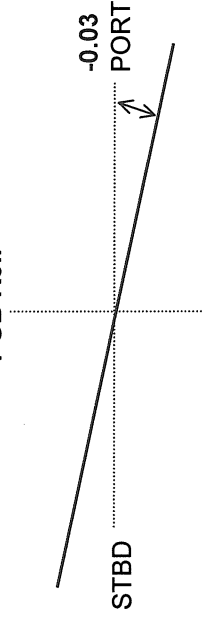
Orientation : 0 degrees (bucket on stbd side)

| Roll Voltage Reading volts | Pitch Voltage Reading volts | Calculated Roll (+ve = port up) degrees | Calculated Pitch (+ve = bow up) degrees | Roll Correction (from calibration) degrees | Pitch Correction (from calibration) degrees | Corrected Roll (+ve = port up) degrees | Corrected Pitch (+ve = bow up) degrees |
|----------------------------|-----------------------------|---|---|--|---|--|--|
| 0.201 | -0.028 | 0.72 | -0.10 | -0.74 | 0.61 | -0.02 | 0.51 |
| 0.197 | -0.024 | 0.71 | -0.09 | -0.74 | 0.61 | -0.03 | 0.52 |
| 0.197 | -0.034 | 0.71 | -0.12 | -0.74 | 0.61 | -0.03 | 0.49 |
| 0.207 | -0.040 | 0.74 | -0.14 | -0.74 | 0.61 | 0.00 | 0.47 |
| 0.189 | -0.040 | 0.68 | -0.14 | -0.74 | 0.61 | -0.06 | 0.47 |
| 0.199 | -0.040 | 0.71 | -0.14 | -0.74 | 0.61 | -0.03 | 0.47 |
| 0.201 | -0.024 | 0.72 | -0.09 | -0.74 | 0.61 | -0.02 | 0.52 |
| Mean | | | | | | -0.03 | 0.49 |

PGB Pitch



PGB Roll



Surveyor / Party Chief : R. Risah

Date : 26-MARCH-2005

APPENDIX E
CLIENT SUPPLIED INFORMATION

WELL LOCATION AND SITE APPRAISAL DATA SHEET

LOCATION NAME: HALLADALE-A

Halladale-1 DW-1 (formerly known as Blackwatch-A)

| | | | |
|---------------------------|------------------|---------------------------|-----------|
| Permit | VIC/P37(v) | Map Sheet | SJ 54 |
| Prepared by | P Wademan/A Lane | Graticular Block | 2217 |
| Approved | | Permit Coordinator/Date | M Taylor |
| Survey Coordinator / Date | G. Paten | Drilling Engineering/Date | R Conwell |

| SURFACE LOCATION COORDINATE VALUES GDA 94: | | | |
|--|---------------------------------|-----------------|---|
| Easting | 650 760 | Latitude | 38° 34' 45.67" S |
| Northing | 5 728 481 | Longitude | 142° 43' 50.82" E |
| Horizontal Datum | GDA 94 | CM | 141° E Zone 54 S |
| Sea Surface Tolerance | 40m | Direction | Radial |
| Sea Bed Tolerance | 40m | Direction | Radial |
| Water Depth | 45.2m LAT +/- 0.5 m | Vertical Datum | LAT (LAT = MSL -0.7m) |
| Rig Heading | 070° | Origin | Halladale Site Survey |
| Convergence @ | -1° 04' 46.3" (True = Grid + C) | Mag Declination | + 10.8° Value on 15/12/2004 (+East - West): True Brg = Mag Brg + Mag Declination |

| SURFACE LOCATION COORDINATE VALUES: AGD 84 | | | |
|--|-----------|-----------|-------------------|
| Easting | 650 638 | Latitude | 38° 34' 51.02" S |
| Northing | 5 728 304 | Longitude | 142° 43' 45.87" E |
| Horizontal Datum | AGD84 | CM | 141° E Zone 54 S |

| COORDINATES DERIVED FROM: | | | |
|---------------------------|------------|--------|------|
| Seismic Survey | Antares 3D | | |
| In-line | 1938 | X-line | 1115 |

| TARGET COORDINATE VALUES: | | | |
|---------------------------|-----------|-----------|------------------|
| Easting | 650 658 | Latitude | 38°34'53.78"S |
| Northing | 5 728 233 | Longitude | 142°43'46.80"E |
| Horizontal Datum | GDA 94 | CM | 141° E Zone 54 S |
| | | Depth | 1705m TVDSS |

| COORDINATES DERIVED FROM: | | | |
|---------------------------|---|--------|------|
| Seismic Survey | Antares 3D Coordinates provided by ORIGIN, derived Grid Values shown as below | | |
| In-line | 1943 | X-line | 1126 |

| 2D Seismic Line Verification Bearing & Distance from Proposed Well to Closest 2D Shot Point | | | | | | | |
|--|-------------|---------------|-----------|---------------|-----|--------------|-------|
| Easting | 650 742.97 | (650 736.6) | Latitude | | | | |
| Northing | 5 728 440.6 | (5 728 443.0) | Longitude | | | | |
| Horizontal Datum | AGD-84 | | CM | | | | |
| 2D-line | OH94-213 | Shot Point | 1309 | Distance from | 173 | Heading from | 37.5° |
| Coords in Brackets are for SP 1309 from 2D Seismic data model Distance to well from model = 173m | | | | | | | |

| PROPOSED RIG: | | | |
|---------------|---------------|------|----------|
| Name | Ocean Patriot | Type | Semi Sub |
| Anchors | TBA | | |

WELL LOCATION AND SITE APPRAISAL DATA SHEET

LOCATION NAME: HALLADALE-A

Halladale-1 DW-1 (formerly known as Blackwatch-A)

1 RECOMMENDATIONS

1.1 POSITIONING RECOMMENDATIONS.

- General rig positioning equipment and procedures required together with anchor handling vessel positioning.
- Installation of an acoustic inclinometer on the PGB due to the predicted water turbidity.

1.2 GEOHAZARD RECOMMENDATIONS

1. The regional seafloor gradient over the Halladale prospect is approximately 1.5°. However, significantly larger local gradients are probable due to the ridge / crevasse topography. From the multibeam survey the proposed location appears reasonably smooth with a slope of less than one degree. It is recommended the rig's ROV reconnoitres the location immediately prior to spud.
2. The seafloor material comprises small pockets of sand / shell gravel overlying Heytesbury Group material (most probably the Port Campbell Limestone Formation comprising calcarenite and marl layers and the upper surface most probably is cap rock). The anchor holding for a semi-submersible rig is expected to be poor due to the inability to obtain anchor burial into the cemented seafloor material. It is recommended anchor design is progressed on the assumption that poor holding conditions due to the lack of penetration will be present.
3. The risk of shallow gas above the Pebble Point Formation is considered very low based on an interpretation of the Antares 3D Exploration Seismic data. At the Pebble Point Formation Top an amplitude anomaly partially conformable to structure raises the ranking of representing gas (ranking raised to "low"). Within the Heytesbury Group carbonates (Port Campbell Limestone and Gellibrand Marl between the seafloor and circa 150ms, 120m) the very shallow data quality is poor due to the shallow water and seafloor multiples.
4. The 30' shoe will be in the Port Campbell Limestone. Below the cemented surface crust the 36" section is predicted to intersect layered material varying between unconsolidated marly sediments to well cemented calcarenite. It is anticipated the upper casing string will have to be drilled (unable to jet).
5. The available survey data is adequate for the geohazard site assessment.
6. For a jack-up rig the presence of an indurated caprock (or shallow layer) raises the spectre of punch through. The material underlying the caprock is expected to be firm and offer some resistance to punch through. A full site appraisal is required for a jack-up rig including a geotechnical site investigation in addition to the geophysical site survey (per SNAME 5.5).

2 WELL SPECIFIC GEOHAZARDS

| | Geohazard | Potential |
|--|--|-------------------|
| Mobilisation / Anchoring | Anchor holding is anticipated as being very variable. No penetration is expected with the holding generated by chain / cable friction to the seafloor and the snagging of the anchor in crevasses. | Moderate / High |
| Non vertical surface hole | Uneven seafloor and highly variable (cap rock to soft sediments) shallow sediments | Moderate |
| Downtime due to strong currents | Area is not affected by strong currents. ROV assisted stabbing at Minerva. | Low |
| Downtime due to sea state | The coastline is notorious for storm conditions and large swells. | Moderate / High |
| Failure to reach planned jetting depth | Seafloor sediments are expected to comprise cemented material | Very High / Drill |
| Lost circulation / mud loss in Top Hole | None observed in offset wells | Very Low |
| Wellhead problems due to soft or uneven seafloor | Hard uneven seafloor | Very High |
| Damage bit / BHA | No damage reported in offset wells (from geohazards) | Very Low |
| Shallow gas | There is shallow closure from the Clifton Formation downwards. Numerous amplitude anomalies are present. These are not conformable to structure apart from the Pebble Point at 877m TVDSS which shows a partial agreement to structure. There has been no shallow gas reported in offset wells | Low |
| Shallow H ₂ S | No shallow H ₂ S gas experienced in offset wells | Very Low |
| Shallow water flow | Shallow water and unsuitable lithology | Very Low |
| Insufficient leak off test | No problems reported in offset wells. | Very Low |

3 EVALUATION BASIS

1. Halladale Site Survey, 2004
2. Flaxman Hill Pipeline Route Survey
3. Antares Bathymetry Scouting

WELL LOCATION AND SITE APPRAISAL DATA SHEET

LOCATION NAME: HALLADALE-A

Halladale-1 DW-1 (formerly known as Blackwatch-A)

4. Antares 3D Exploration Seismic (very poor in the shallow section). (Open Works Project OTWAY_GDA94, SeisWorks Project gda94ant)
5. Offset wells

4 WATER DEPTH

Location 45.2m +/-0.5 metres LAT (from multibeam survey) (45.8m, 150.4feet MSL)
Regional Water depth variation between 34m to 48m within a radius of 1500 metres (max / min is based on data from Antares 3d seismic survey, all other water depths are based on the 2004 Halladale multibeam survey).

5 SEAFLOOR OBSTRUCTIONS/PROXIMITY TO INFRASTRUCTURE

1. The wellsite is located in an area of very uneven seafloor. The Port Campbell Limestone Formation contains indurated layers resistant to erosion producing a hard, ridged seafloor. The location lies just to the north of the centre of the geological structure in one of the smoother seafloor areas.
2. The proposed drilling location lies approximately 1.7km from the southern boundary of the VIC/P 37(V).
3. The proposed drilling location lies within the 3 nautical mile limit.
4. The regional seafloor gradient over the Halladale prospect is approximately 1.5°, however significantly larger local gradients are probable due to the ridge / crevasse topography. Gradients up to 14° were measured on the Flaxman Hill Route Survey and even steeper unmeasured gradients may occur at ridges.
5. The proposed location lies approx 4km offshore from a picturesque coastal strip and the rig will be visible from the shore. Warrnambool City lies approximately 28km to the north west. The location lies in an important tourism area ("The Shipwreck Coast") and very close to the Coastal Highway.
6. The location lies within a whale migration area.
7. The Twelve Apostles Marine National Park lies 30km to the south east and the Merri Marine Sanctuary (near Warrnambool) lies approximately 28km to the north west.
8. The location lies approximately 25km to the north of the main east west coastal shipping route and approximately 10km north of the shipping route eastwards from Portland (based on the daily position reports from vessels to AMSA). The location lies in an important rock lobster fishing area and approx 12 small (circa 25m) local fishing vessels could be working the area. To the south, outside the permit area small local vessels may be engaged in netting.
9. The potential Casino Development lies approximately 24km south and the Minerva Development lies approximately 24km south east of the proposed location.

6. ANCHORING CONDITIONS

1. Unconsolidated seafloor sediment is restricted to pockets infilling depressions and crevices in the cemented surface. More resistant PCL or caprock forms the intervening seafloor. The seafloor is expected to be very rugose with ridges trending NE to SW grading N to S in the south of height 1.5m comprising outcrops of more resistant bedding. Anchor holding variability controlled by the crevices and ridges affecting both the anchor and chain / cable.
2. The site survey data based on a rig heading of 070° and nominal horizontal chain distance of 1100m suggests: (Coordinates GDA94)

| Datum | GDA 94 MGA Zone 54 S CM 141° E (Project Datum) | | | | |
|-----------------|--|---------|---------|-------|---|
| | E | N | Bearing | Depth | Comments |
| Anchor 1 | 651891 | 5728269 | 100° | 42.2 | Uneven seafloor, no large ridges |
| Anchor 2 | 651650 | 5727752 | 130° | 44.8 | The chain runs along the strike of the rocky seafloor and crosses a seafloor containing 1m ridges. |
| Anchor 3 | 650546 | 5727351 | 190° | 47.7 | Seafloor shows a saw tooth pattern with 1m high ridges. Ridges orientated to give poor holding |
| Anchor 4 | 650030 | 5727591 | 220° | 47.2 | Ridges of height over 1m. |
| Anchor 5 | 649629 | 5728693 | 280° | 46.4 | Anchor area contains ridges over 1m high. Last 400m of chain nearest rig) crosses a smooth seafloor.. |
| Anchor 6 | 649870 | 5729210 | 310° | 43.0 | Mainly smooth apart from a single 2m high ridge near the anchor drop |
| Anchor 7 | 650974 | 5729611 | 010° | 38.0 | Approx outer 700m traverses a rugged seafloor with 2m high near vertical slopes |
| Anchor 8 | 651490 | 5729371 | 040° | 36.5 | Approx outer 700m traverses a moderately rugged seafloor with 1m high ridges |

7. SPUD CAN PREDICTION

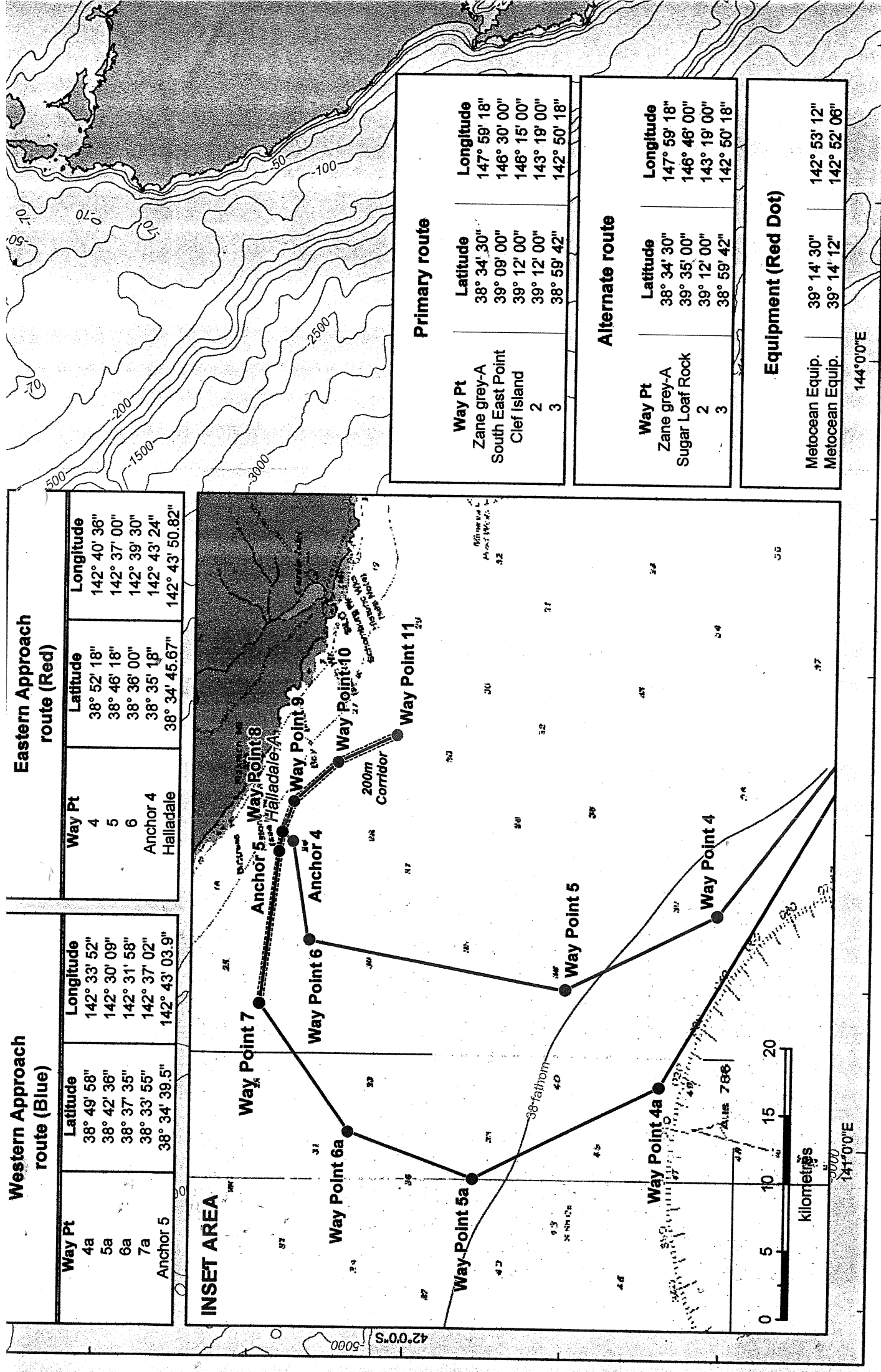
1. Not Applicable to Semi Submersible Drilling Rig.
2. The seafloor is expected to comprise an indurated caprock. The material underlying the caprock is expected to be firm (marls) and offer some resistance to leg penetration. Accelerated leg penetration (i.e. punch through) is considered probable.

Western Approach route (Blue)

| Way Pt | Latitude | Longitude |
|----------|---------------|----------------|
| 4a | 38° 49' 58" | 142° 33' 52" |
| 5a | 38° 42' 36" | 142° 30' 09" |
| 6a | 38° 37' 35" | 142° 31' 58" |
| 7a | 38° 33' 55" | 142° 37' 02" |
| Anchor 5 | 38° 34' 39.5" | 142° 43' 03.9" |

Eastern Approach route (Red)

| Way Pt | Latitude | Longitude |
|-----------|----------------|-----------------|
| 4 | 38° 52' 18" | 142° 40' 36" |
| 5 | 38° 46' 18" | 142° 37' 00" |
| 6 | 38° 36' 00" | 142° 39' 30" |
| Anchor 4 | 38° 35' 18" | 142° 43' 24" |
| Halladale | 38° 34' 45.67" | 142° 43' 50.82" |



Primary route

| Way Pt | Latitude | Longitude |
|------------------|-------------|--------------|
| Zane grey-A | 38° 34' 30" | 147° 59' 18" |
| South East Point | 39° 09' 00" | 146° 30' 00" |
| Clef Island | 39° 12' 00" | 146° 15' 00" |
| 2 | 39° 12' 00" | 143° 19' 00" |
| 3 | 38° 59' 42" | 142° 50' 18" |

Alternate route

| Way Pt | Latitude | Longitude |
|-----------------|-------------|--------------|
| Zane grey-A | 38° 34' 30" | 147° 59' 18" |
| Sugar Loaf Rock | 39° 35' 00" | 146° 46' 00" |
| 2 | 39° 12' 00" | 143° 19' 00" |
| 3 | 38° 59' 42" | 142° 50' 18" |

Equipment (Red Dot)

| | | |
|-----------------|-------------|--------------|
| Metocean Equip. | 39° 14' 30" | 142° 53' 12" |
| Metocean Equip. | 39° 14' 12" | 142° 52' 06" |

144°0'0"E

RIG MOVE PROCEDURES OCEAN PATRIOT

"REV 0"

From Zane Grey
To
Halladale A

Index

Introduction

Personnel responsibilities

Location details

General information regarding rig move

Anchor Handling / Support Vessels

Unmooring operations

Mooring operations

Introduction:

The Ocean Patriot will be moved from the present location at Zane Grey to Halladale A on or about TBA 2005.

As per usual (unless otherwise noted), the unit will be deemed on tow to new location when the last anchor is bolstered, or at other such time as agreed by parties concerned.

All rig and vessel consumables will be recorded in the rig move log at this time (statement of facts will be taken.)

The distance from Zane Grey to Halladale A is approximately 265 nautical miles.

New location:

Latitude: 38 degrees 34 minutes 45.67 seconds South

Longitude: 142 degrees 43 minutes 50.82 seconds East

Water depth: 46 meters

Proposed rig heading is 070 degrees ✓

Unless otherwise agreed upon by concerned parties, rig will obtain statement of facts from anchor handling vessels and rig when first anchor is on bottom.

Personnel Responsibilities

Following refers to personnel involved in rig move and mooring of rig.

Drilling Representative:

Point of contact through which rig move notifications and exterior notifications will pass.

Liaise with OIM in regards to rig move status. Responsible for final position acceptance at new location as advised by the surveyors.

Provide location details and previous experience in the area (WLDS).

Provide details on preparedness to approach location (Fishing activity, local governance)

Provide weather forecasts

Assist with selection of safe haven on tow, if required.

Provide emergency response support.

Ocean Patriot OIM:

Total responsibility for all operations and safety of the rig and personnel at all times.

Make decision when it is safe and practical to commence operations within the limitations of the rig's operating manual having consulted with the barge master.

Ensure placement of competent Diamond Offshore personnel to

ensure safe and correct deployment of anchors and handling of tow gear.

Ensure that necessary rig move notifications are transmitted and navigation warnings are broadcast.

Ensure that all relevant authorities are kept informed of the rig move status

Barge Master:

Will liaise with OIM and advise on marine operations and vessel deployment.

Will liaise with vessel masters regarding tow wire deployment, course and speeds.

Consult with survey representative on rig positioning and advise OIM accordingly.

Liaise with OIM regarding changes to ballast or stability conditions, equipment failure or any other circumstances likely to affect safety.

Ensure that all additional marine equipment provided for mooring is certified and correctly recorded upon deployment. Maintain detailed rig move log and complete Diamond Offshore rig move paperwork.

Rig Positioning Supervisor:

Liaise with OIM and company representative regarding navigation equipment and position confidence.

Responsible for proper operation of positioning equipment. Responsible for providing constant data showing position of rig and vessels at all times during the move.

Maintain logs of movements of the unit until rig move completed. Provide final location position after move is completed.

M047 Crew (tow master, mate)

Tow master to liaise with AHV on course and plan for move to new location and advise OIM.

Liaise with OIM and Barge Master on marine matters and be available for consultation on such matters.

Assist as requested by OIM and Barge Master.

AHV Vessel Masters:

Responsible for safety of their vessels, and when towing, for the safety of the tow.

Ensure that appropriate navigation warnings are issued at regular intervals.

Ensure that all items of anchor handling gear are handled in a proper and safe manner.

Ensure that all anchor handling operations are conducted in a safe manner with due regard to safe working practices and good seamanship.

Inform Barge Master of any defects noted in anchors and/or jewelry.

Ensure that all systems and equipment on Anchor handling vessel are operable and fit for purpose.

Forward daily position updates to rig and Ausrep every 6 hours.

Maintain watch for fishing gear and avoid if possible.

Determine if the metocian conditions are acceptable for approach to location. (Far Grip to relay conditions to Pacific Wrangler)

Location details

Present Location: Zane Grey-1

Latitude: 38 deg. 34 min. 31.64 sec. South

Longitude: 147 deg. 59 min. 16.27 sec. East

Water depth: 72 meters

Proposed Location: Halladale A Block VIC/P37

Lat. 38 deg. 34 min. 45.67 sec. South

Lon. 142 deg. 43 min. 50.82 East

Water depth: 46 meters

Seafloor/Soil materials: hard cemented sea floor

Source of information: WOODSIDE

General Information Regarding Rig Move

All key personnel to be briefed by the Barge Supervisor prior to commencement of operations to ensure a full understanding of procedures.

Approved procedures shall be followed as closely as circumstances permit, having due regards to the limitations of the rig and the support vessels. Should any deviation from the procedures be deemed necessary, the OIM and Company Representative are to be informed.

As per Diamond Offshore policy, a pre-move meeting will be held on board the rig prior to commencement of operations if possible. If a pre-move meeting on the rig is not possible, the move will be discussed with the AHV masters on VHF radio.

Prior to rig move, a weather forecast shall be obtained and a suitable weather window identified to allow each stage of the operation to be completed without weather interruption if possible.

Unmooring and mooring operations will be carried out in accordance with Diamond Offshore Procedures and Policies.

Anchor Handling / Support Vessels

At least 2 anchor handling vessels will be provided for unmooring and mooring operations.

AHV should have minimum bollard pull of 120 tons. All anchor handling vessel gear to be in good working order.

Anchor handling vessels to be suitably manned to be capable of 24 hours continuous operation.

Rig move package to be provided and installed on the AHV by survey party on rig.

Backup equipment to be provided for the navigation package on the AHV.

Unmooring Operations

The Ocean Patriot is presently moored at BSOC's Zane Grey location as follows:

| Anchor | Anchor type | Bearing | Distance |
|--------|-------------|-----------|------------|
| 1 | Stevpris | 073.1 deg | 898 meters |
| 2 | Stevpris | 104.3 deg | 955 meters |
| 3 | Stevpris | 164.7 deg | 986 meters |
| 4 | Stevpris | 193.4 deg | 983 meters |
| 5 | Stevpris | 254.3 deg | 989 meters |
| 6 | Stevpris | 281.3 deg | 979 meters |
| 7 | Stevpris | 342.6 deg | 986 meters |
| 8 | Stevpris | 011.8 deg | 986 meters |

Anchor retrieval will commence as soon as well abandonment is completed.

Plan to replace damaged pennant wire on No.7 chain chaser and reconnect fishplate to primary tow bridle.

The secondary anchors will be retrieved first using both the Far Grip and Wrangler. These are anchors 2,3,6,and 7. There is no set order for retrieval.

After the 4 secondary anchors are recovered, the Wrangler will be hooked up on the tow bridle and the Far Grip will continue anchor recovery.

The Primary anchors will be recovered next. They are anchors 1,4,5 and 8. Prevailing weather will dictate the order in which these anchors are recovered. The last anchor to be recovered will be either anchor 4 or 5.

The tow will commence after the last anchor is bolstered.

Course to next location will be agreed on by the tow master, Anchor handling vessel master, the surveyor on the rig and approved by the rig OIM.

Safe anchoring sites for the tow east to west (avoiding pipelines and cables to Tasmania) are identified on the marine charts and WEL supplied route map.

The Far Grip will steam ahead of the rig to site to preferably arrive the evening before the rig arrives. The weather at the site will be assessed and the Pacific Wrangler advised of conditions. The site and the approach to be checked for any fishing tackle along with escape route (identified in green on route map)

The tow of the rig will be tailored to arrive on site at daybreak. Far Grip skipper monitoring local weather conditions and advising the Pacific Wrangler skipper who will make the final decision as to the run in being progressed. (Weather updates from SSU to include direct verbal contact with weather at Kangaroo Island being used as a good indication of localized changes)

Weather permitting the final run in will be within the corridor

approach route identified on the tow route map. (Blue and red lines indicating east and western boundaries)

If unfavorable South Eastern winds prevail the run in to location may be aborted and the rig will hold off.

Mooring Operation at New Location

Anchor pattern for new location is as follows:

Standard 30 / 60 degree anchor pattern.

Rig Heading : 070 degrees

| Anchor | heading | distance |
|--------|---------|----------|
| 1 | 100 | 1200m |
| 2 | 130 | 1200 m |
| 3 | 190 | 1300m ✕ |
| 4 | 220 | 1300m ✕ |
| 5 | 280 | 1300m ✕ |
| 6 | 310 | 1200m |
| 7 | 010 | 1200m |
| 8 | 040 | 1200 m |

On the run in the rig heading will be aligned to whichever holdback anchor is to be utilized - anticipated to be No.4. The Pacific Wrangler skipper must relay confirmation that he is satisfied to commence mooring operations.

The Far Grip will prepare for deploying the first in a position which allows 1300 meters of chain to be laid and provide hold back whilst the rig is positioned onto location. We will use 1300 meters of chain for the windward anchors: 3, 4 and 5.

Once the first anchor is set on bottom and chain paid out to location the rig must provide conformation of hold to the Far Grip skipper prior to collar being chased back. (The Woodside marine representative needs to concur with this decision although the responsibility rest with Diamond Offshore's Marine team)

The anchors will be run out to a minimum of 1100m, and target 1200m except for windward anchors 3, 4 and 5 which will be run out to 1300m. Maximum extension is +/- 1300m.

Pacific Wrangler will tow the vessel to location and make the approach on a line over #4 anchor drop point (depending on weather conditions #5 anchor may be the first anchor run).

Pacific Wrangler will stop tow short of position of anchor to be deployed first and the Far Grip will come in and pick up PCC for first anchor to be deployed.

Example:

Rig moves in on a heading of 040 degrees to come across anchor #4 drop point. The PCC and #4 anchor are passed to the Far Grip during the run into the location. The rig moves over anchor #4 drop point and continues on to the well centre location. The Far Grip stops at the #4 position and the rig winch operator starts letting out chain. While the rig is letting out chain, the Far Grip lowers the anchor to bottom. When the rig gets to location, the winch operator will stop chain pay out and set the brake. The Pacific Wrangler will increase power to stretch chain #4 to allow the Far Grip to chase back to rig.

The Far Grip will then run the other primary anchors in the following order

Anchor #5.

Anchor #8.

Anchor #1.

The anchors 8 and 1 will be run out to a minimum of 1100m, and target 1200m. Anchor 5 will be run out to 1300m Maximum extension is +/- 1300m.

Once the primary anchors have been run, the Pacific Wrangler will be released from the tow line and prepare their deck to run anchors while the rig is being positioned as close to location as possible.

The Far Grip and Wrangler will run the secondary anchors

(2,3,6 and 7). Anchors 2, 6 and 7 will be run out to a minimum of 1100m, and target 1200m. Anchor No.3 will be run out to 1300m. Maximum extension is +/- 1300m.

If anchor does not hold the preferred option is to rerun it further out (using the Far Grip) with consideration to decking the anchor to achieve this.

Rig will be positioned over location and anchors will be test tensioned to 200 tons and held for 10 minutes.

Tensions will be reduced to working tension levels and rig will then be ballasted to drilling draft. The anchor tensions will be set to 150 tons working tension and the location confirmed. The rig will be ready to commence drilling operations.

The survey equipment will be left operational for ongoing monitoring by rig marine team.