



**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	

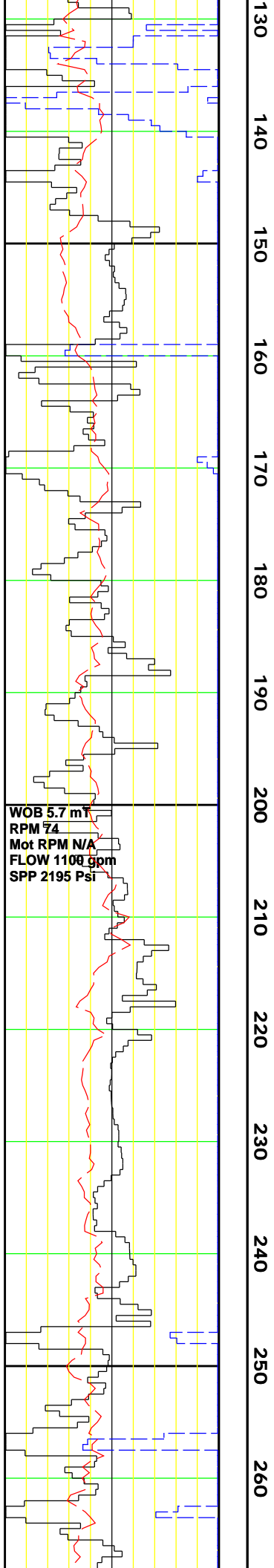
## LEGEND

### Abbreviations and Symbols

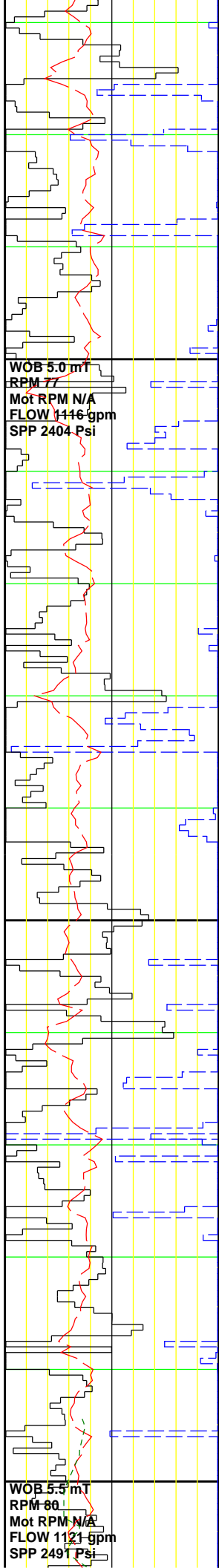
### Lithology Symbols

Drilling Data		Mud Data			
BG	Background Gas	CI- Chloride Ion Conc	Rm Mud Resistivity		Sandstone
BHT	Bottomhole Temp	FC Filter Cake	Rmf Filtrate Resistivity		Sandy Claystone
C	Carbide Test	FL Filtrate Loss	S Solids Content		Calcareous Sandstone
CB	Core Bit	G Gels	Vis Funnel Viscosity		Silty Claystone
CG	Connection Gas	pH Hydrogen Ion Content	MW Mud Weight		Glauconitic Sandstone
CKF	Check For Flow	PV Plastic Viscosity	YP Yield Point		Calcareenite
CO	Circulate Out	<div>Engineering Data</div> <div> Core No.</div> <div> DST No.</div> <div> Casing Seat</div> <div> Side Wall Core</div> <div> Gas Traces</div> <div> Gas</div> <div> Oil Traces</div> <div> Oil</div> <div> Water</div> <div> Salt Water</div> <div> Fresh Water</div> <div> Hydrocarbons Smell</div> <div> H2S Smell</div> <div> Interval Tester</div> <div> Wireline Log Run</div> <div> Leakoff Test</div> <div> Pressure Integrity</div>			Silty Sandstone
DB	Diamond Bit				Argillaceous Calcareenite
DC	Depth Correction				Sandy Calcareenite
DS	Direction Survey				Siltstone
DST	Drillstem Test				Calcsiltite
FLT	Flowline Temp.				Sandy Siltstone
LAT	Logged After Trip				Calcilutite
NB	New Bit				Argillaceous Siltstone
NR	No Returns				Argillaceous Calcilutite
PDC	Polycrystalline Diamond				Claystone
PR	Compound Bit				Limestone
RPM	Revs Per Minute				Clacareous Claystone
RRB	Rerun Bit				Dolomite
STG	Short Trip Gas				
TB	Turbo Drill				
TG	Trip Gas				
U	Gas Units				
WOB	Weight On Bit				

GAMMA (api)		WOB (klb)		ROP (m/hr)		ROP WRAP (m/hr)		DEPTH mMDRT 1:500	CORE	LITHOLOGY CUTTINGS	INTERPRETED LITHOLOGY	RESISTIVITY (SHALLOW)		RESISTIVITY (DEEP)		TOTAL GAS		CHROMATOGRAPH METHANE %				OIL FLUORESCENCE	CALCITE %		DOLOMITE %		REMARKS
0	150	0	20	40	100	50	0					0.1	1K	0.1	1K	0.001	10	0.001	10	0.001	10		ETHANE %	PROPANE %	ISO-BUTANE %	N-BUTANE %	
								0																			
								30																			
								40																			
								50																			
								60																			
								70																			
								80																			
								90																			
								100																			
								110																			
								120																			



Dev @ 120.7 m	Az 6.7 deg				
Dev @ 156.0 m	Inc 0.5 deg Az 3.8 deg				
Dev @ 184.1 m	Inc 0.5 deg Az 12.1 deg				
Dev @ 212.8 m	Inc 0.6 deg Az 7.1 deg				
Dev @ 241.5 m	Inc 0.5 deg Az 359.8 deg				



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

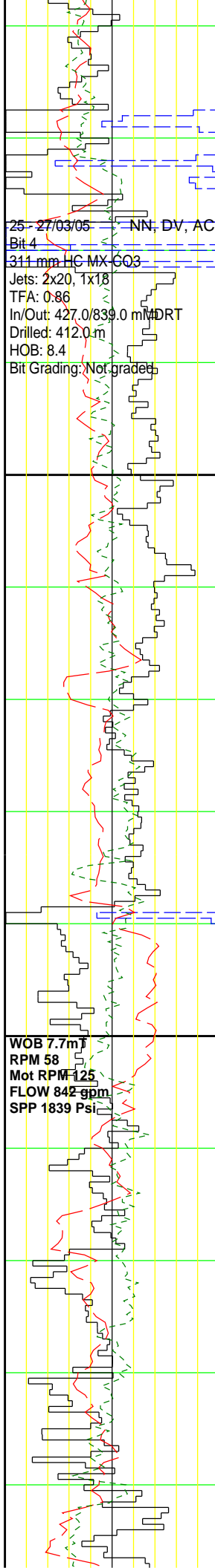
Dev @ 299.0 m Inc 0.5 deg  
Az 348.1 deg

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.

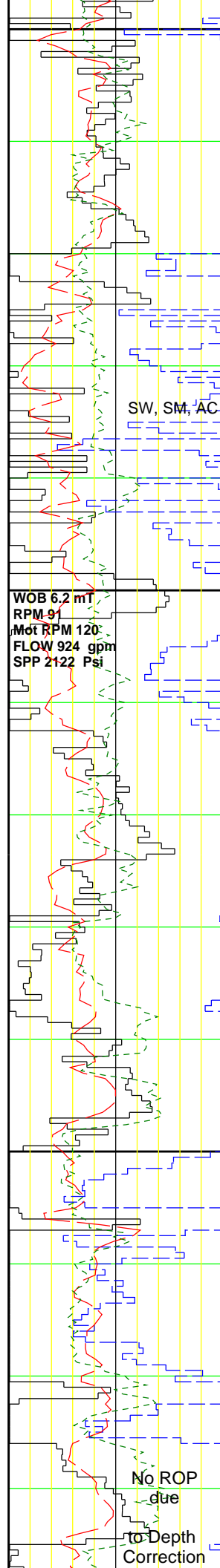
427.0 to 490.0 mMDRT  
Interbedded CALCAREOUS  
CLAYSTONE and CALCAREOUS  
SILTY CLAYSTONE interbedded  
with minor CALCAREOUS  
SILTSTONE and localised  
ARGILLACEOUS CALCILUTITE.  
CLAYSTONE, CALCAREOUS (40  
- 100%): med gnsh gy - lt gn, v lt  
gy i.p., sft - v sft, amor - sbfiss,  
35% calc cly, 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.

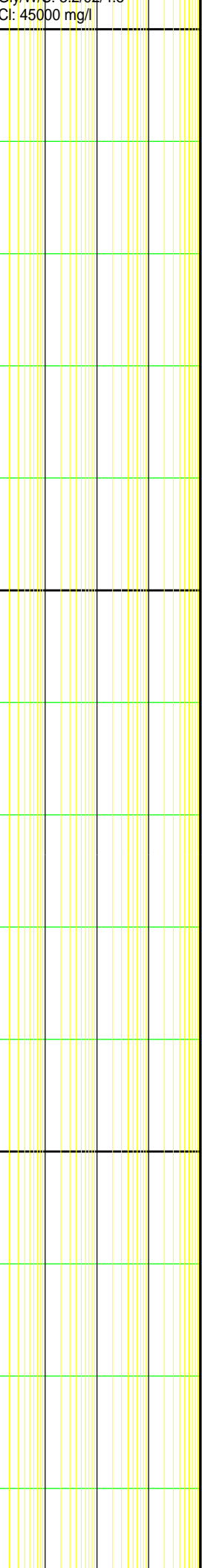
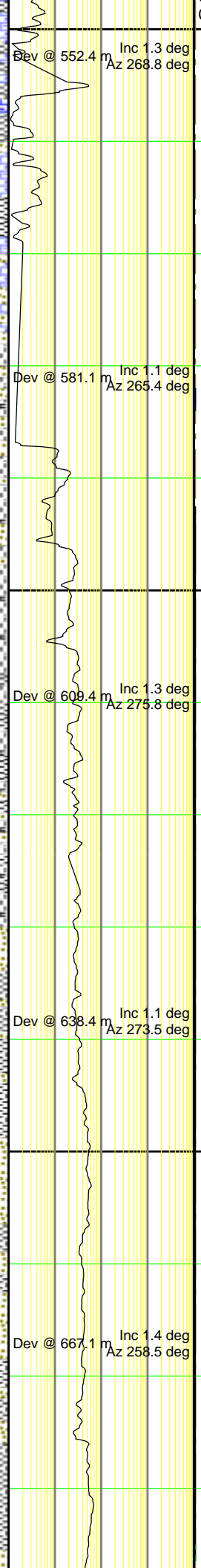
499.0 - 509.0 mMDRT  
CALCAREOUS CLAYSTONE.  
CLAYSTONE, CALCAREOUS  
(100%): lt gy - med bnsh gy, sft - v  
sft, disp, 40% calc cly, 10% calc  
slt, 30% sil cly, 20% sil slt, tr mic.

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





550  
560  
570  
580  
590  
600  
610  
620  
630  
640  
650  
660  
670  
680

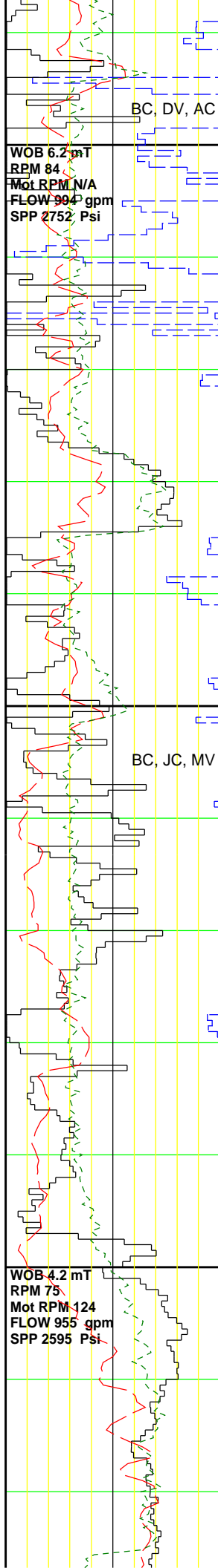


oil gy, med gy - olv gy, sft - v sft, disp, 50% calc cly, 20% calc slt, 10% calc sd, 20% sil silt, mnfr foss frag, tr glauc.

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  
Cl: 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

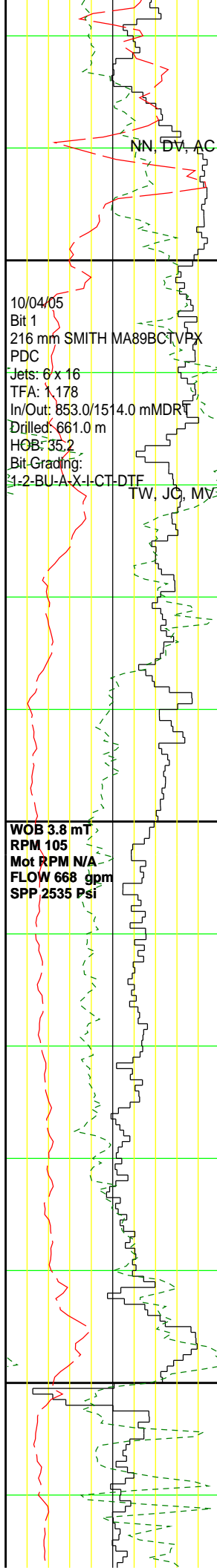
sil cly, 70% sil sd, abdt sil cmt, pr  
vis por, n/s.

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.

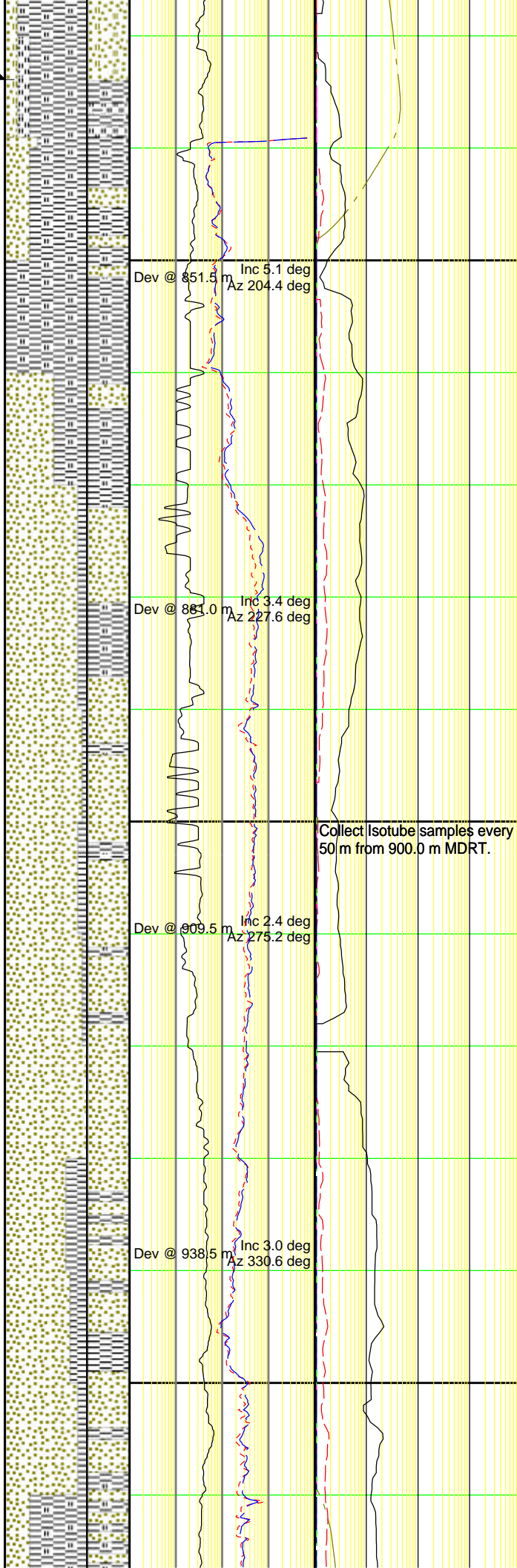
MW: 1.18 sg  
FV: 71  
PV/YP: 33/26  
Gels: 6/14  
Gly/W/S: 3/90/7  
Ci: 43000 mg/l

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.

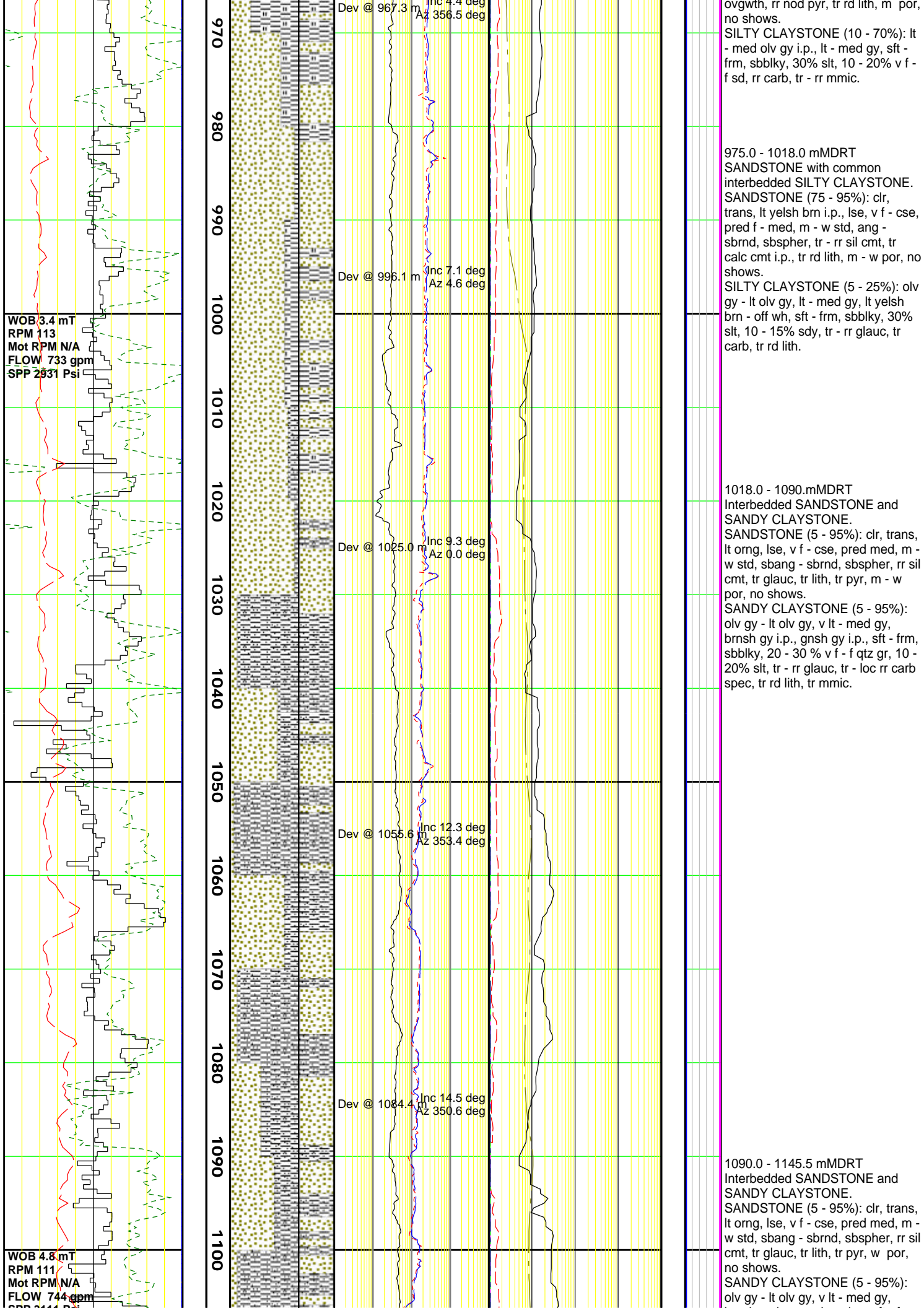
Collect Isotube samples every 50 m from 900.0 m MDRT.

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

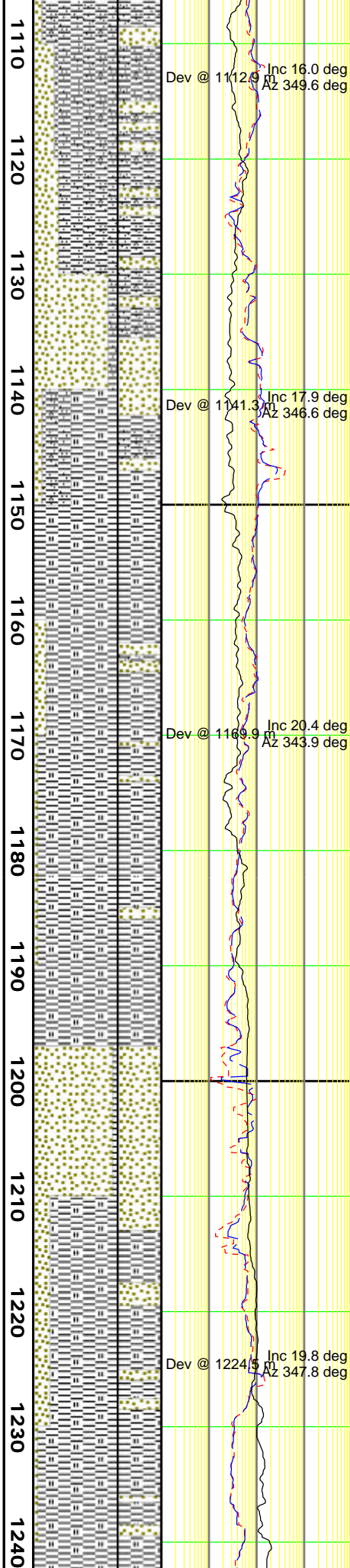




SPP 3111 Psi

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



Dev @ 1112.9 m Inc 16.0 deg  
AZ 349.6 deg

Dev @ 1141.3 m Inc 17.9 deg  
AZ 346.6 deg

Dev @ 1169.9 m Inc 20.4 deg  
AZ 343.9 deg

Dev @ 1224.5 m Inc 19.8 deg  
AZ 347.8 deg

brnsh gy i.p., gnsh gy i.p., sft - frm,  
sbbkly, 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 - mn  
glauc, tr nod pyr, tr carb spks,  
sbbkly - amor, sft.  
SANDSTONE (tr - 95%): clr, trans,  
wh, pred lse, vf - cse, pred f, m std,  
ang - sbrnd, sbspher, tr cly mtx, tr  
calc cmt, tr - mn nod pyr, 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

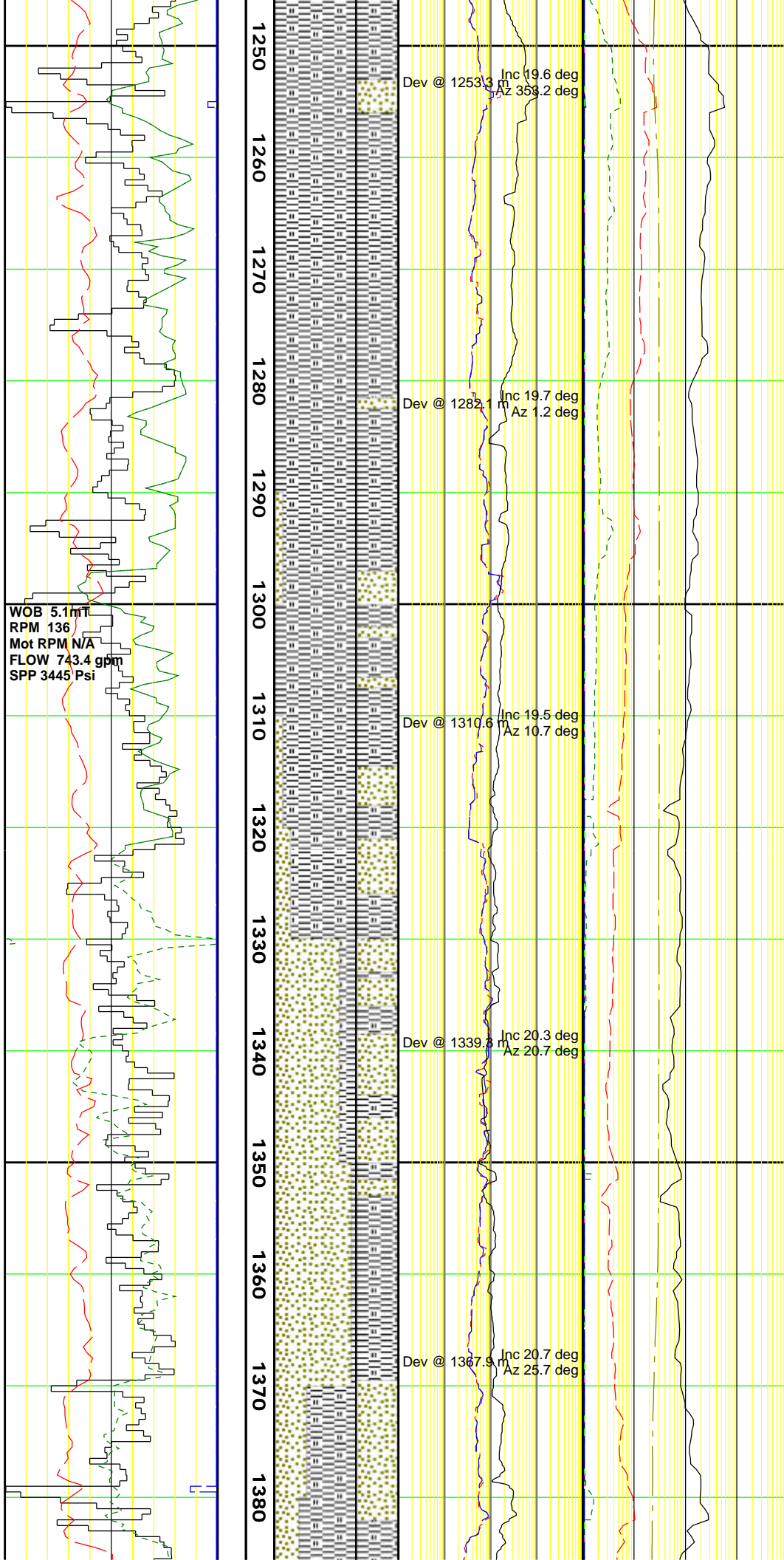
Halladale-1 DW2 was plugged  
back to 1179.0 mMDRT, drill out  
cement to 1197.0 mMDRT

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, v f - cse, pred f,  
m std, ang - sbrnd, sbspher, tr cly  
mtx, tr - mn nod pyr, m por, n/s.  
SILTY CLAYSTONE (0 - 5 %): lt  
gy - olv gy, lt - med gy, sft, sbbkly -  
amor, 20 - 30% silt, tr v f sd, 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, sbbkly -  
amor, 20 - 30% silt, v f sd, 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.

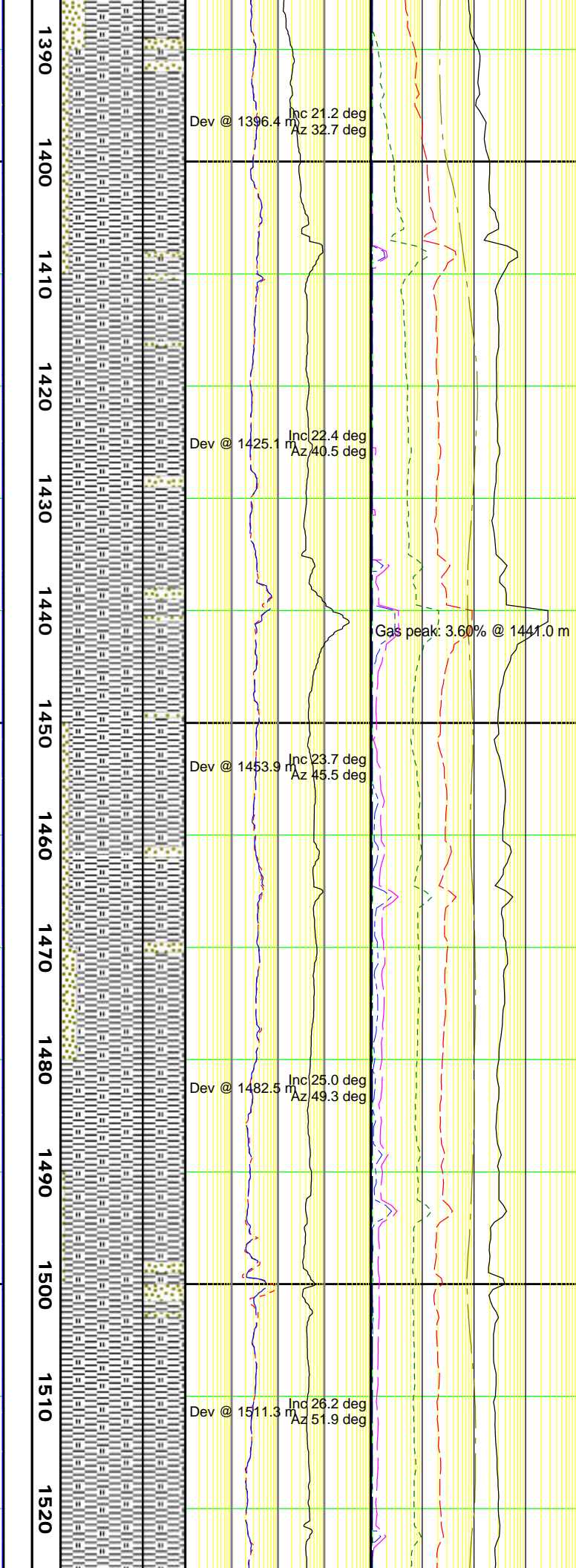
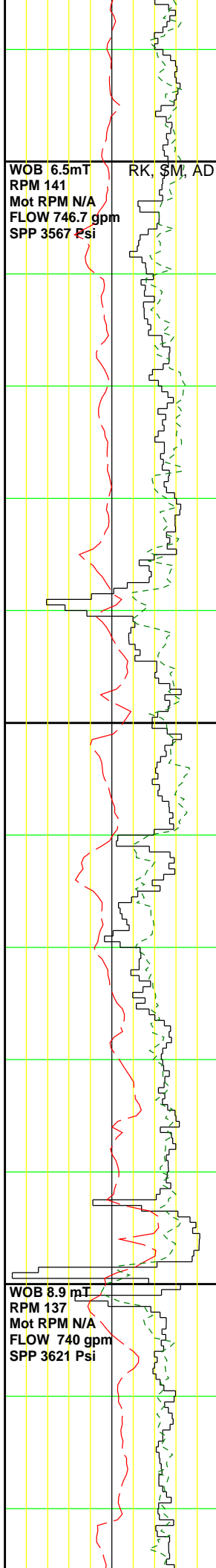


1324.0 - 1384.0 mMDRT  
SILTY CLAYSTONE interbedded  
with SANDSTONE.  
SILTY CLAYSTONE (0 - 95%):  
brnsh gy - olv gy, lt - med gy, sft,  
sbbly - amor, 20 - 30% slt, 5 -  
15% v f sd, tr - mntr glauc, tr nod  
pyr, tr carb spks.  
SANDSTONE (5 - 100%): clr,  
trans, wh, pred lse, v f - med, pred  
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

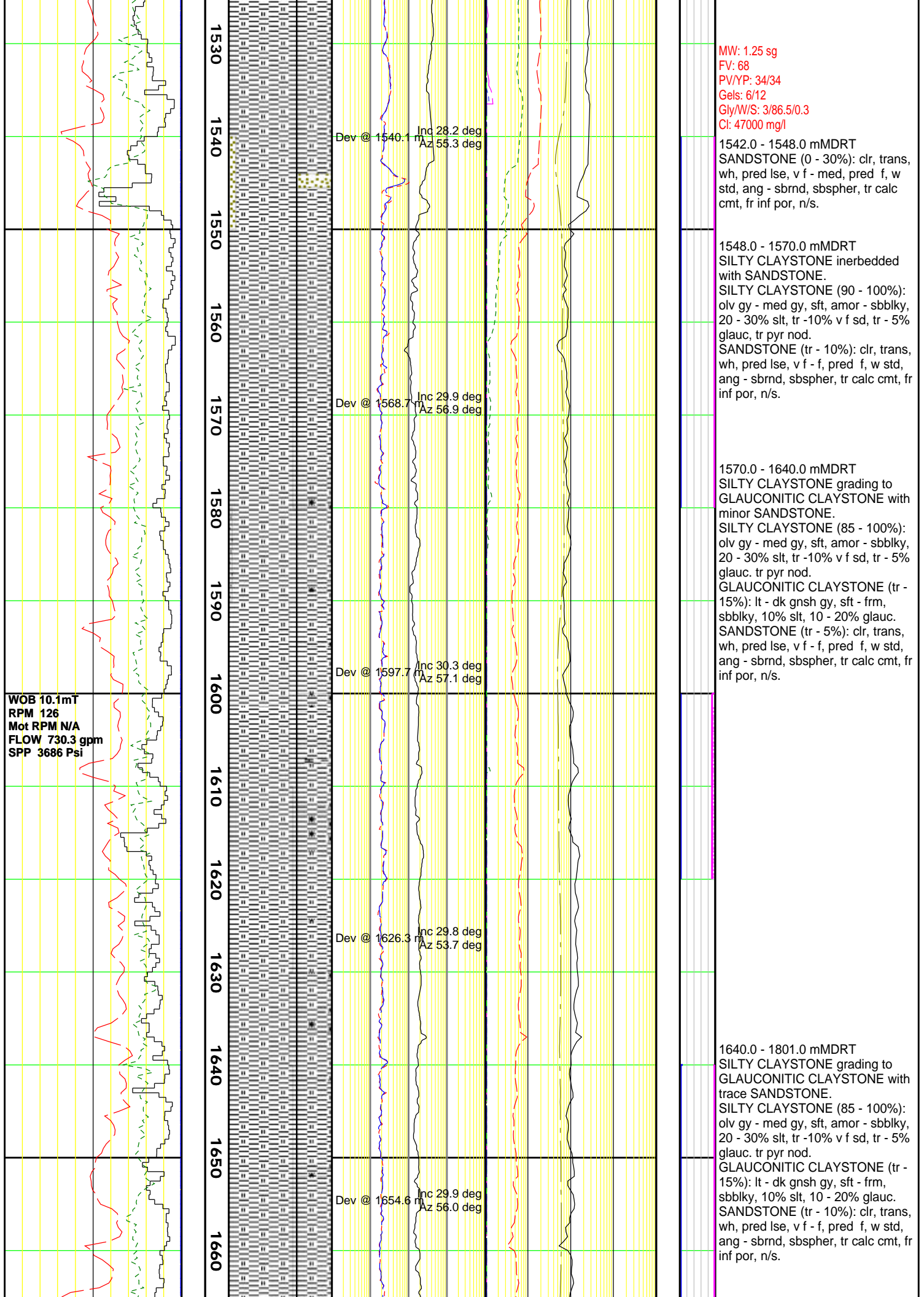


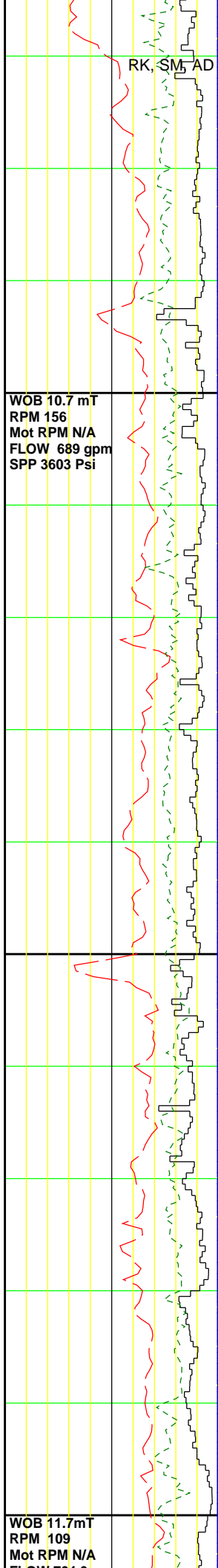


1384.0 - 1460.0 mMDRT  
SILTY CLAYSTONE with trace SANDSTONE.  
SILTY CLAYSTONE (70 - 100%): olv gy - med gy, sft, amor - sbbiky, 20 - 30% slt, tr v f sd, rr mmic, tr - 5% glauc.  
SANDSTONE (0 - 30%): clr, trans, wh, pred lse, v f - med, pred f, w std, ang - sbrnd, sbspher, tr calc cmt, tr nod pyr, 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.







1670 1680 1690 1700 1710 1720 1730 1740 1750 1760 1770 1780 1790 1800

Dev @ 1683.4 m Inc 30.1 deg  
Az 56.2 deg

Dev @ 1712.4 m Inc 29.9 deg  
Az 55.4 deg

Dev @ 1741.0 m Inc 30.2 deg  
Az 53.8 deg

Dev @ 1769.5 m Inc 29.9 deg  
Az 53.8 deg

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.

