HALLIBURTON

Sperry Drilling Services

RIG MONITORING

FORMATION EVALUATION LOG SCALE 1:500

Company	: **Woodside Energy Ltd**
Rig	: **Ocean Patriot**
Well	: **Halladale-1 DW2**
Field	: **Halladale**
Country	: **Australia**
DOE Number	:

Country : **Australia**
Field : **Halladale**
Location : **Lat: 38° 34' 45.54" South**
Long: 142° 43' 50.95" East
Well : **Halladale-1 DW2**
Company : **Woodside Energy Ltd**
Rig : **Ocean Patriot**

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** Elevation : **0.00 m**
Log Measured From : **Drill Floor** **21.50 m** Above Permanent Datum
Drilling Measured From : **Drill Floor**

Elev. KB **0.00 m**
DF **21.50 m**
GL **0.00 m**
WD **44.80 m**

Depth Logged : **66.30 m** To **1,941.00 m** Unit No. : **197** Job No. : **AUFE0003325468**
Date Logged : **10-Apr-05** To **17-Apr-05**
Total Depth MD : **1,941.00 m** TVD : **1,879.96 m** Plot Type : **Final**
Spud Date : **10-Apr-05** Plot Date : **28-Jun-05**

Run No.	Borehole Record (MD) Size	From	To
1	914.000 mm	66.30 m	69.00 m
2	444.000 mm	69.00 m	101.00 m
3	444.000 mm	101.00 m	427.00 m
4	311.000 mm	427.00 m	839.00 m
5	216.000 mm	839.00 m	853.00 m
6	216.000 mm	853.00 m	1,514.00 m
7	216.000 mm	1,514.00 m	1,808.00 m
8	216.000 mm	1,808.00 m	1,835.00 m
9	216.000 mm	1,835.00 m	1,941.00 m

Run No.	Borehole Record (MD) Size	From	To

Casing Record (MD) Size	Weight	From	To
762.000 mm	458.00 kgpm	SURFACE	99.50 m
340.000 mm	101.00 kgpm	SURFACE	421.00 m
244.000 mm	70.00 kgpm	SURFACE	834.00 m

LEGEND

Abbreviations and Symbols

Drilling Data

BG	Background Gas
BHT	Bottomhole Temp
C	Carbide Test
CB	Core Bit
CG	Connection Gas
CKF	Check For Flow
CO	Circulate Out
DB	Diamond Bit
DC	Depth Correction
DS	Direction Survey
DST	Drillstem Test
FLT	Flowline Temp.
LAT	Logged After Trip
NB	New Bit
NR	No Returns
PDC	Polycrystalline Diamond Compound Bit
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

Mud Data

Cl-	Chloride Ion Conc
FC	Filter Cake
FL	Filtrate Loss
G	Gels
pH	Hydrogen Ion Content
PV	Plastic Viscosity
Rm	Mud Resistivity
Rmf	Filtrate Resistivity
S	Solids Content
Vis	Funnel Viscosity
MW	Mud Weight
YP	Yield Point

Engineering Data

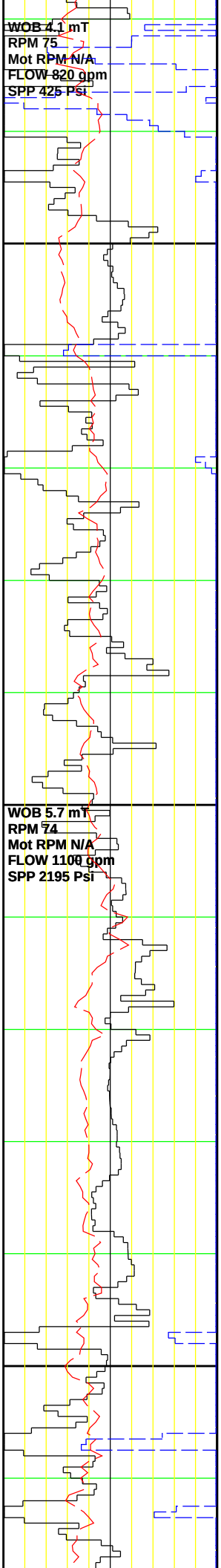
Core No.
Water
DST No.
Salt Water
Casing Seat
Fresh Water
Side Wall Core
Hydrocarbons Smell
Gas Traces
H2S Smell
Gas
RFT Interval Tester
Oil Traces
E-LOG Wireline Log Run
Oil
LOT Leakoff Test
Pressure Integrity

Lithology Symbols

Sandstone
Sandy Claystone
Calcareous Sandstone
Silty Claystone
Glauconitic Sandstone
Calcarenite
Silty Sandstone
Argillaceous Calcarenite
Argillaceous Sandstone
Sandy Calcarenite
Siltstone
Calcisiltite
Sandy Siltstone
Calcilutite
Argillaceous Siltstone
Argillaceous Calcilutite
Claystone
Limestone
Clacareous Claystone
Dolomite

Bitumen PIT Test

GAMMA (api) 0–150 / WOB (klb) 0–20–40 / ROP (m/hr) 100–50–0 / ROP WRAP (m/hr) 200–150–100	CORE	DEPTH mMDRT 1:500	LITHOLOGY CUTTINGS	INTERPRETED LITHOLOGY	RESISTIVITY (SHALLOW) 0.1 ohm-m 1K / RESISTIVITY DEEP 0.1 ohm-m 1K / TOTAL GAS % 0.001–10	CHROMATOGRAPH METHANE % / ETHANE % / PROPANE % / ISO-BUTANE % / N-BUTANE % / ISO-PENTANE % / N-PENTANE% 0.001–10 / CO2 % 0.001–10	OIL FLUORESCENCE PFG	CALCITE % 0–100 / DOLOMITE % 100–0	REMARKS
Norman Naidoo - Data Engr. Bronwyn Calleja - Data Engr. Sam Willis - Data Engr. Tony Wyeth - Data Engr. Jamie Connell - M/logger. Devalpally Vidyanath - M/logger. Steve McDonald - M/logger. Murali Viswanathan - Catcher. Adnan Chohan - Catcher.		0 30 40							
22/03/05 Bit 1RR2 914mm 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 NN, JC BC, JC 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: 5.0 Bit Grading: 1-1-NO-A-E-I-NO-TD		50 60 70 80 90			Dev @ 66.3 m Inc 0.0 deg Az 0.0 deg				Latitude: 38° 34' 45.54" S Longitude: 142° 43' 50.95" E Easting: 650 763.2 Northing: 5 728 485.2 Datum: GDA94 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 Spud with Seawater and Gel Sweeps 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)
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 NN, JC		100 110 120			Dev @ 128.1 m Inc 0.7 deg				Drill with Seawater and Guar/Gel Sweeps Returns to sea floor Start drilling 445 mm (17½") hole 12:40 hrs 24/03/2005 @ 101.0 mMDRT.



130 140 150 160 170 180 190 200 210 220 230 240 250 260

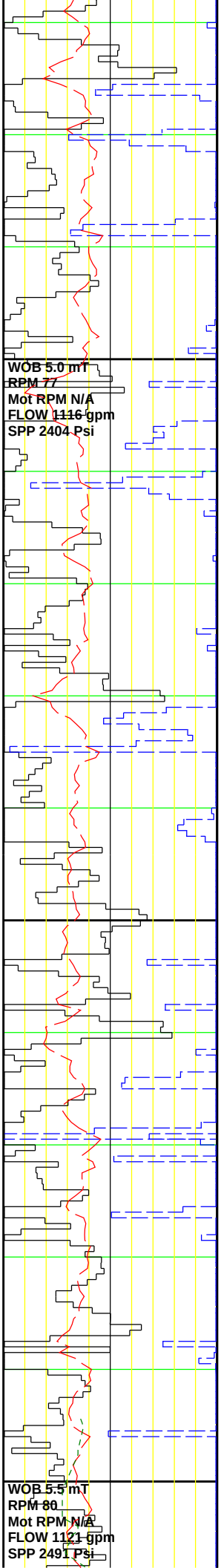
Dev @ 128.1 m Inc 0.5 deg Az 6.7 deg

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

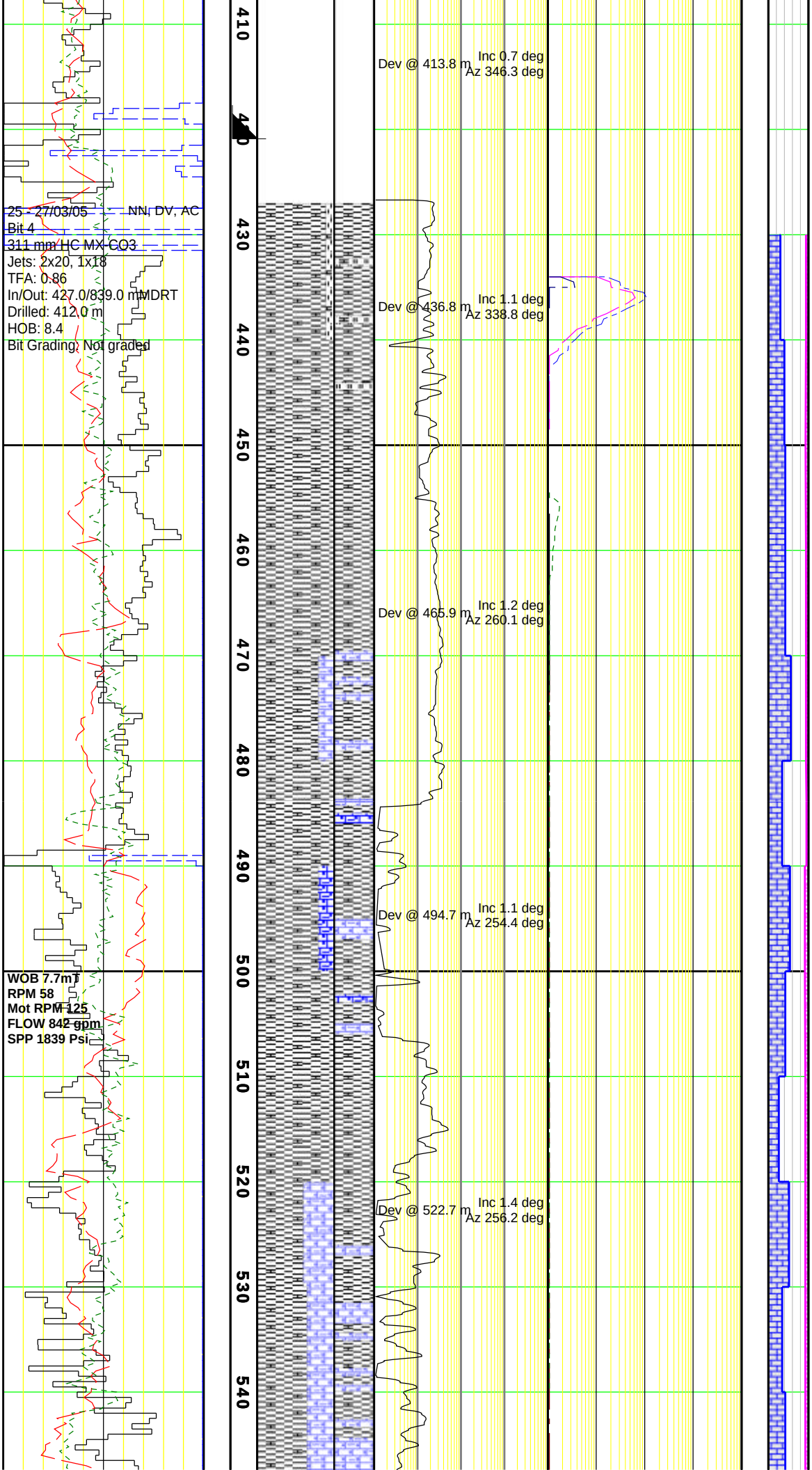
Dev @ 356.4 m Inc 0.6 deg Az 10.6 deg

Dev @ 385.0 m Inc 0.7 deg Az 350.3 deg

Drill with Seawater and Guar/Gel Sweeps
Returns to sea floor

Displaced hole to unweighted Gel mud at TD.

Section TD 445 mm (17½") hole section @ 427.0 mMDRT (427.0



mTVD).
Set 340 mm csg at 421.0 m MDRT (420.98 mTVD).

Start drilling 311 mm (12¼") hole 13:10 hrs 27/03/2005 @ 427.0 mMDRT
Drilled to 430.0 mMDRT, Performed FIT to 1.50 sg @ 421.0 mMDRT.

Drill with AQUA-DRILL mud system

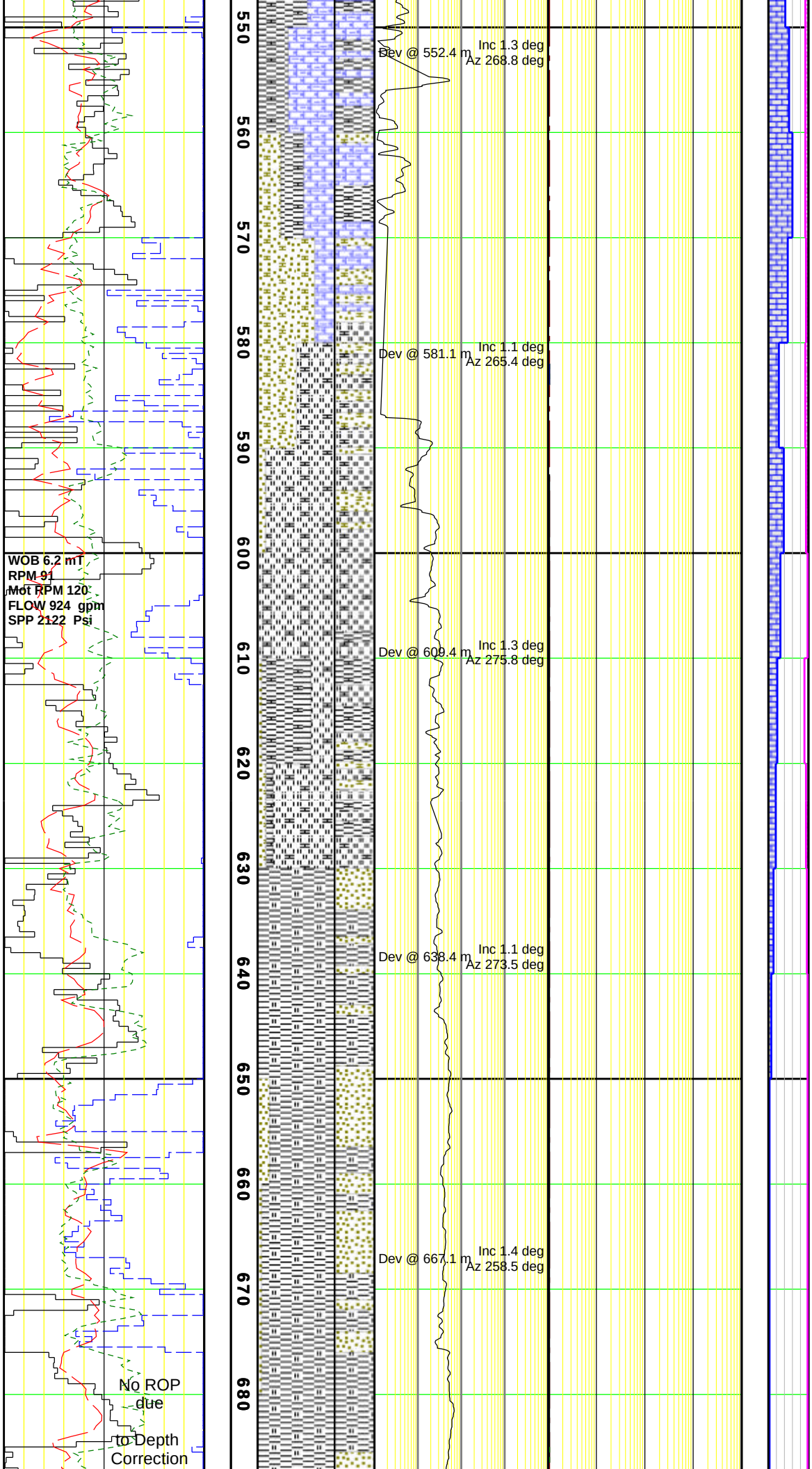
427.0 to 490.0 mMDRT
Interbedded CALCAREOUS CLAYSTONE and CALCAREOUS SILTY CLAYSTONE interbedded with minor CALCAREOUS SILTSTONE and localised ARGILLACEOUS CALCILUTITE.
CALCAREOUS CLAYSTONE (40 - 100%): med gnsh gy - lt gn, v lt gy i.p., sft - v sft, amor - sbfiss, 35% calc cly, 65% sil cly, 15% foss frag, tr mmic, tr glauc i.p..
CALCAREOUS SILTY CLAYSTONE (10 - 60%): wh - v lt gnsh gy, v sft, amor, disp, 30% calc cly, 10% calc slt, 30% sil cly, 30% sil slt.
CALCAREOUS SILTSTONE (10%): med gnsh gy - dk gnsh gy, sft - frm, sbblky - 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.

MW: 1.11 sg
FV: 55
PV/YP 20/32
Gels: 7/11
Gly/W/S: 3.2/92/4.8
Cl: 45000 mg/l

490.0 - 499.0 mMDRT
CALCAREOUS CLAYSTONE with minor ARGILLACEOUS CALCARENITE interbeds.
CALCAREOUS CLAYSTONE (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.
ARGILLACEOUS CALCARENITE (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.
CALCAREOUS CLAYSTONE (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.
CALCAREOUS CLAYSTONE (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 olv gy, med gy - olv gy, sft - v sft,

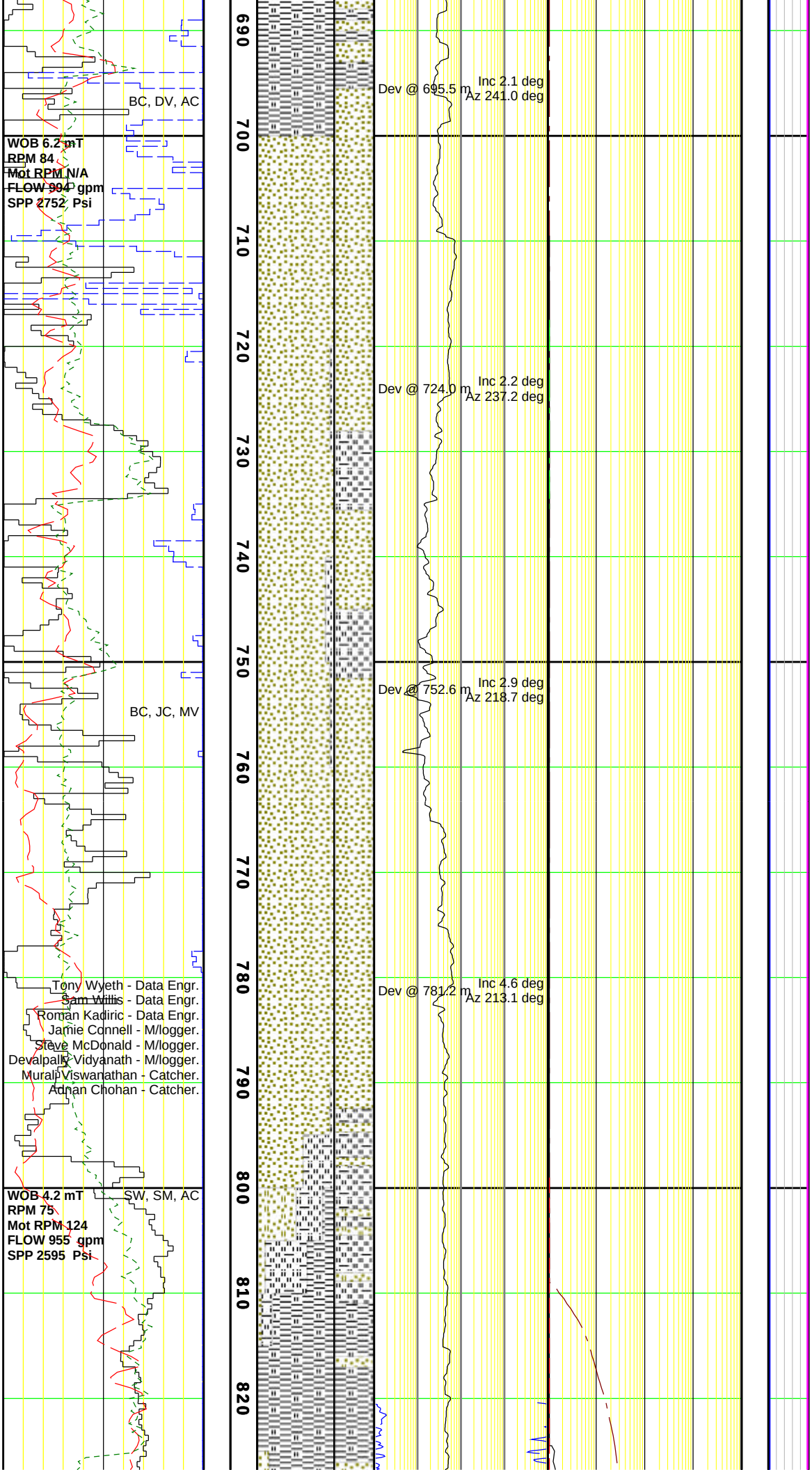


disp, 50% calc cly, 20% calc slt, 10% calc sd, 20% sil slt, mnr foss frag, tr glauc.

561.0 - 629.5 mMDRT
Interbedded CALCAREOUS SANDSTONE, CALCAREOUS ARGILLACEOUS SILTSTONE, CALCAREOUS SILTY CLAYSTONE with minor SIDERITIC CALCILUTITE and SIDERITIC SANDSTONE.
CALCAREOUS SANDSTONE (0 - 60%): lt brn, lt orng brn, sft - frm, disp - sbblky, 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, mnr cal cmt, tr sid cmt, mod - gd vis por, n/s.
CALCAREOUS, ARGILLACEOUS SILTSTONE (0 - 100%): med lt gy - gnsh gy, lt olv gy, sft, disp, 30% calc cly, 10% calc slt, 10% sil cly, 50% sil slt, tr sil sd, tr glauc.
CALCAREOUS, SILTY CLAYSTONE (0 - 40%): lt olv gy, med gy - olv gy, sft - v sft, disp, 30% calc cly, 10% calc slt, 30% sil cly, 30% sil slt, tr sil sd, tr glauc, tr foss frag.
CALCAREOUS, ARGILLACEOUS SILTSTONE (2) (0 - 40%): med lt gy - gnsh gy, sft, sbblky, 20% calc cly, 20% calc slt, 20% sil cly, 40% sil slt.
SIDERITIC CALCILUTITE (0 - 10%): v pa orng, mod rdsh orng - lt brn, frm - mod hd, blky - sbblky, 80% calc cly, 15% sil slt, 5% sil sd.
SIDERITIC SANDSTONE (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, mnr sid cmt, tr foss frag, pr - fr vis por, n/s.

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 - sbblky, tr calc cly, 65% sil cly, 35% sil slt.
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, 70% sil sd, abdt sil cmt, pr 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

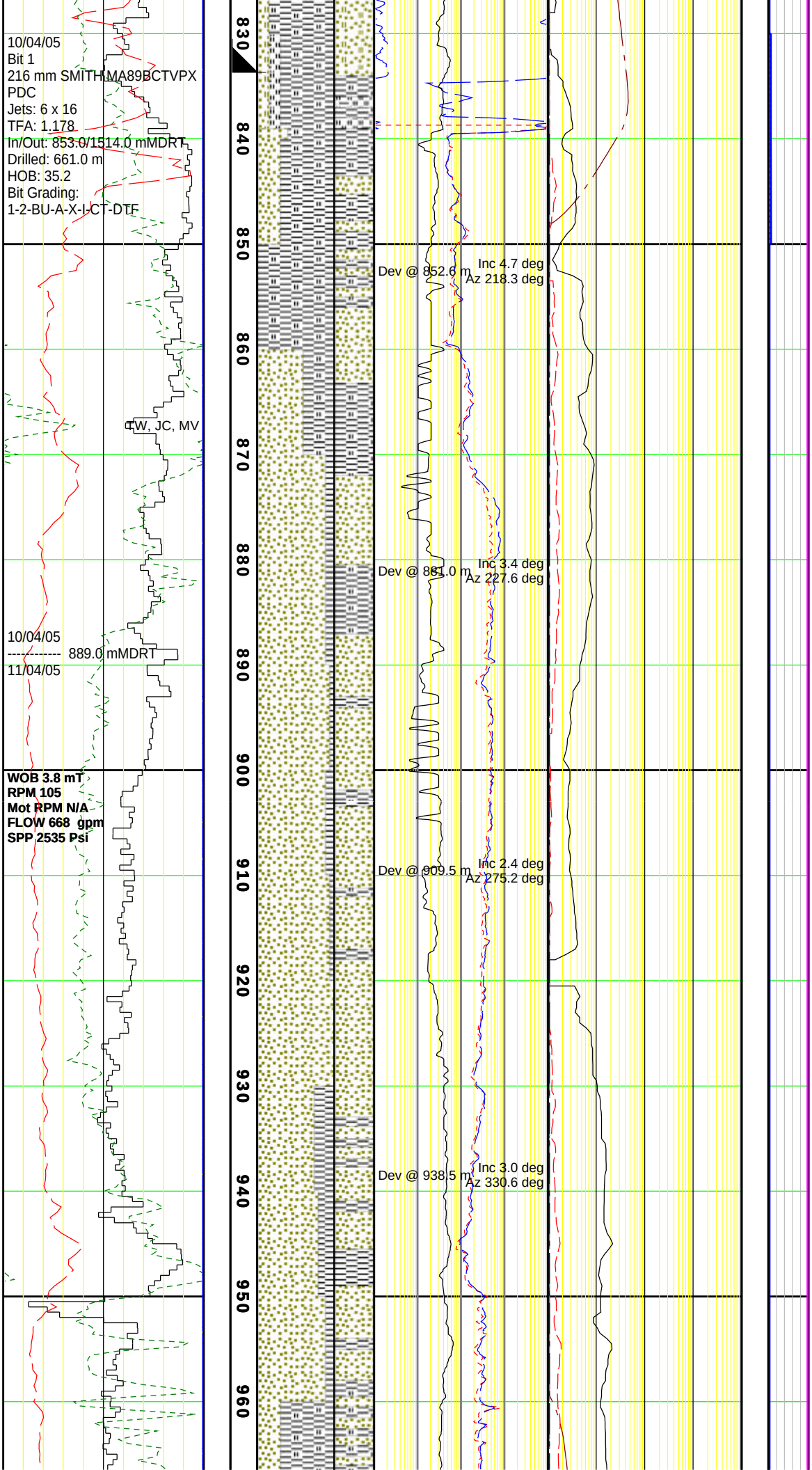


700.0 - 801.5 mMDRT
SANDSTONE with minor interbedded ARGILLACEOUS SILTSTONE.
SANDSTONE (90 - 100%): clr, trnsl, v lt gy, v lt brn, lse, frm - mod hd aggr, f - v cse gr, pred med - cse, pr - mod std, sbang - sbrnd, sbspher, tr sil cmt, tr pyr cmt, tr - rr qtz ovgwth, tr pyr nod, fr - gd vis por, n/s.
ARGILLACEOUS SILTSTONE (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.

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 brsh 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, trnsl, 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.

Section TD 311 mm (12¼") hole section @ 839.0 mMDRT (838.6 mTVD).
Set 244 mm csg at 834.0 mMDRT (833.6 mTVD).

Start drilling Halladale 1 DW1



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 mMDRTwhere the sidetrack to Halladale-1 DW2 was confirmed.

MW: 1.25 sg
FV: 63
PV/YP 34/27
Gels: 4/20
Gly/W/S: 3/87/12
Cl: 46000 mg/l

Started Side tracking 216 mm (8½") hole 21:30 hrs 10/04/2005 @ 853.0 mMDRT

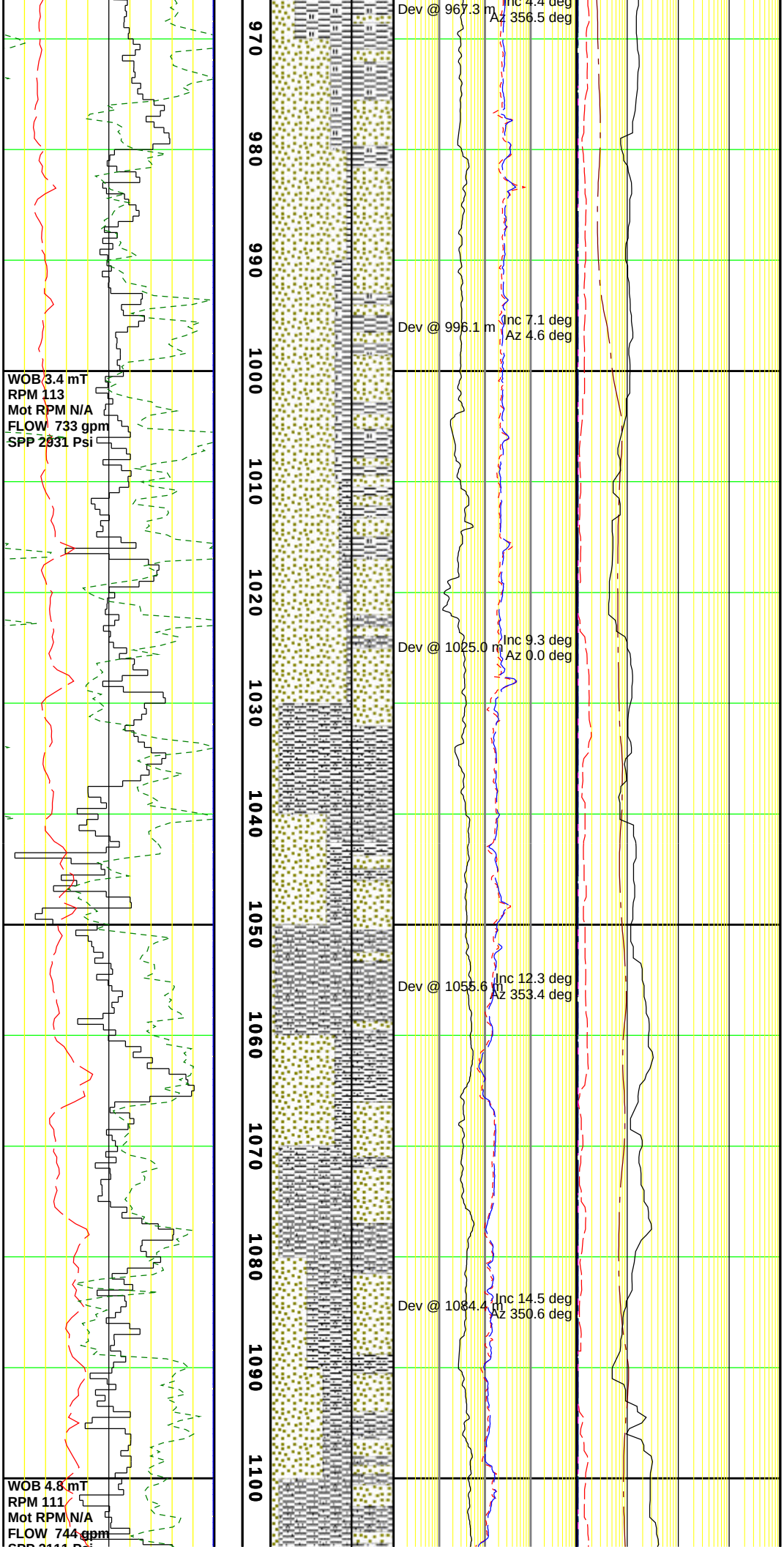
853.0 - 886.0 mMDRT
Interbedded SILTY CLAYSTONE and SANDSTONE.
SILTY CLAYSTONE (60 - 70%): lt olv gy - olv gy, grnsh gy, brnsh gy. sft - frm, amor, 30% slt, 10% v f sd, tr - rr dk grn glauc, tr rd lith i.p..
SANDSTONE (30 - 40%): clr, trnsl, lt gy - lt brn, pa orng brn, lse mod hd aggr, f - cse gr, pred 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 vis por, no shows.
SILTY CLAYSTONE (0 - 10%): brnsh gy - med gy, med gnsh gy i.p., sft - frm, occ mod hd, amor - sbblky, 30% slt, 10% sdy, tr glauc, tr mmic.

Collect Isotube samples every 50 m from 900.0 m MDRT.

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 ovgwth, rr nod pyr, tr rd lith, m por, no shows.
SILTY CLAYSTONE (10 - 70%): lt - med olv gy i.p., lt - med gy, sft - frm

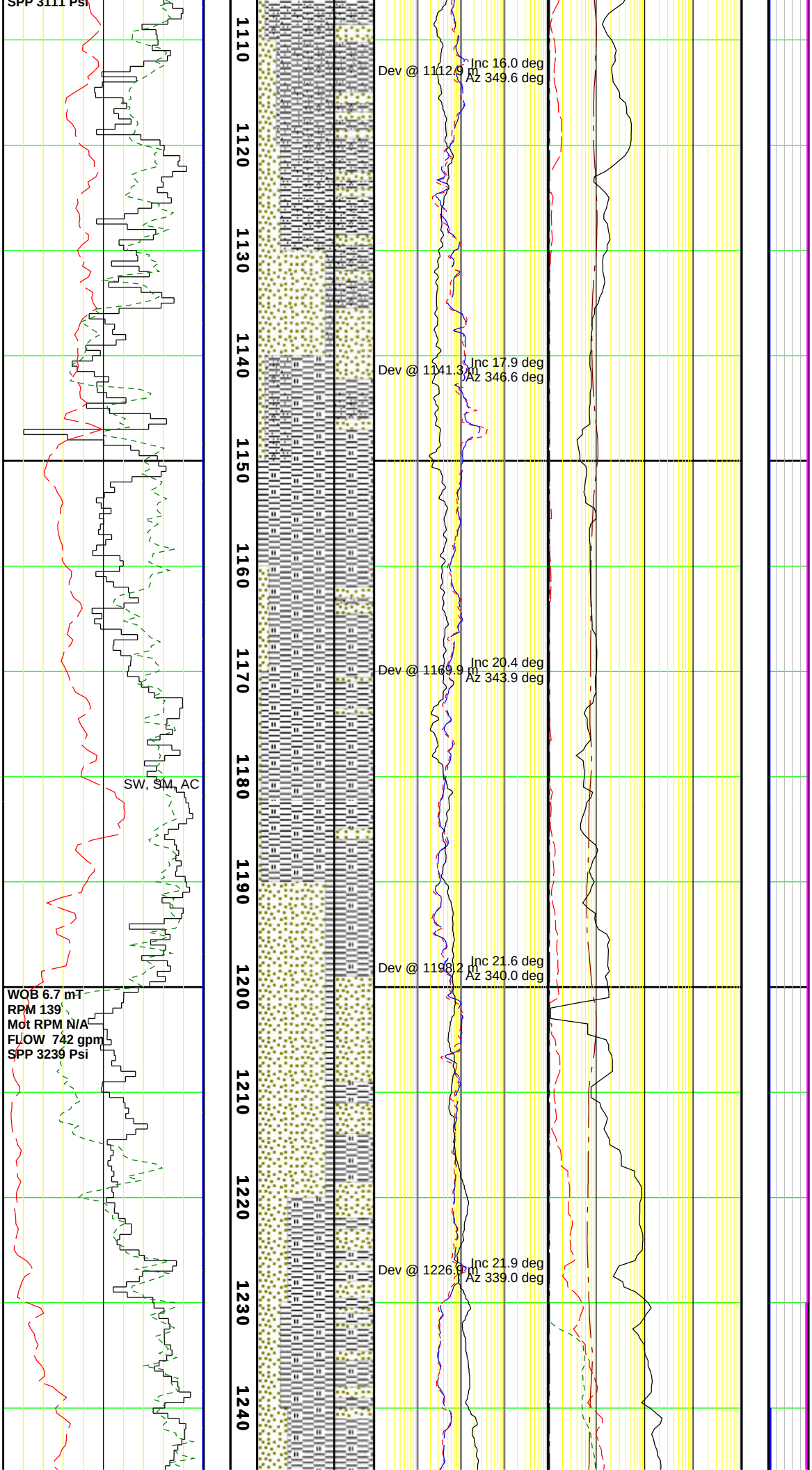


med olv gy i.p., lt - med gy, slt - frm, sbblky, 30% slt, 10 - 20% v f - f sd, rr carb, tr - rr mmic.

975.0 - 1018.0 mMDRT
SANDSTONE with common interbedded SILTY CLAYSTONE.
SANDSTONE (75 - 95%): clr, trans, lt yelsh brn i.p., lse, v f - cse, pred f - med, m - w std, ang - sbrnd, sbspher, tr - rr sil cmt, tr calc cmt i.p., tr rd lith, m - w por, no shows.
SILTY CLAYSTONE (5 - 25%): olv gy - lt olv gy, lt - med gy, lt yelsh brn - off wh, sft - frm, sbblky, 30% slt, 10 - 15% sdy, tr - rr glauc, tr carb, tr rd lith.

1018.0 - 1090.0 mMDRT
Interbedded SANDSTONE and SANDY CLAYSTONE.
SANDSTONE (5 - 95%): clr, trans, lt orng, lse, v f - cse, pred med, m - w std, sbang - sbrnd, sbspher, rr sil cmt, tr glauc, tr lith, tr pyr, m - w por, no shows.
SANDY CLAYSTONE (5 - 95%): olv gy - lt olv gy, v lt - med gy, brnsh gy i.p., gnsh gy i.p., sft - frm, sbblky, 20 - 30 % v f - f qtz gr, 10 - 20% slt, tr - rr glauc, tr - loc rr carb spec, tr rd lith, tr mmic.

1090.0 - 1145.5 mMDRT
Interbedded SANDSTONE and SANDY CLAYSTONE.
SANDSTONE (5 - 95%): clr, trans, lt orng, lse, v f - cse, pred med, m - w std, sbang - sbrnd, sbspher, rr sil cmt, tr glauc, tr lith, tr pyr, w por, no shows.
SANDY CLAYSTONE (5 - 95%): olv gy - lt olv gy, v lt - med gy, brnsh gy

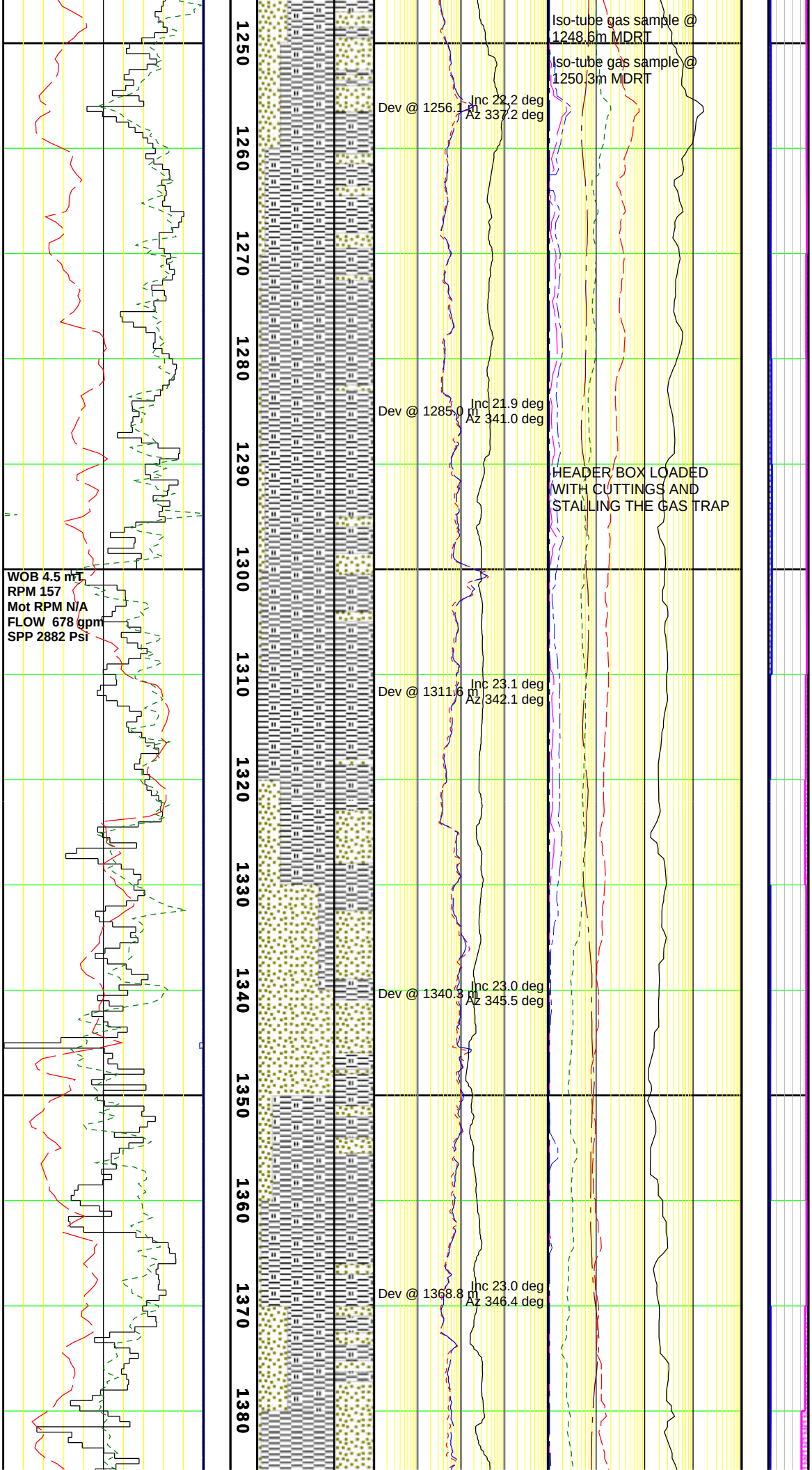


i.p., gnsh gy i.p., sft - frm, sbblky, 20 - 30 % v f - f qtz gr, 10 - 20% slt, tr - rr glauc, tr - loc rr carb spks, tr rd lith, tr mmic.

Recalibrated RPM to match GeoPilot rather than rigfloor.

1145.5 - 1265.0 mMDRT
SILTY CLAYSTONE interbedded with SANDSTONE.
SILTY CLAYSTONE (5 - 100%): brnsh gy - olv gy, lt - med gy, 20 - 30% slt, 5 - 15% vf sdy, tr - mnr glauc, 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 mtx, tr calc cmt, tr - mnr nod pyr, tr rd lith, m por, n/s.

Run Carbide @ 1237.0 m
Theor Ann Vol = 260 bbls
Act Ann Vol = 281 bbls
Ave Hole dia = 239 mm (9.41")

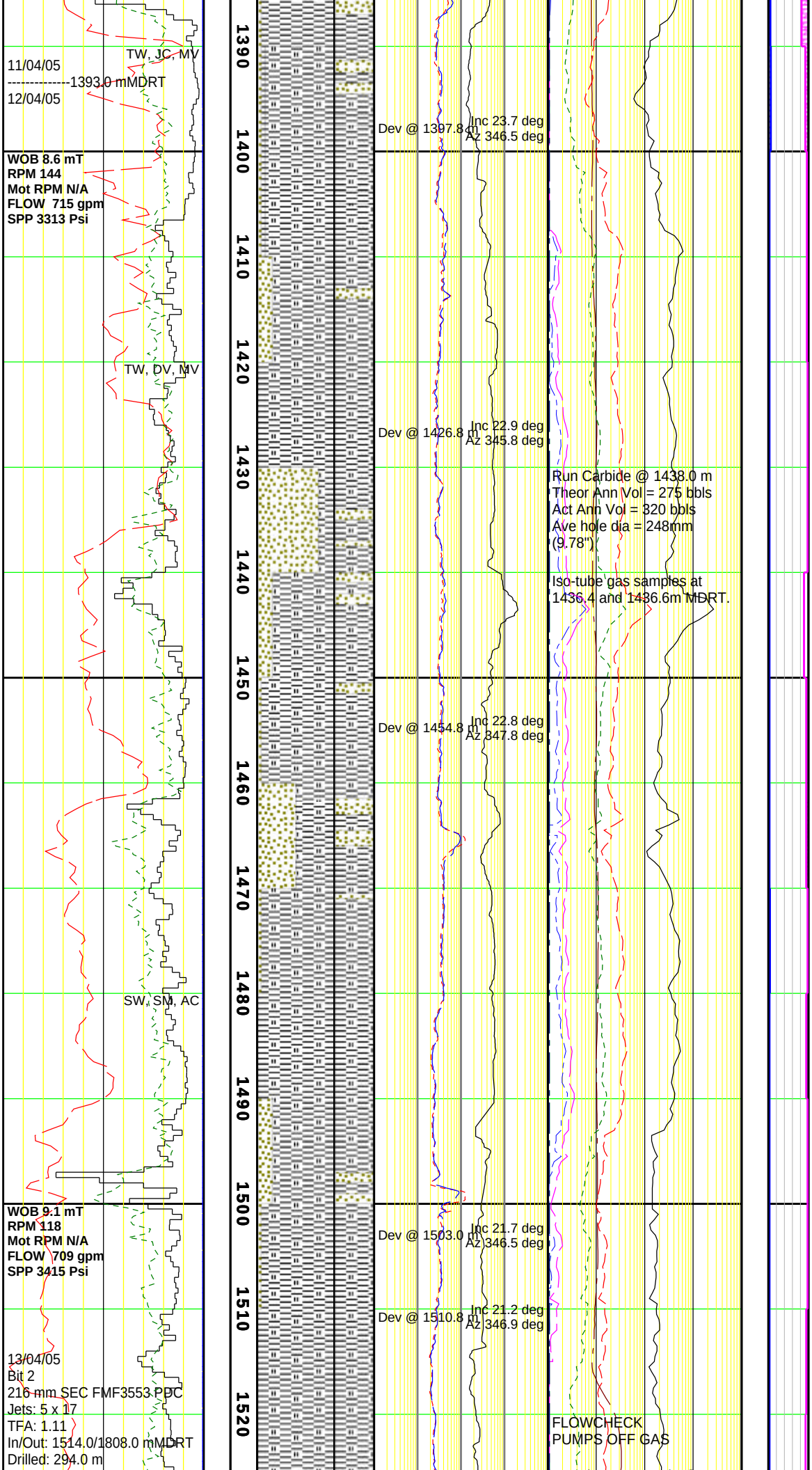


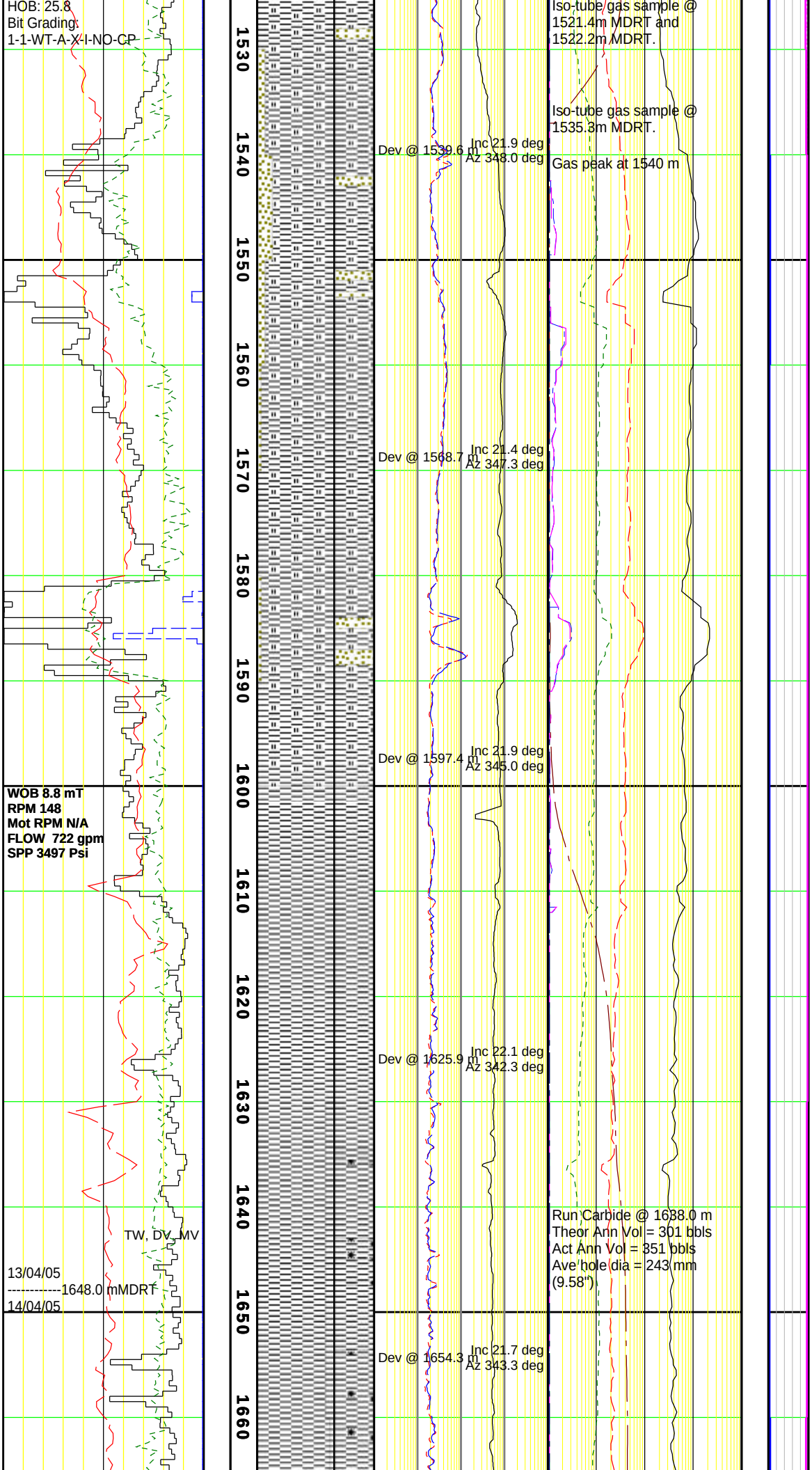
1265.0 - 1324.0 mMDRT
SILTY CLAYSTONE with minor SANDSTONE beds.
SILTY CLAYSTONE (90 - 100%): brnsh gy - olv gy, lt - med gy, sft, sbblky - amor, 20 - 30% slt, tr v f sd, tr glauc, tr nod pyr, tr carb spks.
SANDSTONE (tr - 10%): clr, trans, wh, pred lse, v f - cse, pred f, m std, ang - sbrnd, sbspher, tr cly mtx, tr calc cmt, tr - mnr nod pyr, tr rd lith, m por, n/s.

1324.0 - 1386.0 mMDRT
SILTY CLAYSTONE interbedded with SANDSTONE.
SILTY CLAYSTONE (0 - 95%): brnsh gy - olv gy, lt - med gy, sft, sbblky - amor, 20 - 30% slt, 5 - 15% v f sd, tr - mnr 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: 1.25 sg
FV: 69
PV/YP 41/40
Gels: 5/17
Gly/W/S: 3/86/11
Cl: 50000 mg/l

1386.0 - 1431.0 mMDRT


TW, JC, MV
11/04/05
----------1393.0 mMDRT
12/04/05
WOB 8.6 mT
RPM 144
Mot RPM N/A
FLOW 715 gpm
SPP 3313 Psi
TW, DV, MV
SW, SM, AC
WOB 9.1 mT
RPM 118
Mot RPM N/A
FLOW 709 gpm
SPP 3415 Psi
13/04/05
Bit 2
216 mm SEC FMF3553 PDC
Jets: 5 x 17
TFA: 1.11
In/Out: 1514.0/1808.0 mMDRT
Drilled: 294.0 m
1390
1400
1410
1420
1430
1440
1450
1460
1470
1480
1490
1500
1510
1520
Dev @ 1397.8 m
Inc 23.7 deg
Az 346.5 deg
Dev @ 1426.8 m
Inc 22.9 deg
Az 345.8 deg
Dev @ 1454.8 m
Inc 22.8 deg
Az 347.8 deg
Dev @ 1503.0 m
Inc 21.7 deg
Az 346.5 deg
Dev @ 1510.8 m
Inc 21.2 deg
Az 346.9 deg
Run Carbide @ 1438.0 m
Theor Ann Vol = 275 bbls
Act Ann Vol = 320 bbls
Ave hole dia = 248mm
(9.78")
Iso-tube gas samples at
1436.4 and 1436.6m MDRT.
FLOWCHECK
PUMPS OFF GAS
1386.0 - 1431.0 mMDRT
Interbedded SILTY CLAYSTONE
and CLAYSTONE with trace
SANDSTONE stringers.
SILTY CLAYSTONE (80 - 100%):
olv gy - lt olv gy i.p., sft, amor, 25 -
35% slt, 5 - 10% v f sd, rr mmic.
CLAYSTONE (0 - 20%): lt yelsh brn
- lt brnsh gy, sft, amor, 10% slt, tr -
5% v f sdy, tr mmic.
SANDSTONE (0 - 20%): 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 por, n/s.
1431.0 - 1538.0 mMDRT
SILTY CLAYSTONE interbedded
with SANDSTONE.
SILTY CLAYSTONE (20 - 100%):
olv gy - lt olv gy i.p., sft, amor, 25 -
35% slt, 5 - 10% v f sd, rr carb spks.
SANDSTONE (0 - 80%): clr, trans,
wh, pred lse, v f - med, pred f, w std,
ang - sbrnd, sbspher, tr calc cmt, tr
glauc, m por, n/s.
MW: 1.25 sg
FV: 62
PV/YP 39/32
Gels: 4/17
Gly/W/S: 3/86/11
Cl: 50000 mg/l

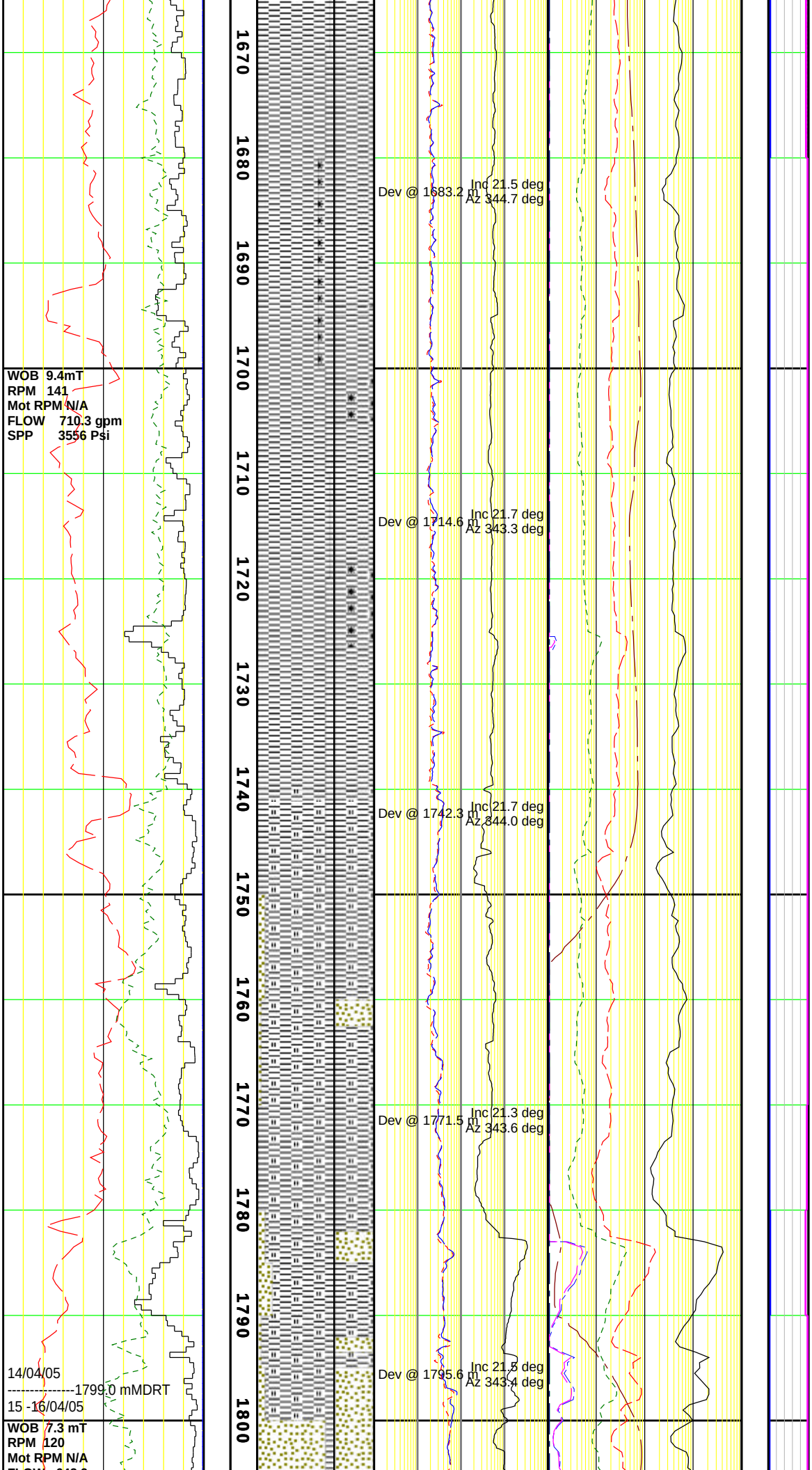


1538.0 - 1593.0 mMDRT
SILTY CLAYSTONE with minor SANDSTONE beds.
SILTY CLAYSTONE (80 - 100%): olv gy - med gy, 20% slt, tr - 10% v f sdy, tr nod pyr, tr glauc, sbblky - amor, sft.
SANDSTONE (0 - 20%): clr, trans, wh, pred lse, v f - med, pred f, w std, ang - sbrnd, sbspher, tr - mnr calc cmt, tr dol cmt i.p., p por, n/s.

1593.0 - 1630.0 mMDRT
CLAYSTONE.
CLAYSTONE (100%): lt - med gy, olv gy, tr - 10% slt, tr glauc, sbblky - amor, sft.

1630.0 - 1660.0 mMDRT
CLAYSTONE with interbedded SILTY CLAYSTONE and GLAUCONITIC CLAYSTONE with traces of SANDSTONE.
CLAYSTONE (90 - 100%): lt - med gy, olv gy, tr - 10% slt, tr glauc, sbblky - amor, sft. tr nod pyr
SILTY CLAYSTONE (0 - 10%): lt - dk gy, occ blksh, tr - 10% slt, tr glauc, sbblky - amor, sft. tr pyr
GLAUCONITIC CLAYSTONE (0 - 10%): lt - dk gnsh, tr - 10% slt, sbblky, mod hd
SANDSTONE (trace): wh, clr, trans, pred lse, med - cse, ang - sbang, tr calc cmt, fr, m por, no shows

1660.0 - 1740.0 mMDRT
CLAYSTONE with interbedded GLAUCONITIC CLAYSTONE and



traces of SANDSTONE.
CLAYSTONE (90 - 100%): lt - med gy, olv gy, tr - 10% slt, tr glauc, sbblky - amor, sft. tr nod pyr
GLAUCONITIC CLAYSTONE (0 - 10%): lt - dk gnsh, tr - 10% slt, sbblky, mod hd
SANDSTONE (trace): wh, clr, trans, pred lse, med - cse, ang - sbang, tr calc cmt, fr, m por, no shows

MW: 1.24 sg
FV: 58
PV/YP 32/28
Gels: 5/19
Gly/W/S: 3/86/11
Cl: 48000 mg/l

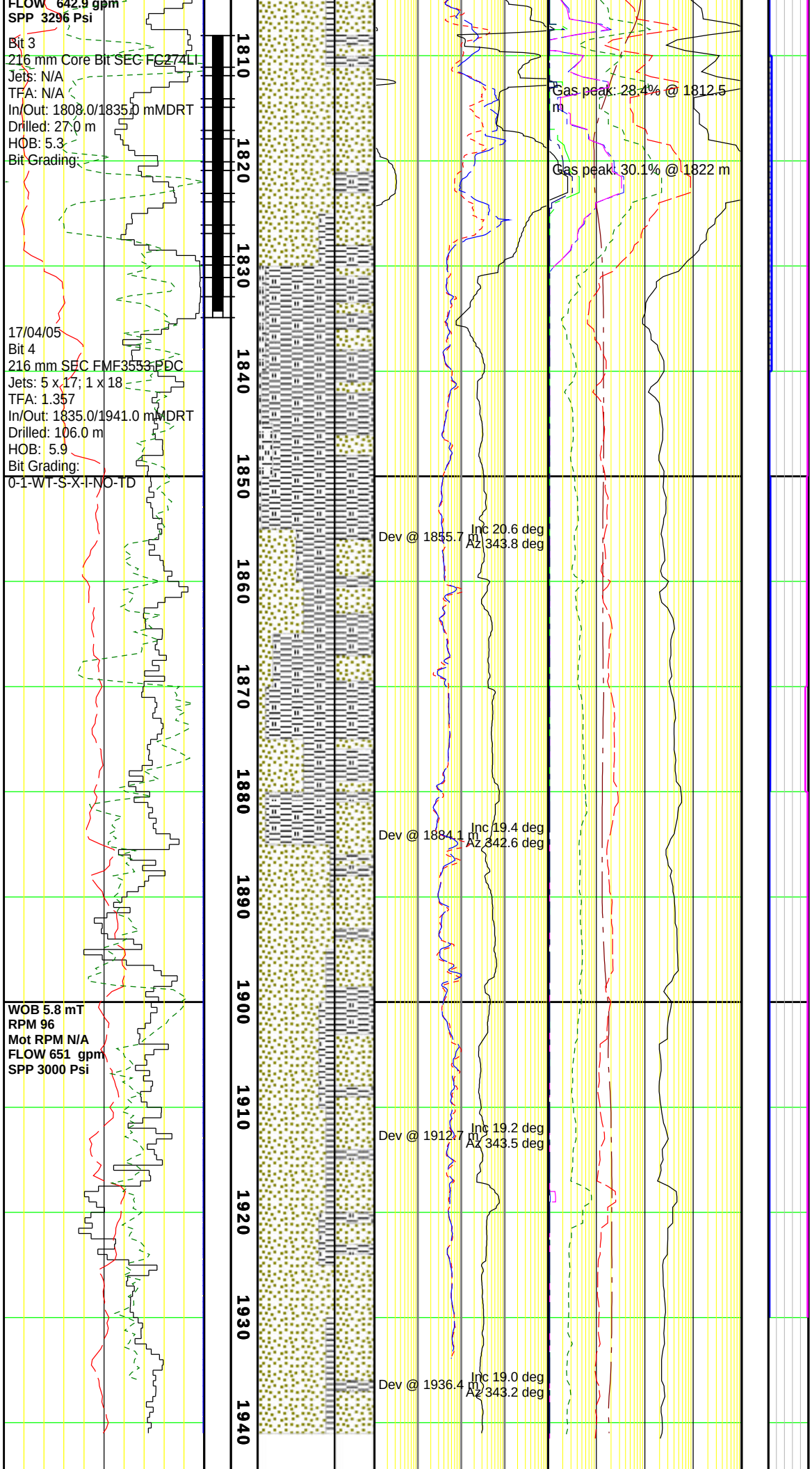
1740.0 - 1770.0 mMDRT
SILTY CLAYSTONE with interbedded GLAUCONITIC CLAYSTONE and traces of SANDSTONE.
SILTY CLAYSTONE (90 - 100%): grnsh gy - olv gy, 10 - 20% slt, tr - 20% glauc, sbblky - amor, sft.
GLAUCONITIC CLAYSTONE (0 - 10%): lt - dk gnsh, tr - 10% slt, sbblky, mod hd
SANDSTONE (trace): wh, clr, trans, pred lse, vf - med, ang - sbang, tr - 15% calc cmt, m - p por, n/s.

Run Carbide @ 1780.8 m
Theor Ann Vol = 416 bbls
Act Ann Vol = 489.5 bbls
Ave hole dia = 250 mm (9.83")

1770.0 - 1795.0 mMDRT
SILTY CLAYSTONEwith SANDSTONE beds.
SILTY CLAYSTONE (80 - 100%): lt - med gy, olv gy, 10 - 20% slt, tr glauc, sbblky - amor, sft.
SANDSTONE (tr - 100%): wh, clr, trans, pred lse, vf gr, w std, sbang - sbrnd, 20% calc cmt, fri, tr glauc, mod hd, p por, n/s.

Control drill from 1789.0 mMDRT

1795.0 - 1805.0 mMDRT
SANDSTONE with SILTY CLAYSTONE beds.
SANDSTONE (80 - 90%): wh, clr, trans, occ yelsh gy, vf gr, w std, sbang - sbrnd, 20% calc cmt, fri, tr glauc, mod hd, p por, n/s.
SILTY CLAYSTONE (10 - 20%): lt - med gy, olv gy, 10 - 20% slt, tr glauc, sbblky - amor, sft. tr nod pyr.



Cut Core from 1808.0 m MDRT (1755.0 m TVD).
Core#1: 1808.0 - 1835.0 mMDRT
Recovered: 25.4 m (94.0%)

1805 - 1828.0 mMDRT
SANDSTONE with minor SILTY CLAYSTONE and trace of SILTSTONE beds.
(NO SAMPLE BETWEEN 1811 - 1818 AS RIG LOST POWER)
SANDSTONE (90 - 100%): lt gy, trans, lse, ang - sbrnd, p - m std, slightly elong - lightly sph, tr sil cly mtx, 100% sil sd, 30% med gr, 60% cse gr, tr carb partings, 20% inf por, n/s.
SILTY CLAYSTONE (tr - 10%): brnsh gy, occ mass gy, tr lt brn, sft - mod hd, sbblky - mass, 80% sil cly, 20% sil slt, rr glauc, tr carb partings.
SILTSTONE (tr): brnsh gy, rr olv gy, rr gnsh brn, frm - mod hd, sbblky - mass, 10% sil cly, 90% sil slt, tr glauc, tr pyr, tr carb partings.

1828.0 - 1870.0 mMDRT
SILTY CLAYSTONE interbedded with ARGILLACEOUS SILTSTONE and SANDSTONE.
SILTY CLAYSTONE (40 - 100%):med - lt gy, 10 - 30% slt, tr glauc, sbblky - amor, sft.
ARGILLACEOUS SILTSTONE (0 - 20%): dk gy, 20% sil cly, 80% sil slt, tr - 20% glauc, sbblky, frm

SANDSTONE (0 - 60%): lt gy, wh, clr, trans, lse, sbang - sbrnd, m - w std, sbelong - sbspher, 80% vf gr, 10% f gr, 10% med gr, tr cse gr, tr pyr, vis por, n/s.

1870.0 - 1941.0 mMDRT
SANDSTONE with SILTY CLAYSTONE beds.
SANDSTONE (10 - 100%): off wh, gnsh wh i.p., pred lse, 50 - 80% rk flr, ang - sbrnd, wel std, sbsph, tr - 30% calc cmt, vf - f gr, fri, m inf por.
SILTY CLAYSTONE (0 - 90%): med gy, 10 - 30% slt, tr glauc, sbblky - amor, sft.

Well TD 216 mm (8½") hole section @ 1941.0m MDRT (1879.9 mTVD) on 17/04/05 @ 17:30hrs.

Wireline logs run at TD.
Run 1: XMAC/ORIT/DSL/STAR
Run 2: DSL-PCI (Pressure only)

Run 2: DSL-RCI (Pressure only)
Run 3: DSL-RCI pipe conveyed (Pressure+Samples)

1950

GAMMA (api) 0 150

WOB (klb) 0 20 40

ROP (m/hr) 100 50 0

ROP WRAP (m/hr) 200 150 100

CORE

DEPTH mMDRT 1:500

LITHOLOGY CUTTINGS

INTERPRETED LITHOLOGY

RESISTIVITY (SHALLOW) 0.1 ohm-m 1K

RESISTIVITY DEEP 0.1 ohm-m 1K

TOTAL GAS % 0.001 10

CHROMATOGRAPH

METHANE %

ETHANE %

PROPANE %

ISO-BUTANE %

N-BUTANE %

ISO-PENTANE %

0.001 N-PENTANE% 10

0.001 CO2 % 10

OIL FLUORESCENCE

PFG

CALCITE % 0 100

DOLOMITE % 100 0

REMARKS