HALLIBURTON

Sperry Drilling Services

RIG MONITORING

PRESSURE LOG 1:2500

Company	:	**Woodside Energy Ltd**
Rig	:	**Ocean Patriot**
Well	:	**Halladale -1 DW1(L Black Watch)**
Field	:	**Black Watch**
Country	:	**Australia**
DOE Number	:	

Country : **Australia**
Field : **Black Watch**
Location : **Lat: 38° 34' 45.54" South**
Long: 142° 43' 50.95" East
Well : **Halladale -1 DW1(L Black Watch)**
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**

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 **1,918.00 m** Unit No. : **197** Job No. : **AU-FE-0003325470**
Date Logged : **22-Mar-05** To **10-Apr-05**
Total Depth MD : **1,918.00 m** TVD : **1,869.17 m** Plot Type : **Final**
Spud Date : **22-Mar-05** Plot Date : **28-Jun-05**

Borehole Record (TVD)

Run No.	Size	From	To
1	914.400 mm	66.30 m	69.00 m
2	444.500 mm	69.00 m	101.00 m
3	444.500 mm	101.00 m	426.98 m
4	311.150 mm	426.98 m	838.62 m
5	215.900 mm	838.62 m	1,747.67 m
6	215.900 mm	1,747.67 m	1,755.07 m
7	215.900 mm	1,755.07 m	1,869.17 m

Casing Record (TVD)

Run No.	Size	Weight	From	To
	762.000 mm	458.00 kgpm	SURFACE	99.50 m
	340.000 mm	101.00 kgpm	SURFACE	420.98 m
	244.000 mm	70.00 kgpm	SURFACE	833.63 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

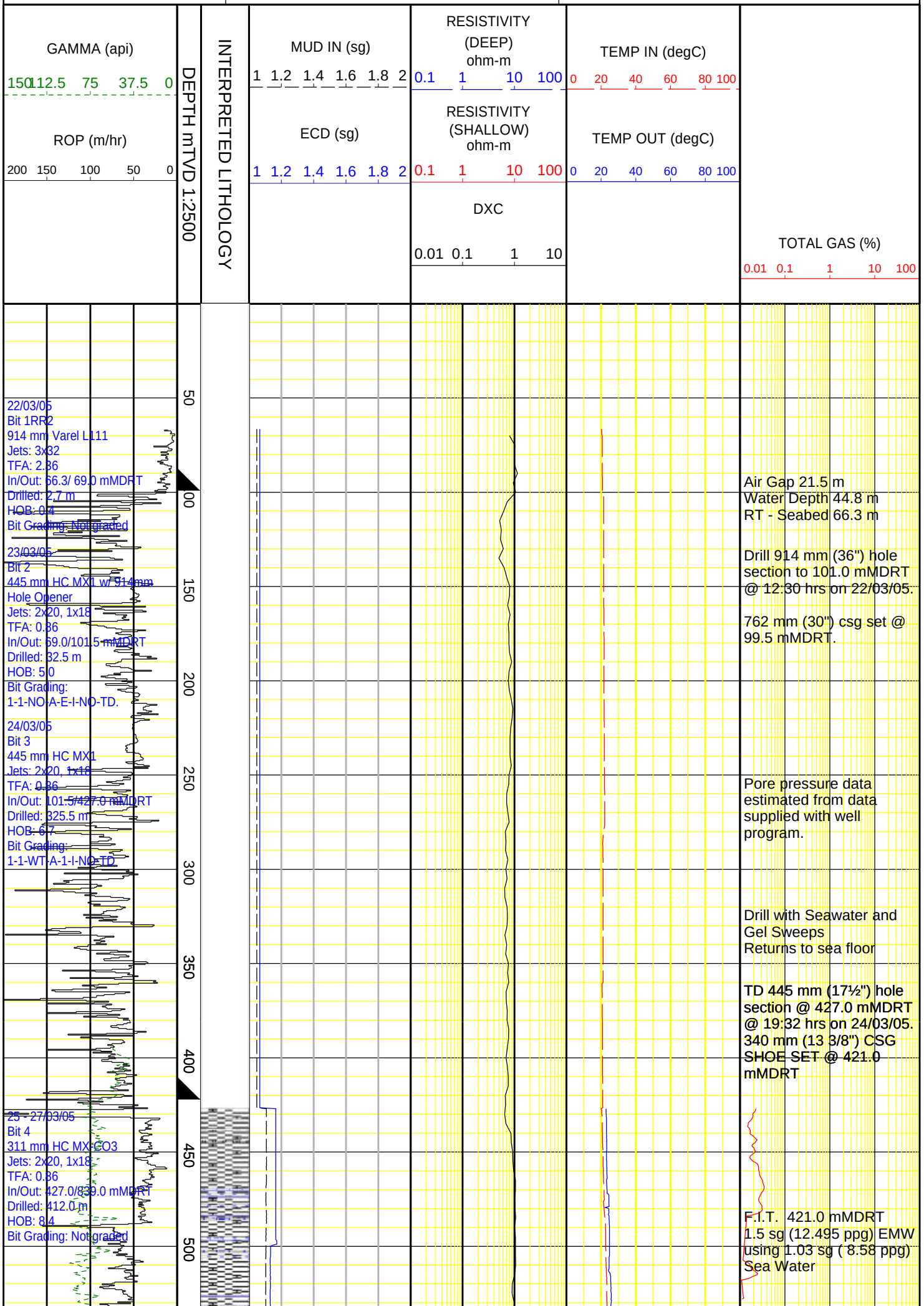
Cl-	Chloride Ion Conc
FC	Filter Cake
FL	Filtrate Loss
G	Gels
pH	Hydrogen Ion Content
PV	Plastic Viscosity
Rm	Mud Resistivity
Rmf	Filtrate Resistivity
S	Solids Content
Vis	Funnel Viscosity
MW	Mud Weight
YP	Yield Point

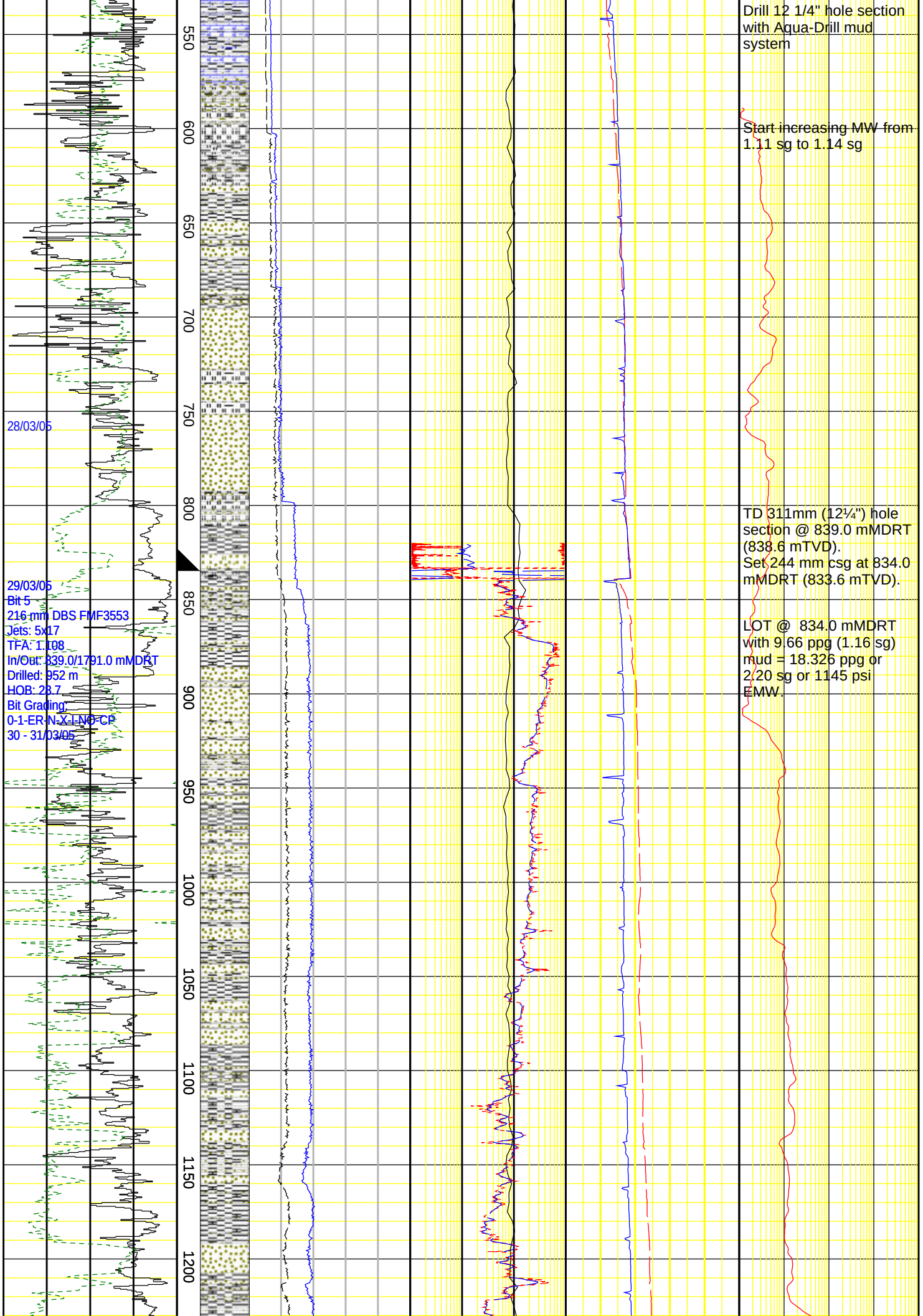
Engineering Data

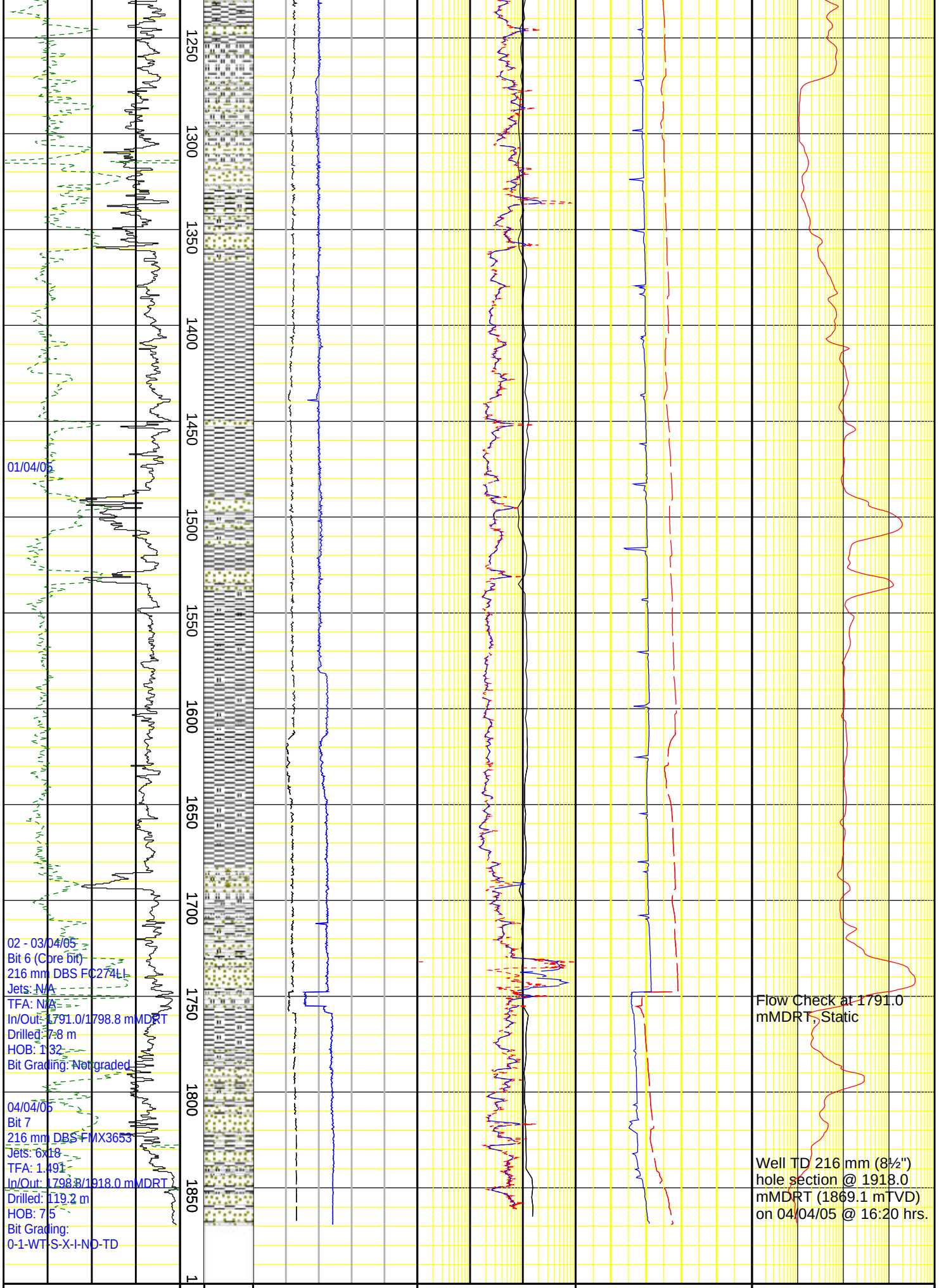
Core No.
Water
DST No.
Salt Water
Casing Seat
Fresh Water
Side Wall Core
Hydrocarbons Smell
Gas Traces
H2S Smell
Gas
RFT Interval Tester
Oil Traces
E-LOG Wireline Log Run
Oil
LOT Leakoff Test
Bitumen
PIT Pressure Integrity Test

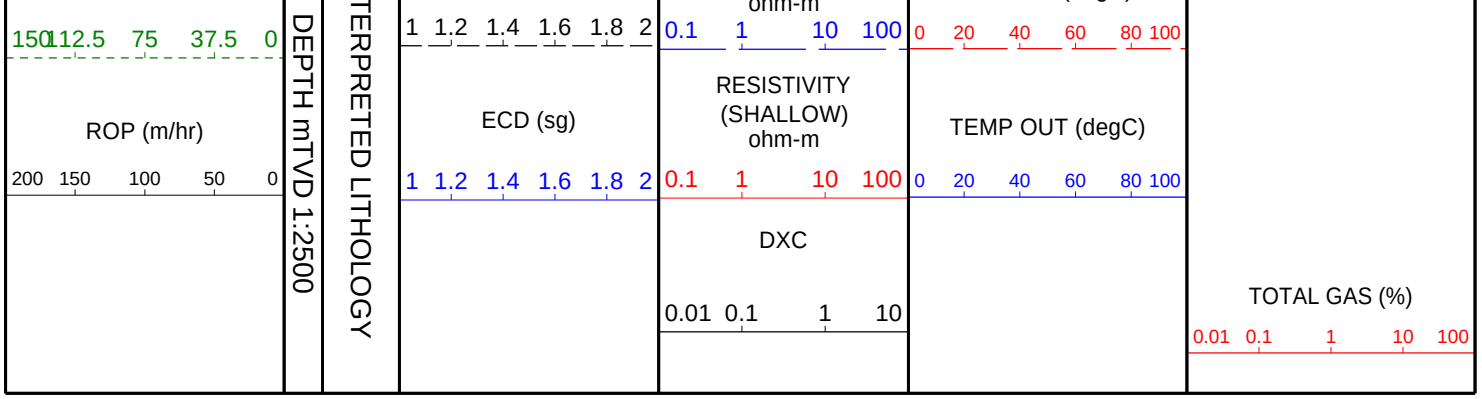
Lithology Symbols

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


GAMMA (api)
150 112.5 75 37.5 0
ROP (m/hr)
200 150 100 50 0
DEPTH mTVD 1:2500
INTERPRETED LITHOLOGY
MUD IN (sg)
1 1.2 1.4 1.6 1.8 2
ECD (sg)
1 1.2 1.4 1.6 1.8 2
RESISTIVITY (DEEP) ohm-m
0.1 1 10 100
RESISTIVITY (SHALLOW) ohm-m
0.1 1 10 100
DXC
0.01 0.1 1 10
TEMP IN (degC)
0 20 40 60 80 100
TEMP OUT (degC)
0 20 40 60 80 100
TOTAL GAS (%)
0.01 0.1 1 10 100
50
100
150
200
250
300
350
400
450
500
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
23/03/05
Bit 2
445 mm HC MX1 w/ 914mm
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.
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
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
Air Gap 21.5 m
Water Depth 44.8 m
RT - Seabed 66.3 m
Drill 914 mm (36") hole section to 101.0 mMDRT @ 12:30 hrs on 22/03/05.
762 mm (30") csg set @ 99.5 mMDRT.
Pore pressure data estimated from data supplied with well program.
Drill with Seawater and Gel Sweeps
Returns to sea floor
TD 445 mm (17½") hole section @ 427.0 mMDRT @ 19:32 hrs on 24/03/05.
340 mm (13 3/8") CSG SHOE SET @ 421.0 mMDRT
F.I.T. 421.0 mMDRT
1.5 sg (12.495 ppg) EMW using 1.03 sg (8.58 ppg) Sea Water


550
600
650
700
750
800
850
900
950
1000
1050
1100
1150
1200
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
Drill 12 1/4" hole section with Aqua-Drill mud system
Start increasing MW from 1.11 sg to 1.14 sg
TD 311mm (12¼") hole section @ 839.0 mMDRT (838.6 mTVD).
Set 244 mm csg at 834.0 mMDRT (833.6 mTVD).
LOT @ 834.0 mMDRT with 9.66 ppg (1.16 sg) mud = 18.326 ppg or 2.20 sg or 1145 psi EMW.


1250
1300
1350
1400
1450
1500
1550
1600
1650
1700
1750
1800
1850
01/04/05
02 - 03/04/05
Bit 6 (Core bit)
216 mm DBS FC274LL
Jets: N/A
TFA: N/A
In/Out: 1791.0/1798.8 mMDRT
Drilled: 7.8 m
HOB: 1.32
Bit Grading: Not graded
04/04/05
Bit 7
216 mm DBS FMX3653
Jets: 6x18
TFA: 1.491
In/Out: 1798.8/1918.0 mMDRT
Drilled: 119.2 m
HOB: 7.5
Bit Grading:
0-1-WT-S-X-I-ND-TD
Flow Check at 1791.0 mMDRT, Static
Well TD 216 mm (8½") hole section @ 1918.0 mMDRT (1869.1 mTVD) on 04/04/05 @ 16:20 hrs.
GAMMA (api)
MUD IN (sg)
RESISTIVITY (DEEP) ohm.m
TEMP IN (degC)


150 112.5 75 37.5 0
ROP (m/hr)
200 150 100 50 0
DEPTH mTVD 1:2500
INTERPRETED LITHOLOGY
1 1.2 1.4 1.6 1.8 2
ECD (sg)
1 1.2 1.4 1.6 1.8 2
0.1 1 10 100
ohm-m
RESISTIVITY
(SHALLOW)
ohm-m
0.1 1 10 100
DXC
0.01 0.1 1 10
0 20 40 60 80 100
TEMP OUT (degC)
0 20 40 60 80 100
TOTAL GAS (%)
0.01 0.1 1 10 100