



# GAS RATIO LOG

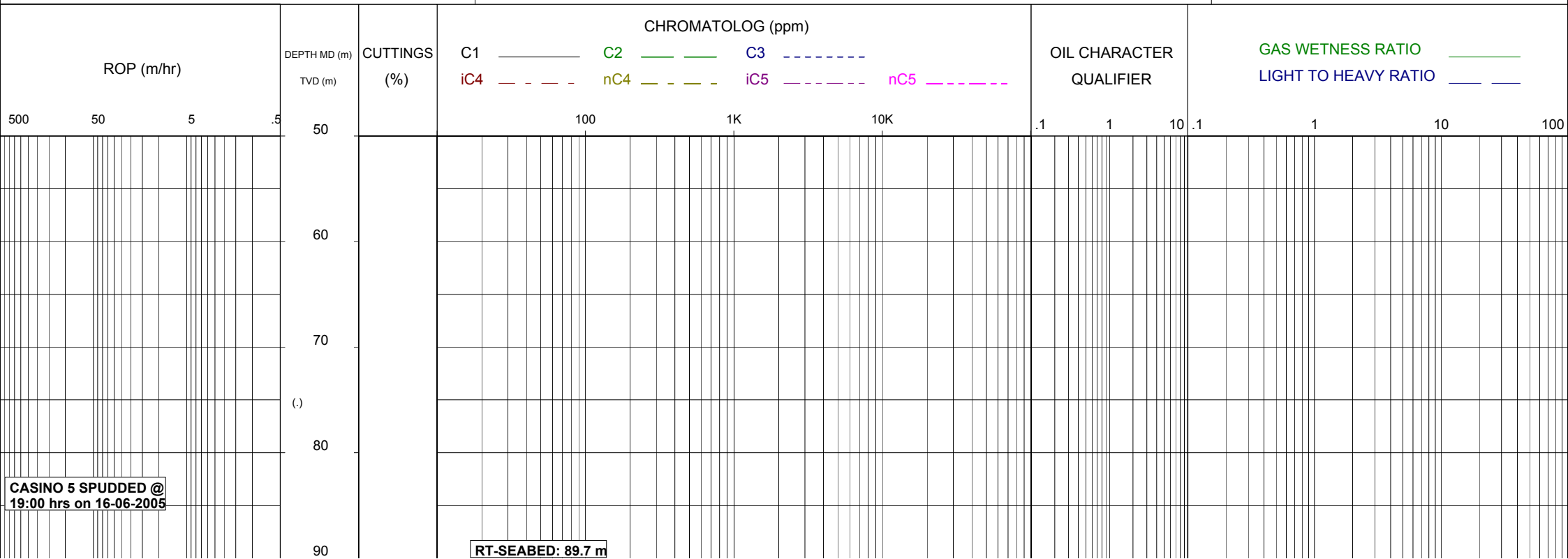
## WELL : CASINO 5

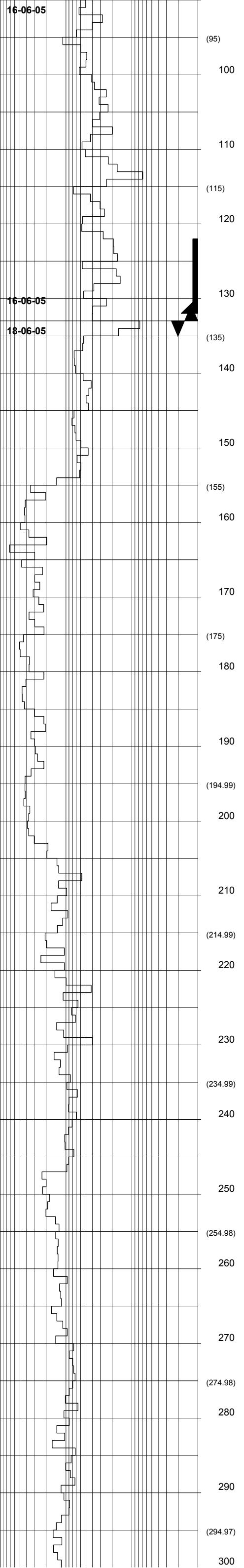


FROM (m): 50 TO (m): 1820 SCALE: 1/ 500

<b>GENERAL DATA</b> Client : SANTOS LTD Country : AUSTRALIA Permit : VIC P-44 Basin : OTWAY Well Type : VERTICAL PILOT Rig Name : OCEAN PATRIOT	<b>LOCATION DATA</b> Latitude : 38°47'43.68"S Longitude : 142°44'44.60"E  RT - MSL (m): 21.5 Water Depth (m): 68.2	<b>CASING</b> 762/508mm (30"/20") Shoe (m): 132m 340mm (13.375") Shoe (m): 655m 244 mm (9.625") Shoe (m): 1719.8m 194mm (7.625") Shoe (m): 1800m	<b>FINAL WELL DATA</b> MD - Drillers Depth (m): 1806m TVD SS (m): 1802m Date Well Spudded : 16-06-2005 Date TD Reached : 28-06-2005 Final Status : Cased & Suspended
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<b>GAS RATIOS FORMULAE</b>  <b>GAS WETNESS RATIO (Wh)</b> $GWR = (C2 + C3 + C4 + C5) / (C1 + C2 + C3 + C4 + C5) * 100$  <b>LIGHT TO HEAVY RATIO (Bh)</b> $LHR = (C1 + C2) / (C3 + C4 + C5)$  <b>OIL CHARACTER QUALIFIER (Ch)</b> $OCQ = (C4 + C5) / (C3)$	<b>LITHOLOGY LEGEND</b> <table border="0"> <tr> <td></td><td>Limestone</td> <td></td><td>Conglomerate</td> <td></td><td>Mica</td> </tr> <tr> <td></td><td>Coal</td> <td></td><td>Calcilutite</td> <td></td><td>Ferrous</td> </tr> <tr> <td></td><td>Clay</td> <td></td><td>Carb. Siltstone</td> <td></td><td>Chert</td> </tr> <tr> <td></td><td>Siltstone</td> <td></td><td>Calc. Siltstone</td> <td></td><td>Calcareous</td> </tr> <tr> <td></td><td>Med Sandstone</td> <td></td><td>Pyrite</td> <td></td><td>Dolomitic</td> </tr> <tr> <td></td><td>Coarse Sandstone</td> <td></td><td>Siderite</td> <td></td><td>Carbonaceous</td> </tr> <tr> <td></td><td>Fine Sandstone</td> <td></td><td>Glauconite</td> <td></td><td>Lithoclast</td> </tr> <tr> <td></td><td>Marl</td> <td></td><td>Feldspar</td> <td></td><td>Breccia</td> </tr> </table> <p>1 unit = 200 ppm methane equivalent in air</p>		Limestone		Conglomerate		Mica		Coal		Calcilutite		Ferrous		Clay		Carb. Siltstone		Chert		Siltstone		Calc. Siltstone		Calcareous		Med Sandstone		Pyrite		Dolomitic		Coarse Sandstone		Siderite		Carbonaceous		Fine Sandstone		Glauconite		Lithoclast		Marl		Feldspar		Breccia	<b>GEOSERVICES CREW</b>  <b>ALS ENGINEERS</b> D. ADDERLEY A. DUNN S. PROSSER  <b>MUDLOGGERS</b> N. ELLIOTT B. FOREMAN
	Limestone		Conglomerate		Mica																																													
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BIT #1 Smith DSJC  
SIZE: 26"+36"HO JETS:4x22  
IN:89.7 OUT:133.0 m  
RUN:43.3 m HRS:3.1

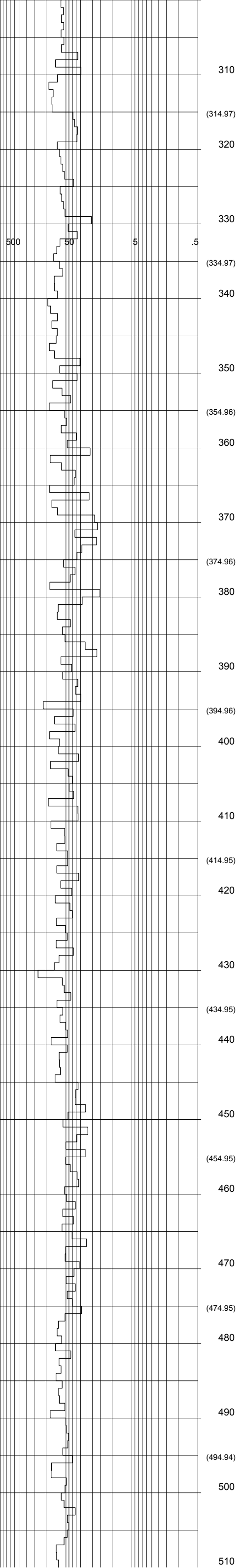
DRILL WITH SEA WATER  
AND HI-VIS SWEEPS.  
RETURNS TO SEABED.

30"/20" CASING SHOE  
SET AT 132m

BIT #2 Smith XR-CRS  
SIZE: 17.5" JETS:3x20,1X18  
IN:133m OUT:665 m  
RUN:532m HRS:11.4  
COND:1-1-NO-A-E-I-NO-TD

DRILL WITH SEA WATER  
AND HI-VIS SWEEPS.  
RETURNS TO SEABED.

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RETURNS TO SEABED.



DRILL WITH SEA WATER  
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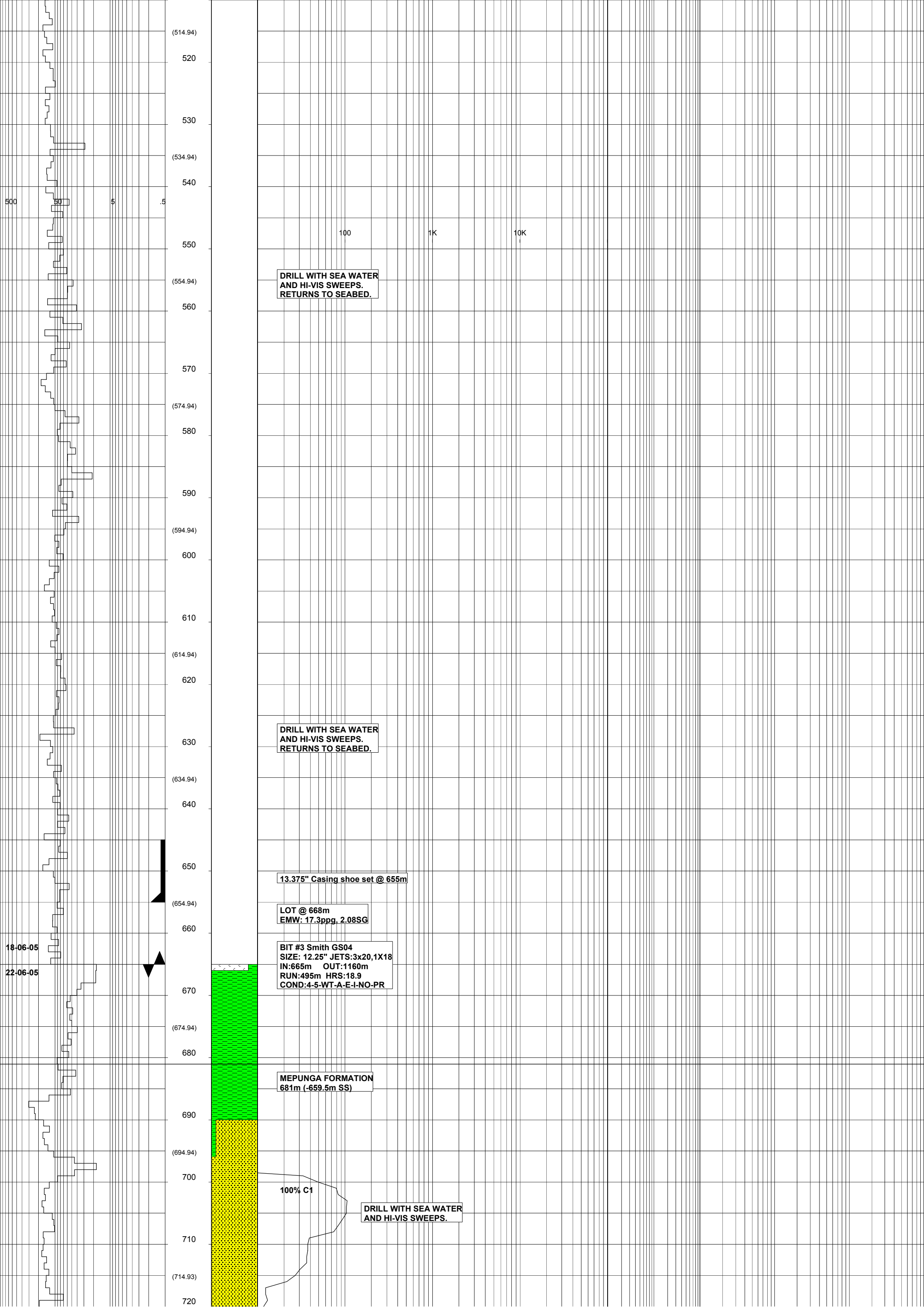
100

1K

10K

DRILL WITH SEA WATER  
AND HI-VIS SWEEPS.  
RETURNS TO SEABED.

DRILL WITH SEA WATER  
AND HI-VIS SWEEPS.  
RETURNS TO SEABED.



(514.94)  
520  
530  
(534.94)  
540  
550  
(554.94)  
560  
570  
(574.94)  
580  
590  
(594.94)  
600  
610  
(614.94)  
620  
630  
(634.94)  
640  
650  
(654.94)  
660  
670  
(674.94)  
680  
690  
(694.94)  
700  
710  
(714.93)  
720

500 50 5 .5

100 1K 10K

DRILL WITH SEA WATER  
AND HI-VIS SWEEPS.  
RETURNS TO SEABED.

DRILL WITH SEA WATER  
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RETURNS TO SEABED.

13.375" Casing shoe set @ 655m

LOT @ 668m  
EMW: 17.3ppg, 2.08SG

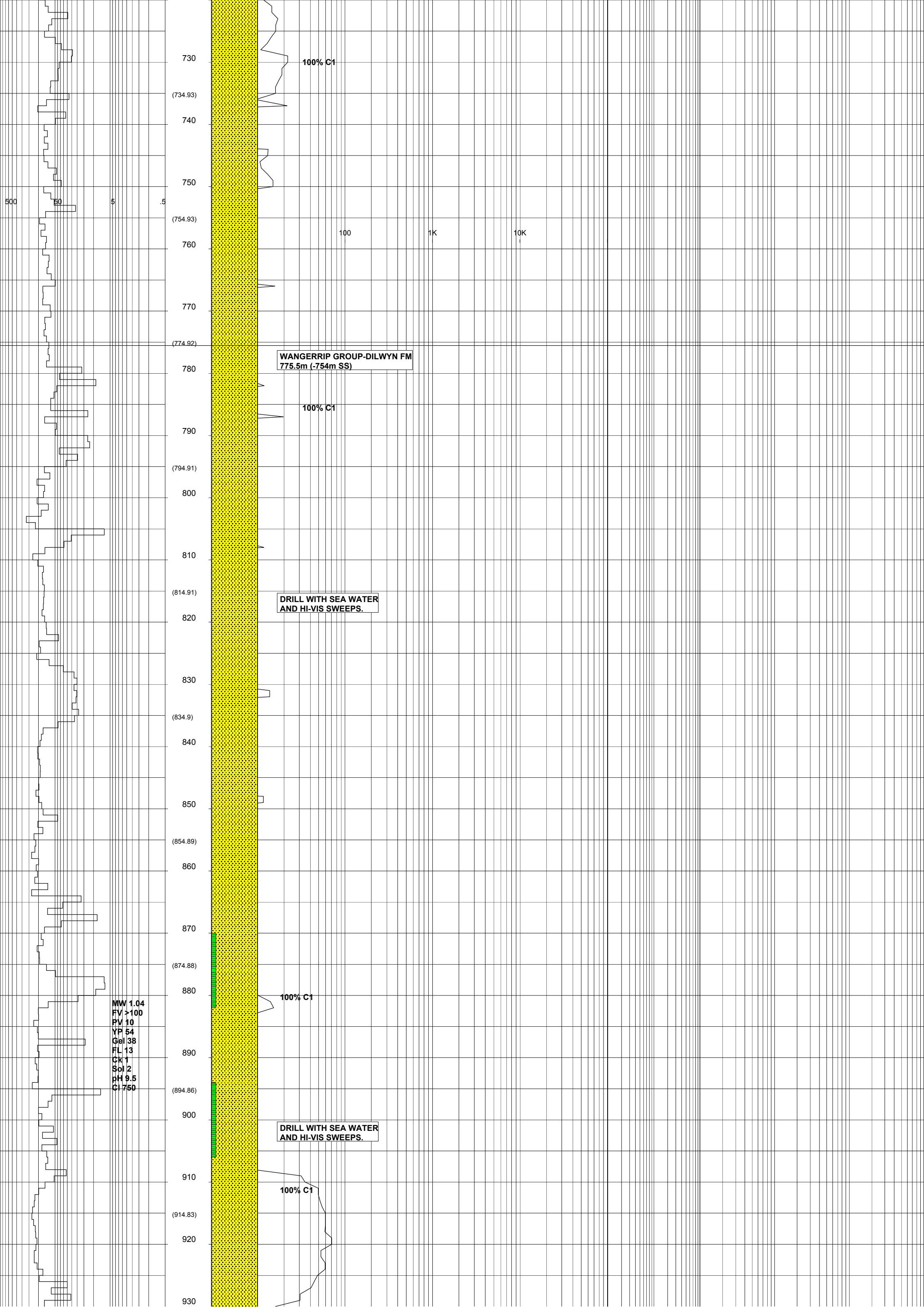
BIT #3 Smith GS04  
SIZE: 12.25" JETS:3x20,1X18  
IN:665m OUT:1160m  
RUN:495m HRS:18.9  
COND:4-5-WT-A-E-I-NO-PR

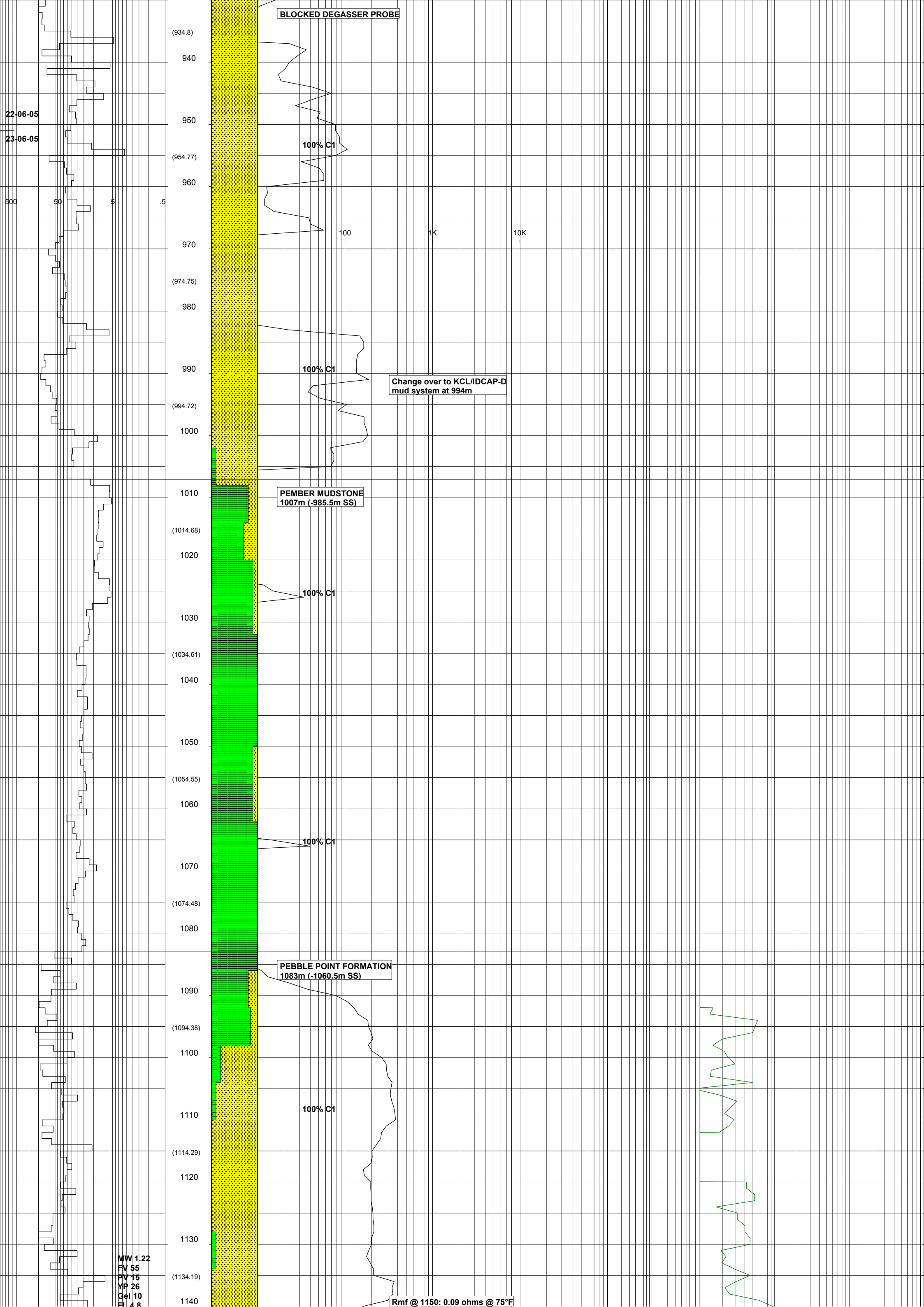
MEPUNGA FORMATION  
681m (-659.5m SS)

100% C1

DRILL WITH SEA WATER  
AND HI-VIS SWEEPS.

18-06-05  
22-06-05





Ck 1  
Sol 9  
pH 9.0  
Cl 42k

**MASSACRE SHALE**  
1151m (-1028.5m SS)

**TIMBOON SANDSTONE**  
1162m (-1139.5m SS)

**BIT #4RR Smith MA89PX**  
SIZE: 12.25" JETS:7x14  
IN:1160m OUT:1392m  
RUN:232m HRS:15.2  
COND:1-1-BT-S-X-I-BU-PR

100 / Tr

100 / Tr

100 / Tr

99 / 1

MW 1.22  
FV 49  
PV 11  
YP 26  
Gel 8  
FL 5.0  
Ck 1  
Sol 10  
pH 8.4  
Cl 45k

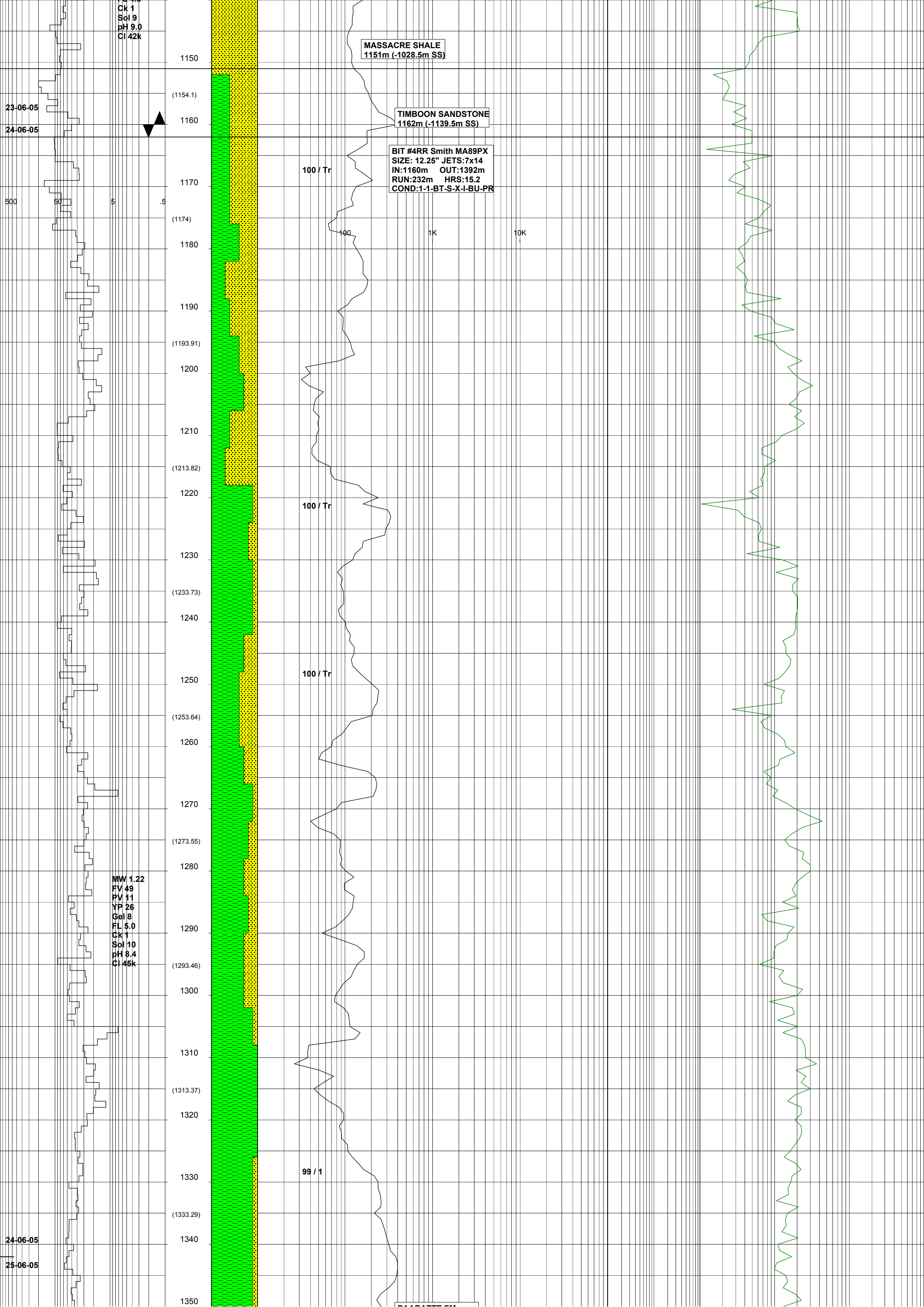
23-06-05  
24-06-05

24-06-05  
25-06-05

1150  
(1154.1)  
1160  
1170  
(1174)  
1180  
1190  
(1193.91)  
1200  
1210  
(1213.82)  
1220  
1230  
(1233.73)  
1240  
1250  
(1253.64)  
1260  
1270  
(1273.55)  
1280  
1290  
(1293.46)  
1300  
1310  
(1313.37)  
1320  
1330  
(1333.29)  
1340  
1350

500  
50  
5  
.5

100 1K 10K



PAARATIE FM  
1355m (-1331.5m SS)

(1353.2)  
1360  
1370  
(1373.12)  
1380  
1390  
(1393.03)  
1400  
1410  
(1412.95)  
1420  
1430  
(1432.86)  
1440  
1450  
(1452.77)  
1460  
1470  
(1472.68)  
1480  
1490  
(1492.6)  
1500  
1510  
(1512.5)  
1520  
1530  
(1532.41)  
1540  
1550  
(1552.32)  
1560

MW 1.22  
FV 49  
PV 14  
YP 36  
Gel 10  
FL 4.5  
CK 1  
Sol 10  
PH 7.9  
CP 46K

99 / 1 / Tr

Rmf @ 1392: 0.09 ohms @ 75°F

1391m-1439m: Gas Readings Taken From Auxillary Gas Detectors

BIT #5 Hycalog DSX104  
SIZE:12.25" JETS:3x16,2x18  
IN:1392m OUT:1730m  
RUN:338m HRS:7.4  
COND:1-1-BT-T-X-I-NO-TD

100% C1

100% C1

99 / 1 / Tr

99 / 1 / Tr

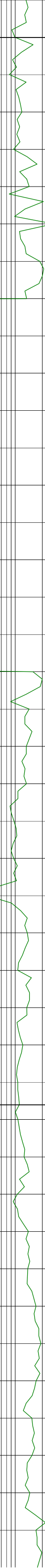
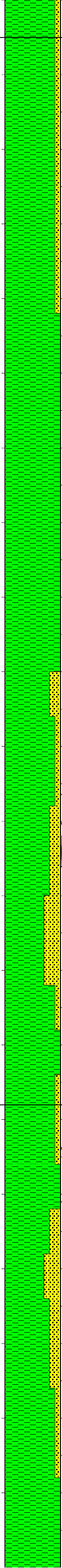
SKULL CREEK MUDSTONE  
1498m (-1474.5m SS)

99 / 1 / Tr

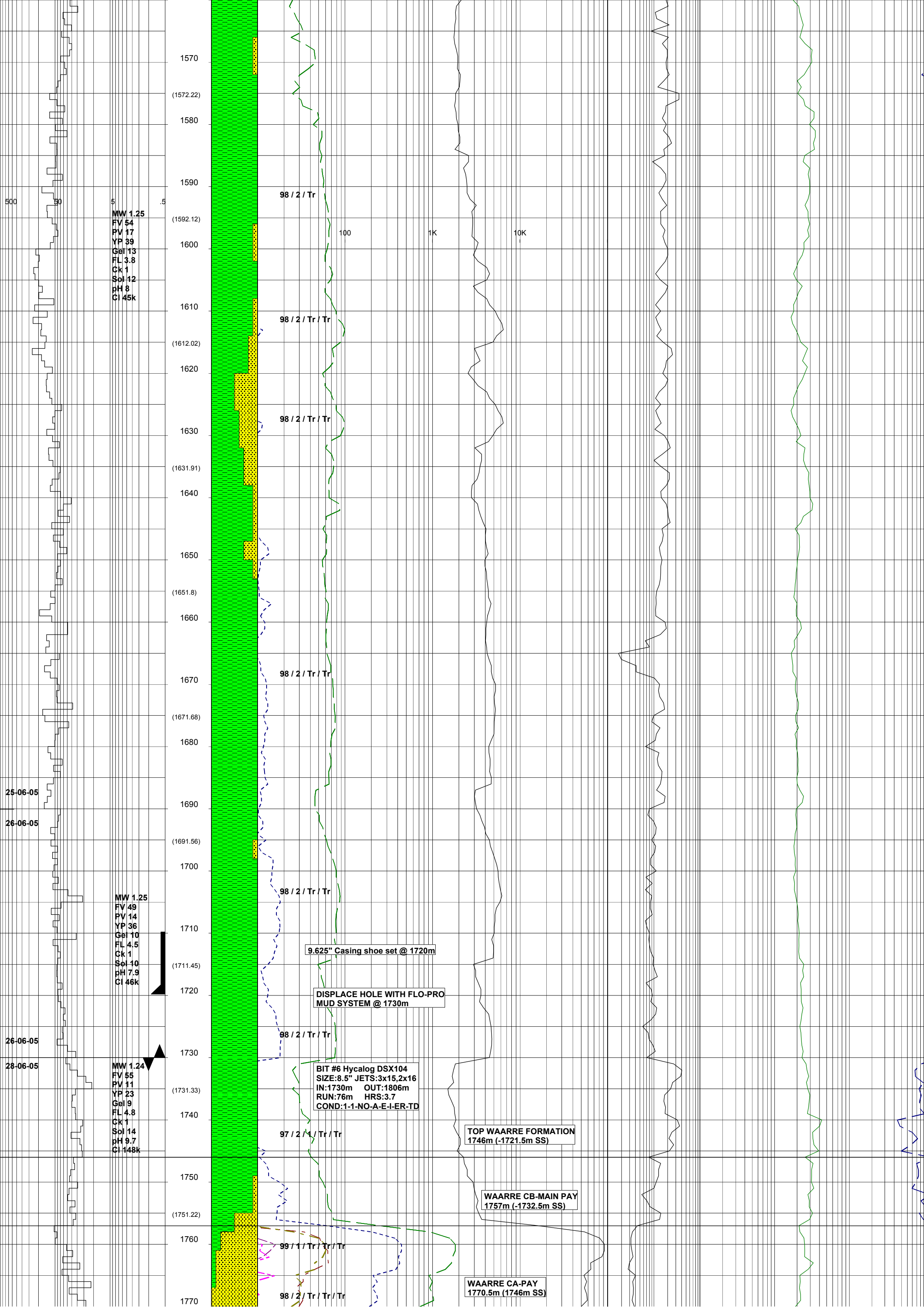
99 / 1 / Tr

Carbide Lag Check @ 1542m:  
Theor. Stks: 5575  
Actual Stks: 8700  
Open Hole Overgauge: 69%  
Average Hole Size: 15.9" (404mm)

99 / 1 / Tr







MW 1.25  
 FV 54  
 PV 17  
 YP 39  
 Gel 13  
 FL 3.8  
 Ck 1  
 Sol 12  
 pH 8  
 CI 45k

MW 1.25  
 FV 49  
 PV 14  
 YP 36  
 Gel 10  
 FL 4.5  
 Ck 1  
 Sol 10  
 pH 7.9  
 CI 46k

MW 1.24  
 FV 55  
 PV 11  
 YP 23  
 Gel 9  
 FL 4.8  
 Ck 1  
 Sol 14  
 pH 9.7  
 CI 148k

98 / 2 / Tr

98 / 2 / Tr / Tr

98 / 2 / Tr / Tr

98 / 2 / Tr / Tr

98 / 2 / Tr / Tr

98 / 2 / Tr / Tr

97 / 2 / 1 / Tr / Tr

99 / 1 / Tr / Tr / Tr

98 / 2 / Tr / Tr / Tr

9.625" Casing shoe set @ 1720m

DISPLACE HOLE WITH FLO-PRO MUD SYSTEM @ 1730m

BIT #6 Hycalog DSX104  
 SIZE:8.5" JETS:3x15,2x16  
 IN:1730m OUT:1806m  
 RUN:76m HRS:3.7  
 COND:1-1-NO-A-E-I-ER-TD

TOP WAARRE FORMATION  
 1746m (-1721.5m SS)

WAARRE CB-MAIN PAY  
 1757m (-1732.5m SS)

WAARRE CA-PAY  
 1770.5m (1746m SS)

500

50

5

.5

100

1K

10K

25-06-05

26-06-05

26-06-05

28-06-05

1570

(1572.22)

1580

1590

(1592.12)

1600

1610

(1612.02)

1620

1630

(1631.91)

1640

1650

(1651.8)

1660

1670

(1671.68)

1680

1690

(1691.56)

1700

1710

(1711.45)

1720

1730

(1731.33)

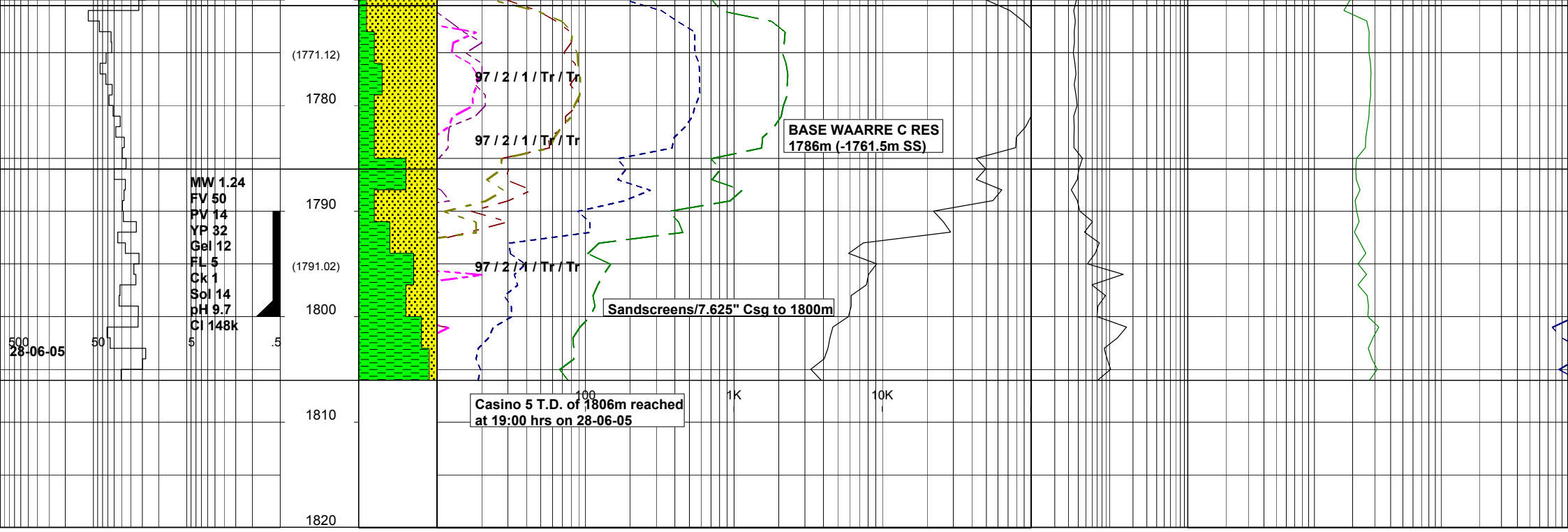
1740

1750

(1751.22)

1760

1770



MW 1.24  
FV 50  
PV 14  
YP 32  
Gel 12  
FL 5  
Ck 1  
Sol 14  
pH 9.7  
Cl 148k

(1771.12)  
1780  
1790  
(1791.02)  
1800  
1810  
1820

97 / 2 / 1 / Tr / Tr  
97 / 2 / 1 / Tr / Tr  
97 / 2 / 1 / Tr / Tr

BASE WAARRE C RES  
1786m (-1761.5m SS)

Sandscreens/7.625" Csg to 1800m

Casino 5 T.D. of 1806m reached  
at 19:00 hrs on 28-06-05

500  
28-06-05

50

.5

100

1K

10K

