WELL COMPLETION REPORT

WEST KINGFISH W6A

GIPPSLAND BASIN, VICTORIA

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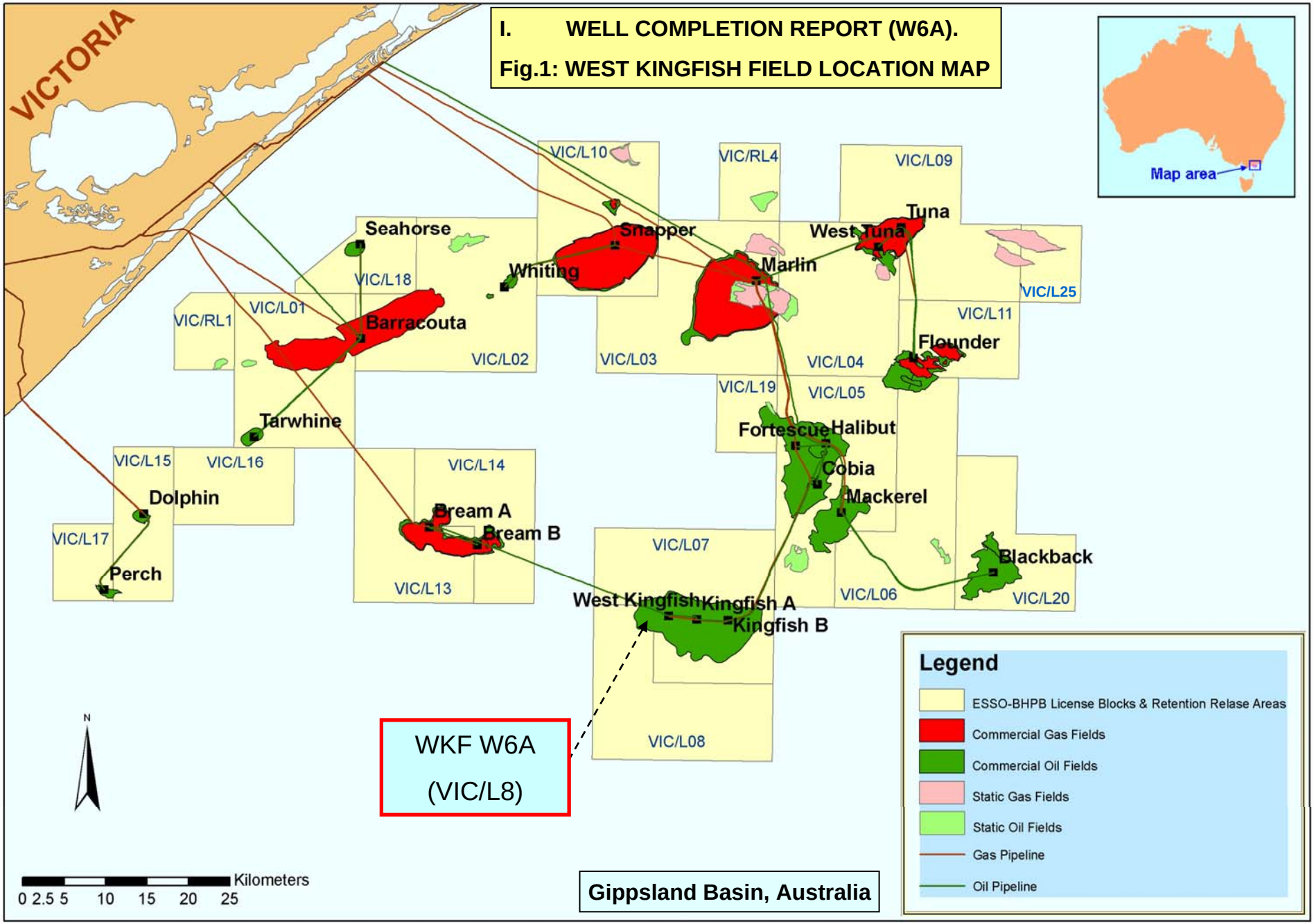
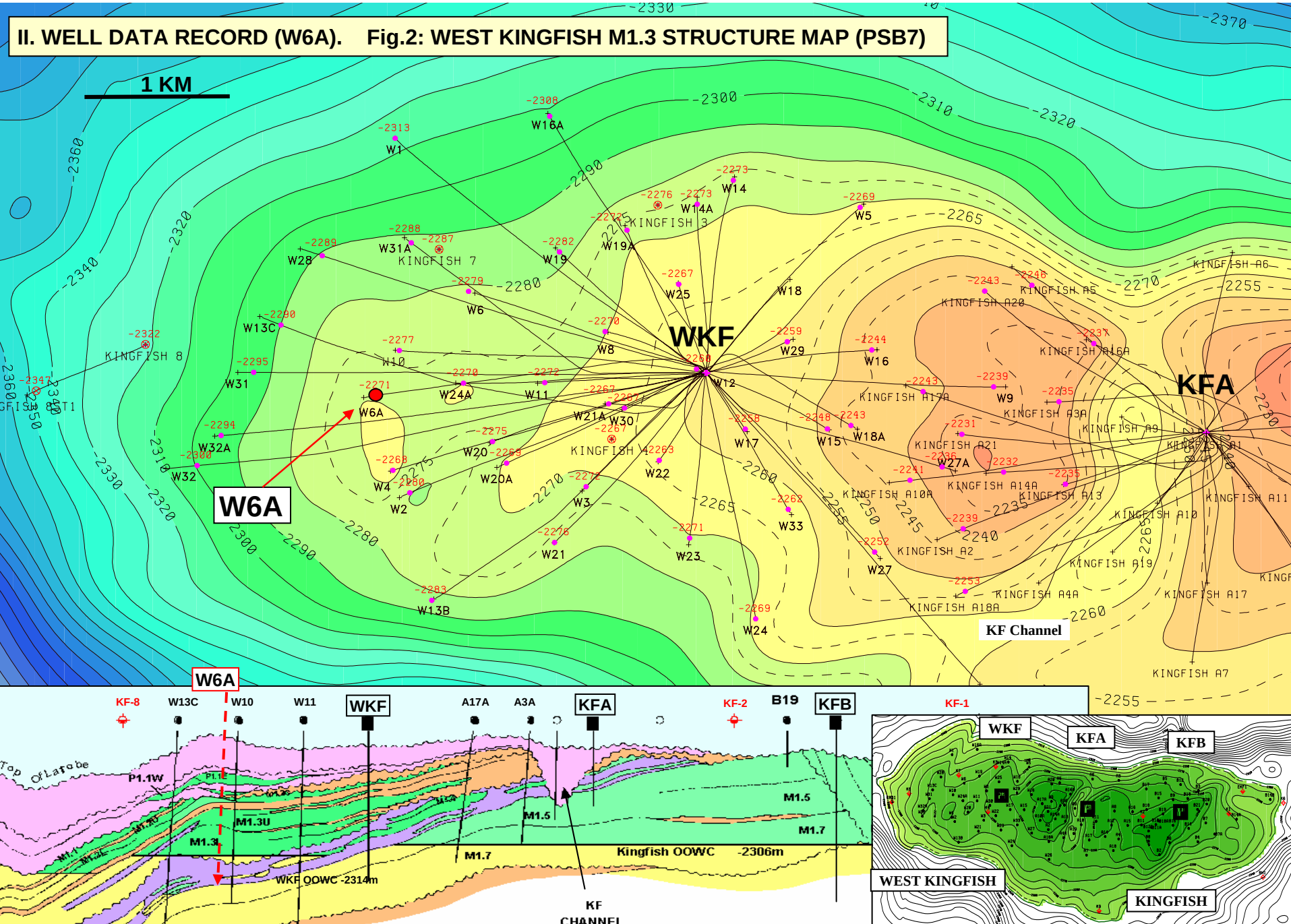
I. WELL COMPLETION REPORT (W6A).

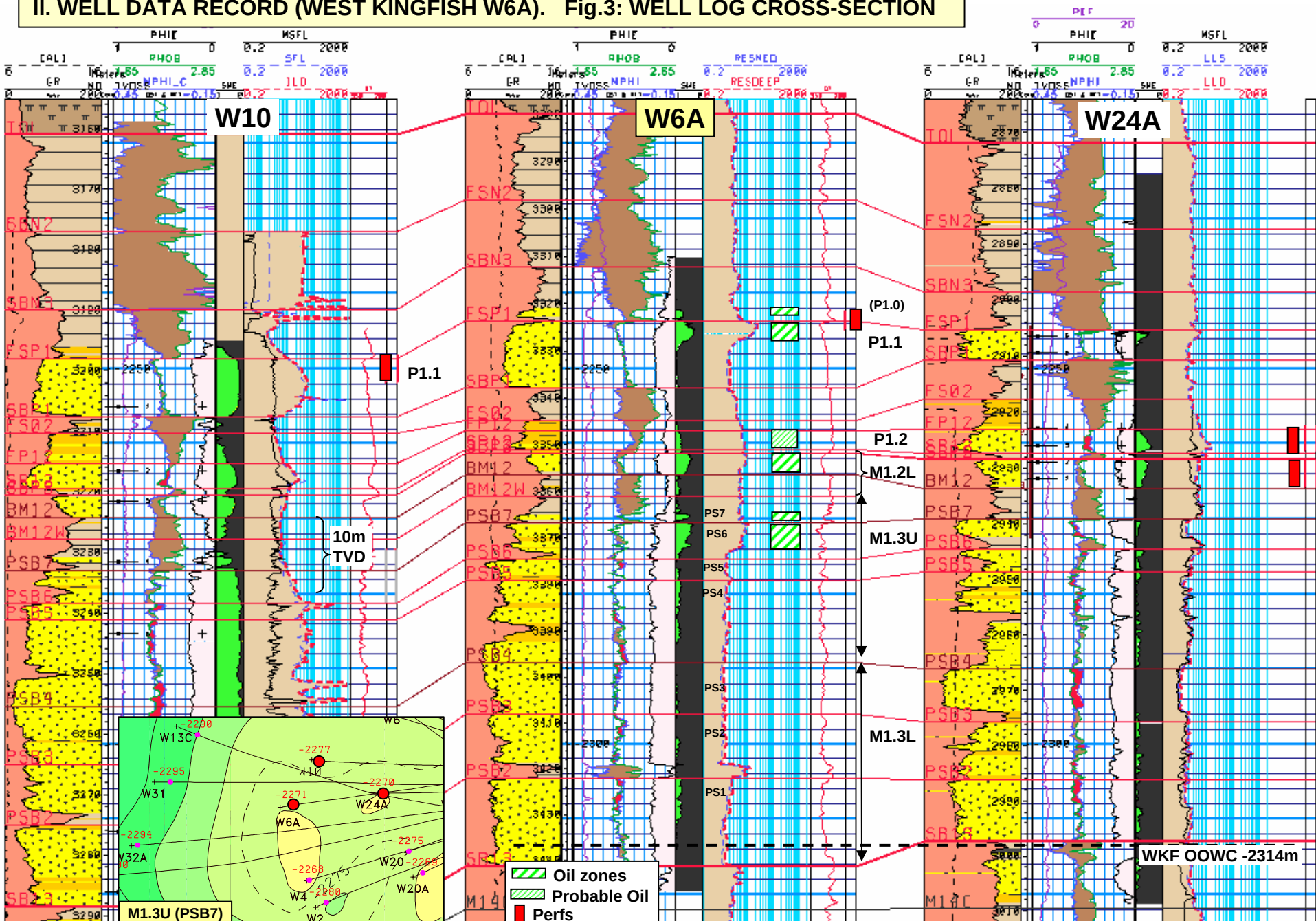
Fig.1: WEST KINGFISH FIELD LOCATION MAP



II. WELL DATA RECORD (W6A). Fig.2: WEST KINGFISH M1.3 STRUCTURE MAP (PSB7)



II. WELL DATA RECORD (WEST KINGFISH W6A). Fig.3: WELL LOG CROSS-SECTION



II. WELL DATA RECORD – W6A (cont'd)

LOCATION

Field	**West Kingfish**
Well Name	**W6A** (Predrill Loc M)
Conductor Number	Slot 6
State	Victoria
Permit/Licence	Vic/L8
Geological Basin	Gippsland
Top of Latrobe	3280.0m MDRT 2249.5m TVDRT -2216.1m TVDSS
(MGA94) X	594091.59m E
(MGA94) Y	5727664.29m N
Latitude	38º 35' 8.16" S
Longitude	148º 04' 58.44" E

Conductor #6 Surface Coordinates	
(MGA94) X	596273.687 mE
(MGA94) Y	5727810.570 mN
Latitude	38° 35' 34.706" S
Longitude	148° 06' 19.764" E
Perforations (driller)	3321.5- 3325.5 m MDRT 2275.7 – 2278.2m TVDRT (-2242.2– 2244.8m TVDSS)

Datum	GDA94 (Geocentric Datum of Australia)
Spheroid	GRS80 (Geodetic Ref. System 1980)
Projection	UTM (Universal Transverse Mercator)
Map Grid / Zone	MGA Zone 55
Central Meridian	147 deg E

ELEVATIONS & DEPTHS

Water Depth	76.13 m
Main Deck Rel to MSL	25.12m
RT Relative to MSL	33.43m
Average Well Angle	52 deg in Latrobe
Max Well Angle	54.3 deg at 3094m
Total Depth	3477.0m MDRT 2371.1m TVDRT (-2337.7m TVDSS)
Plug Back Depth	3442m (PBTD tagged with drillpipe)

DATES

Skid Rig	29/08/2006 (P&A W6)
Drillwell Opns W6A	06/09/2006
Kicked Off	07/09/2006
Development Rig Days	26.7
NPT Days	3.7
Rig Released	03/10/2006
I.P. Established	12/10//2006

MISCELLANEOUS

Operator	Esso Australia Pty Ltd
Esso Interest	50%
Licensee	Esso / BHPBilliton
Other JV Interest	50% (BHPB)
Overriding Royalty	2.5% (Weeks)
Drilling AFE No.	L0501G659

Contractor	International Sea Drilling Ltd
Rig Name	Nabors Rig 453
Equipment Type	Platform
Completion Type	Selective single ("tandem")
Completion Size	3 ½"

WELL CLASSIFICATION

Before Drilling	Oil Development
After Drilling	Cased & Completed - Oil well

CASING RECORD

Type	**Size** (Inches)	**Weight** (lb/ft)	**Grade**	**Thread**	**Depth** (mMDRT)
Conductor *	20				185.0
Surface *	$10^3/_4$	40.5	K-55	BTC	694.8
Production	7	26.0	L-80	Vam Top HC	3469.0
Tubing	3½	9.2	13Cr-80	Vam Top	3338.5

* Pre-existing W6 casing strings

CEMENTING RECORD

Casing details	**Cement Type**	**Dry Cement Volume** (sacks)	**Cement Additives**	**Mix Water** (bbls)	**Slurry Volume** (bbls)	**Slurry Density** (ppg)	**Cement to/from** (m MDRT)	**Casing Pressure Test** (psi)
7" 26 lb/ft	AB CLASS G Lead	1170	Gascon-469 30gal / 10 bbl HALAD-413L 20gal / 10 bbl SCR-100L 6.0 gal / 10 bbl	347.0	445.0	12.5	* 3079 to 980	3000
7" 26 lb/ft	AB CLASS G Tail	280	Gascon-469 30gal / 10 bbl HALAD-413L 30gal / 10 bbl NF-6 0.25 gal/10 bbl CFR-3L 5.0 gal/10bbl SCR-100L 4.5 gal / 10 bb	35	58	15.8	TD 3477 to 3079 *	3000

* Cement job consisted of continuous cementing of casing via lead and tail slurries to cover from TD to above shallow gas section

II. WELL DATA RECORD (cont.)

DRILLING PERFORMANCE
West Kingfish W6A - Final Well Report

GENERAL

Platform:	West Kingfish	**Rig:**	453	**Reservoir:**	P1.1, M1.2, M1.3U Sands
Well:	W6A	**Well Slot:**	#6	**RT-MSL (Rig453)**	33.43
Drilling Complexity Index	3.2	**Wellwork Complexity Index**	2.8		

DEPTH		**PERFORMANCE**		**MUD**	
m MDRT	3477.0	**20" Cond. Hole**	N/A	**Max Wt (ppg)**	9.8 (1.17gm/cc)
m TVDRT	2371.1	**12-1/4" Surf. Hole**	N/A	**Type (Surf. Hole)**	N/A
Vert. Section (m)	2341.5	**8-1/2" Prod. Hole**	267 m/day **	**Type (Inter. Hole)**	N/A
INCLINATION		**6" Liner Hole**	N/A	**Type (Prod. Hole)**	KCl/PHPA/Poly/ Glycol
Max (deg) / Ave (deg)	54 (tangent) / 52 avg in Latrobe	** time to drill new hole interval from spud to TD, incl connections & NPT.	(excl. completion)	**Type (Liner Hole)**	N/A

**Comments: 695m to TD 3477mMDRT = 2782m MDRT 8.5" new hole drilled, in 10.4 days.

TIME ANALYSIS

Start Drillwell Opns Date:	06/09/06, 1300hrs	**Finish Date (Rig Release):**	03/10/2006, 0500hrs	Kick Off (spud) Reach TD	07/09/2006, 0200 17/09/06, 1200
Target Days (P10):	19.9	**Total Days:**	26.7	**% Under Target:**	33 % (over)
AFE Days (P50):	23.5	**NPT Days:**	3.7	**% of Total Days:**	14%
Supplementary AFE Days (P50):					

COSTS *(based on projected)*

AFE No.:	L0501G659	**Revisions:**	--	**$ per m:**	A $2.3 k / metre (new hole)
$ per day:	A$ 243k/day				A$ 1.86 k / metre* * based on TD **not** new hole

	Equipment	**Materials**	**Contracts**	**Allocations**	**Contingency**	**Total**
AFE (Original)	1,040,300	663,870	3,136,880	1,215,560	234,590	A$6,291,200
AFE (Supplement)	-	-	-	-	-	-
Projected (estim)	1,000,000	750,000	3,374,000	1,096,000	267,000	A$6,487,000

CASING *(all depths herein are based on Rig 453 elevations: RT-MSL=33.43m)*

	Size / Weight / Grade / Thread	**m MDRT**	**m TVDRT**	**PIT (ppg)**
Conductor Casing *	22"	185	185	N/A
Surface Casing *	10.75", 40.5 ppf, K-55, BTC	695	635	12.6 (PIT)
Prod Casing	7", 26.0 ppf, L80, Vam Top HC	3469	2366	N/A

Comments: * Pre-existing casing strings.

COMPLETION

	Size / Weight / Grade / Thread	**EOT mMDRT**	**mTVDRT**	**Type**
Completion	3-1/2", 9.2ppf, 13Cr80, Vam Top	3338.5	2286	Selective Single ("tandem") oil

	Upper Interval [m MDRT]	**Upper Interval [m TVDRT]**	**Lower Interval [mMDRT]**	**Lower Interval [mTVDRT]**	**Gun Type**
Perforation Interval:	3321.5 – 3325.5	2275.7 –2278.2	NA	NA	41/2" HSD

Comments: Completion was 3-1/2" 13Cr80 with TR-SSSV and 3 SPMs for gas lift, and two packers, one SSD.

ADDITIONAL

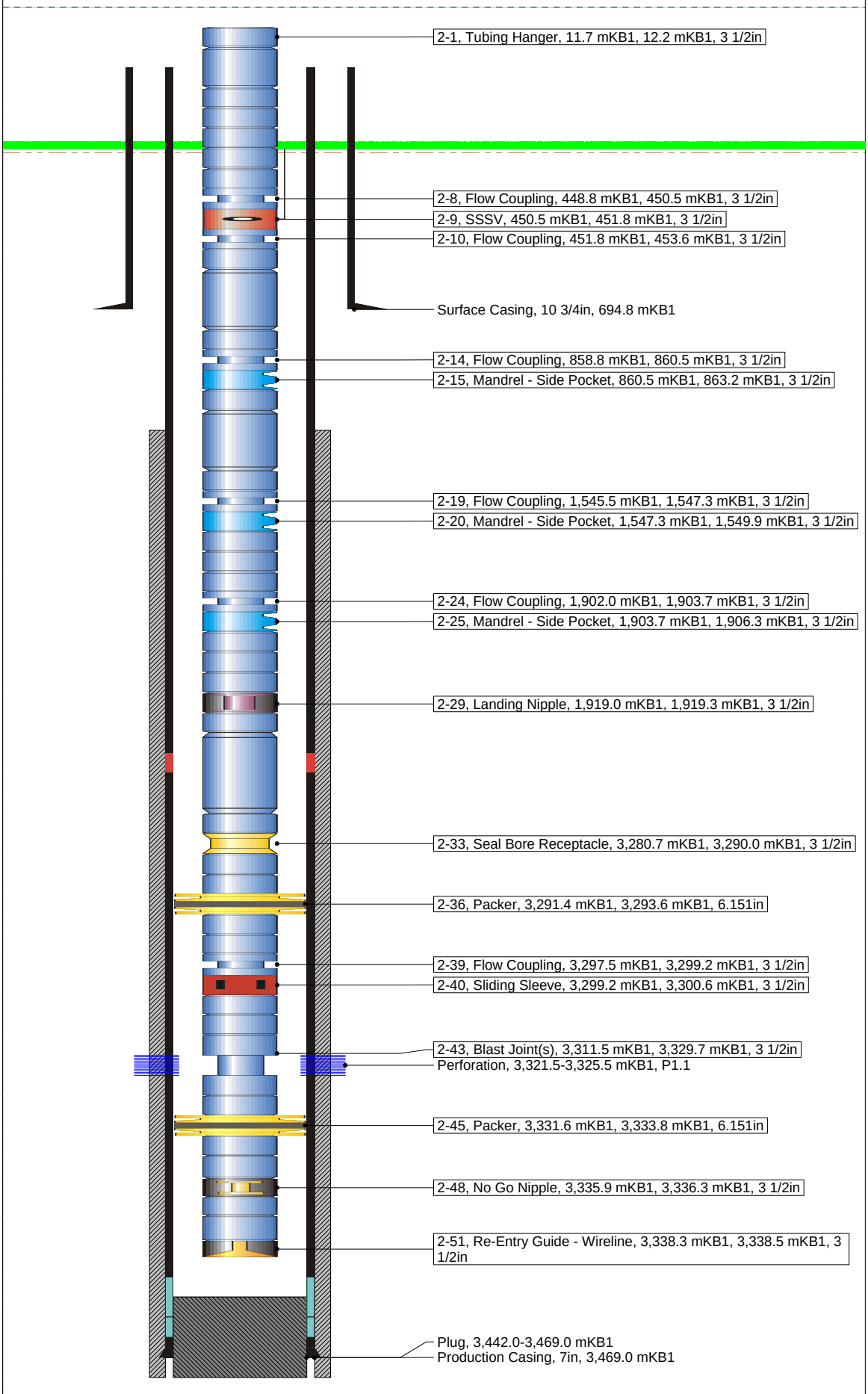
		Top of Interval [m MDRT]	**Base of Interval [m MDRT]**
Logs Run	GR-Resistivity-Density-Neutron-Sonic-Caliper	695	3477

Comments: The 8-1/2" hole interval was logged using the Precision well shuttle system. All data was retrieved on first attempt.

West Kingfish W6A: Existing Schematic

Incl	mKB1 (TVD)
0.0	12
0.0	12
0.0	12
0.0	14
0.0	16
0.0	17
0.0	19
24.4	437
24.5	439
24.6	440
24.7	441
24.8	443
24.9	445
45.8	634
45.8	634
40.8	753
40.8	754
40.7	756
40.7	758
40.6	759
41.8	846
41.3	916
54.0	1,214
53.9	1,215
53.9	1,216
53.9	1,218
53.8	1,219
53.4	1,426
53.4	1,427
53.4	1,428
53.5	1,429
53.5	1,431
53.6	1,436
53.6	1,437
53.6	1,437
53.6	1,438
53.5	2,175
53.3	2,182
52.4	2,201
51.1	2,249
51.0	2,250
50.9	2,256
50.9	2,256
50.8	2,257
50.8	2,258
50.8	2,259
50.8	2,261
50.8	2,262
50.8	2,262
50.8	2,264
50.8	2,269
50.9	2,276
50.9	2,278
51.0	2,281
51.0	2,282
51.1	2,283
51.1	2,284
51.1	2,285
51.1	2,285
51.1	2,285
51.1	2,286
51.2	2,286
52.6	2,343
52.8	2,350
52.8	2,351
53.1	2,358
53.4	2,366
53.5	2,371

Schematic - Actual



III. SAMPLES – W6A

The cuttings sampling programme for WEST KINGFISH W6A are detailed in the following table:

CUTTINGS SAMPLES

Interval	Formation	Sampling Details
KOP to ~150 m above predicted Top of Latrobe (TOL prognosed at 3268m MDRT) 700.0 – 3120.0m MDRT	Gippsland Limestone & Lakes Entrance	Cuttings samples for description only at 30 m intervals.
~150 m above predicted Top of Latrobe to Top of Latrobe (TOL prognosed at 3268m MDRT) 3130.0 – 3260.0 mMDRT	Lakes Entrance Formation	Three sets of washed and oven dried cuttings at 10 m intervals.
~Top of Latrobe to Total Depth (TD) (TOL prognosed at 3268m MDRT) 3265.0 – 3477.0 mMDRT	Latrobe Group	Three sets of washed and oven dried cuttings at 5 m intervals.

Detailed cuttings descriptions for the interval 700.0 to 3477.0mMDRT (TD) are contained in Appendix 3a.

CONVENTIONAL CORING

No conventional cores were cut in WEST KINGFISH W6A.

SIDEWALL CORING

No sidewall core samples were shot in WEST KINGFISH W6A.

IV. LOGS AND SURVEYS – W6A

Survey/Log	Company	Top (m MDRT)	Bottom (m MDRT)
MWD Run 1, Powerpulse (Directional & GR)	Schlumberger/Anadrill	695.0	2768.0
MWD Run 2, Powerpulse (Directional & GR)	Schlumberger/Anadrill	2768.0	TD 3477.0 (GR to 3455)
Run 1: Drillpipe conveyed Logging: MCG-MDN-MPD-MSS-MDL -MAI	Precision Energy Services Compact logging (wireline tools run on drillpipe with Shuttle System, memory mode)	695 (3112m top of main logging)	3477 TD (3468m bottom of log interval - sonic; 3461m - resistivity)

(Precision logs = Compact GR - Dual Neutron - Photo Density - Sonic - Dual Laterolog Resistivity - Induction Resistivity)

V. RESERVOIR & FORMATION TOPS - W6A

Horizon	M TVDSS			m MDRT	mTVT net oil	
	Predicted Tops	ACTUAL	Diff. (m)	ACTUAL	Predicted	ACTUAL
Base of Miocene High Velocity Channel	-1360	-1355.4	4.6 high	1838.0		
Lakes Entrance Formation	-2020	-2018.7	1.3 high	2952.0		
Top of Latrobe Group (TOL)	-2210	-2216.1	6.1 low	3280.0		
SBN3 (N.asperus Sequence Boundary) Gurnard shales	-	-2236.4	-	3312.3		
P1.0 sand	-	-2242.1	-	3321.3	-	1.1 (P1.0)
Top of P1.1 sand (FSP1)	-2235	-2243.6	8.6 low	3323.7	6-7	2.9 (P1.1)
P1.1 COWC		*-2246.7*		*3328.6*		
Base of P1.1 sand (SBP1)	-2243	-2252.6	9.6 low	3338.0		
Top of P1.2 sand (FP12)	-2253 (possible)	-2258.3	5.3 low	3347.1	-	Oil-bearing but non-net
Base of P1.2 sand (SP12) / (= top of thin Gurnard silt)	-	-2260.8	-	3351.0	-	-
Top of M1.2U ("SBP3")	-2255	Not present	-	Not present	4	-
Top of M1.2L (SBP2 / SBP3)	-2264	-2261.3	2.7 high	3351.8	-	2.9 (M1.2L)
Base of M1.2L sand (BM12)	-2267	-2264.2	2.8 high	3356.5	-	-
Base of M1.2L silty section (BM12W) / Top of M1.3 PS7 zone (with thin PS7 sand)	-	-2267.0	-	3361.1	-	0.8 (PS7 sand)
Top of M1.3U PS6 sand (PSB7)	-2274	-2270.5	3.5 high	3366.7	3	3.6 (PS6 sand)
PS6 COWC		*-2274.1*	-	*3372.5*		
PS5 sand (PSB6)	-2278	-2275.4	2.6 high	3374.5	1	swept
PS4 sand (PSB5)	-2280	-2278.2	1.8 high	3379.0	swept	swept
Top M1.3L PS3 sand (PSB4)	-2294	-2289.1	4.9 high	3396.8	"	"
PS2 sand (PSB3)	-2302	-2296.0	6.0 high	3407.9	"	"
PS1 sand (PSB2)	-	-2304.5	-	3422.0	"	"
WKF OOWC	*-2314*	*-2314.0*	-	*3437.6*		
Base of M1.3L/ Top M1.4U (SB13)	-2310	-2316.3	6.3 low	3441.4		
Top of M1.5	-2335	-	-	-		
TD	-2335	-2337.7	2.7 low	3477.0		

Net pay thickness is based on 10% porosity cutoff because sands are often thin or shaly yet productive.
OOWC = Original Oil-Water Contact
COWC = Current Oil-Water Contact
U = Upper L = Lower

(The reason predicted depths were not provided for some tops predrill is that the horizons or zones were of less importance than others, rather than they were unexpected).

VI. GEOLOGICAL ANALYSIS – WEST KINGFISH W6A

Objectives

The objective of West Kingfish W6A (Predrill Location M) was to develop potential oil reserves in the P1.1, M1.2 and M1.3U reservoirs on a broad structural high mapped in the area between W10, W4 and W31 to the west of the West Kingfish platform (Fig.2). This area was assessed to be attractive as most of the western wells, W24A and west to W32, have performed very well during their production histories as a result of their high position, which gives them good access to oil migrating from the broad west flank. Sand quality is also very good in this part of the field, and predrill mapping suggested there could be an attic closure at W6A updip of all the wells in this area.

A primary target for W6A was P1.1 sand which, due to the interpreted attic position, was expected to be oil-bearing. The P1.1 sand is a good quality, north-south trending channel body that is being accessed by W4 and W10, both of which are long-term producers in this reservoir. A 6-7m oil column was predicted at W6A based on the attic closure above W4 mapped from seismic interpretation.

In addition, it was thought that the excellent quality M1.2Upper sands present in W32A, W13C and W28 might be present, as they could extend updip into the area to be tested by W6A due to the presence of the mapped high. Elsewhere in this area the M1.2Upper has been eroded by a sequence boundary (SBP3) which has cut down so that only the underlying lesser quality M1.2Lower (M1.2L) sands remain. This is the case at W10, where P1.1 and P1.2 channel sands have been deposited within the hole created by this erosional event. While the P1.1 is extensive and therefore was expected at W6A, the P1.2 was thought to be generally restricted to the deepest parts of the incised area slightly further north-east, and therefore less likely to be present. Consequently the M1.2U/ M1.2L sands package was an important target for the well, with a 5m oil column prognosed in the attic. The deeper M1.3U sands also represented an attic oil target.

Predrill risks were recognised to be the structure coming in low and hence the sands being swept, and the uncertainty on sand presence. The potential for stacked reservoir targets on this major structural ridge provided for significant mitigation of these risks.

Results

West Kingfish oil development well W6A kicked off below the W6 existing surface casing on 7 September 2006 and drilled an 8 ½“ production hole to Total Depth of 3477m MDRT (-2337.7mTVDSS). The well was logged with Precision Energy Services’ compact wireline tools on drillpipe (Shuttle system) and cased and completed with 7” casing and 3 1/2” tubing. The well was handed over to production operations on 3 October 2006.

The Top of Latrobe was intersected at 3280.0m MDRT (-2216.1m TVDSS), 6.1mTVD low to prediction. The top of the P1.1 reservoir was intersected at 3323.7 MDRT (-2243.6m TVDSS), 8.6mTVD low to prediction. The error in depth prediction is believed to relate to velocity effects from the Miocene channels in the shallow section. The well consequently came in 2.2m deep to the W4 P1.1 sand top, implying there is no obvious attic above W4, however W6A is still updip of W10 by 5.0mTVD. Instead of the predicted 6-7mTVD oil column, a 2.9mTVD net oil zone was present in good quality P1.1 sand down to an oil-water contact at 3328.6m MDRT (-2246.7m TVDSS). Average porosity is 18.5% and water saturation 46% in the oil zone. Above the 9m thick P1.1 sand is a thin sand (“P1.0”) which contains about 1.1mTVD of net oil sand with poorer reservoir parameters (15% porosity and 75% water saturation). It is unclear if this small sand is in communication with the P1.1, however there is a good chance that it is partially connected.

Prior to drilling there was an awareness that the P1.1 sand could represent a differential sticking risk, because its reservoir pressure was interpreted to be strongly drawndown due to production compared to the underlying M1.2 and M1.3 sands. However no problems were encountered when drilling W6A and none were experienced in an earlier well W31A, where a similar situation existed. The use of a moderate mud weight and appropriate drilling practices assisted in avoiding problems associated with the drawdown. The reservoir drawdown may also be less than previously interpreted, which is a positive factor for ongoing production.

The M1.2U sands were not present at the well, and instead a section of poor quality P1.2 sand was intersected just above the M1.2L sand, indicating the SBP3 sequence boundary has cut down in this area removing the M1.2U completely. The P1.2 section is shaley at W6A and, although oil-bearing, is likely to be poorly or non-productive with average parameters of 12% porosity and 81% water saturation. The P1.2 penetrated at W6A is of poorer quality than at W10 and W24A where the channel sand is much cleaner.

Results (continued)

The 3m thick M1.2L is also oil-bearing to its base, with 2.9m TVD net oil sand of 17% average porosity and 52% water saturation. The M1.2L top at W6A is 0.8m TVD updip of W24A, which is the nearest well where the sand is perforated (commingled with P1.2) and the combined perforations continue to produce well.

Although the M1.2L at W6A is slightly deeper than at W4, the sand is not perforated in W4 and unlikely to be perforated in the near term as the P1.1 is currently producing and it would require a major workover to move downwards. Consequently W6A may provide a good future drainage point for M1.2L oil, particularly as there is a possibility that oil may extend further downdip to the west in this reservoir. Resistivity readings observed at W13C in the M1.2L suggest that oil may be remaining in this low to moderate quality reservoir, below the M1.2U which is clean and swept.

A small oil sand was encountered in the lower part of the generally shaley M1.3U PS7 section. It has 0.8m TVD net oil sand. The top of the M1.3U PS6 sand (PSB7) was encountered 3.5m high to prediction and the sand is interpreted to contain 3.6m TVD net oil. This contrasts with W24A further east where, although positioned at a similar structural level, the reservoir was shown to be swept in 1999. This suggests that the slight saddle to the east of W6A may represent a spill point to an effective closure drilled by W6A.

The deeper M1.3 sands were all swept.

W6A was completed as a 3 ½" selective single (tandem) completion with the P1.1 sand isolated by packers and on production through a sliding sleeve. The reservoir flowed at an initial oil rate of 69klo/day and water cut 78% on 12 October 2006. The reason for the high water cut is probably the proximity of the OWC. After two months, the rate had declined to 42klo/d on 2 December 2006, while water cut was constant at 79%. Limited pressure support for the reservoir may be reducing its flow.

Because the nearby wells W4 and W10 are also producing from the P1.1, it is anticipated that, in the near future, the sliding sleeve over the P1.1 in W6A will be closed to maintain P1.1 reservoir pressure and the well recompleted to the deeper M1.3U reservoir.

APPENDIX 1a

WEST KINGFISH W6A

Survey Data

WKF W-6A Final Geodetic Survey

Report Date:	September 18, 2006	Survey / DLS Computation Method:	Minimum Curvature / Lubinski
Client:	Esso Australia Pty Ltd	Vertical Section Azimuth:	265.940°
Field:	Kingfish GDA 94	Vertical Section Origin:	S 0.480 m, E 10.650 m
Structure / Slot:	West Kingfish / 6	TVD Reference Datum:	RKB
Well:	6	TVD Reference Elevation:	33.43 m relative to MSL
Borehole:	WKF W-6A	Sea Bed / Ground Level Elevation:	-76.130 m relative to MSL
UWI/API#:		Magnetic Declination:	13.218°
Survey Name / Date:	WKF W-6A Final / September 8, 2006	Total Field Strength:	60100.109 nT
Tort / AHD / DDI / ERD ratio:	137.311° / 2377.37 m / 6.196 / 1.003	Magnetic Dip:	-69.057°
Grid Coordinate System:	GDA94/MGA94 Zone 55	Declination Date:	September 08, 2006
Location Lat/Long:	S 38 35 34.706, E 148 6 19.764	Magnetic Declination Model:	BGGM 2006
Location Grid N/E Y/X:	N 5727810.570 m, E 596273.687 m	North Reference:	Grid North
Grid Convergence Angle:	-0.68963970°	Total Corr Mag North -> Grid North:	+13.908°
Grid Scale Factor:	0.99971414	Local Coordinates Referenced To:	Structure Reference Point

Comments	Measured Depth (m)	Inclination (deg)	Azimuth (deg)	TVD (m)	Vertical Section (m)	NS (m)	EW (m)	DLS (deg/30 m)	Northing (m)	Easting (m)	Latitude	Longitude
Projected-Up	0.00	0.00	0.00	0.00	0.00	-0.48	10.65	0.00	5727810.57	596273.69	S 38 35 34.706	E 148 6 19.764
	24.53	0.00	0.00	24.53	0.00	-0.48	10.65	0.00	5727810.57	596273.69	S 38 35 34.706	E 148 6 19.764
	108.33	0.25	301.90	108.33	0.15	-0.38	10.49	0.09	5727810.67	596273.53	S 38 35 34.703	E 148 6 19.758
	118.33	0.66	301.90	118.33	0.21	-0.34	10.43	1.23	5727810.71	596273.46	S 38 35 34.702	E 148 6 19.755
	128.33	0.75	312.90	128.33	0.30	-0.27	10.33	0.49	5727810.78	596273.37	S 38 35 34.699	E 148 6 19.751
	138.33	0.80	307.70	138.33	0.40	-0.18	10.23	0.26	5727810.87	596273.26	S 38 35 34.696	E 148 6 19.747
	148.33	1.00	317.40	148.33	0.51	-0.07	10.11	0.75	5727810.98	596273.15	S 38 35 34.693	E 148 6 19.742
	158.33	1.00	311.90	158.33	0.62	0.05	9.99	0.29	5727811.10	596273.03	S 38 35 34.689	E 148 6 19.737
	168.33	1.20	317.50	168.33	0.75	0.19	9.85	0.68	5727811.24	596272.89	S 38 35 34.685	E 148 6 19.731
	180.35	1.50	334.40	180.34	0.88	0.42	9.70	1.24	5727811.47	596272.74	S 38 35 34.677	E 148 6 19.725
	190.08	1.75	330.90	190.07	0.99	0.67	9.57	0.83	5727811.71	596272.61	S 38 35 34.669	E 148 6 19.719
	199.73	2.75	327.40	199.71	1.17	0.99	9.38	3.14	5727812.04	596272.41	S 38 35 34.659	E 148 6 19.711
	209.27	5.25	328.90	209.23	1.47	1.56	9.03	7.87	5727812.61	596272.07	S 38 35 34.641	E 148 6 19.696
	218.74	6.75	330.40	218.65	1.91	2.41	8.53	4.78	5727813.46	596271.57	S 38 35 34.613	E 148 6 19.675
	228.40	8.25	331.40	228.22	2.44	3.51	7.92	4.68	5727814.56	596270.95	S 38 35 34.578	E 148 6 19.650
	238.02	9.50	332.40	237.73	3.05	4.82	7.22	3.93	5727815.87	596270.26	S 38 35 34.535	E 148 6 19.620
	247.28	10.75	333.40	246.84	3.68	6.27	6.48	4.09	5727817.32	596269.52	S 38 35 34.489	E 148 6 19.589
	256.58	11.00	333.90	255.98	4.35	7.84	5.70	0.86	5727818.89	596268.74	S 38 35 34.438	E 148 6 19.556
	266.11	11.50	331.40	265.32	5.08	9.49	4.84	2.20	5727820.54	596267.88	S 38 35 34.385	E 148 6 19.520
	275.75	12.75	328.40	274.75	5.98	11.24	3.83	4.36	5727822.29	596266.87	S 38 35 34.328	E 148 6 19.477
	285.47	13.50	328.40	284.21	7.00	13.12	2.67	2.31	5727824.17	596265.71	S 38 35 34.268	E 148 6 19.428
	294.92	14.50	327.40	293.38	8.07	15.06	1.46	3.27	5727826.11	596264.49	S 38 35 34.206	E 148 6 19.377
	304.65	15.00	325.40	302.79	9.29	17.12	0.08	2.20	5727828.17	596263.12	S 38 35 34.139	E 148 6 19.319
	313.59	15.75	325.40	311.41	10.50	19.07	-1.26	2.52	5727830.12	596261.78	S 38 35 34.077	E 148 6 19.263
	342.45	17.00	313.40	339.11	15.34	25.20	-6.55	3.74	5727836.24	596256.49	S 38 35 33.880	E 148 6 19.041
	371.32	18.25	302.90	366.63	21.81	30.56	-13.42	3.54	5727841.60	596249.63	S 38 35 33.709	E 148 6 18.755
	400.18	21.00	297.90	393.81	29.81	35.43	-21.78	3.35	5727846.47	596241.26	S 38 35 33.554	E 148 6 18.406
	429.05	23.50	293.40	420.53	39.31	40.14	-31.64	3.14	5727851.18	596231.41	S 38 35 33.405	E 148 6 17.997
	457.91	25.00	286.90	446.85	50.11	44.20	-42.76	3.18	5727855.24	596220.29	S 38 35 33.278	E 148 6 17.535
	486.78	25.00	286.90	473.02	61.51	47.75	-54.43	0.00	5727858.78	596208.62	S 38 35 33.168	E 148 6 17.051
	515.47	30.50	285.40	498.40	74.04	51.44	-67.26	5.80	5727862.48	596195.80	S 38 35 33.053	E 148 6 16.519
	544.07	34.00	283.40	522.58	88.52	55.23	-82.04	3.84	5727866.26	596181.02	S 38 35 32.936	E 148 6 15.907
	572.66	37.75	283.40	545.74	104.50	59.11	-98.34	3.93	5727870.14	596164.73	S 38 35 32.816	E 148 6 15.232
	601.26	41.75	284.40	567.73	121.89	63.51	-116.09	4.25	5727874.54	596146.99	S 38 35 32.680	E 148 6 14.496
	629.86	44.50	284.40	588.60	140.43	68.37	-135.02	2.88	5727879.40	596128.06	S 38 35 32.530	E 148 6 13.711
	658.46	44.50	286.40	609.00	159.33	73.69	-154.34	1.47	5727884.72	596108.74	S 38 35 32.365	E 148 6 12.910
	687.06	46.25	286.40	629.09	178.40	79.44	-173.87	1.84	5727890.46	596089.22	S 38 35 32.186	E 148 6 12.101
Tie-In	690.00	45.86	286.40	631.13	180.38	80.03	-175.90	3.95	5727891.06	596087.19	S 38 35 32.168	E 148 6 12.016
	709.33	45.71	283.20	644.61	193.49	83.57	-189.29	3.57	5727894.60	596073.80	S 38 35 32.058	E 148 6 11.461
	738.24	43.99	277.46	665.11	213.22	87.24	-209.33	4.56	5727898.27	596053.77	S 38 35 31.947	E 148 6 10.632
	766.50	43.12	273.65	685.60	232.41	89.13	-228.70	2.94	5727900.16	596034.40	S 38 35 31.893	E 148 6 9.830
	795.10	42.25	273.35	706.62	251.63	90.31	-248.06	0.94	5727901.34	596015.06	S 38 35 31.863	E 148 6 9.030
	823.65	41.28	269.78	727.92	270.55	90.84	-267.06	2.70	5727901.86	595996.06	S 38 35 31.853	E 148 6 8.244
	852.55	40.91	267.75	749.70	289.52	90.43	-286.05	1.44	5727901.46	595977.07	S 38 35 31.874	E 148 6 7.460
	881.21	40.24	267.07	771.47	308.15	89.59	-304.67	0.84	5727900.61	595958.46	S 38 35 31.908	E 148 6 6.691
	909.84	40.51	267.27	793.28	326.69	88.67	-323.19	0.31	5727899.70	595939.94	S 38 35 31.945	E 148 6 5.926
	938.68	41.99	266.95	814.96	345.70	87.71	-342.18	1.56	5727898.74	595920.95	S 38 35 31.983	E 148 6 5.142
	967.42	41.91	266.94	836.34	364.91	86.69	-361.37	0.08	5727897.72	595901.77	S 38 35 32.024	E 148 6 4.350

996.03	41.55	267.19	857.69	383.95	85.72	-380.39	0.42	5727896.74	595882.76	S 38 35 32.063	E 148 6 3.564
1024.68	42.13	267.43	879.03	403.06	84.82	-399.48	0.63	5727895.84	595863.68	S 38 35 32.100	E 148 6 2.776
1053.07	41.86	267.04	900.13	422.05	83.90	-418.45	0.40	5727894.93	595844.71	S 38 35 32.137	E 148 6 1.993
1082.11	41.04	267.01	921.90	441.27	82.91	-437.65	0.85	5727893.93	595825.52	S 38 35 32.177	E 148 6 1.200
1110.24	42.41	265.86	942.89	459.99	81.74	-456.33	1.67	5727892.77	595806.84	S 38 35 32.222	E 148 6 0.428
1139.08	42.37	265.61	964.19	479.43	80.29	-475.72	0.18	5727891.32	595787.45	S 38 35 32.276	E 148 5 59.628
1167.71	44.96	265.60	984.90	499.20	78.78	-495.43	2.71	5727889.81	595767.75	S 38 35 32.333	E 148 5 58.814
1196.36	47.43	264.84	1004.73	519.87	77.05	-516.03	2.65	5727888.08	595747.16	S 38 35 32.397	E 148 5 57.964
1225.27	50.24	262.40	1023.76	541.61	74.62	-537.65	3.48	5727885.65	595725.54	S 38 35 32.484	E 148 5 57.072
1254.31	52.65	262.37	1041.86	564.28	71.62	-560.16	2.49	5727882.64	595703.04	S 38 35 32.590	E 148 5 56.143
1283.07	53.53	261.94	1059.13	587.22	68.48	-582.94	0.99	5727879.51	595680.26	S 38 35 32.701	E 148 5 55.204
1311.71	53.01	261.83	1076.26	610.12	65.24	-605.67	0.55	5727876.27	595657.55	S 38 35 32.815	E 148 5 54.266
1340.41	53.44	262.45	1093.44	633.05	62.09	-628.44	0.69	5727873.12	595634.78	S 38 35 32.926	E 148 5 53.327
1369.31	52.88	262.58	1110.77	656.14	59.08	-651.37	0.59	5727870.11	595611.86	S 38 35 33.032	E 148 5 52.381
1398.19	53.32	262.64	1128.11	679.20	56.11	-674.27	0.46	5727867.14	595588.96	S 38 35 33.137	E 148 5 51.436
1426.95	53.72	261.79	1145.21	702.27	52.98	-697.18	0.83	5727864.01	595566.05	S 38 35 33.248	E 148 5 50.491
1455.72	53.27	261.54	1162.32	725.33	49.62	-720.07	0.51	5727860.66	595543.18	S 38 35 33.365	E 148 5 49.547
1484.35	54.06	261.12	1179.29	748.32	46.15	-742.87	0.90	5727857.18	595520.39	S 38 35 33.487	E 148 5 48.607
1513.16	53.59	260.70	1196.29	771.49	42.47	-765.83	0.60	5727853.51	595497.43	S 38 35 33.615	E 148 5 47.660
1541.86	53.98	261.26	1213.25	794.56	38.84	-788.70	0.62	5727849.88	595474.57	S 38 35 33.742	E 148 5 46.717
1570.30	53.53	260.76	1230.06	817.41	35.26	-811.35	0.64	5727846.30	595451.92	S 38 35 33.867	E 148 5 45.782
1599.05	53.88	262.48	1247.08	840.51	31.88	-834.28	1.49	5727842.92	595429.00	S 38 35 33.985	E 148 5 44.837
1627.43	53.47	262.47	1263.89	863.34	28.89	-856.94	0.43	5727839.93	595406.34	S 38 35 34.091	E 148 5 43.902
1656.18	52.81	262.34	1281.14	886.30	25.85	-879.75	0.70	5727836.89	595383.55	S 38 35 34.198	E 148 5 42.961
1685.11	53.85	262.93	1298.42	909.46	22.88	-902.76	1.18	5727833.92	595360.54	S 38 35 34.303	E 148 5 42.012
1713.71	53.65	263.19	1315.33	932.50	20.09	-925.65	0.30	5727831.13	595337.65	S 38 35 34.403	E 148 5 41.067
1742.69	53.28	263.21	1332.58	955.76	17.33	-948.77	0.38	5727828.38	595314.54	S 38 35 34.501	E 148 5 40.113
1771.13	54.15	263.26	1349.41	978.65	14.63	-971.54	0.92	5727825.68	595291.78	S 38 35 34.597	E 148 5 39.174
1800.06	53.99	263.13	1366.39	1002.05	11.86	-994.80	0.20	5727822.90	595268.52	S 38 35 34.696	E 148 5 38.214
1828.94	53.63	262.43	1383.44	1025.33	8.93	-1017.92	0.70	5727819.97	595245.41	S 38 35 34.800	E 148 5 37.260
1857.75	53.88	262.42	1400.47	1048.52	5.86	-1040.96	0.26	5727816.91	595222.38	S 38 35 34.909	E 148 5 36.310
1886.75	53.18	262.52	1417.71	1071.80	2.81	-1064.08	0.73	5727813.86	595199.27	S 38 35 35.017	E 148 5 35.356
1915.07	53.60	262.27	1434.60	1094.48	-0.20	-1086.61	0.49	5727810.85	595176.74	S 38 35 35.123	E 148 5 34.426
1944.54	53.61	262.66	1452.09	1118.16	-3.31	-1110.12	0.32	5727807.74	595153.23	S 38 35 35.233	E 148 5 33.456
1973.18	52.93	262.51	1469.21	1141.08	-6.27	-1132.89	0.72	5727804.78	595130.48	S 38 35 35.338	E 148 5 32.517
2001.77	52.96	264.12	1486.44	1163.87	-8.93	-1155.55	1.35	5727802.12	595107.82	S 38 35 35.432	E 148 5 31.582
2030.97	53.86	263.51	1503.85	1187.30	-11.46	-1178.85	1.05	5727799.60	595084.52	S 38 35 35.523	E 148 5 30.620
2059.35	53.09	263.20	1520.74	1210.08	-14.10	-1201.51	0.86	5727796.96	595061.88	S 38 35 35.618	E 148 5 29.686
2087.64	53.38	263.07	1537.67	1232.72	-16.80	-1224.01	0.33	5727794.25	595039.38	S 38 35 35.714	E 148 5 28.757
2116.53	53.75	262.65	1554.83	1255.92	-19.69	-1247.07	0.52	5727791.36	595016.33	S 38 35 35.817	E 148 5 27.806
2145.71	53.13	262.89	1572.21	1279.33	-22.64	-1270.32	0.67	5727788.41	594993.08	S 38 35 35.921	E 148 5 26.847
2174.44	53.32	263.02	1589.41	1302.31	-25.47	-1293.16	0.23	5727785.59	594970.25	S 38 35 36.022	E 148 5 25.904
2203.17	53.65	262.30	1606.51	1325.36	-28.42	-1316.06	0.70	5727782.64	594947.35	S 38 35 36.126	E 148 5 24.959
2231.77	52.82	261.92	1623.62	1348.22	-31.56	-1338.76	0.93	5727779.50	594924.67	S 38 35 36.237	E 148 5 24.023
2260.74	53.08	261.38	1641.08	1371.28	-34.92	-1361.63	0.52	5727776.14	594901.80	S 38 35 36.355	E 148 5 23.080
2289.24	53.40	260.97	1658.13	1394.03	-38.42	-1384.19	0.48	5727772.64	594879.24	S 38 35 36.477	E 148 5 22.149
2317.55	53.91	260.96	1674.91	1416.75	-42.00	-1406.71	0.54	5727769.06	594856.73	S 38 35 36.602	E 148 5 21.220
2346.50	52.97	260.82	1692.16	1439.91	-45.68	-1429.67	0.98	5727765.38	594833.77	S 38 35 36.730	E 148 5 20.273
2374.77	53.67	262.16	1709.04	1462.51	-49.04	-1452.10	1.36	5727762.03	594811.36	S 38 35 36.847	E 148 5 19.349
2403.76	53.94	263.26	1726.16	1485.87	-52.01	-1475.30	0.96	5727759.06	594788.16	S 38 35 36.952	E 148 5 18.391
2432.54	53.14	262.81	1743.27	1508.99	-54.81	-1498.28	0.92	5727756.25	594765.19	S 38 35 37.052	E 148 5 17.443
2461.11	52.81	262.65	1760.47	1531.76	-57.70	-1520.90	0.37	5727753.37	594742.57	S 38 35 37.155	E 148 5 16.510
2489.92	53.49	263.17	1777.75	1554.78	-60.54	-1543.78	0.83	5727750.52	594719.70	S 38 35 37.256	E 148 5 15.566
2517.99	53.46	263.01	1794.46	1577.31	-63.26	-1566.17	0.14	5727747.81	594697.31	S 38 35 37.352	E 148 5 14.642
2546.97	52.75	262.81	1811.85	1600.46	-66.12	-1589.17	0.75	5727744.95	594674.32	S 38 35 37.454	E 148 5 13.693
2575.68	53.70	262.57	1829.04	1623.41	-69.04	-1611.98	1.01	5727742.03	594651.52	S 38 35 37.557	E 148 5 12.752
2604.19	52.78	262.57	1846.10	1646.22	-72.00	-1634.63	0.97	5727739.07	594628.88	S 38 35 37.662	E 148 5 11.818
2632.63	53.53	262.51	1863.16	1668.93	-74.95	-1657.20	0.79	5727736.12	594606.32	S 38 35 37.766	E 148 5 10.887
2661.88	54.17	262.17	1880.41	1692.51	-78.10	-1680.61	0.71	5727732.97	594582.92	S 38 35 37.877	E 148 5 9.921
2690.32	53.40	261.96	1897.21	1715.40	-81.27	-1703.33	0.83	5727729.80	594560.20	S 38 35 37.989	E 148 5 8.983
2719.04	53.76	262.04	1914.27	1738.46	-84.49	-1726.22	0.38	5727726.59	594537.32	S 38 35 38.102	E 148 5 8.039
2746.92	53.08	261.78	1930.88	1760.79	-87.64	-1748.38	0.77	5727723.44	594515.16	S 38 35 38.213	E 148 5 7.125
2778.51	53.97	261.32	1949.66	1786.12	-91.37	-1773.51	0.92	5727719.71	594490.04	S 38 35 38.343	E 148 5 6.089
2807.18	54.24	261.80	1966.47	1809.27	-94.78	-1796.48	0.50	5727716.30	594467.07	S 38 35 38.463	E 148 5 5.141
2835.60	53.62	261.31	1983.20	1832.18	-98.15	-1819.20	0.78	5727712.93	594444.36	S 38 35 38.581	E 148 5 4.204
2864.27	53.49	262.06	2000.23	1855.18	-101.49	-1842.02	0.65	5727709.59	594421.54	S 38 35 38.698	E 148 5 3.263
2893.11	54.05	262.02	2017.28	1878.39	-104.71	-1865.06	0.58	5727706.37	594398.51	S 38 35 38.811	E 148 5 2.312

	2922.03	53.61	261.68	2034.35	1901.67	-108.02	-1888.17	0.54	5727703.06	594375.41	S 38 35 38.927	E 148 5 1.359
	2950.86	53.68	261.99	2051.44	1924.83	-111.31	-1911.16	0.27	5727699.77	594352.43	S 38 35 39.043	E 148 5 0.411
	2978.82	53.21	262.06	2068.09	1947.24	-114.43	-1933.40	0.51	5727696.65	594330.19	S 38 35 39.152	E 148 4 59.493
	3007.83	52.97	262.77	2085.51	1970.39	-117.49	-1956.39	0.64	5727693.59	594307.21	S 38 35 39.260	E 148 4 58.545
	3035.59	52.66	262.33	2102.29	1992.47	-120.36	-1978.32	0.51	5727690.72	594285.28	S 38 35 39.362	E 148 4 57.640
	3064.95	53.36	262.68	2119.95	2015.88	-123.42	-2001.57	0.77	5727687.67	594262.04	S 38 35 39.470	E 148 4 56.681
	3094.17	54.32	262.81	2137.20	2039.43	-126.40	-2024.97	0.99	5727684.69	594238.64	S 38 35 39.575	E 148 4 55.715
	3123.14	54.15	262.62	2154.13	2062.90	-129.38	-2048.29	0.24	5727681.71	594215.33	S 38 35 39.681	E 148 4 54.753
	3152.01	53.63	262.32	2171.14	2086.18	-132.44	-2071.41	0.60	5727678.65	594192.22	S 38 35 39.789	E 148 4 53.799
	3179.78	53.10	262.07	2187.71	2108.42	-135.46	-2093.49	0.61	5727675.63	594170.15	S 38 35 39.896	E 148 4 52.888
	3208.82	52.19	261.96	2205.33	2131.45	-138.67	-2116.35	0.94	5727672.42	594147.29	S 38 35 40.008	E 148 4 51.945
	3237.72	51.83	261.90	2223.12	2154.17	-141.86	-2138.90	0.38	5727669.23	594124.75	S 38 35 40.121	E 148 4 51.015
	3266.31	51.32	262.10	2240.89	2176.51	-144.98	-2161.08	0.56	5727666.11	594102.58	S 38 35 40.230	E 148 4 50.100
	3295.03	50.77	261.90	2258.95	2198.79	-148.09	-2183.20	0.60	5727663.00	594080.47	S 38 35 40.339	E 148 4 49.188
	3323.76	50.89	261.78	2277.09	2221.01	-151.25	-2205.25	0.16	5727659.84	594058.42	S 38 35 40.450	E 148 4 48.278
	3352.54	51.40	261.23	2295.15	2243.36	-154.56	-2227.41	0.69	5727656.53	594036.26	S 38 35 40.566	E 148 4 47.364
	3381.41	51.71	261.06	2313.10	2265.89	-158.04	-2249.75	0.35	5727653.05	594013.93	S 38 35 40.687	E 148 4 46.443
	3409.74	52.40	260.55	2330.52	2288.14	-161.61	-2271.81	0.85	5727649.48	593991.88	S 38 35 40.812	E 148 4 45.533
	3438.82	52.74	260.11	2348.19	2311.12	-165.49	-2294.57	0.50	5727645.60	593969.12	S 38 35 40.946	E 148 4 44.594
	3455.28	53.13	259.96	2358.11	2324.18	-167.77	-2307.51	0.74	5727643.33	593956.19	S 38 35 41.025	E 148 4 44.061
Projected to TD	3477.00	53.50	259.80	2371.09	2341.51	-170.83	-2324.66	0.54	5727640.27	593939.05	S 38 35 41.131	E 148 4 43.354

Survey Type: Definitive Survey

Survey Error Model: **SLB ISCWSA version 24 *** 3-D 95.00% Confidence 2.7955 sigma**

Surveying Prog:

MD From (m)	MD To (m)	EOU Freq	Survey Tool Type	Borehole -> Survey
0.00	109.56	Act-Stns	SLB_MWD-STD-Depth Only	WKF-6 -> WKF-06 Final
109.56	168.33	Act-Stns	SLB_MWD-STD	WKF-6 -> WKF-06 Final
168.33	690.00	Act-Stns	SLB_MWD-POOR	WKF-6 -> WKF-06 Final
690.00	3477.00	Act-Stns	SLB_MWD-STD	WKF W-6A -> WKF W-6A Final

APPENDIX 1b

WEST KINGFISH W6A

Survey Data Listing

Report Date:	30 November 2006
Well:	West Kingfish W6A
Structure / Slot:	NABORS Rig 453
TVD Reference Datum:	Drillsite Elevation
TVD Reference Elevation:	33.43 m relative to MSL
Sea Bed / Ground Level Elevation:	76.13 m relative to MSL
Grid Coordinate System:	GDA94/MGA94 Zone 55
Location Lat/Long:	S 38 35' 34.706", E 148 6' 19.764"
Location Grid N/E:	N 5727810.570 m, E 596273.687 m
Survey Azimuth Reference:	Grid North

*Dnorth and Deast are with respect to top of conductor W6, whereas NS and EW offsets on Anadrill/Schlumberger survey data are with respect to No. 1 conductor. Northings and Eastings are absolute grid coordinates.

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
0	0	360	0	33.43	0	0	5727810.57	596273.69
5	0	0	5	28.43	0	0	5727810.57	596273.69
10	0	0	10	23.43	0	0	5727810.57	596273.69
15	0	0	15	18.43	0	0	5727810.57	596273.69
20	0	0	20	13.43	0	0	5727810.57	596273.69
25	0	359.68	25	8.43	0	0	5727810.57	596273.69
30	0.02	356.21	30.00	3.43	0	0	5727810.57	596273.69
35	0.03	352.74	35.00	-1.57	0	0	5727810.57	596273.69
40	0.05	349.28	40.00	-6.57	0	-0.01	5727810.57	596273.69
45	0.06	345.81	45.00	-11.57	0.01	-0.01	5727810.58	596273.68
50	0.08	342.34	50.00	-16.57	0.01	-0.01	5727810.58	596273.68
55	0.09	338.88	55.00	-21.57	0.01	-0.02	5727810.58	596273.67
60	0.11	335.41	60.00	-26.57	0.02	-0.03	5727810.59	596273.66
65	0.12	331.94	65.00	-31.57	0.02	-0.04	5727810.59	596273.66
70	0.14	328.48	70.00	-36.57	0.03	-0.05	5727810.60	596273.65
75	0.15	325.01	75.00	-41.57	0.04	-0.06	5727810.61	596273.64
80	0.17	321.54	80.00	-46.57	0.04	-0.07	5727810.61	596273.62
85	0.18	318.08	85.00	-51.57	0.05	-0.08	5727810.62	596273.61
90	0.20	314.61	90.00	-56.57	0.06	-0.09	5727810.63	596273.60
95	0.21	311.14	95.00	-61.57	0.07	-0.11	5727810.64	596273.58
100	0.23	307.68	100.00	-66.57	0.08	-0.13	5727810.65	596273.57
105	0.24	304.21	105.00	-71.57	0.09	-0.14	5727810.66	596273.55
110	0.32	301.90	110.00	-76.57	0.10	-0.16	5727810.67	596273.53
115	0.52	301.90	115.00	-81.57	0.12	-0.19	5727810.69	596273.50
120	0.68	303.73	120.00	-86.57	0.15	-0.24	5727810.72	596273.45
125	0.72	309.23	125.00	-91.57	0.19	-0.29	5727810.76	596273.40
130	0.76	312.03	130.00	-96.57	0.23	-0.34	5727810.80	596273.36
135	0.78	309.43	135.00	-101.57	0.27	-0.39	5727810.84	596273.31
140	0.83	309.32	140.00	-106.57	0.32	-0.44	5727810.89	596273.25
145	0.93	314.17	145.00	-111.57	0.37	-0.50	5727810.94	596273.19
150	1.00	316.48	150.00	-116.57	0.43	-0.56	5727811.00	596273.14
155	1.00	313.73	155.00	-121.57	0.49	-0.62	5727811.06	596273.07
160	1.03	312.83	160.00	-126.57	0.55	-0.68	5727811.12	596273.01
165	1.13	315.63	164.99	-131.56	0.62	-0.75	5727811.19	596272.94
170	1.24	319.84	169.99	-136.56	0.69	-0.82	5727811.26	596272.87
175	1.37	326.87	174.99	-141.56	0.78	-0.89	5727811.35	596272.81
180	1.49	333.90	179.99	-146.56	0.89	-0.94	5727811.46	596272.75
185	1.62	332.73	184.99	-151.56	1.01	-1.01	5727811.58	596272.69
190	1.75	330.93	189.99	-156.56	1.14	-1.07	5727811.71	596272.62
195	2.26	329.12	194.98	-161.55	1.29	-1.16	5727811.86	596272.53
200	2.82	327.44	199.98	-166.55	1.48	-1.28	5727812.05	596272.41
205	4.13	328.23	204.97	-171.54	1.74	-1.44	5727812.31	596272.25
210	5.37	329.02	209.95	-176.52	2.09	-1.66	5727812.66	596272.04
215	6.16	329.81	214.93	-181.50	2.52	-1.91	5727813.09	596271.78
220	6.95	330.53	219.89	-186.46	3.02	-2.19	5727813.59	596271.50
225	7.72	331.05	224.85	-191.42	3.58	-2.51	5727814.15	596271.19
230	8.46	331.57	229.80	-196.37	4.20	-2.84	5727814.77	596270.85

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
235	9.11	332.09	234.74	-201.31	4.87	-3.20	5727815.44	596270.49
240	9.77	332.61	239.68	-206.25	5.59	-3.58	5727816.16	596270.11
245	10.44	333.15	244.60	-211.17	6.38	-3.98	5727816.95	596269.71
250	10.82	333.55	249.51	-216.08	7.20	-4.40	5727817.78	596269.29
255	10.96	333.81	254.42	-220.99	8.05	-4.82	5727818.62	596268.87
260	11.18	333.00	259.33	-225.90	8.91	-5.24	5727819.48	596268.45
265	11.44	331.69	264.23	-230.80	9.78	-5.70	5727820.35	596267.99
270	12.00	330.19	269.13	-235.70	10.66	-6.19	5727821.23	596267.50
275	12.65	328.63	274.01	-240.58	11.58	-6.73	5727822.15	596266.96
280	13.08	328.40	278.89	-245.46	12.53	-7.32	5727823.10	596266.37
285	13.46	328.40	283.75	-250.32	13.51	-7.92	5727824.08	596265.77
290	13.98	327.92	288.61	-255.18	14.51	-8.55	5727825.08	596265.15
295	14.50	327.38	293.46	-260.03	15.55	-9.20	5727826.12	596264.49
300	14.76	326.36	298.30	-264.87	16.61	-9.89	5727827.18	596263.80
305	15.03	325.40	303.13	-269.70	17.67	-10.61	5727828.24	596263.08
310	15.45	325.40	307.95	-274.52	18.75	-11.36	5727829.32	596262.33
315	15.81	324.81	312.77	-279.34	19.86	-12.13	5727830.43	596261.56
320	16.03	322.74	317.57	-284.14	20.97	-12.94	5727831.54	596260.75
325	16.24	320.66	322.38	-288.95	22.05	-13.80	5727832.62	596259.89
330	16.46	318.58	327.18	-293.75	23.11	-14.71	5727833.68	596258.98
335	16.68	316.50	331.97	-298.54	24.15	-15.67	5727834.72	596258.02
340	16.89	314.42	336.76	-303.33	25.18	-16.68	5727835.75	596257.01
345	17.11	312.47	341.54	-308.11	26.18	-17.75	5727836.75	596255.95
350	17.33	310.66	346.32	-312.89	27.16	-18.85	5727837.73	596254.84
355	17.54	308.84	351.09	-317.66	28.11	-20.00	5727838.68	596253.69
360	17.76	307.02	355.86	-322.43	29.03	-21.20	5727839.60	596252.50
365	17.98	305.20	360.62	-327.19	29.93	-22.43	5727840.50	596251.26
370	18.19	303.38	365.37	-331.94	30.80	-23.71	5727841.37	596249.98
375	18.60	302.26	370.12	-336.69	31.65	-25.04	5727842.22	596248.65
380	19.08	301.40	374.85	-341.42	32.50	-26.41	5727843.07	596247.28
385	19.55	300.53	379.57	-346.14	33.35	-27.83	5727843.92	596245.86
390	20.03	299.66	384.27	-350.85	34.19	-29.30	5727844.76	596244.39
395	20.51	298.80	388.97	-355.54	35.03	-30.81	5727845.60	596242.88
400	20.98	297.93	393.64	-360.21	35.87	-32.37	5727846.44	596241.32
405	21.42	297.15	398.30	-364.87	36.71	-33.97	5727847.28	596239.72
410	21.85	296.37	402.95	-369.52	37.53	-35.62	5727848.10	596238.07
415	22.28	295.59	407.59	-374.16	38.35	-37.31	5727848.92	596236.39
420	22.72	294.81	412.21	-378.78	39.16	-39.04	5727849.73	596234.65
425	23.15	294.03	416.81	-383.38	39.96	-40.81	5727850.54	596232.88
430	23.55	293.19	421.40	-387.97	40.76	-42.63	5727851.33	596231.06
435	23.81	292.06	425.98	-392.55	41.53	-44.48	5727852.10	596229.21
440	24.07	290.93	430.55	-397.12	42.27	-46.37	5727852.84	596227.32
445	24.33	289.81	435.11	-401.68	42.98	-48.29	5727853.55	596225.41
450	24.59	288.68	439.67	-406.24	43.66	-50.24	5727854.23	596223.45
455	24.85	287.56	444.21	-410.78	44.30	-52.22	5727854.87	596221.47
460	25.00	286.90	448.74	-415.31	44.92	-54.24	5727855.49	596219.45
465	25.00	286.90	453.27	-419.84	45.54	-56.26	5727856.11	596217.43
470	25.00	286.90	457.81	-424.38	46.15	-58.28	5727856.72	596215.41
475	25.00	286.90	462.34	-428.91	46.77	-60.30	5727857.34	596213.39
480	25.00	286.90	466.87	-433.44	47.38	-62.33	5727857.95	596211.37
485	25.00	286.90	471.40	-437.97	47.99	-64.35	5727858.57	596209.34
490	25.62	286.73	475.92	-442.49	48.61	-66.38	5727859.18	596207.31
495	26.58	286.47	480.41	-446.98	49.24	-68.49	5727859.81	596205.20
500	27.53	286.21	484.87	-451.44	49.87	-70.67	5727860.44	596203.02
505	28.49	285.95	489.28	-455.85	50.52	-72.93	5727861.09	596200.76
510	29.45	285.69	493.66	-460.23	51.18	-75.26	5727861.75	596198.43
515	30.41	285.42	497.99	-464.56	51.85	-77.66	5727862.42	596196.03
520	31.05	285.08	502.29	-468.86	52.52	-80.13	5727863.09	596193.56
525	31.67	284.73	506.56	-473.13	53.19	-82.64	5727863.76	596191.05

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
530	32.28	284.38	510.80	-477.37	53.85	-85.21	5727864.42	596188.49
535	32.89	284.03	515.01	-481.58	54.51	-87.82	5727865.08	596185.88
540	33.50	283.68	519.20	-485.76	55.16	-90.47	5727865.73	596183.22
545	34.12	283.40	523.35	-489.92	55.81	-93.18	5727866.38	596180.51
550	34.78	283.40	527.47	-494.04	56.47	-95.93	5727867.04	596177.76
555	35.43	283.40	531.56	-498.13	57.13	-98.73	5727867.70	596174.97
560	36.09	283.40	535.62	-502.19	57.81	-101.57	5727868.38	596172.13
565	36.74	283.40	539.64	-506.21	58.50	-104.45	5727869.07	596169.24
570	37.40	283.40	543.63	-510.20	59.20	-107.39	5727869.77	596166.31
575	38.08	283.48	547.59	-514.16	59.91	-110.36	5727870.48	596163.33
580	38.78	283.66	551.50	-518.07	60.64	-113.38	5727871.21	596160.31
585	39.48	283.83	555.38	-521.95	61.39	-116.45	5727871.96	596157.25
590	40.17	284.01	559.22	-525.79	62.16	-119.55	5727872.73	596154.14
595	40.87	284.18	563.02	-529.59	62.95	-122.70	5727873.52	596150.99
600	41.57	284.36	566.78	-533.36	63.76	-125.90	5727874.33	596147.80
605	42.11	284.40	570.51	-537.08	64.59	-129.13	5727875.16	596144.57
610	42.59	284.40	574.20	-540.77	65.43	-132.39	5727876.00	596141.30
615	43.07	284.40	577.87	-544.44	66.27	-135.68	5727876.84	596138.01
620	43.55	284.40	581.51	-548.08	67.13	-139.00	5727877.70	596134.69
625	44.03	284.40	585.12	-551.69	67.99	-142.35	5727878.56	596131.34
630	44.50	284.41	588.70	-555.27	68.85	-145.73	5727879.43	596127.96
635	44.50	284.76	592.26	-558.83	69.74	-149.12	5727880.31	596124.57
640	44.50	285.11	595.83	-562.40	70.64	-152.51	5727881.21	596121.18
645	44.50	285.46	599.40	-565.97	71.56	-155.89	5727882.13	596117.80
650	44.50	285.81	602.96	-569.53	72.51	-159.26	5727883.08	596114.43
655	44.50	286.16	606.53	-573.10	73.47	-162.63	5727884.04	596111.06
660	44.59	286.40	610.10	-576.67	74.46	-165.99	5727885.03	596107.70
665	44.90	286.40	613.65	-580.22	75.45	-169.37	5727886.02	596104.32
670	45.21	286.40	617.18	-583.75	76.45	-172.76	5727887.02	596100.93
675	45.51	286.40	620.69	-587.26	77.45	-176.18	5727888.02	596097.52
680	45.82	286.40	624.19	-590.76	78.46	-179.61	5727889.03	596094.09
685	46.12	286.40	627.66	-594.23	79.48	-183.05	5727890.05	596090.64
690	45.86	286.40	631.13	-597.70	80.50	-186.51	5727891.07	596087.18
695	45.82	285.57	634.61	-601.18	81.48	-189.96	5727892.05	596083.73
700	45.78	284.74	638.10	-604.67	82.42	-193.42	5727892.99	596080.27
705	45.74	283.92	641.59	-608.16	83.31	-196.89	5727893.88	596076.81
710	45.67	283.07	645.08	-611.65	84.14	-200.37	5727894.71	596073.32
715	45.37	282.07	648.58	-615.15	84.92	-203.85	5727895.49	596069.84
720	45.08	281.08	652.11	-618.67	85.63	-207.32	5727896.20	596066.37
725	44.78	280.09	655.65	-622.22	86.28	-210.79	5727896.85	596062.90
730	44.48	279.10	659.21	-625.78	86.87	-214.25	5727897.44	596059.44
735	44.18	278.10	662.78	-629.36	87.39	-217.70	5727897.96	596055.99
740	43.94	277.22	666.38	-632.95	87.86	-221.15	5727898.43	596052.55
745	43.78	276.55	669.99	-636.55	88.27	-224.58	5727898.84	596049.11
750	43.63	275.87	673.60	-640.17	88.65	-228.02	5727899.22	596045.68
755	43.47	275.20	677.23	-643.80	88.98	-231.44	5727899.55	596042.25
760	43.32	274.53	680.86	-647.43	89.27	-234.87	5727899.84	596038.83
765	43.17	273.85	684.50	-651.07	89.52	-238.28	5727900.09	596035.41
770	43.01	273.61	688.15	-654.72	89.74	-241.69	5727900.31	596032.00
775	42.86	273.56	691.81	-658.38	89.95	-245.09	5727900.52	596028.60
780	42.71	273.51	695.48	-662.05	90.16	-248.48	5727900.73	596025.22
785	42.56	273.46	699.16	-665.73	90.37	-251.86	5727900.94	596021.84
790	42.41	273.40	702.85	-669.42	90.57	-255.23	5727901.14	596018.47
795	42.25	273.35	706.55	-673.12	90.77	-258.59	5727901.34	596015.10
800	42.08	272.74	710.25	-676.82	90.95	-261.94	5727901.52	596011.75
805	41.91	272.11	713.97	-680.54	91.09	-265.28	5727901.66	596008.41
810	41.74	271.49	717.70	-684.26	91.19	-268.61	5727901.76	596005.08
815	41.57	270.86	721.43	-688.00	91.26	-271.93	5727901.83	596001.76
820	41.40	270.24	725.18	-691.75	91.29	-275.24	5727901.86	595998.45

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
825	41.26	269.69	728.93	-695.50	91.29	-278.54	5727901.86	595995.15
830	41.20	269.33	732.69	-699.26	91.26	-281.84	5727901.83	595991.85
835	41.13	268.98	736.46	-703.03	91.21	-285.13	5727901.78	595988.56
840	41.07	268.63	740.23	-706.79	91.15	-288.41	5727901.72	595985.28
845	41.01	268.28	744.00	-710.57	91.06	-291.69	5727901.63	595982.00
850	40.94	267.93	747.77	-714.34	90.95	-294.97	5727901.52	595978.72
855	40.85	267.69	751.55	-718.12	90.82	-298.24	5727901.39	595975.45
860	40.74	267.57	755.34	-721.91	90.69	-301.50	5727901.26	595972.19
865	40.62	267.45	759.13	-725.70	90.55	-304.76	5727901.12	595968.93
870	40.50	267.34	762.93	-729.50	90.40	-308.01	5727900.97	595965.68
875	40.39	267.22	766.73	-733.30	90.24	-311.25	5727900.81	595962.44
880	40.27	267.10	770.54	-737.11	90.08	-314.48	5727900.66	595959.21
885	40.28	267.10	774.36	-740.93	89.92	-317.70	5727900.49	595955.99
890	40.32	267.13	778.17	-744.74	89.76	-320.93	5727900.33	595952.76
895	40.37	267.17	781.98	-748.55	89.60	-324.17	5727900.17	595949.53
900	40.42	267.20	785.79	-752.36	89.44	-327.40	5727900.01	595946.29
905	40.46	267.24	789.60	-756.17	89.28	-330.64	5727899.85	595943.05
910	40.52	267.27	793.40	-759.97	89.12	-333.88	5727899.69	595939.81
915	40.77	267.21	797.19	-763.76	88.97	-337.14	5727899.54	595936.56
920	41.03	267.16	800.97	-767.54	88.81	-340.40	5727899.38	595933.29
925	41.29	267.10	804.74	-771.31	88.64	-343.69	5727899.21	595930.00
930	41.54	267.05	808.49	-775.06	88.47	-346.99	5727899.04	595926.70
935	41.80	266.99	812.22	-778.79	88.30	-350.31	5727898.87	595923.38
940	41.99	266.95	815.94	-782.51	88.12	-353.65	5727898.69	595920.04
945	41.97	266.95	819.66	-786.23	87.94	-356.99	5727898.51	595916.70
950	41.96	266.95	823.38	-789.95	87.76	-360.33	5727898.33	595913.37
955	41.94	266.94	827.10	-793.66	87.59	-363.66	5727898.16	595910.03
960	41.93	266.94	830.81	-797.38	87.41	-367.00	5727897.98	595906.69
965	41.92	266.94	834.53	-801.11	87.23	-370.33	5727897.80	595903.36
970	41.88	266.96	838.26	-804.83	87.05	-373.67	5727897.62	595900.02
975	41.81	267.01	841.98	-808.55	86.88	-377.00	5727897.45	595896.69
980	41.75	267.05	845.71	-812.28	86.70	-380.33	5727897.27	595893.37
985	41.69	267.09	849.44	-816.01	86.53	-383.65	5727897.10	595890.04
990	41.63	267.14	853.18	-819.75	86.36	-386.97	5727896.94	595886.73
995	41.56	267.18	856.92	-823.49	86.20	-390.28	5727896.77	595883.41
1000	41.63	267.22	860.66	-827.23	86.04	-393.59	5727896.61	595880.10
1005	41.73	267.27	864.39	-830.96	85.88	-396.92	5727896.45	595876.78
1010	41.83	267.31	868.12	-834.69	85.72	-400.24	5727896.29	595873.45
1015	41.93	267.35	871.84	-838.41	85.57	-403.58	5727896.14	595870.12
1020	42.04	267.39	875.56	-842.13	85.41	-406.92	5727895.98	595866.77
1025	42.13	267.43	879.27	-845.84	85.26	-410.27	5727895.83	595863.43
1030	42.08	267.36	882.98	-849.55	85.11	-413.61	5727895.68	595860.08
1035	42.03	267.29	886.69	-853.26	84.95	-416.96	5727895.52	595856.73
1040	41.98	267.22	890.41	-856.98	84.79	-420.30	5727895.36	595853.39
1045	41.94	267.15	894.12	-860.69	84.63	-423.64	5727895.20	595850.05
1050	41.89	267.08	897.85	-864.41	84.46	-426.97	5727895.03	595846.72
1055	41.81	267.04	901.57	-868.14	84.29	-430.31	5727894.86	595843.39
1060	41.66	267.03	905.30	-871.87	84.11	-433.63	5727894.68	595840.06
1065	41.52	267.03	909.04	-875.61	83.94	-436.94	5727894.51	595836.75
1070	41.38	267.02	912.79	-879.36	83.77	-440.25	5727894.34	595833.44
1075	41.24	267.02	916.54	-883.11	83.60	-443.54	5727894.17	595830.15
1080	41.10	267.01	920.31	-886.88	83.43	-446.83	5727894.00	595826.86
1085	41.18	266.89	924.08	-890.64	83.25	-450.11	5727893.82	595823.58
1090	41.42	266.69	927.83	-894.40	83.07	-453.41	5727893.64	595820.28
1095	41.67	266.48	931.57	-898.14	82.87	-456.72	5727893.44	595816.98
1100	41.91	266.28	935.30	-901.87	82.66	-460.04	5727893.23	595813.65
1105	42.15	266.07	939.01	-905.59	82.44	-463.38	5727893.01	595810.31
1110	42.40	265.87	942.71	-909.28	82.20	-466.74	5727892.77	595806.96
1115	42.40	265.82	946.41	-912.98	81.95	-470.10	5727892.52	595803.59

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1120	42.40	265.78	950.10	-916.67	81.71	-473.46	5727892.28	595800.23
1125	42.39	265.73	953.79	-920.36	81.46	-476.82	5727892.03	595796.87
1130	42.38	265.69	957.48	-924.05	81.20	-480.18	5727891.77	595793.51
1135	42.38	265.65	961.18	-927.75	80.95	-483.54	5727891.52	595790.15
1140	42.45	265.61	964.87	-931.44	80.69	-486.90	5727891.26	595786.79
1145	42.91	265.61	968.55	-935.12	80.43	-490.28	5727891.00	595783.41
1150	43.36	265.61	972.20	-938.77	80.17	-493.69	5727890.74	595780.00
1155	43.81	265.60	975.82	-942.39	79.91	-497.12	5727890.48	595776.57
1160	44.26	265.60	979.41	-945.98	79.64	-500.59	5727890.21	595773.10
1165	44.71	265.60	982.98	-949.55	79.37	-504.08	5727889.94	595769.61
1170	45.16	265.54	986.52	-953.09	79.10	-507.60	5727889.67	595766.09
1175	45.59	265.41	990.03	-956.60	78.82	-511.15	5727889.39	595762.54
1180	46.02	265.27	993.52	-960.09	78.53	-514.72	5727889.10	595758.97
1185	46.45	265.14	996.98	-963.54	78.22	-518.32	5727888.79	595755.37
1190	46.88	265.01	1000.41	-966.98	77.91	-521.94	5727888.48	595751.75
1195	47.31	264.88	1003.81	-970.38	77.59	-525.59	5727888.16	595748.10
1200	47.78	264.53	1007.19	-973.76	77.25	-529.26	5727887.82	595744.43
1205	48.27	264.11	1010.53	-977.10	76.88	-532.96	5727887.45	595740.73
1210	48.76	263.69	1013.84	-980.41	76.48	-536.68	5727887.05	595737.01
1215	49.24	263.27	1017.12	-983.69	76.05	-540.43	5727886.62	595733.26
1220	49.73	262.84	1020.37	-986.94	75.59	-544.21	5727886.16	595729.49
1225	50.21	262.42	1023.59	-990.16	75.10	-548.00	5727885.67	595725.69
1230	50.63	262.40	1026.77	-993.34	74.59	-551.82	5727885.16	595721.87
1235	51.05	262.39	1029.93	-996.50	74.07	-555.66	5727884.64	595718.03
1240	51.46	262.38	1033.06	-999.63	73.56	-559.53	5727884.13	595714.16
1245	51.88	262.38	1036.16	-1002.73	73.04	-563.42	5727883.61	595710.28
1250	52.29	262.37	1039.23	-1005.80	72.51	-567.33	5727883.08	595706.37
1255	52.67	262.36	1042.28	-1008.85	71.99	-571.26	5727882.56	595702.44
1260	52.82	262.28	1045.30	-1011.87	71.45	-575.20	5727882.02	595698.49
1265	52.98	262.21	1048.32	-1014.89	70.91	-579.15	5727881.49	595694.54
1270	53.13	262.14	1051.33	-1017.90	70.37	-583.11	5727880.94	595690.58
1275	53.28	262.06	1054.32	-1020.89	69.82	-587.07	5727880.39	595686.62
1280	53.44	261.99	1057.30	-1023.87	69.26	-591.05	5727879.83	595682.65
1285	53.49	261.93	1060.28	-1026.85	68.70	-595.02	5727879.27	595678.67
1290	53.40	261.91	1063.26	-1029.83	68.14	-599.00	5727878.71	595674.69
1295	53.31	261.89	1066.24	-1032.81	67.57	-602.97	5727878.14	595670.72
1300	53.22	261.87	1069.23	-1035.80	67.00	-606.94	5727877.57	595666.75
1305	53.13	261.86	1072.23	-1038.80	66.44	-610.90	5727877.01	595662.79
1310	53.04	261.84	1075.23	-1041.80	65.87	-614.86	5727876.44	595658.83
1315	53.06	261.90	1078.24	-1044.81	65.30	-618.81	5727875.87	595654.88
1320	53.13	262.01	1081.24	-1047.81	64.74	-622.77	5727875.31	595650.92
1325	53.21	262.12	1084.24	-1050.81	64.19	-626.73	5727874.76	595646.96
1330	53.28	262.23	1087.23	-1053.80	63.65	-630.70	5727874.22	595642.99
1335	53.36	262.33	1090.21	-1056.79	63.11	-634.67	5727873.68	595639.02
1340	53.43	262.44	1093.20	-1059.77	62.58	-638.65	5727873.15	595635.04
1345	53.35	262.47	1096.18	-1062.75	62.05	-642.63	5727872.62	595631.06
1350	53.25	262.49	1099.17	-1065.74	61.52	-646.60	5727872.09	595627.09
1355	53.16	262.52	1102.16	-1068.73	61.00	-650.58	5727871.57	595623.12
1360	53.06	262.54	1105.16	-1071.73	60.48	-654.54	5727871.05	595619.15
1365	52.96	262.56	1108.17	-1074.74	59.96	-658.50	5727870.53	595615.19
1370	52.89	262.58	1111.18	-1077.76	59.45	-662.45	5727870.02	595611.24
1375	52.97	262.59	1114.20	-1080.77	58.93	-666.41	5727869.50	595607.28
1380	53.04	262.60	1117.21	-1083.78	58.42	-670.37	5727868.99	595603.32
1385	53.12	262.61	1120.21	-1086.78	57.90	-674.33	5727868.47	595599.36
1390	53.20	262.62	1123.21	-1089.78	57.39	-678.30	5727867.96	595595.39
1395	53.27	262.63	1126.20	-1092.77	56.87	-682.27	5727867.44	595591.42
1400	53.35	262.59	1129.19	-1095.76	56.36	-686.25	5727866.93	595587.44
1405	53.41	262.44	1132.17	-1098.74	55.84	-690.23	5727866.41	595583.47
1410	53.48	262.29	1135.15	-1101.72	55.30	-694.21	5727865.87	595579.49

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1415	53.55	262.14	1138.12	-1104.69	54.76	-698.19	5727865.33	595575.50
1420	53.62	262.00	1141.09	-1107.66	54.20	-702.17	5727864.77	595571.52
1425	53.69	261.85	1144.05	-1110.62	53.63	-706.16	5727864.21	595567.53
1430	53.67	261.76	1147.01	-1113.58	53.06	-710.15	5727863.63	595563.54
1435	53.59	261.72	1149.98	-1116.55	52.48	-714.13	5727863.05	595559.56
1440	53.52	261.68	1152.95	-1119.52	51.90	-718.11	5727862.47	595555.58
1445	53.44	261.63	1155.92	-1122.49	51.32	-722.09	5727861.89	595551.60
1450	53.36	261.59	1158.91	-1125.48	50.73	-726.06	5727861.30	595547.63
1455	53.28	261.55	1161.89	-1128.46	50.14	-730.02	5727860.71	595543.67
1460	53.39	261.48	1164.88	-1131.45	49.55	-733.99	5727860.12	595539.70
1465	53.53	261.40	1167.86	-1134.43	48.95	-737.96	5727859.52	595535.73
1470	53.66	261.33	1170.82	-1137.39	48.35	-741.94	5727858.92	595531.75
1475	53.80	261.26	1173.78	-1140.35	47.74	-745.92	5727858.31	595527.77
1480	53.94	261.18	1176.73	-1143.30	47.12	-749.91	5727857.69	595523.78
1485	54.05	261.11	1179.67	-1146.24	46.50	-753.91	5727857.07	595519.78
1490	53.97	261.04	1182.61	-1149.18	45.87	-757.91	5727856.44	595515.78
1495	53.89	260.96	1185.55	-1152.12	45.24	-761.90	5727855.81	595511.79
1500	53.80	260.89	1188.50	-1155.07	44.60	-765.88	5727855.17	595507.81
1505	53.72	260.82	1191.46	-1158.03	43.96	-769.87	5727854.53	595503.83
1510	53.64	260.75	1194.42	-1160.99	43.31	-773.84	5727853.88	595499.85
1515	53.62	260.74	1197.38	-1163.95	42.66	-777.81	5727853.23	595495.88
1520	53.68	260.83	1200.35	-1166.92	42.02	-781.79	5727852.59	595491.90
1525	53.75	260.93	1203.31	-1169.88	41.38	-785.77	5727851.95	595487.92
1530	53.82	261.03	1206.26	-1172.83	40.75	-789.75	5727851.32	595483.94
1535	53.89	261.13	1209.21	-1175.78	40.12	-793.74	5727850.69	595479.95
1540	53.95	261.22	1212.15	-1178.72	39.50	-797.73	5727850.07	595475.96
1545	53.93	261.20	1215.10	-1181.67	38.88	-801.73	5727849.45	595471.96
1550	53.85	261.12	1218.04	-1184.61	38.26	-805.72	5727848.83	595467.97
1555	53.77	261.03	1220.99	-1187.56	37.64	-809.70	5727848.21	595463.99
1560	53.69	260.94	1223.95	-1190.52	37.00	-813.69	5727847.57	595460.01
1565	53.61	260.85	1226.92	-1193.49	36.37	-817.66	5727846.94	595456.03
1570	53.53	260.77	1229.89	-1196.45	35.72	-821.63	5727846.29	595452.06
1575	53.59	261.04	1232.86	-1199.43	35.09	-825.60	5727845.66	595448.09
1580	53.65	261.34	1235.82	-1202.39	34.47	-829.58	5727845.04	595444.11
1585	53.71	261.64	1238.78	-1205.35	33.87	-833.56	5727844.44	595440.13
1590	53.77	261.94	1241.74	-1208.31	33.30	-837.55	5727843.87	595436.14
1595	53.83	262.24	1244.69	-1211.26	32.74	-841.55	5727843.31	595432.14
1600	53.87	262.48	1247.64	-1214.21	32.21	-845.55	5727842.78	595428.14
1605	53.79	262.48	1250.59	-1217.16	31.68	-849.55	5727842.25	595424.14
1610	53.72	262.48	1253.55	-1220.12	31.15	-853.55	5727841.72	595420.14
1615	53.65	262.47	1256.51	-1223.08	30.62	-857.54	5727841.19	595416.15
1620	53.58	262.47	1259.48	-1226.05	30.09	-861.53	5727840.66	595412.16
1625	53.51	262.47	1262.45	-1229.02	29.57	-865.52	5727840.14	595408.17
1630	53.41	262.46	1265.42	-1231.99	29.04	-869.50	5727839.61	595404.19
1635	53.30	262.44	1268.41	-1234.98	28.51	-873.48	5727839.08	595400.21
1640	53.18	262.41	1271.40	-1237.97	27.98	-877.45	5727838.55	595396.24
1645	53.07	262.39	1274.40	-1240.97	27.45	-881.41	5727838.02	595392.28
1650	52.95	262.37	1277.41	-1243.98	26.92	-885.37	5727837.49	595388.32
1655	52.84	262.35	1280.43	-1247.00	26.39	-889.32	5727836.96	595384.37
1660	52.95	262.42	1283.44	-1250.02	25.86	-893.27	5727836.43	595380.42
1665	53.13	262.52	1286.45	-1253.02	25.34	-897.23	5727835.91	595376.46
1670	53.31	262.62	1289.44	-1256.02	24.82	-901.20	5727835.39	595372.49
1675	53.49	262.72	1292.43	-1259.00	24.31	-905.19	5727834.88	595368.51
1680	53.67	262.83	1295.40	-1261.96	23.80	-909.18	5727834.37	595364.52
1685	53.85	262.93	1298.35	-1264.92	23.30	-913.18	5727833.87	595360.51
1690	53.82	262.97	1301.30	-1267.87	22.81	-917.18	5727833.38	595356.51
1695	53.78	263.02	1304.26	-1270.83	22.31	-921.19	5727832.88	595352.50
1700	53.75	263.07	1307.21	-1273.78	21.83	-925.19	5727832.40	595348.50
1705	53.71	263.11	1310.17	-1276.74	21.34	-929.19	5727831.91	595344.50

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1710	53.68	263.16	1313.13	-1279.70	20.86	-933.19	5727831.43	595340.50
1715	53.63	263.19	1316.09	-1282.66	20.38	-937.19	5727830.95	595336.50
1720	53.57	263.19	1319.06	-1285.63	19.90	-941.19	5727830.47	595332.51
1725	53.51	263.20	1322.03	-1288.60	19.43	-945.18	5727830.00	595328.51
1730	53.44	263.20	1325.01	-1291.58	18.95	-949.17	5727829.52	595324.52
1735	53.38	263.20	1327.99	-1294.56	18.47	-953.15	5727829.04	595320.54
1740	53.31	263.21	1330.97	-1297.54	18.00	-957.14	5727828.57	595316.56
1745	53.35	263.21	1333.96	-1300.53	17.52	-961.12	5727828.09	595312.58
1750	53.50	263.22	1336.94	-1303.51	17.05	-965.10	5727827.62	595308.59
1755	53.66	263.23	1339.91	-1306.48	16.57	-969.10	5727827.14	595304.59
1760	53.81	263.24	1342.87	-1309.43	16.10	-973.10	5727826.67	595300.59
1765	53.96	263.25	1345.81	-1312.38	15.62	-977.11	5727826.19	595296.58
1770	54.12	263.26	1348.75	-1315.32	15.15	-981.13	5727825.72	595292.56
1775	54.13	263.24	1351.68	-1318.25	14.67	-985.16	5727825.24	595288.54
1780	54.10	263.22	1354.61	-1321.18	14.19	-989.18	5727824.76	595284.51
1785	54.07	263.20	1357.54	-1324.11	13.71	-993.20	5727824.28	595280.49
1790	54.05	263.18	1360.48	-1327.05	13.23	-997.22	5727823.80	595276.47
1795	54.02	263.15	1363.41	-1329.98	12.75	-1001.24	5727823.32	595272.46
1800	53.99	263.13	1366.35	-1332.92	12.27	-1005.25	5727822.84	595268.44
1805	53.93	263.01	1369.29	-1335.86	11.78	-1009.26	5727822.35	595264.43
1810	53.87	262.89	1372.24	-1338.81	11.28	-1013.27	5727821.85	595260.42
1815	53.80	262.77	1375.19	-1341.76	10.78	-1017.28	5727821.35	595256.41
1820	53.74	262.65	1378.15	-1344.71	10.27	-1021.28	5727820.84	595252.41
1825	53.68	262.53	1381.10	-1347.67	9.75	-1025.27	5727820.32	595248.42
1830	53.64	262.43	1384.07	-1350.64	9.22	-1029.27	5727819.79	595244.43
1835	53.68	262.43	1387.03	-1353.60	8.69	-1033.26	5727819.26	595240.43
1840	53.73	262.43	1389.99	-1356.56	8.16	-1037.25	5727818.73	595236.44
1845	53.77	262.42	1392.95	-1359.52	7.62	-1041.25	5727818.19	595232.44
1850	53.81	262.42	1395.90	-1362.47	7.09	-1045.25	5727817.66	595228.44
1855	53.86	262.42	1398.85	-1365.42	6.56	-1049.25	5727817.13	595224.44
1860	53.83	262.43	1401.80	-1368.37	6.02	-1053.25	5727816.59	595220.44
1865	53.70	262.44	1404.76	-1371.33	5.49	-1057.25	5727816.06	595216.44
1870	53.58	262.46	1407.72	-1374.29	4.96	-1061.24	5727815.53	595212.45
1875	53.46	262.48	1410.69	-1377.26	4.44	-1065.23	5727815.01	595208.47
1880	53.34	262.50	1413.67	-1380.24	3.91	-1069.20	5727814.48	595204.49
1885	53.22	262.51	1416.66	-1383.23	3.39	-1073.18	5727813.96	595200.51
1890	53.23	262.49	1419.66	-1386.23	2.87	-1077.15	5727813.44	595196.54
1895	53.30	262.45	1422.65	-1389.22	2.34	-1081.12	5727812.91	595192.57
1900	53.38	262.40	1425.63	-1392.20	1.81	-1085.10	5727812.38	595188.60
1905	53.45	262.36	1428.61	-1395.18	1.28	-1089.07	5727811.85	595184.62
1910	53.52	262.31	1431.59	-1398.16	0.74	-1093.06	5727811.31	595180.64
1915	53.60	262.27	1434.56	-1401.13	0.20	-1097.04	5727810.77	595176.65
1920	53.60	262.34	1437.53	-1404.10	-0.34	-1101.03	5727810.23	595172.66
1925	53.60	262.40	1440.49	-1407.06	-0.87	-1105.02	5727809.70	595168.67
1930	53.61	262.47	1443.46	-1410.03	-1.40	-1109.01	5727809.17	595164.68
1935	53.61	262.53	1446.43	-1412.99	-1.93	-1113.00	5727808.64	595160.69
1940	53.61	262.60	1449.39	-1415.96	-2.45	-1116.99	5727808.12	595156.70
1945	53.60	262.66	1452.36	-1418.93	-2.97	-1120.98	5727807.60	595152.71
1950	53.48	262.63	1455.33	-1421.90	-3.48	-1124.97	5727807.09	595148.72
1955	53.36	262.61	1458.31	-1424.88	-4.00	-1128.95	5727806.57	595144.74
1960	53.24	262.58	1461.30	-1427.87	-4.52	-1132.92	5727806.05	595140.77
1965	53.12	262.55	1464.29	-1430.86	-5.04	-1136.89	5727805.53	595136.80
1970	53.01	262.53	1467.30	-1433.87	-5.55	-1140.86	5727805.02	595132.84
1975	52.93	262.61	1470.31	-1436.88	-6.07	-1144.81	5727804.50	595128.88
1980	52.94	262.89	1473.32	-1439.89	-6.58	-1148.77	5727803.99	595124.92
1985	52.94	263.18	1476.34	-1442.91	-7.06	-1152.73	5727803.51	595120.96
1990	52.95	263.46	1479.35	-1445.92	-7.53	-1156.69	5727803.04	595117.00
1995	52.95	263.74	1482.36	-1448.93	-7.97	-1160.66	5727802.60	595113.03
2000	52.96	264.02	1485.38	-1451.95	-8.40	-1164.63	5727802.17	595109.07

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2005	53.06	264.05	1488.39	-1454.95	-8.81	-1168.60	5727801.76	595105.10
2010	53.21	263.95	1491.39	-1457.95	-9.23	-1172.58	5727801.34	595101.12
2015	53.37	263.84	1494.37	-1460.94	-9.66	-1176.56	5727800.91	595097.13
2020	53.52	263.74	1497.35	-1463.92	-10.09	-1180.55	5727800.48	595093.14
2025	53.68	263.63	1500.32	-1466.89	-10.53	-1184.55	5727800.04	595089.14
2030	53.83	263.53	1503.28	-1469.85	-10.99	-1188.56	5727799.58	595085.13
2035	53.75	263.47	1506.23	-1472.80	-11.44	-1192.57	5727799.13	595081.12
2040	53.62	263.41	1509.19	-1475.76	-11.90	-1196.57	5727798.67	595077.12
2045	53.48	263.36	1512.16	-1478.73	-12.37	-1200.57	5727798.20	595073.13
2050	53.34	263.30	1515.14	-1481.71	-12.83	-1204.55	5727797.74	595069.14
2055	53.21	263.25	1518.13	-1484.70	-13.30	-1208.53	5727797.27	595065.16
2060	53.10	263.20	1521.13	-1487.70	-13.78	-1212.50	5727796.79	595061.19
2065	53.15	263.17	1524.13	-1490.70	-14.25	-1216.48	5727796.32	595057.22
2070	53.20	263.15	1527.13	-1493.70	-14.73	-1220.45	5727795.84	595053.24
2075	53.25	263.13	1530.12	-1496.69	-15.21	-1224.43	5727795.36	595049.27
2080	53.30	263.11	1533.11	-1499.68	-15.69	-1228.40	5727794.88	595045.29
2085	53.35	263.08	1536.10	-1502.67	-16.17	-1232.39	5727794.40	595041.31
2090	53.41	263.04	1539.08	-1505.65	-16.66	-1236.37	5727793.91	595037.32
2095	53.47	262.96	1542.06	-1508.63	-17.15	-1240.35	5727793.42	595033.34
2100	53.54	262.89	1545.03	-1511.60	-17.64	-1244.34	5727792.93	595029.35
2105	53.60	262.82	1548.00	-1514.57	-18.14	-1248.33	5727792.43	595025.36
2110	53.67	262.74	1550.96	-1517.53	-18.65	-1252.33	5727791.92	595021.36
2115	53.73	262.67	1553.92	-1520.49	-19.16	-1256.33	5727791.41	595017.37
2120	53.68	262.68	1556.88	-1523.45	-19.68	-1260.32	5727790.89	595013.37
2125	53.57	262.72	1559.85	-1526.42	-20.19	-1264.32	5727790.38	595009.38
2130	53.46	262.76	1562.82	-1529.39	-20.70	-1268.30	5727789.87	595005.39
2135	53.36	262.80	1565.80	-1532.37	-21.20	-1272.29	5727789.37	595001.41
2140	53.25	262.84	1568.79	-1535.36	-21.71	-1276.26	5727788.86	594997.43
2145	53.15	262.88	1571.79	-1538.36	-22.20	-1280.24	5727788.37	594993.46
2150	53.16	262.91	1574.78	-1541.35	-22.70	-1284.20	5727787.87	594989.49
2155	53.19	262.93	1577.78	-1544.35	-23.19	-1288.18	5727787.38	594985.51
2160	53.22	262.95	1580.78	-1547.35	-23.69	-1292.15	5727786.88	594981.54
2165	53.26	262.98	1583.77	-1550.34	-24.18	-1296.13	5727786.39	594977.57
2170	53.29	263.00	1586.76	-1553.33	-24.67	-1300.10	5727785.90	594973.59
2175	53.33	263.01	1589.74	-1556.32	-25.15	-1304.08	5727785.42	594969.61
2180	53.38	262.88	1592.73	-1559.30	-25.65	-1308.06	5727784.92	594965.63
2185	53.44	262.76	1595.71	-1562.28	-26.15	-1312.05	5727784.42	594961.65
2190	53.50	262.63	1598.69	-1565.26	-26.66	-1316.03	5727783.91	594957.66
2195	53.56	262.50	1601.66	-1568.23	-27.18	-1320.02	5727783.39	594953.67
2200	53.61	262.38	1604.63	-1571.20	-27.71	-1324.01	5727782.86	594949.69
2205	53.60	262.28	1607.59	-1574.16	-28.25	-1328.00	5727782.32	594945.70
2210	53.45	262.21	1610.56	-1577.13	-28.80	-1331.98	5727781.78	594941.71
2215	53.31	262.14	1613.55	-1580.12	-29.34	-1335.95	5727781.23	594937.74
2220	53.16	262.08	1616.54	-1583.11	-29.89	-1339.92	5727780.68	594933.77
2225	53.02	262.01	1619.54	-1586.11	-30.45	-1343.88	5727780.12	594929.81
2230	52.87	261.94	1622.56	-1589.13	-31.00	-1347.83	5727779.57	594925.86
2235	52.85	261.86	1625.58	-1592.15	-31.57	-1351.78	5727779.00	594921.92
2240	52.89	261.77	1628.59	-1595.16	-32.13	-1355.72	5727778.44	594917.97
2245	52.94	261.67	1631.61	-1598.18	-32.71	-1359.67	5727777.86	594914.02
2250	52.98	261.58	1634.62	-1601.19	-33.29	-1363.62	5727777.28	594910.08
2255	53.03	261.49	1637.63	-1604.20	-33.88	-1367.57	5727776.69	594906.13
2260	53.07	261.39	1640.63	-1607.20	-34.48	-1371.52	5727776.09	594902.17
2265	53.13	261.32	1643.64	-1610.21	-35.08	-1375.47	5727775.49	594898.22
2270	53.18	261.25	1646.63	-1613.20	-35.68	-1379.43	5727774.89	594894.27
2275	53.24	261.17	1649.63	-1616.20	-36.30	-1383.38	5727774.27	594890.31
2280	53.30	261.10	1652.62	-1619.19	-36.91	-1387.34	5727773.66	594886.35
2285	53.35	261.03	1655.61	-1622.18	-37.54	-1391.30	5727773.03	594882.39
2290	53.41	260.97	1658.59	-1625.16	-38.17	-1395.27	5727772.40	594878.43
2295	53.50	260.97	1661.57	-1628.14	-38.80	-1399.23	5727771.77	594874.46

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2300	53.59	260.97	1664.54	-1631.11	-39.43	-1403.21	5727771.14	594870.49
2305	53.68	260.96	1667.50	-1634.07	-40.06	-1407.18	5727770.51	594866.51
2310	53.77	260.96	1670.46	-1637.03	-40.70	-1411.16	5727769.87	594862.53
2315	53.86	260.96	1673.41	-1639.98	-41.33	-1415.15	5727769.24	594858.54
2320	53.83	260.95	1676.36	-1642.93	-41.97	-1419.14	5727768.60	594854.56
2325	53.67	260.92	1679.31	-1645.88	-42.60	-1423.12	5727767.97	594850.57
2330	53.51	260.90	1682.28	-1648.85	-43.24	-1427.09	5727767.33	594846.60
2335	53.34	260.88	1685.26	-1651.83	-43.88	-1431.05	5727766.69	594842.64
2340	53.18	260.85	1688.25	-1654.82	-44.51	-1435.01	5727766.06	594838.68
2345	53.02	260.83	1691.25	-1657.82	-45.15	-1438.96	5727765.42	594834.73
2350	53.06	260.99	1694.26	-1660.83	-45.78	-1442.90	5727764.79	594830.79
2355	53.18	261.22	1697.26	-1663.83	-46.40	-1446.85	5727764.17	594826.84
2360	53.30	261.46	1700.26	-1666.83	-47.01	-1450.81	5727763.57	594822.88
2365	53.43	261.70	1703.24	-1669.81	-47.60	-1454.78	5727762.98	594818.91
2370	53.55	261.93	1706.21	-1672.78	-48.17	-1458.76	5727762.40	594814.93
2375	53.67	262.17	1709.18	-1675.75	-48.72	-1462.74	5727761.85	594810.95
2380	53.72	262.36	1712.14	-1678.71	-49.27	-1466.74	5727761.30	594806.95
2385	53.77	262.55	1715.10	-1681.67	-49.80	-1470.73	5727760.77	594802.96
2390	53.81	262.74	1718.05	-1684.62	-50.31	-1474.73	5727760.26	594798.96
2395	53.86	262.93	1721.00	-1687.57	-50.82	-1478.74	5727759.75	594794.95
2400	53.90	263.12	1723.95	-1690.52	-51.31	-1482.75	5727759.26	594790.94
2405	53.91	263.24	1726.89	-1693.46	-51.79	-1486.76	5727758.78	594786.93
2410	53.77	263.16	1729.85	-1696.42	-52.27	-1490.77	5727758.30	594782.92
2415	53.63	263.08	1732.81	-1699.38	-52.75	-1494.77	5727757.82	594778.92
2420	53.49	263.01	1735.78	-1702.35	-53.24	-1498.76	5727757.33	594774.93
2425	53.35	262.93	1738.76	-1705.33	-53.73	-1502.75	5727756.84	594770.94
2430	53.21	262.85	1741.74	-1708.32	-54.23	-1506.72	5727756.34	594766.97
2435	53.11	262.80	1744.74	-1711.31	-54.73	-1510.69	5727755.84	594763.00
2440	53.05	262.77	1747.75	-1714.32	-55.23	-1514.66	5727755.34	594759.03
2445	53.00	262.74	1750.75	-1717.32	-55.74	-1518.62	5727754.83	594755.07
2450	52.94	262.71	1753.77	-1720.34	-56.24	-1522.58	5727754.33	594751.11
2455	52.88	262.68	1756.78	-1723.35	-56.75	-1526.54	5727753.82	594747.16
2460	52.82	262.66	1759.80	-1726.37	-57.26	-1530.49	5727753.31	594743.20
2465	52.90	262.72	1762.82	-1729.39	-57.77	-1534.44	5727752.80	594739.25
2470	53.02	262.81	1765.83	-1732.40	-58.27	-1538.40	5727752.30	594735.29
2475	53.14	262.90	1768.84	-1735.41	-58.77	-1542.37	5727751.80	594731.33
2480	53.26	262.99	1771.83	-1738.40	-59.26	-1546.34	5727751.31	594727.35
2485	53.37	263.08	1774.82	-1741.39	-59.75	-1550.32	5727750.82	594723.37
2490	53.49	263.17	1777.80	-1744.37	-60.23	-1554.31	5727750.34	594719.39
2495	53.48	263.14	1780.77	-1747.34	-60.71	-1558.30	5727749.86	594715.40
2500	53.48	263.11	1783.75	-1750.32	-61.19	-1562.29	5727749.38	594711.41
2505	53.47	263.08	1786.72	-1753.29	-61.67	-1566.27	5727748.90	594707.42
2510	53.47	263.06	1789.70	-1756.27	-62.16	-1570.26	5727748.41	594703.43
2515	53.46	263.03	1792.68	-1759.24	-62.65	-1574.25	5727747.92	594699.44
2520	53.41	263.00	1795.65	-1762.22	-63.14	-1578.24	5727747.43	594695.46
2525	53.29	262.96	1798.64	-1765.21	-63.63	-1582.22	5727746.94	594691.47
2530	53.17	262.93	1801.63	-1768.20	-64.12	-1586.19	5727746.45	594687.50
2535	53.04	262.89	1804.63	-1771.20	-64.61	-1590.16	5727745.96	594683.53
2540	52.92	262.86	1807.64	-1774.21	-65.11	-1594.12	5727745.46	594679.57
2545	52.80	262.82	1810.66	-1777.23	-65.61	-1598.08	5727744.96	594675.61
2550	52.85	262.78	1813.68	-1780.26	-66.11	-1602.03	5727744.46	594671.67
2555	53.02	262.74	1816.70	-1783.27	-66.61	-1605.99	5727743.96	594667.71
2560	53.18	262.70	1819.70	-1786.27	-67.12	-1609.95	5727743.45	594663.74
2565	53.35	262.66	1822.69	-1789.26	-67.63	-1613.93	5727742.94	594659.77
2570	53.51	262.62	1825.67	-1792.24	-68.15	-1617.91	5727742.42	594655.78
2575	53.68	262.58	1828.64	-1795.21	-68.66	-1621.90	5727741.91	594651.79
2580	53.56	262.57	1831.60	-1798.17	-69.19	-1625.89	5727741.38	594647.80
2585	53.40	262.57	1834.58	-1801.15	-69.71	-1629.87	5727740.86	594643.82
2590	53.24	262.57	1837.57	-1804.14	-70.23	-1633.85	5727740.34	594639.84

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2595	53.08	262.57	1840.56	-1807.13	-70.74	-1637.82	5727739.83	594635.87
2600	52.92	262.57	1843.57	-1810.14	-71.26	-1641.78	5727739.31	594631.91
2605	52.80	262.57	1846.59	-1813.16	-71.78	-1645.73	5727738.79	594627.96
2610	52.93	262.56	1849.61	-1816.18	-72.29	-1649.68	5727738.28	594624.01
2615	53.07	262.55	1852.62	-1819.19	-72.81	-1653.64	5727737.76	594620.05
2620	53.20	262.54	1855.62	-1822.19	-73.33	-1657.61	5727737.24	594616.08
2625	53.33	262.53	1858.61	-1825.18	-73.85	-1661.58	5727736.72	594612.11
2630	53.46	262.52	1861.59	-1828.16	-74.38	-1665.56	5727736.19	594608.13
2635	53.58	262.48	1864.57	-1831.14	-74.90	-1669.55	5727735.67	594604.15
2640	53.69	262.42	1867.53	-1834.10	-75.43	-1673.54	5727735.14	594600.16
2645	53.80	262.37	1870.49	-1837.06	-75.97	-1677.53	5727734.60	594596.16
2650	53.91	262.31	1873.43	-1840.01	-76.51	-1681.53	5727734.06	594592.16
2655	54.02	262.25	1876.38	-1842.95	-77.05	-1685.54	5727733.52	594588.15
2660	54.13	262.19	1879.31	-1845.88	-77.60	-1689.55	5727732.97	594584.14
2665	54.09	262.15	1882.24	-1848.81	-78.15	-1693.57	5727732.42	594580.13
2670	53.95	262.11	1885.18	-1851.75	-78.71	-1697.57	5727731.86	594576.12
2675	53.81	262.07	1888.13	-1854.69	-79.26	-1701.58	5727731.31	594572.12
2680	53.68	262.04	1891.08	-1857.65	-79.82	-1705.57	5727730.75	594568.12
2685	53.54	262.00	1894.05	-1860.62	-80.38	-1709.55	5727730.19	594564.14
2690	53.41	261.96	1897.02	-1863.59	-80.94	-1713.53	5727729.63	594560.16
2695	53.46	261.97	1900.00	-1866.57	-81.51	-1717.51	5727729.06	594556.18
2700	53.52	261.99	1902.98	-1869.55	-82.07	-1721.49	5727728.50	594552.20
2705	53.58	262.00	1905.95	-1872.52	-82.63	-1725.47	5727727.94	594548.22
2710	53.65	262.01	1908.91	-1875.48	-83.19	-1729.46	5727727.38	594544.23
2715	53.71	262.03	1911.88	-1878.45	-83.75	-1733.45	5727726.82	594540.25
2720	53.74	262.03	1914.83	-1881.40	-84.31	-1737.44	5727726.26	594536.25
2725	53.61	261.98	1917.80	-1884.37	-84.87	-1741.43	5727725.70	594532.26
2730	53.49	261.94	1920.77	-1887.34	-85.43	-1745.41	5727725.14	594528.28
2735	53.37	261.89	1923.74	-1890.31	-86.00	-1749.39	5727724.57	594524.31
2740	53.25	261.84	1926.73	-1893.30	-86.57	-1753.36	5727724.00	594520.34
2745	53.13	261.80	1929.73	-1896.30	-87.14	-1757.32	5727723.43	594516.37
2750	53.17	261.74	1932.73	-1899.30	-87.71	-1761.28	5727722.86	594512.42
2755	53.31	261.66	1935.72	-1902.29	-88.29	-1765.24	5727722.28	594508.45
2760	53.45	261.59	1938.70	-1905.27	-88.87	-1769.21	5727721.70	594504.48
2765	53.59	261.52	1941.68	-1908.25	-89.47	-1773.19	5727721.11	594500.51
2770	53.73	261.44	1944.64	-1911.21	-90.06	-1777.17	5727720.51	594496.52
2775	53.87	261.37	1947.59	-1914.16	-90.67	-1781.16	5727719.90	594492.53
2780	53.98	261.34	1950.54	-1917.11	-91.28	-1785.15	5727719.29	594488.54
2785	54.03	261.43	1953.47	-1920.04	-91.88	-1789.15	5727718.69	594484.54
2790	54.08	261.51	1956.41	-1922.98	-92.48	-1793.16	5727718.09	594480.53
2795	54.13	261.60	1959.34	-1925.91	-93.08	-1797.16	5727717.49	594476.53
2800	54.17	261.68	1962.27	-1928.84	-93.67	-1801.17	5727716.90	594472.52
2805	54.22	261.76	1965.19	-1931.77	-94.26	-1805.19	5727716.31	594468.51
2810	54.18	261.75	1968.12	-1934.69	-94.84	-1809.20	5727715.73	594464.49
2815	54.07	261.67	1971.05	-1937.62	-95.42	-1813.21	5727715.15	594460.48
2820	53.96	261.58	1973.99	-1940.56	-96.01	-1817.21	5727714.56	594456.48
2825	53.85	261.49	1976.93	-1943.50	-96.61	-1821.21	5727713.96	594452.48
2830	53.74	261.41	1979.89	-1946.45	-97.21	-1825.20	5727713.36	594448.50
2835	53.63	261.32	1982.85	-1949.42	-97.81	-1829.18	5727712.76	594444.51
2840	53.60	261.43	1985.81	-1952.38	-98.42	-1833.16	5727712.15	594440.53
2845	53.58	261.56	1988.78	-1955.35	-99.02	-1837.14	5727711.55	594436.55
2850	53.55	261.69	1991.75	-1958.32	-99.60	-1841.12	5727710.97	594432.57
2855	53.53	261.82	1994.72	-1961.29	-100.18	-1845.10	5727710.39	594428.59
2860	53.51	261.95	1997.69	-1964.26	-100.75	-1849.08	5727709.82	594424.61
2865	53.50	262.06	2000.67	-1967.24	-101.31	-1853.06	5727709.26	594420.63
2870	53.60	262.05	2003.64	-1970.21	-101.87	-1857.04	5727708.70	594416.65
2875	53.70	262.05	2006.60	-1973.17	-102.42	-1861.03	5727708.15	594412.66
2880	53.80	262.04	2009.56	-1976.13	-102.98	-1865.02	5727707.59	594408.67
2885	53.89	262.03	2012.51	-1979.08	-103.54	-1869.02	5727707.03	594404.67

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2890	53.99	262.02	2015.45	-1982.02	-104.10	-1873.02	5727706.47	594400.67
2895	54.02	262.00	2018.39	-1984.96	-104.67	-1877.03	5727705.90	594396.66
2900	53.95	261.94	2021.33	-1987.90	-105.23	-1881.04	5727705.34	594392.66
2905	53.87	261.88	2024.27	-1990.84	-105.80	-1885.04	5727704.77	594388.66
2910	53.79	261.82	2027.22	-1993.80	-106.38	-1889.03	5727704.19	594384.66
2915	53.72	261.76	2030.18	-1996.75	-106.95	-1893.02	5727703.62	594380.67
2920	53.64	261.70	2033.14	-1999.71	-107.53	-1897.01	5727703.04	594376.68
2925	53.62	261.71	2036.11	-2002.68	-108.12	-1900.99	5727702.45	594372.70
2930	53.63	261.77	2039.07	-2005.64	-108.70	-1904.98	5727701.88	594368.72
2935	53.64	261.82	2042.04	-2008.61	-109.27	-1908.96	5727701.30	594364.73
2940	53.65	261.87	2045.00	-2011.57	-109.84	-1912.95	5727700.73	594360.74
2945	53.67	261.93	2047.96	-2014.54	-110.41	-1916.94	5727700.16	594356.76
2950	53.68	261.98	2050.93	-2017.50	-110.98	-1920.92	5727699.59	594352.77
2955	53.61	262.00	2053.89	-2020.46	-111.54	-1924.91	5727699.03	594348.78
2960	53.53	262.01	2056.86	-2023.43	-112.10	-1928.90	5727698.47	594344.80
2965	53.44	262.03	2059.84	-2026.41	-112.66	-1932.88	5727697.91	594340.82
2970	53.36	262.04	2062.82	-2029.39	-113.21	-1936.85	5727697.36	594336.84
2975	53.27	262.05	2065.80	-2032.37	-113.77	-1940.82	5727696.80	594332.87
2980	53.20	262.09	2068.80	-2035.37	-114.33	-1944.79	5727696.25	594328.90
2985	53.16	262.21	2071.79	-2038.36	-114.87	-1948.75	5727695.70	594324.94
2990	53.12	262.33	2074.79	-2041.36	-115.41	-1952.72	5727695.16	594320.97
2995	53.08	262.46	2077.80	-2044.37	-115.94	-1956.68	5727694.63	594317.01
3000	53.03	262.58	2080.80	-2047.37	-116.46	-1960.64	5727694.11	594313.05
3005	52.99	262.70	2083.81	-2050.38	-116.97	-1964.60	5727693.60	594309.09
3010	52.95	262.74	2086.82	-2053.39	-117.48	-1968.56	5727693.09	594305.13
3015	52.89	262.66	2089.83	-2056.40	-117.99	-1972.52	5727692.58	594301.17
3020	52.83	262.58	2092.85	-2059.42	-118.50	-1976.47	5727692.07	594297.22
3025	52.78	262.50	2095.88	-2062.45	-119.02	-1980.42	5727691.55	594293.27
3030	52.72	262.42	2098.90	-2065.47	-119.54	-1984.37	5727691.03	594289.32
3035	52.67	262.34	2101.93	-2068.50	-120.07	-1988.31	5727690.50	594285.38
3040	52.77	262.38	2104.96	-2071.53	-120.60	-1992.25	5727689.97	594281.44
3045	52.88	262.44	2107.98	-2074.55	-121.13	-1996.20	5727689.44	594277.49
3050	53.00	262.50	2111.00	-2077.57	-121.65	-2000.16	5727688.92	594273.53
3055	53.12	262.56	2114.00	-2080.57	-122.17	-2004.12	5727688.40	594269.57
3060	53.24	262.62	2117.00	-2083.57	-122.69	-2008.09	5727687.88	594265.60
3065	53.36	262.68	2119.99	-2086.55	-123.20	-2012.06	5727687.37	594261.63
3070	53.53	262.70	2122.96	-2089.53	-123.72	-2016.05	5727686.85	594257.64
3075	53.69	262.72	2125.93	-2092.50	-124.23	-2020.04	5727686.34	594253.65
3080	53.85	262.75	2128.88	-2095.45	-124.74	-2024.04	5727685.83	594249.65
3085	54.02	262.77	2131.83	-2098.40	-125.25	-2028.05	5727685.32	594245.64
3090	54.18	262.79	2134.76	-2101.33	-125.76	-2032.07	5727684.81	594241.62
3095	54.32	262.80	2137.68	-2104.25	-126.27	-2036.10	5727684.30	594237.60
3100	54.29	262.77	2140.60	-2107.17	-126.78	-2040.12	5727683.79	594233.57
3105	54.26	262.74	2143.52	-2110.09	-127.29	-2044.15	5727683.28	594229.54
3110	54.23	262.71	2146.44	-2113.01	-127.81	-2048.18	5727682.76	594225.52
3115	54.20	262.67	2149.36	-2115.93	-128.32	-2052.20	5727682.25	594221.49
3120	54.17	262.64	2152.29	-2118.86	-128.84	-2056.22	5727681.73	594217.47
3125	54.12	262.60	2155.22	-2121.79	-129.37	-2060.24	5727681.20	594213.45
3130	54.03	262.55	2158.15	-2124.72	-129.89	-2064.25	5727680.68	594209.44
3135	53.94	262.50	2161.09	-2127.66	-130.42	-2068.26	5727680.15	594205.43
3140	53.85	262.44	2164.04	-2130.61	-130.95	-2072.27	5727679.62	594201.42
3145	53.76	262.39	2166.99	-2133.56	-131.48	-2076.27	5727679.09	594197.42
3150	53.67	262.34	2169.95	-2136.52	-132.02	-2080.26	5727678.55	594193.43
3155	53.57	262.29	2172.92	-2139.49	-132.56	-2084.25	5727678.01	594189.44
3160	53.48	262.25	2175.89	-2142.46	-133.10	-2088.24	5727677.47	594185.46
3165	53.38	262.20	2178.87	-2145.44	-133.64	-2092.22	5727676.93	594181.48
3170	53.29	262.16	2181.85	-2148.42	-134.19	-2096.19	5727676.38	594177.50
3175	53.19	262.11	2184.84	-2151.42	-134.74	-2100.16	5727675.83	594173.54
3180	53.09	262.07	2187.84	-2154.42	-135.29	-2104.12	5727675.28	594169.57

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3185	52.94	262.05	2190.85	-2157.42	-135.84	-2108.08	5727674.73	594165.62
3190	52.78	262.03	2193.87	-2160.44	-136.40	-2112.02	5727674.17	594161.67
3195	52.62	262.01	2196.90	-2163.47	-136.95	-2115.96	5727673.62	594157.73
3200	52.47	261.99	2199.94	-2166.51	-137.50	-2119.89	5727673.07	594153.80
3205	52.31	261.97	2202.99	-2169.56	-138.05	-2123.81	5727672.52	594149.88
3210	52.18	261.96	2206.06	-2172.63	-138.61	-2127.73	5727671.96	594145.96
3215	52.11	261.95	2209.12	-2175.69	-139.16	-2131.64	5727671.41	594142.05
3220	52.05	261.94	2212.20	-2178.77	-139.72	-2135.54	5727670.85	594138.15
3225	51.99	261.93	2215.27	-2181.84	-140.27	-2139.45	5727670.30	594134.25
3230	51.93	261.92	2218.36	-2184.93	-140.82	-2143.34	5727669.75	594130.35
3235	51.86	261.91	2221.44	-2188.01	-141.38	-2147.24	5727669.19	594126.45
3240	51.79	261.92	2224.53	-2191.10	-141.93	-2151.13	5727668.64	594122.56
3245	51.70	261.95	2227.63	-2194.20	-142.49	-2155.02	5727668.08	594118.67
3250	51.61	261.99	2230.73	-2197.30	-143.04	-2158.90	5727667.53	594114.79
3255	51.52	262.02	2233.84	-2200.41	-143.58	-2162.78	5727666.99	594110.91
3260	51.43	262.06	2236.95	-2203.52	-144.12	-2166.65	5727666.45	594107.04
3265	51.34	262.09	2240.07	-2206.64	-144.66	-2170.52	5727665.91	594103.17
3270	51.25	262.07	2243.20	-2209.77	-145.20	-2174.39	5727665.37	594099.30
3275	51.15	262.04	2246.33	-2212.90	-145.74	-2178.25	5727664.83	594095.44
3280	51.06	262.00	2249.47	-2216.04	-146.28	-2182.10	5727664.29	594091.59
3281	51.04	262.00	2250.10	-2216.67	-146.39	-2182.87	5727664.18	594090.82
3282	51.02	261.99	2250.73	-2217.30	-146.50	-2183.64	5727664.07	594090.05
3283	51.00	261.98	2251.36	-2217.93	-146.61	-2184.41	5727663.96	594089.28
3284	50.98	261.98	2251.99	-2218.56	-146.72	-2185.18	5727663.85	594088.51
3285	50.96	261.97	2252.61	-2219.18	-146.83	-2185.95	5727663.74	594087.74
3286	50.94	261.96	2253.24	-2219.82	-146.93	-2186.72	5727663.64	594086.97
3287	50.92	261.96	2253.88	-2220.45	-147.04	-2187.49	5727663.53	594086.20
3288	50.90	261.95	2254.51	-2221.08	-147.15	-2188.26	5727663.42	594085.44
3289	50.89	261.94	2255.14	-2221.71	-147.26	-2189.02	5727663.31	594084.67
3290	50.87	261.94	2255.77	-2222.34	-147.37	-2189.79	5727663.20	594083.90
3291	50.85	261.93	2256.40	-2222.97	-147.48	-2190.56	5727663.09	594083.13
3292	50.83	261.92	2257.03	-2223.60	-147.59	-2191.33	5727662.98	594082.36
3293	50.81	261.91	2257.66	-2224.23	-147.70	-2192.10	5727662.87	594081.60
3294	50.79	261.91	2258.29	-2224.86	-147.81	-2192.86	5727662.76	594080.83
3295	50.77	261.90	2258.93	-2225.50	-147.92	-2193.63	5727662.66	594080.06
3296	50.77	261.90	2259.56	-2226.13	-148.03	-2194.40	5727662.54	594079.29
3297	50.78	261.89	2260.19	-2226.76	-148.13	-2195.17	5727662.44	594078.53
3298	50.78	261.89	2260.82	-2227.39	-148.24	-2195.93	5727662.33	594077.76
3299	50.79	261.88	2261.46	-2228.03	-148.35	-2196.70	5727662.22	594076.99
3300	50.79	261.88	2262.09	-2228.66	-148.46	-2197.47	5727662.11	594076.23
3301	50.79	261.88	2262.72	-2229.29	-148.57	-2198.23	5727662.00	594075.46
3302	50.80	261.87	2263.35	-2229.92	-148.68	-2199.00	5727661.89	594074.69
3303	50.80	261.87	2263.98	-2230.55	-148.79	-2199.77	5727661.78	594073.92
3304	50.81	261.86	2264.62	-2231.19	-148.90	-2200.53	5727661.67	594073.16
3305	50.81	261.86	2265.25	-2231.82	-149.01	-2201.30	5727661.56	594072.39
3306	50.82	261.85	2265.88	-2232.45	-149.12	-2202.07	5727661.45	594071.62
3307	50.82	261.85	2266.51	-2233.08	-149.23	-2202.84	5727661.34	594070.86
3308	50.82	261.85	2267.14	-2233.71	-149.34	-2203.60	5727661.23	594070.09
3309	50.83	261.84	2267.78	-2234.34	-149.45	-2204.37	5727661.12	594069.32
3310	50.83	261.84	2268.41	-2234.98	-149.56	-2205.14	5727661.01	594068.55
3311	50.84	261.83	2269.04	-2235.61	-149.67	-2205.91	5727660.90	594067.79
3312	50.84	261.83	2269.67	-2236.24	-149.78	-2206.67	5727660.79	594067.02
3313	50.85	261.82	2270.30	-2236.87	-149.89	-2207.44	5727660.68	594066.25
3314	50.85	261.82	2270.93	-2237.50	-150.00	-2208.21	5727660.57	594065.48
3315	50.85	261.82	2271.56	-2238.13	-150.12	-2208.98	5727660.45	594064.72
3316	50.86	261.81	2272.20	-2238.77	-150.23	-2209.74	5727660.34	594063.95
3317	50.86	261.81	2272.83	-2239.40	-150.34	-2210.51	5727660.23	594063.18
3318	50.87	261.80	2273.46	-2240.03	-150.45	-2211.28	5727660.12	594062.41

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3319	50.87	261.80	2274.09	-2240.66	-150.56	-2212.05	5727660.01	594061.64
3320	50.87	261.80	2274.72	-2241.29	-150.67	-2212.82	5727659.90	594060.88
3321	50.88	261.79	2275.35	-2241.92	-150.78	-2213.58	5727659.79	594060.11
3322	50.88	261.79	2275.98	-2242.55	-150.89	-2214.35	5727659.68	594059.34
3323	50.89	261.78	2276.61	-2243.18	-151.00	-2215.12	5727659.57	594058.57
3324	50.89	261.78	2277.24	-2243.81	-151.11	-2215.89	5727659.46	594057.81
3325	50.91	261.76	2277.87	-2244.44	-151.23	-2216.65	5727659.34	594057.04
3326	50.93	261.74	2278.51	-2245.07	-151.34	-2217.42	5727659.23	594056.27
3327	50.95	261.72	2279.14	-2245.70	-151.45	-2218.19	5727659.12	594055.50
3328	50.97	261.70	2279.76	-2246.34	-151.56	-2218.96	5727659.01	594054.73
3329	50.98	261.68	2280.39	-2246.96	-151.67	-2219.73	5727658.90	594053.96
3330	51.00	261.66	2281.02	-2247.59	-151.79	-2220.50	5727658.78	594053.19
3331	51.02	261.64	2281.65	-2248.22	-151.90	-2221.27	5727658.67	594052.43
3332	51.04	261.62	2282.28	-2248.85	-152.01	-2222.04	5727658.56	594051.66
3333	51.05	261.60	2282.91	-2249.48	-152.13	-2222.81	5727658.44	594050.89
3334	51.07	261.58	2283.54	-2250.11	-152.24	-2223.57	5727658.33	594050.12
3335	51.09	261.57	2284.17	-2250.74	-152.35	-2224.34	5727658.22	594049.35
3336	51.11	261.55	2284.80	-2251.36	-152.47	-2225.11	5727658.10	594048.58
3337	51.12	261.53	2285.42	-2251.99	-152.58	-2225.88	5727657.99	594047.81
3338	51.14	261.51	2286.05	-2252.62	-152.70	-2226.65	5727657.87	594047.04
3339	51.16	261.49	2286.68	-2253.25	-152.81	-2227.42	5727657.76	594046.27
3340	51.18	261.47	2287.30	-2253.88	-152.93	-2228.19	5727657.64	594045.50
3341	51.20	261.45	2287.93	-2254.50	-153.05	-2228.97	5727657.52	594044.73
3342	51.21	261.43	2288.56	-2255.13	-153.16	-2229.74	5727657.41	594043.96
3343	51.23	261.41	2289.18	-2255.76	-153.28	-2230.51	5727657.29	594043.19
3344	51.25	261.39	2289.81	-2256.38	-153.40	-2231.28	5727657.17	594042.41
3345	51.27	261.37	2290.44	-2257.01	-153.51	-2232.05	5727657.06	594041.64
3346	51.28	261.35	2291.06	-2257.63	-153.63	-2232.82	5727656.94	594040.87
3347	51.30	261.34	2291.69	-2258.26	-153.75	-2233.59	5727656.82	594040.10
3348	51.32	261.32	2292.31	-2258.88	-153.87	-2234.36	5727656.70	594039.33
3349	51.34	261.30	2292.94	-2259.51	-153.98	-2235.14	5727656.59	594038.56
3350	51.35	261.28	2293.56	-2260.13	-154.10	-2235.91	5727656.47	594037.78
3351	51.37	261.26	2294.19	-2260.76	-154.22	-2236.68	5727656.35	594037.01
3352	51.39	261.24	2294.81	-2261.38	-154.34	-2237.45	5727656.23	594036.24
3353	51.40	261.23	2295.43	-2262.00	-154.46	-2238.22	5727656.11	594035.47
3354	51.42	261.22	2296.06	-2262.63	-154.58	-2239.00	5727655.99	594034.70
3355	51.43	261.22	2296.68	-2263.25	-154.70	-2239.77	5727655.87	594033.92
3356	51.44	261.21	2297.30	-2263.88	-154.82	-2240.54	5727655.75	594033.15
3357	51.45	261.20	2297.93	-2264.50	-154.94	-2241.31	5727655.63	594032.38
3358	51.46	261.20	2298.55	-2265.12	-155.06	-2242.09	5727655.51	594031.60
3359	51.47	261.19	2299.18	-2265.74	-155.18	-2242.86	5727655.39	594030.83
3360	51.48	261.19	2299.80	-2266.37	-155.30	-2243.63	5727655.27	594030.06
3361	51.49	261.18	2300.42	-2266.99	-155.42	-2244.41	5727655.15	594029.29
3362	51.50	261.17	2301.04	-2267.61	-155.54	-2245.18	5727655.03	594028.51
3363	51.51	261.17	2301.67	-2268.24	-155.66	-2245.95	5727654.91	594027.74
3364	51.52	261.16	2302.29	-2268.86	-155.78	-2246.73	5727654.79	594026.96
3365	51.53	261.16	2302.91	-2269.48	-155.90	-2247.50	5727654.67	594026.19
3366	51.54	261.15	2303.53	-2270.10	-156.02	-2248.27	5727654.55	594025.42
3367	51.56	261.14	2304.15	-2270.72	-156.14	-2249.05	5727654.43	594024.64
3368	51.57	261.14	2304.78	-2271.34	-156.26	-2249.82	5727654.31	594023.87
3369	51.58	261.13	2305.40	-2271.97	-156.38	-2250.60	5727654.19	594023.10
3370	51.59	261.13	2306.02	-2272.59	-156.50	-2251.37	5727654.07	594022.32
3371	51.60	261.12	2306.64	-2273.21	-156.63	-2252.15	5727653.95	594021.55
3372	51.61	261.12	2307.26	-2273.83	-156.75	-2252.92	5727653.82	594020.77
3373	51.62	261.11	2307.88	-2274.45	-156.87	-2253.69	5727653.70	594020.00
3374	51.63	261.10	2308.50	-2275.07	-156.99	-2254.47	5727653.58	594019.22
3375	51.64	261.10	2309.12	-2275.69	-157.11	-2255.24	5727653.46	594018.45
3376	51.65	261.09	2309.74	-2276.31	-157.23	-2256.02	5727653.34	594017.67
3377	51.66	261.09	2310.36	-2276.93	-157.35	-2256.79	5727653.22	594016.90

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3378	51.67	261.08	2310.98	-2277.55	-157.47	-2257.57	5727653.10	594016.13
3379	51.68	261.07	2311.60	-2278.17	-157.60	-2258.34	5727652.97	594015.35
3380	51.69	261.07	2312.22	-2278.79	-157.72	-2259.12	5727652.85	594014.57
3381	51.71	261.06	2312.84	-2279.41	-157.84	-2259.89	5727652.73	594013.80
3382	51.72	261.05	2313.46	-2280.03	-157.96	-2260.67	5727652.61	594013.02
3383	51.75	261.03	2314.08	-2280.65	-158.09	-2261.44	5727652.48	594012.25
3384	51.77	261.01	2314.70	-2281.27	-158.21	-2262.22	5727652.36	594011.47
3385	51.80	261.00	2315.32	-2281.89	-158.33	-2263.00	5727652.24	594010.70
3386	51.82	260.98	2315.94	-2282.51	-158.46	-2263.77	5727652.12	594009.92
3387	51.85	260.96	2316.56	-2283.13	-158.58	-2264.55	5727651.99	594009.14
3388	51.87	260.94	2317.17	-2283.74	-158.70	-2265.32	5727651.87	594008.37
3389	51.89	260.92	2317.79	-2284.36	-158.83	-2266.10	5727651.74	594007.59
3390	51.92	260.91	2318.41	-2284.98	-158.95	-2266.88	5727651.62	594006.81
3391	51.94	260.89	2319.03	-2285.59	-159.08	-2267.66	5727651.49	594006.04
3392	51.97	260.87	2319.64	-2286.21	-159.20	-2268.44	5727651.37	594005.26
3393	51.99	260.85	2320.26	-2286.83	-159.33	-2269.21	5727651.24	594004.48
3394	52.02	260.83	2320.87	-2287.44	-159.45	-2269.99	5727651.12	594003.70
3395	52.04	260.82	2321.49	-2288.06	-159.58	-2270.77	5727650.99	594002.92
3396	52.07	260.80	2322.10	-2288.67	-159.71	-2271.55	5727650.86	594002.15
3397	52.09	260.78	2322.72	-2289.29	-159.83	-2272.33	5727650.74	594001.37
3398	52.11	260.76	2323.33	-2289.90	-159.96	-2273.10	5727650.61	594000.59
3399	52.14	260.74	2323.95	-2290.52	-160.09	-2273.88	5727650.48	593999.81
3400	52.16	260.73	2324.56	-2291.13	-160.21	-2274.66	5727650.36	593999.03
3401	52.19	260.71	2325.17	-2291.74	-160.34	-2275.44	5727650.23	593998.25
3402	52.21	260.69	2325.78	-2292.36	-160.47	-2276.22	5727650.10	593997.47
3403	52.24	260.67	2326.40	-2292.97	-160.60	-2277.00	5727649.97	593996.69
3404	52.26	260.65	2327.01	-2293.58	-160.73	-2277.78	5727649.84	593995.91
3405	52.28	260.64	2327.62	-2294.19	-160.85	-2278.56	5727649.72	593995.13
3406	52.31	260.62	2328.23	-2294.80	-160.98	-2279.34	5727649.59	593994.35
3407	52.33	260.60	2328.84	-2295.42	-161.11	-2280.12	5727649.46	593993.57
3408	52.36	260.58	2329.46	-2296.03	-161.24	-2280.91	5727649.33	593992.79
3409	52.38	260.56	2330.07	-2296.64	-161.37	-2281.69	5727649.20	593992.01
3410	52.40	260.55	2330.68	-2297.25	-161.50	-2282.47	5727649.07	593991.22
3411	52.41	260.53	2331.29	-2297.86	-161.63	-2283.25	5727648.94	593990.44
3412	52.43	260.52	2331.90	-2298.47	-161.76	-2284.03	5727648.81	593989.66
3413	52.44	260.50	2332.51	-2299.08	-161.89	-2284.81	5727648.68	593988.88
3414	52.45	260.49	2333.12	-2299.69	-162.03	-2285.60	5727648.54	593988.10
3415	52.46	260.47	2333.72	-2300.30	-162.16	-2286.38	5727648.41	593987.32
3416	52.47	260.46	2334.33	-2300.90	-162.29	-2287.16	5727648.28	593986.53
3417	52.48	260.44	2334.94	-2301.51	-162.42	-2287.94	5727648.15	593985.75
3418	52.50	260.43	2335.55	-2302.12	-162.55	-2288.72	5727648.02	593984.97
3419	52.51	260.41	2336.16	-2302.73	-162.69	-2289.51	5727647.88	593984.19
3420	52.52	260.39	2336.77	-2303.34	-162.82	-2290.29	5727647.75	593983.40
3421	52.53	260.38	2337.38	-2303.95	-162.95	-2291.07	5727647.62	593982.62
3422	52.54	260.36	2337.99	-2304.56	-163.08	-2291.85	5727647.49	593981.84
3423	52.56	260.35	2338.59	-2305.16	-163.22	-2292.64	5727647.35	593981.06
3424	52.57	260.33	2339.20	-2305.77	-163.35	-2293.42	5727647.22	593980.27
3425	52.58	260.32	2339.81	-2306.38	-163.48	-2294.20	5727647.09	593979.49
3426	52.59	260.30	2340.42	-2306.99	-163.62	-2294.98	5727646.95	593978.71
3427	52.60	260.29	2341.03	-2307.59	-163.75	-2295.77	5727646.82	593977.92
3428	52.61	260.27	2341.63	-2308.20	-163.89	-2296.55	5727646.68	593977.14
3429	52.63	260.26	2342.24	-2308.81	-164.02	-2297.33	5727646.55	593976.36
3430	52.64	260.24	2342.85	-2309.42	-164.16	-2298.12	5727646.41	593975.58
3431	52.65	260.23	2343.45	-2310.02	-164.29	-2298.90	5727646.28	593974.79
3432	52.66	260.21	2344.06	-2310.63	-164.43	-2299.68	5727646.14	593974.01
3433	52.67	260.20	2344.67	-2311.24	-164.56	-2300.47	5727646.01	593973.23
3434	52.68	260.18	2345.27	-2311.84	-164.70	-2301.25	5727645.87	593972.44
3435	52.70	260.17	2345.88	-2312.45	-164.83	-2302.03	5727645.74	593971.66
3436	52.71	260.15	2346.49	-2313.05	-164.97	-2302.82	5727645.60	593970.87

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3437	52.72	260.14	2347.09	-2313.66	-165.11	-2303.60	5727645.46	593970.09
3438	52.73	260.12	2347.70	-2314.27	-165.24	-2304.39	5727645.33	593969.31
3439	52.74	260.11	2348.30	-2314.87	-165.38	-2305.17	5727645.19	593968.52
3440	52.77	260.10	2348.91	-2315.48	-165.52	-2305.95	5727645.05	593967.74
3441	52.79	260.09	2349.51	-2316.08	-165.65	-2306.74	5727644.92	593966.95
3442	52.82	260.08	2350.12	-2316.69	-165.79	-2307.52	5727644.78	593966.17
3443	52.84	260.07	2350.72	-2317.29	-165.93	-2308.31	5727644.64	593965.38
3444	52.86	260.06	2351.32	-2317.89	-166.07	-2309.09	5727644.50	593964.60
3445	52.89	260.05	2351.93	-2318.50	-166.20	-2309.88	5727644.37	593963.81
3446	52.91	260.04	2352.53	-2319.10	-166.34	-2310.66	5727644.23	593963.03
3447	52.93	260.04	2353.13	-2319.70	-166.48	-2311.45	5727644.09	593962.24
3448	52.96	260.03	2353.74	-2320.31	-166.62	-2312.24	5727643.95	593961.45
3449	52.98	260.02	2354.34	-2320.91	-166.76	-2313.02	5727643.81	593960.67
3450	53.00	260.01	2354.94	-2321.51	-166.90	-2313.81	5727643.67	593959.88
3451	53.03	260.00	2355.54	-2322.11	-167.04	-2314.60	5727643.54	593959.10
3452	53.05	259.99	2356.14	-2322.71	-167.17	-2315.38	5727643.40	593958.31
3453	53.08	259.98	2356.74	-2323.32	-167.31	-2316.17	5727643.26	593957.52
3454	53.10	259.97	2357.34	-2323.92	-167.45	-2316.96	5727643.12	593956.73
3455	53.12	259.96	2357.95	-2324.51	-167.59	-2317.75	5727642.98	593955.95
3456	53.14	259.95	2358.55	-2325.11	-167.73	-2318.53	5727642.84	593955.16
3457	53.16	259.95	2359.15	-2325.72	-167.87	-2319.32	5727642.70	593954.37
3458	53.18	259.94	2359.74	-2326.32	-168.01	-2320.11	5727642.56	593953.58
3459	53.19	259.93	2360.34	-2326.91	-168.15	-2320.90	5727642.42	593952.79
3460	53.21	259.93	2360.94	-2327.51	-168.29	-2321.69	5727642.28	593952.01
3461	53.23	259.92	2361.54	-2328.11	-168.43	-2322.47	5727642.14	593951.22
3462	53.24	259.91	2362.14	-2328.71	-168.57	-2323.26	5727642.00	593950.43
3463	53.26	259.90	2362.74	-2329.31	-168.71	-2324.05	5727641.86	593949.64
3464	53.28	259.90	2363.34	-2329.91	-168.85	-2324.84	5727641.72	593948.85
3465	53.30	259.89	2363.93	-2330.50	-169.00	-2325.63	5727641.58	593948.06
3466	53.31	259.88	2364.53	-2331.10	-169.14	-2326.42	5727641.43	593947.27
3467	53.33	259.87	2365.13	-2331.70	-169.28	-2327.21	5727641.29	593946.48
3468	53.35	259.87	2365.73	-2332.30	-169.42	-2328.00	5727641.15	593945.69
3469	53.36	259.86	2366.32	-2332.89	-169.56	-2328.79	5727641.01	593944.90
3470	53.38	259.85	2366.92	-2333.49	-169.70	-2329.58	5727640.87	593944.11
3471	53.40	259.84	2367.52	-2334.09	-169.84	-2330.37	5727640.73	593943.32
3472	53.41	259.84	2368.11	-2334.68	-169.99	-2331.16	5727640.58	593942.53
3473	53.43	259.83	2368.71	-2335.28	-170.13	-2331.95	5727640.44	593941.74
3474	53.45	259.82	2369.30	-2335.87	-170.27	-2332.74	5727640.30	593940.95
3475	53.47	259.81	2369.90	-2336.47	-170.41	-2333.53	5727640.16	593940.16
3476	53.48	259.81	2370.49	-2337.06	-170.55	-2334.32	5727640.02	593939.37
3477	53.50	259.80	2371.09	-2337.66	-170.70	-2335.11	5727639.87	593938.58

APPENDIX 2a

WEST KINGFISH W6A

Petrophysics Evaluation Summary

Esso Australia Pty Ltd.

Exploration Department

West Kingfish W6A
Petrophysics Report

Petrophysicist: K.Kuttan

January 2007

West Kingfish W6A Petrophysical Analysis

West Kingfish W6A was designed to develop an interpreted structural high in a large undrilled area west of the West Kingfish platform. The primary targets of this well were P1.1, M1.2 and M1.3 reservoirs.

West Kingfish W6A was kicked off at 695mMD out of the 10.75inch casing of the abandoned West Kingfish W6 well. An 8.5 inch directional hole was drilled from 695 mMD to a total depth of 3477.0 mMD. The well was logged with Precision Energy Services compact shuttle system from 3468mMD (first sonic reading) to 695m MD. After completing the logging operations, the well was completed with 7" production casing and 3.5 inch tubing.

The Precision Energy Services Shuttle logs have been analysed for porosity, water saturation and net pay over the interval 3310.0 - 3447mMD.

Note that all depth quoted in this report are logged mMDRT unless otherwise specified

DATA

Data from the following logging surveys were used in the interpretation:

Survey/Log	Suite	Company	Top (m MDRT)	Bottom (m MDRT)
Compact Gamma Ray - Compact Dual Neutron - Compact Photodensity - Compact Sonic - Compact Dual Laterolog- Compact Induction	1	Precision Energy Services	695	3468 (sonic) 3461 (deep laterolog)

Deviation

The well angle over the West Kingfish reservoirs was about 52 degrees.

Mud Data

Mud Type : KCl/Glycol/PHPA
Mud Weight: 9.7 ppg
Rm: 0.125@ 25 ^{0}C
Rmf: 0.096 @ 25 ^{0}C
Rmc: 0.102 @ 25 ^{0}C
BHT: 95 ^{0}C

Hole Size

695- 3477 mMD 8.5 inches

Data Acquisition & Log Quality

All log data were of acceptable quality except for the MWD GR. The overall quality of the MWD GR was poor in particular below 3360m MD.

Data Processing

Normally the MWD GR is merged with the Precision GR over the bottom part of the borehole (deepest Precision GR or GRGC reading is some 16m above the first reading MWD GR). Since the MWD GR was poor over this interval, a pseudo GR was generated by calibrating the MWD GR to the deep resistivity or DDL. The following parameters were used for in the computation:

DDLL (x)	GRM1(y)
0.02	-30
2000	400

The pseudo GR was then computed using the *Linear* function in Datafunctions in Geoframe
GR=linear (DDLL, 0.02,-30, 2000,400)
The pseudo MWD GR was then merged with GRGC below 3431mMD.

Because of the shaly and thinly bedded nature of the upper West Kingfish reservoirs a combination of unfiltered and filtered logs (both provided by Precision) as shown below were used in the interpretation. However, the unfiltered density log (DEN) provided by Precision was considered to be too "noisy" to be used in the interpretation. Hence a 3 point-equal-weighting filter was used to filter this log.
The deep and shallow resistivity (DDL and DSLL), the filtered DEN and associated curves, photoelectric – (PDPE), density correction (DCOR) and caliper (CLDC), were depth-matched to the gamma ray (GRGC) which had been depth-matched and merged with MWD gamma ray (GRM1). The neutron porosity log (NPRL) was depth matched to the filtered and GR-depth-matched DEN. Similarly, the compressional sonic log (DT35) was depth matched to the DEN.
No environmental corrections other than those applied in the field were applied to the final logs.

Logs	**Status**
GRGC	filtered
DDLL	Unfiltered
DSLL	Unfiltered
DEN	3 point, equal weighting
NPRL	Unfiltered
PDPE	Filtered
DT35	Filtered

INTERPRETATION

Logs Used

The primary logs used in the interpretation were DDLL (deep laterolog resistivity), DEN (bulk density), NPRL (thermal neutron porosity in LPU), DT35 (compressional sonic) and U (volumetric photoelectric effect). U was generated from the photoelectric curve PDPE using the following relationship:

U= (PDPE-0.26) *((DEN+0.1883)/1.0704)).

The reason for adjusting the formation photoelectric curve is the fact that measured values appear to be higher than the theoretical values in clean quartz sands (of the order of 2.07+ vs the theoretical value of 1.81). The correction (0.26) applied to the measured PDPE values was determined by comparing the mean PDPE values over an interval of clean sand (3390 -3410mMD) and the theoretical value for quartz of 1.81.

As there were no coals in the analysis interval no coal flag (Flag_coal) was generated.

A temperature log was generated using the following parameter:

Depth (mMD)	Temperature (deg. C)
109.5	10
3461	104.6

The temperature at depth 109.5 mMD represents the temperature of the sea-bed and the temperature at 3461m mD (first reading of the Precision laterologs) is the estimated formation temperature –log measured BHT +10 deg.

Formation Water Salinity

R_{wa} analysis using a = 1, m = 2 and n = 2 indicates clean water sands have an apparent formation water salinity of 30,000 ppm NaCl equivalent. Using the method and the same a, m and n values, the apparent bound water salinity was determined to be 15,000 ppm NaCl equivalent. These salinities were used in computing the conductivities of the free water and bound water over the analysis interval.

Hydrocarbon Type Identification

In West Kingfish the only hydrocarbons to be found is oil.

Shale Volume, Porosity and Water Saturation

Schlumberger's Geoframe ELAN+ module was used to determine mineral volumes, total porosity (PHIT), effective porosity (PIGN), effective water saturation (SUWI) and total water saturation (SWT). The details of the models are illustrated in the figures and tables below.

ELAN+ MODEL

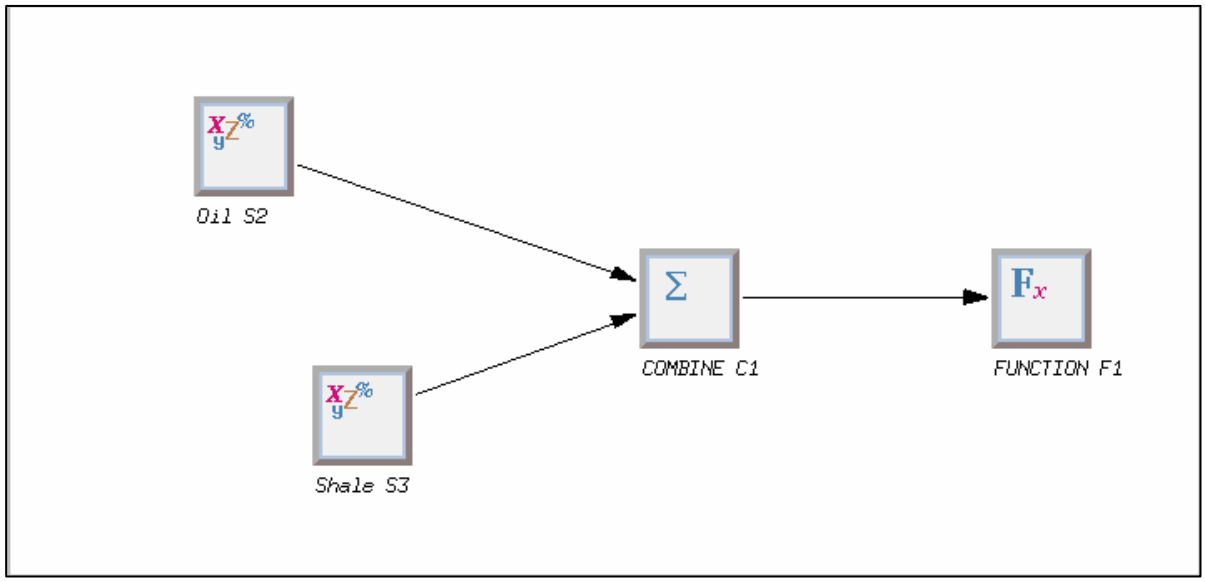
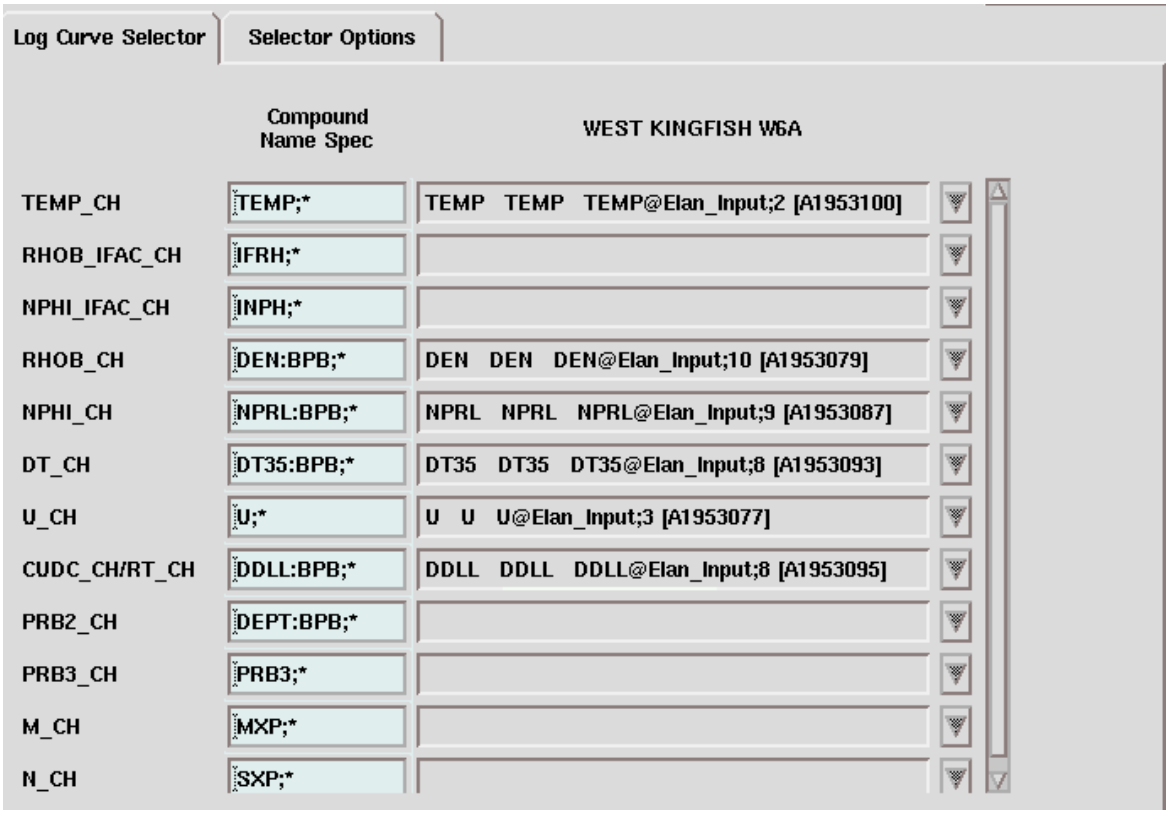


Figure 1: Elan + Model and Module Configuration

ELAN Input Channels



ELAN Global Parameters

Reference Index	MD
Processing Interval	3310.0000(m) To 3446.9998(m)
Sampling Rate	0.1(m)
Uncertainty Channel	FALSE
Clay Input	DRY
Special Fluids	IMMOVABLE_HYDROCARBON

ELAN Zone Definition

Name	Bottom To Top
Pyr_Sand	3310.0(m) To 3468.0(m)

ELAN Process Definition

Process **SOLVE2 "Oil"**

Equations RHOB NPHI DT U CUDC_DWA CT2
Volumes QUAR ORTH PYRI ILLI XWAT UWAT XOIL UOIL

Constraints Applied
UNDEFINED - IrreducibleXWater

UNDEFINED - IrreducibleUWater
UNDEFINED - WaterBaseMud_SXO_gt_SW

Process **SOLVE3 "Shale"**

Equations RHOB NPHI U CUDC_DWA CT1
Volumes QUAR PYRI ILLI XWAT UWAT

Process **COMBINE 1 "COMBINE"**

Order SOL.2 SOL.3

Combine Method
Internal Average

Probability Functions
prob3 = linear((ILLI_VOL.SOL.3), 0.2, 0, 0.5, 1)
probability(SOL.3, prob3)

Process **FUNCTION 1 "FUNCTION"**

Outputs VCL SXWI SWT SUWI PIGN PHIT

User-defined Function
swt_cmp=(UWAT_VOL + XBWA_VOL)/(UWAT_VOL + XBWA_VOL + UOIL_VOL)
output(SWT, swt_cmp)

RESULTS AND DISCUSSION

A summary of the petrophysical analysis is detailed in Table 1and illustrated in Fig. 2.

Intervals 3321.3 -. 3323.100 mMD (P1.0Oil)
The calculated effective water saturation is high and under normal circumstance this would tend to suggest that this sand may be water bearing. However, it overlies the P1.1 sand which is clearly oil bearing and is only separated by a very thin shale. Given this fact, with the presence of good mud log shows and the lower effective porosity, it is more than likely that this sand is oil bearing. The high effective water saturation is being driven by the low formation resistivity and this could be ascribed to the presence of disseminated pyrite. In several Gippsland fields very similar log responses have been observed in clearly hydrocarbon bearing sands at the interface between the Coarse Clastics and the Gurnard or Lakes Entrance formations.

Intervals 3323.7 – 3338.0 mMD (P1.1Oil, P1.1ResOil)
The upper 4.9m of this sand is oil bearing with an OWC at 3328.6 mMD. The P1.0 and P1.1 were perforated over the interval 3321.5-3325.5 mMD on the 29th September 2006 and on a well test on 12th October 2006 produced 69 klo/d with 78% water cut. This result is a little hard to understand given the fact that the lowest perforation is some 3.1mMD above the OWC. However, in the time since the well was put on production, the water cut has not increased by any significant amount. The last well test on the 6th December 2006 indicated an oil rate of 42.2 klo/d with a water cut of 79%.

Intervals: 3346.0 – 3351.0 mMD (P1.2Oil)
The only reason for suggesting that this sand is oil bearing is the fact that it overlies the M1.2 sand which is clearly oil bearing. It is postulated that the high effective water saturation is a reflection of the poor reservoir quality of this reservoir. It is unlikely to be productive.

Interval 3351.8 – 3356.5 mMD (M1.2Oil)
This sand is interpreted to be oil bearing to the base of the sand.

Interval 3364.7 – 3366.0 mMD (M1.3U-PS7Oil), 3366.7 – 3372.5 mMD(M1.3U-PS6Oil)
Both these sands are clearly oil bearing with an OWC at 3372.5mMD.

All the other sands are either water-bearing residual oil reservoirs (down to 3437 mMD) or are truly original water bearing zones.

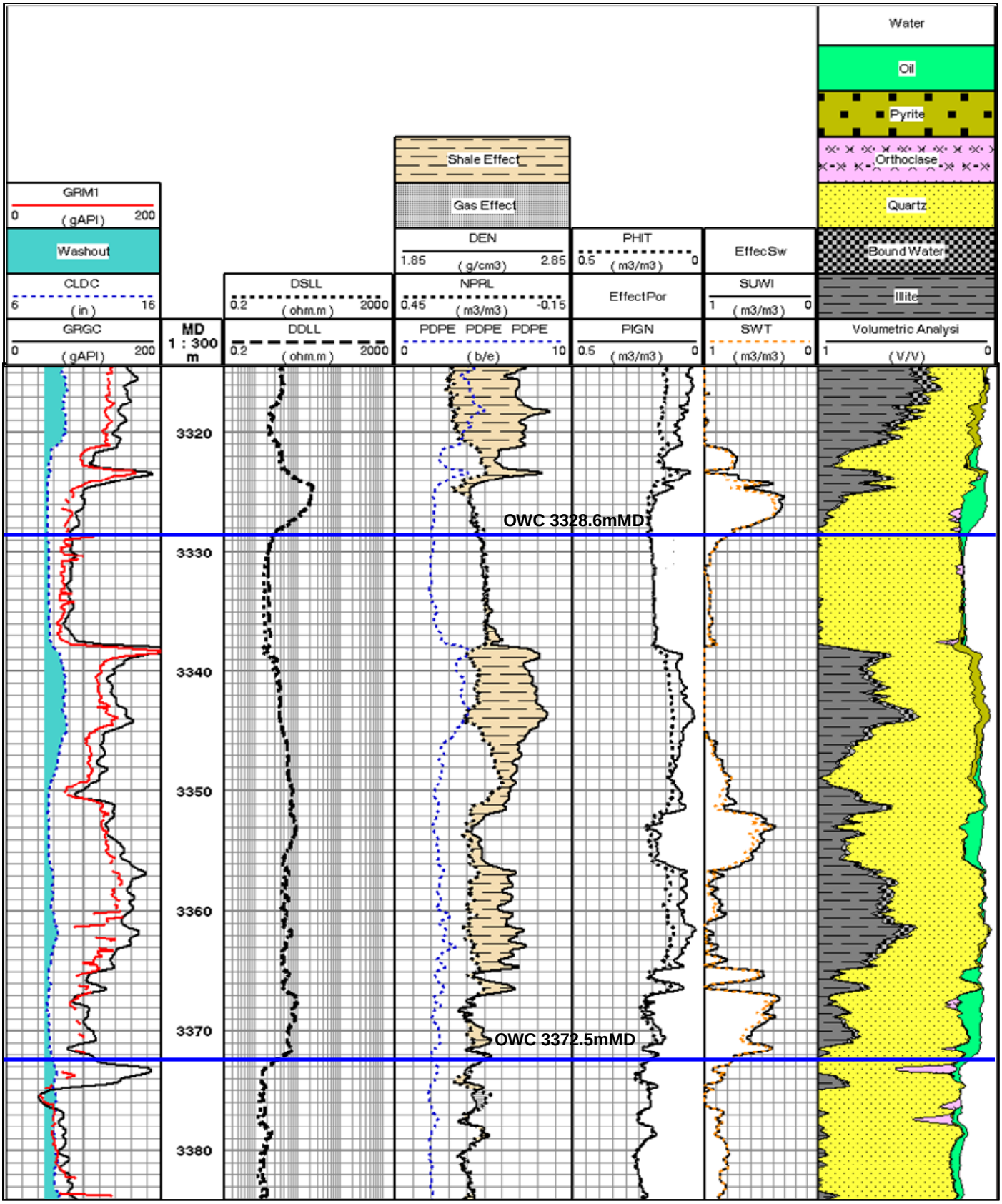


Fig. 2 West Kingfish W6A Reservoir Interval 3321.0 – 3384.0 mMD

West Kingfish W6A

Petrophysical Summary 3321 - 3442m MD

Depth Reference: Primary: mMDKB

Mean VCL, Mean PHIE (or PIGN), Mean SWE (or SUWI) is based on a PHIE or PIGN cutoff: 0.10 for oil &water

Zone	Top Depth mMD	Top Depth mTVDSS	Bottom Depth mMD	Bottom Depth mTVDSS	Gross Thickness mMD	Gross Thickness mTVD	Net/Gross	Mean VCL	Mean PHIE	Mean SWE	Comments	Net Pay Thickness mMD	Net Pay Thickness mTVD
P1.0Oil	3321.30	2242.11	3323.10	2243.25	1.8	1.1	0.97	0.15	0.146	0.75	Oil bearing	1.8	1.1
P1.1Oil	3323.70	2243.62	3328.60	2246.70	4.9	3.1	0.95	0.15	0.185	0.46	Oil bearing, OWC at 3328.6mMD	4.7	2.9
P1.1ResOil	3328.60	2246.70	3338.00	2252.60	9.4	5.9	1.00	0.01	0.192	0.94	Water bearing (swept)		
P1.2Oil	3346.00	2257.61	3351.00	2260.75	5.0	3.1	0.50	0.09	0.116	0.81	Oil bearing, probably non-productive		
M1.2LOil	3351.80	2261.25	3356.50	2264.18	4.7	2.9	0.99	0.19	0.173	0.52	Oil bearing	4.7	2.9
M1.3U-PS7Oil	3364.70	2269.28	3366.00	2270.09	1.3	0.8	0.96	0.13	0.180	0.55	Oil bearing	1.2	0.8
M1.3U-PS6Oil	3366.70	2270.52	3372.50	2274.13	5.8	3.6	0.99	0.13	0.192	0.49	Oil bearing, OWC at 3372.5mMD	5.8	3.6
M1.3-PS6ResOil	3372.50	2274.13	3374.50	2275.37	2.0	1.2	1.00	0.05	0.233	0.85	Water bearing (swept)		
PS5ResOil	3374.50	2275.37	3379.00	2278.17	4.5	2.8	1.00	0.03	0.213	0.92	Water bearing (swept)		
PS4ResOil	3379.00	2278.17	3396.80	2289.13	17.8	11.0	1.00	0.03	0.226	0.89	Water bearing (swept)		
M1.3L-PS3ResOil	3396.80	2289.13	3407.90	2295.96	11.1	6.8	1.00	0.00	0.237	0.96	Water bearing (swept)		
PS2ResOil	3407.90	2295.96	3419.20	2302.84	11.3	6.9	1.00	0.01	0.229	0.95	Water bearing (swept)		
PS1ResOil	3422.00	2304.54	3437.10	2313.72	15.1	9.2	1.00	0.01	0.221	0.87	Water bearing (swept)		
PS1Water	3437.10	2313.72	3441.40	2316.32	4.3	2.6	1.00	0.02	0.200	0.99	Water bearing (original)		

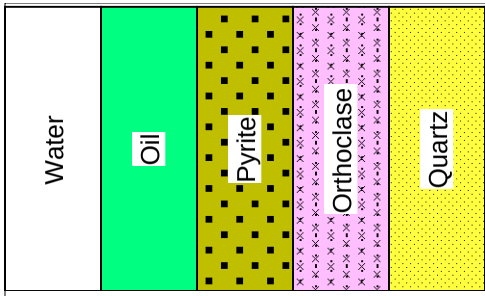
Table 1

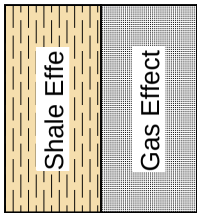
WEST KINGFISH W6A

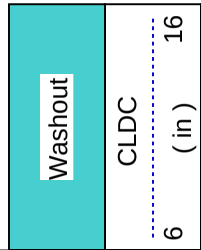
Petrophysical Analysis

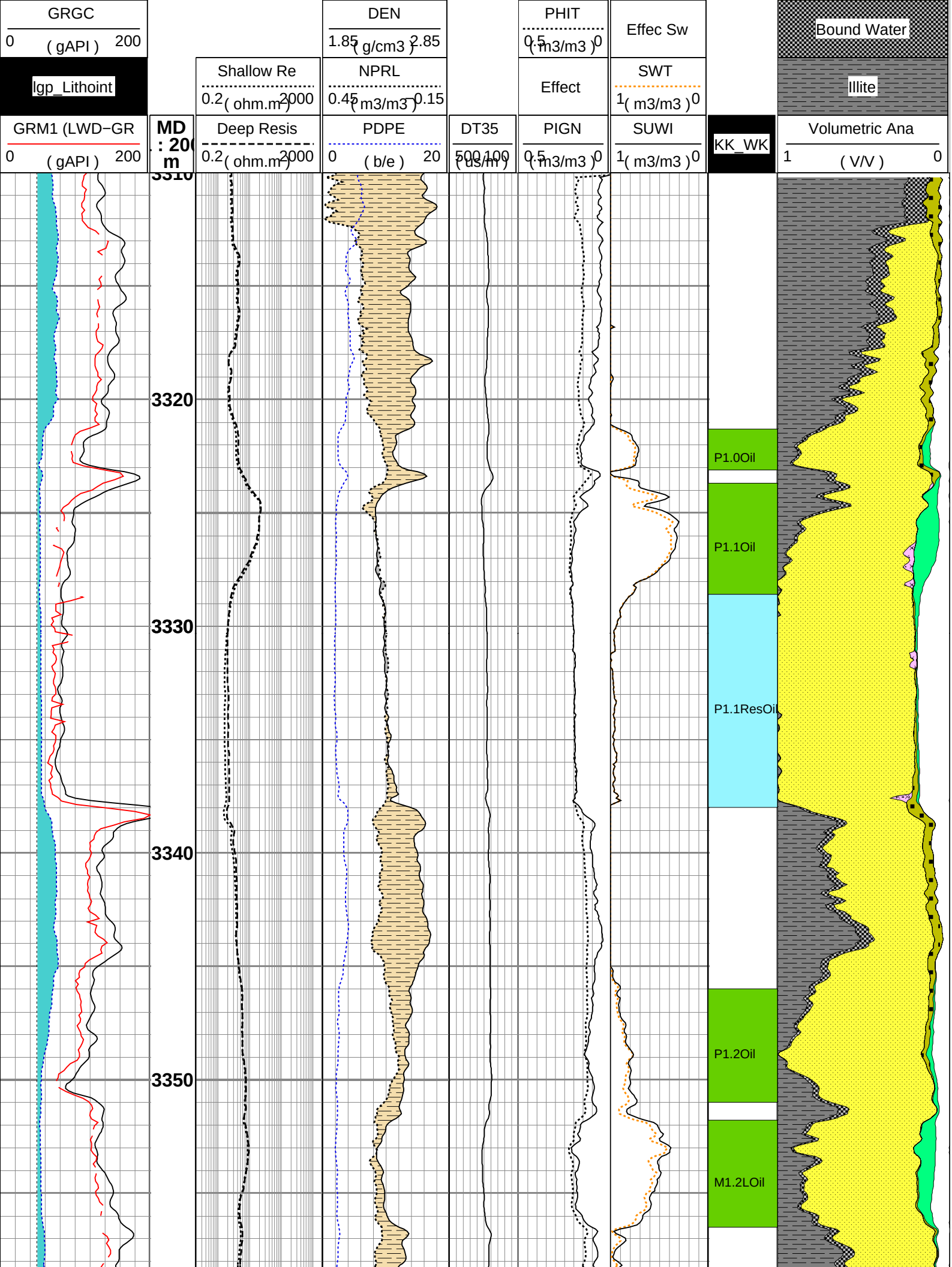
COMPANY:	Esso Australia Pty. Ltd.
WELL:	WEST KINGFISH W6A
BOREHOLE:	
FIELD:	WEST KINGFISH
STATE:	Victoria
COUNTRY:	AUSTRALIA
PETROPHYSICIST:	KUMAR KUTTAN

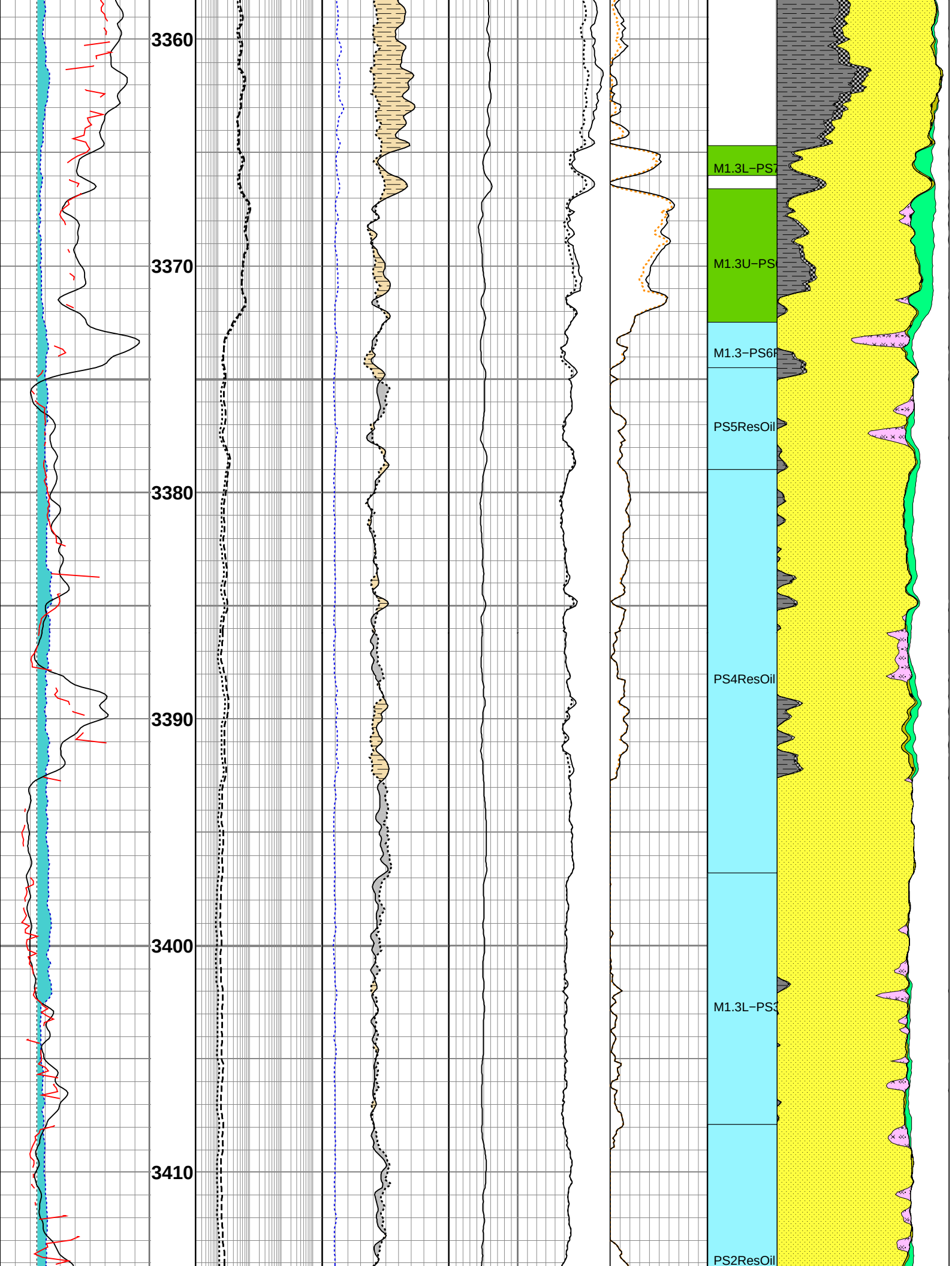
Date Logged:	26−Jul−06	Date of Analysis: Jan 2007
Well Location:	<FL>	
Elevations:	K.B. 33.43 m	D.F. <>
Latitude:	<LATI>	G.L. −76.13 m
Longitude:	<LONG>	

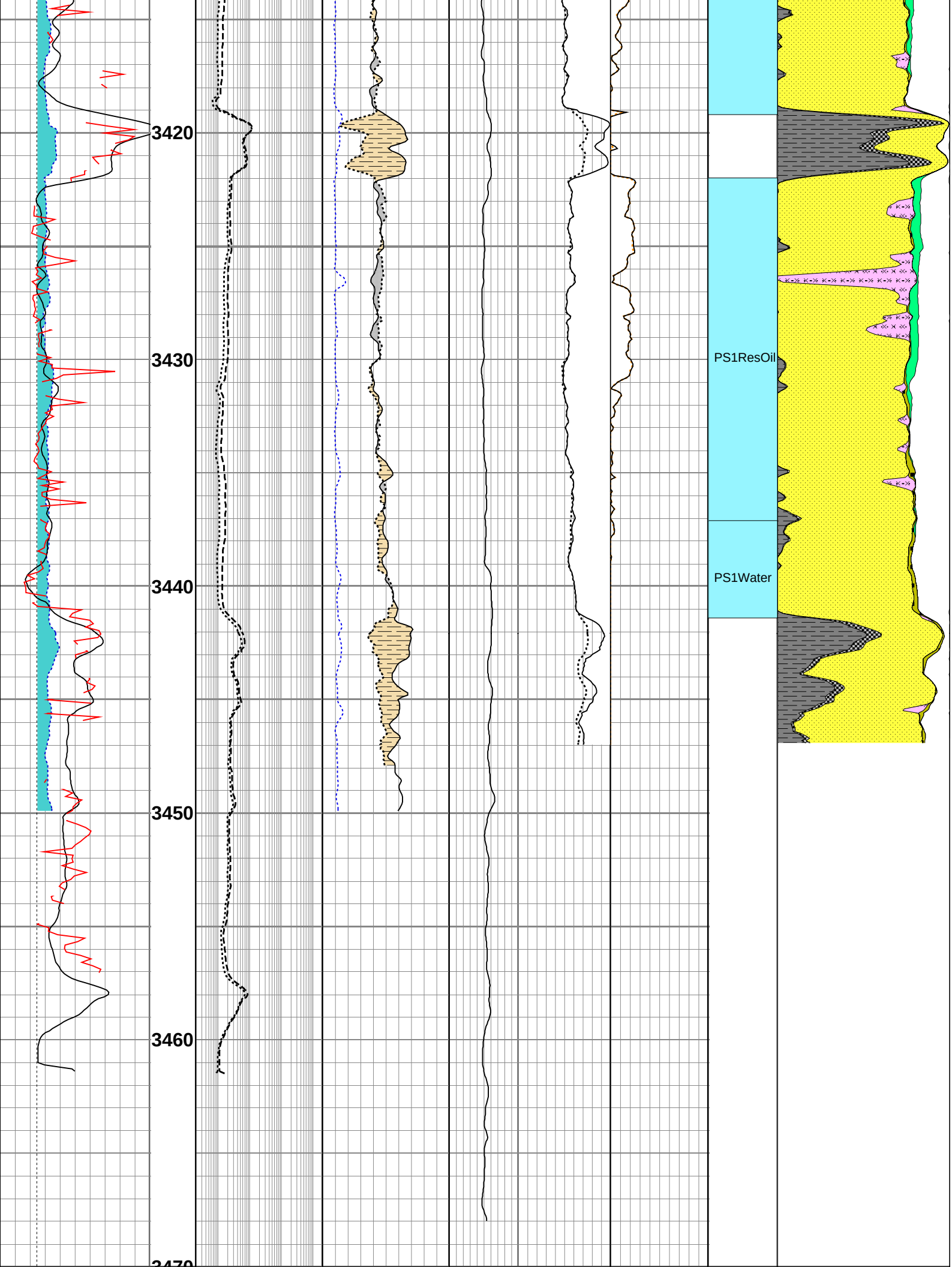







GRGC
0
(gAPI)
200
lgp_Lithoint
GRM1 (LWD−GR
0
(gAPI)
200
MD
: 20(
m
Shallow Re
0.2
(ohm.m)
2000
Deep Resis
0.2
(ohm.m)
2000
DEN
1.85
(g/cm3)
2.85
NPRL
0.45
(m3/m3)
0.15
PDPE
0
(b/e)
20
DT35
500
100
(us/m)
PHIT
0.5
(m3/m3)
0
Effect
PIGN
0.5
(m3/m3)
0
Effec Sw
SWT
1
(m3/m3)
0
SUWI
1
(m3/m3)
0
KK_WK
Bound Water
Illite
Volumetric Ana
1
(V/V)
0
3310
3320
3330
3340
3350
P1.0Oil
P1.1Oil
P1.1ResOil
P1.2Oil
M1.2LOil


3360
3370
3380
3390
3400
3410
M1.3L−PS7
M1.3U−PS
M1.3−PS6
PS5ResOil
PS4ResOil
M1.3L−PS3
PS2ResOil


3420
3430
3440
3450
3460
PS1ResOil
PS1Water

APPENDIX 3a

WEST KINGFISH W6A

Lithology/Show Descriptions

West Kingfish W6A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
			Geologist on rig at 1100 hrs, 07 September 2006 at 731.0 mMDRT / 660.0 mTVDRT.
			30 metre spot samples from 720.0 to 3260.0 mMDRT.
700	701	0	100% Cement.
701	702	5	5% CALCILUTITE: very light grey to light grey, rare light brown, silty in part, trace fossil fragments, trace lithics, trace carbonaceous material, soft, amorphous.
			95% Cement.
702	708	60	60% CALCILUTITE: as above.
			40% Cement.
713	720	100	100% CALCILUTITE: as above.
			Trace Cement.
720	750	100	CALCILUTITE: as above.
750	780	100	CALCILUTITE: as above.
780	810	100	CALCILUTITE: as above.
810	840	100	CALCILUTITE: very light grey to light grey, trace fossil fragments, trace carbonaceous material, soft, amorphous.
840	870	100	CALCILUTITE: as above.
870	900	100	CALCILUTITE: as above.
900	930	100	CALCILUTITE: as above.
930	960	100	CALCILUTITE: very pale to light grey, silty in part, minor fossil fragments, trace carbonaceous specks, trace lithics, dispersive to soft, amorphous to sub-blocky.
960	990	100	CALCILUTITE: as above.
990	1020	100	CALCILUTITE: as above.
1020	1050	100	CALCILUTITE: as above.
1050	1080	100	CALCILUTITE: very pale to light grey, silty in part, grading to Calcisiltite in part, minor fossil fragments, trace carbonaceous specks, trace lithics, dispersive to soft, amorphous to sub-blocky.
			Shallow gas detected from 1106mMDRT to 1160mMDRT. 10m samples bagged from 1110mMDRT to 1170mMDRT.
1080	1110	95	CALCILUTITE: as above.
		5	CALCARENITE: light grey, transparent, light brown, very fine grading to Calcisiltite in part, well sorted, argillaceous matrix, trace fossil fragments, friable to moderately hard in part, poor visual porosity.
			No Fluorescence.
1110	1120	90	CALCILUTITE: as above.
		10	CALCARENITE: as above.
1120	1130	90	CALCILUTITE: as above.
		10	CALCARENITE: as above.
1130	1140	80	CALCILUTITE: pale to light grey, very light brown, silty, minor fossil fragments, trace carbonaceous specks, trace lithics, dispersive to soft, amorphous to sub-blocky.
		20	CALCARENITE: transparent to light grey, light to medium brown, very fine grading to Calcisiltite in part, well sorted, sub-angular to sub-rounded, argillaceous matrix, trace fossil fragments, trace disseminated pyrite, friable to moderately hard, poor visual porosity.
			No Fluorescence.
1140	1150	90	CALCILUTITE: as above.
		10	CALCARENITE: as above.
1150	1160	95	CALCILUTITE: as above.
		5	CALCARENITE: as above.

West Kingfish W6A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
1160	1170	90	CALCILUTITE: as above.
		10	CALCISILTITE: light brownish grey, light grey, arenaceous, silty in part, trace carbonaceous specks, trace fossil fragments, trace lithics, firm, sub-blocky.
		Trace	CALCARENITE: as above.
1170	1200	30	CALCILUTITE: as above
		50	CALCISILTITE: light brownish grey, light grey, arenaceous, silty in part, trace carbonaceous specks, trace fossil fragments, trace lithics, firm to moderately hard, sub-fissile to sub-blocky.
		20	CALCARENITE: as above.
1200	1230	20	CALCILUTITE: as above
		70	CALCISILTITE: as above.
		10	CALCARENITE: as above.
1230	1260	10	CALCILUTITE: light grey, very light brown, silty, minor fossil fragments, trace carbonaceous specks, trace lithics, dispersive to soft, amorphous to sub-blocky.
		80	CALCISILTITE: as above.
		10	CALCARENITE: as above.
1260	1290	20	CALCILUTITE: as above
		80	CALCISILTITE: light brownish grey, light to medium grey, arenaceous grading to Calcarenite in part, trace carbonaceous specks, trace fossil fragments, trace lithics, firm, sub-blocky.
1290	1320	40	CALCILUTITE: light grey, light brownish grey, silty, minor fossil fragments, trace carbonaceous specks, trace lithics, soft, amorphous to sub-blocky.
		60	CALCISILTITE: light to medium brown, light brownish grey, arenaceous in part, trace carbonaceous specks, trace fossil fragments, trace lithics, firm, sub-blocky.
1320	1350	40	CALCILUTITE: as above
		60	CALCISILTITE: as above.
1350	1380	60	CALCILUTITE: as above
		40	CALCISILTITE: as above.
1380	1410	60	CALCILUTITE: very light to light grey, silty, minor fossil fragments, trace carbonaceous specks, trace lithics, dispersive to soft, amorphous to sub-blocky.
		40	CALCISILTITE: light to medium grey, light brownish grey, arenaceous in part, trace carbonaceous specks, trace fossil fragments, trace lithics, firm, sub-blocky.
1410	1440	50	CALCILUTITE: as above
		50	CALCISILTITE: as above.
1440	1470	40	CALCILUTITE: as above
		60	CALCISILTITE: as above.
1470	1500	50	CALCILUTITE: very light to light grey, silty, trace fossil fragments, trace carbonaceous specks, dispersive to soft, amorphous to sub-blocky.
		50	CALCISILTITE: light grey, light to medium brown, light brownish grey, trace carbonaceous specks, firm to rare moderately hard, sub-blocky.
1500	1530	30	CALCILUTITE: as above
		70	CALCISILTITE: as above.
1530	1560	20	CALCILUTITE: as above
		80	CALCISILTITE: as above.
1560	1590	70	CALCILUTITE: as above
		30	CALCISILTITE: as above.
1590	1620	40	CALCILUTITE: light grey to light brownish grey, silty, trace fossil fragments, trace carbonaceous material, soft to firm, sub-blocky.
		60	CALCISILTITE: light to medium brown, brownish grey, arenaceous grading to very fine Calcarenite in part, firm to moderately hard, sub-fissile to sub-blocky.
1620	1650	30	CALCILUTITE: as above

West Kingfish W6A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		70	CALCISILTITE: as above.
1650	1680	30	CALCILUTITE: as above.
		70	CALCISILTITE: as above.
1680	1710	40	CALCILUTITE: light grey to light brownish grey, silty, trace fossil fragments, trace carbonaceous material, firm, occasionally soft, sub-blocky.
		60	CALCISILTITE: light to medium brown, brownish grey in part, arenaceous grading to very fine Calcarenite in part, firm, moderately hard in part, sub-fissile to sub-blocky.
1710	1740	30	CALCILUTITE: as above.
		70	CALCISILTITE: as above.
1740	1770	30	CALCILUTITE: as above.
		70	CALCISILTITE: as above.
1770	1800	40	CALCILUTITE: as above.
		60	CALCISILTITE: as above.
1800	1830	40	CALCILUTITE: very light to light, silty, trace carbonaceous material, trace disseminated pyrite, trace lithics, soft to firm, sub-blocky.
		60	CALCISILTITE: light to medium brown, brownish grey, arenaceous grading to very fine Calcarenite in part, trace carbonaceous material, firm to rare moderately hard, sub-blocky.
			Base of Miocene High Velocity Channel
			= 1845.0 mMDRT/ 1392.9 mTVDRT / -1359.5 mTVDSS.
1830	1860	50	CALCILUTITE: as above.
		50	CALCISILTITE: as above.
1860	1890	60	CALCILUTITE: very light to light grey, silty, trace carbonaceous material, trace disseminated and nodular pyrite, trace glauconite, trace lithics, soft to firm, sub-blocky.
		40	CALCISILTITE: light to medium brown, brownish grey, arenaceous grading to very fine Calcarenite in part, trace carbonaceous material, trace disseminated pyrite, firm to rare moderately hard, sub-blocky.
1890	1920	70	CALCILUTITE: as above.
		30	CALCISILTITE: as above.
1920	1950	50	CALCILUTITE: as above.
		50	CALCISILTITE: as above.
1950	1980	50	CALCILUTITE: as above.
		50	CALCISILTITE: as above.
1980	2010	70	CALCILUTITE: as above.
		30	CALCISILTITE: as above.
2010	2040	90	CALCILUTITE: light to medium grey, silty, trace carbonaceous material, trace disseminated and nodular pyrite, trace glauconite, soft to firm, sub-blocky.
		10	CALCISILTITE: light to medium brown, brown grey in part, arenaceous in part, trace carbonaceous material, trace disseminated pyrite, trace lithics, firm to rare moderately hard, sub-blocky.
2040	2070	60	CALCILUTITE: as above.
		40	CALCISILTITE: as above.
2070	2100	40	CALCILUTITE: as above.
		60	CALCISILTITE: as above.
2100	2130	80	CALCILUTITE: light to medium grey, greyish brown, silty, trace carbonaceous material, trace disseminated pyrite, soft to firm, sub-blocky.
		20	CALCISILTITE: as above.
2130	2160	100	CALCILUTITE: light to medium grey, greyish brown, silty, trace fossil fragments, trace carbonaceous material, trace disseminated pyrite, trace glauconite, soft to firm, sub-blocky.
		Trace	CALCISILTITE: as above.
2160	2190	100	CALCILUTITE: as above.

West Kingfish W6A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		Trace	CALCISILTITE: light to medium brown, brown grey in part, arenaceous in part, trace carbonaceous material, trace disseminated pyrite, trace lithics, firm to rare moderately hard, sub-blocky.
2190	2220	100	CALCILUTITE: as above.
		Trace	CALCISILTITE: as above.
2220	2250	100	CALCILUTITE: light to medium grey, greyish brown, silty, trace fossil fragments, trace carn material, trace disseminated pyrite, trace to loccally rare glauconite, soft to firm, locally moderately hard.
2250	2280	100	CALCILUTITE: as above.
2280	2310	100	CALCILUTITE: as above.
2310	2340	100	CALCILUTITE: light to medium grey, medium brownish grey, silty, rare disseminated pyrite, trace glauconite, trace fossil fragments, trace carbonaceous material, soft to firm, moderately hard in part, sub-blocky.
2340	2370	100	CALCILUTITE: light to medium grey, medium brownish grey, silty, rare disseminated pyrite, trace glauconite, trace fossil fragments, trace carbonaceous material, soft to firm, moderately hard in brownish grey cuttings, sub-blocky.
2370	2400	100	CALCILUTITE: as above.
2400	2430	100	CALCILUTITE: light to medium grey, medium dark grey in part, silty, rare disseminated pyrite, trace glauconite, trace lithics, soft to firm, locally moderately hard, sub-blocky.
2430	2460	100	CALCILUTITE: light to medium grey, medium dark grey in part, light olive grey in part, rare disseminated pyrite, trace glauconite, trace fossil fragments, trace lithics, soft to firm, locally moderately hard, sub-blocky.
2460	2490	100	CALCILUTITE: as above.
2490	2520	90	CALCILUTITE: as above.
		10	CALCISILTITE: medium grey, olive grey, arenaceous grading to very fine Calcarenite in part, rare disseminated pyrite, trace carbonaceous specks, trace lithics, firm to moderately hard, rare hard, sub-blocky.
2520	2550	90	CALCILUTITE: as above.
		10	CALCISILTITE: as above.
2550	2580	90	CALCILUTITE: light to medium grey, olive grey in part, silty, rare disseminated and nodular pyrite, trace fossil fragments, trace carbonaceous specks, soft to moderately hard in part, sub-blocky.
		10	CALCISILTITE: medium grey to olive grey, arenaceous grading to very fine Calcarenite in part, rare disseminated pyrite, trace glauconite, trace carbonaceous specks, firm to moderately hard, trace hard, sub-blocky to sub-fissile in part.
2580	2610	100	CALCILUTITE: as above.
		Trace	CALCISILTITE: as above.
2610	2640	100	CALCILUTITE: as above.
2640	2670	100	CALCILUTITE: light to medium grey, olive grey, light brown grey, silty in part, trace disseminated and nodular pyrite, trace carbonaceous material, trace fossil fragments, soft to firm, rare moderately hard, sub-blocky.
2670	2700	100	CALCILUTITE: as above.
2700	2730	100	CALCILUTITE: light to medium grey, olive grey, light brown grey in part, silty in part, trace disseminated and nodular pyrite, trace glauconite, trace fossil fragments, soft to firm, rare moderately hard, sub-blocky, rare sub-fissile.
2700	2760	100	CALCILUTITE: as above.
2760	2768	100	CALCILUTITE: as above.
			POOH at 2768 mMDRT / 1943.4 mMDRT to change to a 4" / 5" tapered drillstring.
2768	2790	100	CALCILUTITE; light to medium dark grey, olive grey, light brown grey, silty, trace disseminated pyrite, trace glauconite, trace lithics, trace fossil fragments, soft to firm, rare moderately hard.

West Kingfish W6A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
2790	2820	100	CALCILUTITE: as above.
2820	2850	100	CALCILUTITE: light brownish grey to brown grey, medium to medium dark grey, silty in part, trace carbonaceous material, trace lithics, trace disseminated pyrite, soft to firm, occasionally moderately hard, sub-blocky to occasionally sub-fissile.
2850	2880	100	CALCILUTITE: as above.
2880	2910	100	CALCILUTITE: light grey to light brownish grey, medium to medium dark grey, brown to olive grey, silty, trace disseminated and nodular pyrite, trace lithics, soft to firm, rare moderately hard, sub-blocky, rare sub-fissile.
2910	2940	100	CALCILUTITE: as above. **Top of Lakes Entrance = 2952. mMDRT/2052.1 mTVDRT/-2018.7 mTVDSS.**
2940	2970	30	CALCILUTITE: light grey to light brown grey, medium grey in part, silty, trace disseminated pyrite, trace lithics, soft to firm, sub-blocky.
		70	CALCAREOUS CLAYSTONE: medium light grey to medium olive grey, medium dark green grey, light brownish grey in part, silty, moderately calcareous, trace disseminated pyrite, soft to moderately hard, sub blocky.
2970	3000	40	CALCILUTITE: as above.
		60	CALCAREOUS CLAYSTONE: light to medium brown grey, medium to dark green grey, light brown, silty in part, moderately calcareous, trace disseminated and nodular pyrite, trace lithics, soft to moderately hard in part, sub-blocky. **Radiagreen EME Salt added to the Mud system at 3010.0 mMDRT (2086.8 mTVDRT / -2053.4 mTVDSS).** **A 2.5% concentration of Radiagreen in the Mud system was achieved at 3412.0 mMDRT (2331.9 mTVDRT / -2298.5 mTVDSS).**
3000	3030	20	CALCILUTITE: light grey to light brown grey, trace disseminated pyrite, trace lithics, soft to firm, sub-blocky.
		80	CALCAREOUS CLAYSTONE: light to medium brown grey, medium dark green grey, light brown, silty, moderately calcareous, trace disseminated pyrite, trace lithics, firm to moderately hard, soft in part, sub-blocky.
3030	3060	100	CALCAREOUS CLAYSTONE: light to medium brown, medium grey, medium dark green grey, silty, moderately calcareous, trace disseminated pyrite, trace lithics, soft to firm, moderately hard in part, sub-blocky.
3060	3090	100	CALCAREOUS CLAYSTONE: light to medium brown, medium grey to medium green grey, moderately calcareous, silty, trace disseminated pyrite, trace ltihs, trace carbonaceous material, soft to firm, rare mof hard, sub-blocky.
3090	3120	100	CALCAREOUS CLAYSTONE: as above. **10 metre bagged samples from 3120 to 3260.0 mMDRT.**
3120	3130	100	CALCAREOUS CLAYSTONE: light to medium brown, light grey, medium dark green grey, moderately calcareous, silty, trace disseminated pyrite, trace fossil, trace lithics, soft to firm, trace moderately hd, sub-blocky.
3130	3140	100	CALCAREOUS CLAYSTONE: light to medium brown, light grey, rare medium dark green grey, moderately calcareous, silty, trace disseminated pyrite, trace fossil, trace lithics, soft to firm, trace moderately hard, sub-blocky.
3140	3150	100	CALCAREOUS CLAYSTONE: light to medium brown, light grey, moderately calcareous, silty, trace disseminated pyrite, trace fossil fragments, trace lithics, soft to firm, sub-blocky.
3150	3160	100	CALCAREOUS CLAYSTONE: light to medium brown, light grey brown, moderately calcareous, silty, trace disseminated pyrite, trace fossil fragments, trace lithics, soft to firm, sub-blocky.
3160	3170	100	CALCAREOUS CLAYSTONE: light to medium brown, light grey brown, moderately calcareous, silty, trace disseminated and nodular pyrite, trace fossil fragments, trace lithics, soft to firm, sub-blocky.

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Interval (m) From	To	%	Lithology / Show Description
3170	3180	100	CALCAREOUS CLAYSTONE: as above. **Carbide Lag check at 3173.0 mMDRT:** **Theoretical in/out strokes: 7906** **Actual in/out strokes: 9993** **Difference = 2087 strokes.** **Hole overgauge by 26%.** **Lag adjusted.**
3180	3190	100	CALCAREOUS CLAYSTONE: light to medium brown, light grey brown, moderately calcareous, silty in part, trace disseminated pyrite, trace fossils, trace carbonaceous material, soft to dominantly firm, sub-blocky.
3190	3200	100	CALCAREOUS CLAYSTONE: as above. **POOH at 3202.0 mMDRT / 2201.1m TVDRT in order to pick up more 5" drillpipe.** **Baracarb at a concentration of 5 ppb added to the Mud system at 3202.0 mMDRT (2201.2 mTVDRT / -2167.8 mTVDSS).** **Baracarb seen in samples from 3210.0 mMDRT to 3477.0 mMDRT (TD).**
3200	3210	100	CALCAREOUS CLAYSTONE: light to medium brown, light grey brown, medium dark green grey, moderately calcareous, silty, trace disseminated pyrite, trace fossil, trace carbonaceous material, soft to dominantly firm, moderately hard in part, sub-blocky.
3210	3220	100	CALCAREOUS CLAYSTONE: as above.
3220	3230	100	CALCAREOUS CLAYSTONE: light to medium brown, medium dark green grey, light grey brown, moderately calcareous, silty in part, trace disseminated and nodular pyrite, trace fossils, trace lithics, firm to moderately hard, sub-blocky to sub-fissile.
3230	3240	100	CALCAREOUS CLAYSTONE: as above.
3240	3250	100	CALCAREOUS CLAYSTONE: light to medium brown, medium dark green grey, light grey brown, moderately calcareous, silty in part, trace disseminated and nodular pyrite, trace fossils, trace lithics, trace glauconite, firm to moderately hard, sub-blocky to sub-fissile in part.
3250	3260		CALCAREOUS CLAYSTONE: light to medium brown, light grey brown, medium dark green grey, moderately calcareous, silty, trace disseminated pyrite, trace fossils, trace lithics, trace glauconite, firm to moderately hard, sub-blocky. **5 metre bagged samples from 3265.0 mMDRT to 3477.0 mMDRT (TD).**
3260	3265	100	CALCAREOUS CLAYSTONE: as above.
3265	3270	100	CALCAREOUS CLAYSTONE: as above.
3270	3275	100	CALCAREOUS CLAYSTONE: light to medium brown, light grey brown, rare medium dark green grey, moderately calcareous, silty, trace disseminated pyrite, trace lithics, trace carbonaceous material, soft to firm, rare moderately hard, sub-blocky. **Top of Latrobe = 3280.0 mMDRT / 2249.5 mTVDRT / -2216.1 mTVDSS.**
3275	3280	100	CALCAREOUS CLAYSTONE: as above.
3280	3285	90	CALCAREOUS CLAYSTONE: 60%, as above. CLAYSTONE: 30%, white, very light grey to very light green, trace glauconite pellets, soft to rare firm, dispersive, amorphous, common rock flour.
		10	SILTSTONE: pale brown to dark yellow brown, very arenaceous grading to very fine Sandstone in part, trace micro-micaceous, trace glauconite, firm to moderately hard, sub-fissile to sub-blocky.
3285	3290	70	CALCAREOUS CLAYSTONE (30%): as above CLAYSTONE (40%): white, very light grey to light green, trace glauconite pellets, soft to rare firm, dispersive, amorphous, common rock flour.

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Interval (m) From	To	%	Lithology / Show Description
		20	SILTSTONE: pale brown to dark yellow brown, very arenaceous grading to very fine Sandstone in part, trace micro-micaceous, trace glauconite, firm to moderately hard, sub-fissile to sub-blocky.
		10	SANDSTONE: white to pale green, light yellow brown, dominantly very fine to fine, moderately well sorted, sub-angular to sub-rounded, trace glauconite matrix, friable to moderately hard, tight visual and inferred porosity. No Fluorescence.
3290	3295	80	CALCAREOUS CLAYSTONE (30%): light to medium brown, light grey brown, rare medium dark green grey, moderately calcareous, silty, trace disseminated pyrite, trace lithics, trace carbonaceous material, soft to firm, rare moderately hard, sub-blocky. CLAYSTONE (50%): as above.
		20	SILTSTONE: as above.
		Trace	SANDSTONE: as above.
3295	3300	60	CALCAREOUS CLAYSTONE (10%): as above. CLAYSTONE (50%): white, very light grey to light green, trace glauconite pellets, soft to firm, dispersive, amorphous, common rock flour.
		30	SILTSTONE: pale brown to dark yellow brown, arenaceous grading to very fine Sandstone in part, trace micro-micaceous, trace glauconite, firm to moderately hard, sub-blocky.
		10	SANDSTONE: white to pale green, light yellow brown, dominantly very fine to fine, moderately well sorted, sub-angular to sub-rounded, trace glauconite matrix, friable to moderately hard, tight visual and inferred porosity. No Fluorescence.
3300	3305	70	CLAYSTONE (1) (40%): white to very pale green, trace glauconite pellets, soft to rare firm, dispersive, amorphous, common rock flour. CLAYSTONE (2) (30%): light to medium olive brown, soft, dispersive, amorphous, common rock flour.
		20	SILTSTONE: as above.
		10	SANDSTONE: white to pale brown, opaque in part, very fine to fine, well sorted, sub-angular to sub-rounded, trace glauconite matrix, firm to moderately hard, tight inferred and visual porosity. No Fluorescence.
3305	3310	80	CLAYSTONE (1) (30%): as above. CLAYSTONE (2) (50%): as above.
		10	SILTSTONE: pale brown to dark yellow brown, arenaceous grading to very fine Sandstone in part, trace micro-micaceous, trace glauconite, firm to moderately hard, sub-blocky.
		10	SANDSTONE: white to pale green, very fine to fine, well sorted, sub-angular to sub-rounded, trace glauconite matrix, firm, tight inferred and visual porosity. No Fluorescence.
3310	3315	90	CLAYSTONE (1) (30%): white to very pale green, trace glauconite pellets, soft to rare firm, dispersive, amorphous, common rock flour. CLAYSTONE (2) (60%): light to medium olive brown, soft, dispersive, amorphous, common rock flour.
		10	SILTSTONE: as above.
		Trace	SANDSTONE: white to pale green, very fine to fine, well sorted, sub-angular to sub-rounded, trace glauconite matrix, firm, tight inferred and visual porosity. No Fluorescence.

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Interval (m) From	To	%	Lithology / Show Description
3315	3320	50	CLAYSTONE (1) (20%): as above. CLAYSTONE (2) (30%): as above.
		50	SILTSTONE (1) (10%): pale brown to dark yellow brown, arenaceous grading to vf Sandstone in part, trace micro-micaceous, firm,moderately hard in part, sub-blocky. SILTSTONE (2) (40%): medium to medium dark grey, arenaceous, common micro-pyrite, dispersive, soft, amorphous, sub-blocky. **Top of P1.1 = 3323.5 mMDRT / 2276.9 mTVDRT / -2243.5 mTVDSS.**
3320	3325	30	CLAYSTONE (1) (10%): white to pale green, trace glauconite, soft, dispersive, amorphous, common rock flour. CLAYSTONE (2) (20%): light to medium olive brown, soft, dispersive, amorphous, common rock flour.
		50	SILTSTONE (1) (10%): as above. SILTSTONE (2) (40%): as above.
		20	SANDSTONE: white to pale green, clear to translucent, very fine, well sorted, sub-angular to sub-rounded, trace glauconite matrix, moderately hard aggregates, tight visual and inferred porosity. **FLUORESCENCE: 2%: no oil staining, dull to moderately bright spotted green yellow Fluorescence, very slow crush cut, thin pale green ring residue.**
3325	3330	20	CLAYSTONE (1) (10%): as above. CLAYSTONE (2) (10%): as above.
		30	SILTSTONE (1) (10%): as above. SILTSTONE (2) (20%): as above.
		50	SANDSTONE: clear to translucent, fine occasionally very coarse, dominantly medium to coarse, moderately sorted, sub-angular to sub-rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, fair inferred and visual porosity. **FLUORESCENCE: 2%: no oil staining, dull to moderately bright spotted green yellow Fluorescence, very slow crush cut, patchy pale green ring residue.**
3330	3335	20	CLAYSTONE (1) (5%): white to pale green, trace glauconite, soft, dispersive, amorphous, common rock flour. CLAYSTONE (2) (15%): light to medium olive brown, soft, dispersive, amorphous, common rock flour
		20	SILTSTONE (1) (10%): as above. SILTSTONE (2) (40%): as above.
		60	SANDSTONE: clear to translucent, fine to coarse, dominantly medium, moderately well sorted, sub-angular to sub-rounded, weak pyrite cement, dominantly loose, generally clean, fair inferred and visual porosity. **FLUORESCENCE: 10%: no oil staining, dull to moderately bright patchy green yellow Fluorescence, very slow crush cut, thin pale green film residue.** **Base of P1.1 = 3338.0 mMDRT / 2286.0 mTVDRT / -2252.6 mTVDSS.**
3335	3340	10	CLAYSTONE: light to medium olive brown, medium brown in part, non calcareous, soft, dispersive, amorphous, common rock flour.
		70	SILTSTONE (1): (10%)pale brown to dark yellow brown, arenaceous grading to very fine Sandstone in part, trace micro-micaceous, soft to firm, sub-blocky. SILTSTONE (2): (60%): light to medium grey, arenaceous, common micro-pyrite, soft to moderately hard in part, sub-blocky.
		20	SANDSTONE: clear to translucent, fine to coarse, moderately sorted, sub-angular to sub-rounded, weak siliceous cement, dominantly loose, generally clean, poor to fair inferred and visual porosity. **FLUORESCENCE: 2%: No oil staining, dull to moderately bright spotted green yellow Fluorescence, very slow crush cut, thin pale green ring residue.** **Top of P1.2 = 3345.0 mMDRT / 2290.4 mTVDRT / -2257.0 mTVDSS.**

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Interval (m) From	To	%	Lithology / Show Description
3340	3345	10	CLAYSTONE: as above.
		70	SILTSTONE (1) (30%): as above. SILTSTONE: (2) (40%): as above.
		20	SANDSTONE: clear to translucent, fine to coarse, mdo sorted, sub-rounded to sub-rounded, weak siliceous cement, loose, poor to fair inferred and visual porosity. **FLUORESCENCE: 2%: No oil staining, dull to moderately bright spotted green yellow Fluorescence, very slow crush cut, thin pale green ring residue.**
3345	3350	10	CLAYSTONE: as above.
		60	SILTSTONE (1): light to medium grey, arenaceous, common micro-pyrite, soft to moderately hard in part, sub-blocky.
		30	SANDSTONE: clear to translucent, white to pale grey, fine to very coarse, dominantly medium to coarse, moderately sorted, sub-angular to sub-rounded, weak siliceous cement, loose generally clean, fair inferred and visual porosity. **FLUORESCENCE: 2%: No oil staining, dull to moderately bright spotted green yellow Fluorescence, very slow crush cut, thin pale green ring residue.** **Top of M1.2L = 3352.0 mMDRT / 2294.8 mTVDRT / -2261.4 mTVDSS.**
3350	3355	10	CLAYSTONE: as above.
		70	SILTSTONE (1) (30%): as above. SILTSTONE: (2) (40%): as above.
		20	SANDSTONE: clear to translucent, white to very pale grey, fine to coarse, dominantly fine to medium, moderately well sorted, sub-angular to sub-rounded, weak siliceous cement, trace white argillaceous matrix, loose in part, poor to fair inferred visual porosity. **FLUORESCENCE: 15%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy green yellow Fluorescence, slow blooming cut, slight increase when crushed, thick pale green film residue.** **Base of M1.2L = 3356.0 mMDRT / 2297.3 mTVDRT / -2263.9 mTVDSS.**
3355	3360	20	CLAYSTONE: light to medium olive brown, non calcareous, soft, dispersive, amorphous, common rock flour.
		50	SILTSTONE: medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm, moderately hard in part, common rock flour, sub-blocky.
		30	SANDSTONE: clear to translucent, white to pale grey, fine to coarse, rare very coarse, moderately well sorted, sub-angular to sub-rounded, weak siliceous cement, minor pale grey argillaceous matrix, loose in part, poor to fair inferred porosity. **FLUORESCENCE: 15%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy green yellow Fluorescence, slow blooming cut, slight increase when crushed, thick pale green film residue.**
3360	3365	10	CLAYSTONE: as above.
		70	SILTSTONE: (1) (20%) pale brown to dark yellow brown, arenaceous, trace micro-micaceous, soft to firm, common rock flour, sub-blocky. SILTSTONE: (2) (50%) medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm ,moderately hard in part, common rock flour, sub-blocky.
		20	SANDSTONE: clear to translucent, white to pale grey, fine to coarse, rare very coarse, moderately well sorted, sub-angular to sub-rounded, weak siliceous cement, minor pale grey argillaceous matrix, loose in part, poor to fair inferred porosity. **FLUORESCENCE: 10%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy green yellow Fluorescence, slow blooming cut, slight increase when crushed, thick pale green film residue.** **Top of M1.3U (PS6) = 3367.0 mMDRT / 2304.1 mTVDRT / -2270.7 mTVDSS.**
3365	3370	10	CLAYSTONE: as above.
		50	SILTSTONE (1) (20%): as above. SILTSTONE: (2) (30%): as above.

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Interval (m) From	To	%	Lithology / Show Description
		40	SANDSTONE: clear to translucent, occasionally white to pale grey, fine to occasionally very coarse, moderately sorted, sub-angular to sub-rounded, weak siliceous cement, dominantly loose, fair inferred and visual porosity. **FLUORESCENCE: 10%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy green yellow Fluorescence, slow blooming cut, slight increase when crushed, thick pale green film residue.** **Top of M1.3U (PS5) = 3374.5 mMDRT / 2308.8 mTVDRT / -2275.4 mTVDSS.**
3370	3375	20	CLAYSTONE: light to medium olive brown, non calcareous, soft, dispersive, amorphous, common rock flour.
		20	SILTSTONE: medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm, moderately hard in part, common rock flour, sub-blocky.
		60	SANDSTONE: clear to translucent, fine to very coarse, dominantly fine to medium, moderately sorted, sub-angular to sub-rounded, trace siliceous cement, dominantly loose, friable aggregates, common rock flour, poor to fair inferred and visual porosity. **FLUORESCENCE: 10%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy green yellow Fluorescence, slow blooming cut, slight increase when crushed, thick pale green film residue.** **Top of M1.3U (PS4) = 3379.0 mMDRT / 2311.6 mTVDRT / -2278.2 mTVDSS.**
3375	3380	10	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		70	SANDSTONE: clear to translucent, fine to very coarse, dominantly coarse, moderately well sorted, sub-angular to sub-rounded, dominantly loose, generally clean, fair inferred and visual porosity. **FLUORESCENCE: 15%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy to even green yellow Fluorescence, slow blooming cut, slight increase when crushed, thick pale green yellow film residue.**
3380	3385	10	CLAYSTONE: light to medium olive brown, non calcareous, soft, dispersive, amorphous, common rock flour.
		20	SILTSTONE: medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm, moderately hard in part, common rock flour, sub-blocky.
		70	SANDSTONE: clear to translucent, fine to very coarse, dominantly medium to coarse, moderately sorted, sub-angular to sub-rounded, trace to rare pyrite nodules, dominantly loose, generally clean, friable aggregates, fair inferred and visual porosity. **FLUORESCENCE: 15%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy to even green yellow Fluorescence, slow blooming cut, slight increase when crushed, thick pale green yellow film residue.**
3385	3390	20	CLAYSTONE: as above.
		30	SILTSTONE: as above.
		50	SANDSTONE: clear to translucent, fine to coarse, dominantly coarse, moderately sorted, sub-angular to sub-rounded, trace to rare pyrite nodules, loose, generally clean, friable aggregates, fair inferred and visual porosity. **FLUORESCENCE: 15%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy to even green yellow Fluorescence, slow blooming cut, slight increase when crushed, thick pale green yellow film residue.**
3390	3395	10	CLAYSTONE: light to medium olive brown, non calcareous, soft, dispersive, amorphous, common rock flour.
		20	SILTSTONE: medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm ,moderately hard in part, common rock flour, sub-blocky.

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Interval (m) From	To	%	Lithology / Show Description
		70	SANDSTONE: clear to translucent, fine to very coarse, dominantly medium to coarse, moderately sorted, sub-angular to sub-rounded, trace to rare pyrite nodules, dominantly loose, generally clean, friable aggregates, frin inferred and visual porosity. **FLUORESCENCE: 10%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy to even green yellow Fluorescence, slow blooming cut, slight increase when crushed, thick pale green yellow film residue.** **Top of M1.3L (PS3) = 3397.0 mMDRT / 2322.7 mTVDRT / -2289.3 mTVDSS.**
3395	3400	Trace	CLAYSTONE: as above.
		10	SILTSTONE: as above.
		90	SANDSTONE: clear to translucent, fine to coarse, rare very coarse, dominantly medium to coarse, moderately sorted, sub-angular to sub-rounded, occasionally fractured quartz grains, trace to rare pyrite nodules, dominantly loose, generally clean, friable aggregates, fair inferred and visual porosity. **FLUORESCENCE: 10%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy green yellow Fluorescence, slow blooming cut, slight increase when crushed, thin pale green yellow film residue.**
3400	3405	10	CLAYSTONE: light to medium olive brown, non calcareous, soft, dispersive, amorphous, common rock flour.
		20	SILTSTONE: (1) (10%) pale brown to dark yellow brown, arenaceous, trace micro-micaceous, soft to firm, common rock flour, sub-blocky. SILTSTONE: (2) (10%) medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm ,moderately hard in part, common rock flour, sub-blocky.
		70	SANDSTONE: clear to translucent, pale brown, medium to very coarse, moderately sorted, sub-angular to sub-rounded, trace pyrite nodules, dominantly loose, generally clean, friable aggregates, fair inferred and visual porosity. **FLUORESCENCE: 5%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy green yellow Fluorescence, slow blooming cut, slight increase when crushed, thin pale green yellow film residue.** **Top of M1.3L (PS2) = 3408.0 mMDRT / 2329.5 mTVDRT / -2296.1 mTVDSS.**
3405	3410	Trace	CLAYSTONE: as above.
		20	SILTSTONE (1) (10%): as above. SILTSTONE: (2) (10%): as above.
		80	SANDSTONE: clear to translucent, pale brown, medium to very coarse, dominantly coarse, moderately well sorted, sub-angular to sub-rounded, occasionally quartz overgrowths, trace pyrite nodules, dominantly loose, generally clean, friable aggregates, fair inferred and visual porosity. **FLUORESCENCE: 5%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy green yellow Fluorescence, slow blooming cut, slight increase when crushed, thick pale green yellow film residue.**
3410	3415	10	SILTSTONE: medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm ,moderately hard in part, common rock flour, sub-blocky.
		90	SANDSTONE: clear to translucent, pale brown in part, medium to very coarse, predominantly coarse, moderately sorted, sub-angular to sub-rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, friable aggregates, poor to fair inferred and visual porosity. **FLUORESCENCE: 5%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy green yellow Fluorescence, slow blooming cut, slight increase when crushed, thin pale green yellow film residue.**
3415	3420	20	CLAYSTONE: light to medium olive brown, non calcareous, soft, dispersive, amorphous, common rock flour.

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Interval (m) From	To	%	Lithology / Show Description
		40	SILTSTONE: (1) (20%) pale brown to dark yellow brown, arenaceous, trace micro-micaceous, soft to firm, common rock flour, sub-blocky. SILTSTONE: (2) (20%) medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm ,moderately hard in part, common rock flour, sub-blocky.
		40	SANDSTONE: clear to translucent, pale brown in part, medium to very coarse, predominantly coarse, moderately sorted, sub-angular to sub-rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, friable aggregates, poor to fair inferred and visual porosity. **FLUORESCENCE: 5%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy green yellow Fluorescence, slow blooming cut, slight increase when crushed, thin pale green yellow film residue.** **Top of M1.3L (PS1) = 3422.0 mMDRT / 2338.0 mTVDRT / -2304.6 mTVDSS.**
3420	3425	10	CLAYSTONE: as above.
		30	SILTSTONE (1) (10%): as above. SILTSTONE: (2) (20%): as above.
		60	SANDSTONE: clear to translucent, medium to very coarse, predominantly coarse, moderately well sorted, sub-angular to sub-rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, trace white argillaceous matrix, poor to fair inferred and visual porosity. **FLUORESCENCE: 5%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy green yellow Fluorescence, slow blooming cut, slight increase when crushed, thin pale green yellow film residue.**
3425	3430	30	SILTSTONE (1) (10%): as above. SILTSTONE: (2) (20%): as above.
		70	SANDSTONE: clear to translucent, medium to very coarse, predominantly coarse, moderately well sorted, sub-angular to sub-rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, trace white argillaceous matrix, poor to fair inferred and visual porosity. **FLUORESCENCE: 5%: No oil staining, slight hydrocarbon odour, dull to moderately bright patchy green yellow Fluorescence, slow blooming cut, slight increase when crushed, thin pale green yellow film residue.**
3430	3435	10	CLAYSTONE: light to medium olive brown, non calcareous, soft, dispersive, amorphous, common rock flour.
		40	SILTSTONE: (1) (20%) pale brown to dark yellow brown, arenaceous, trace micro-micaceous, soft to firm, common rock flour, sub-blocky. SILTSTONE: (2) (50%) medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm ,moderately hard in part, common rock flour, sub-blocky.
		50	SANDSTONE: clear to translucent, medium to very coarse, predominantly coarse, moderately well sorted, sub-angular to sub-rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, trace white argillaceous matrix, poor to fair inferred and visual porosity. **FLUORESCENCE: 2%: No oil staining, dull to moderately bright patchy green yellow Fluorescence, very slow blooming crush cut, thin pale green yellow ring residue.**
3435	3440	10	CLAYSTONE: as above.
		20	SILTSTONE (1) (10%): as above. SILTSTONE: (2) (10%): as above.

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Interval (m) From	To	%	Lithology / Show Description
		70	SANDSTONE: clear to translucent, medium to very coarse, predominantly coarse, moderately well sorted, sub-angular to sub-rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, trace white argillaceous matrix, poor to fair inferred and visual porosity. **FLUORESCENCE: 2%: No oil staining, dull to moderately bright patchy green yellow Fluorescence, very slow blooming crush cut, thin pale green yellow ring residue.** **Base of M1.3L / Top M1.4 = 3441.0 mMDRT / 2349.5 mTVDRT / -2316.1 mTVDSS.**
3440	3445	Trace	COAL: dusky brown, earthy, firm to moderately hard, uneven, sub-blocky, woody texture.
		10	CLAYSTONE: light to medium olive brown, non calcareous, soft, dispersive, amorphous, common rock flour.
		50	SILTSTONE: (1) (20%) pale brown to dark yellow brown, arenaceous, trace micro-micaceous, soft to firm, common rock flour, sub-blocky. SILTSTONE: (2) (20%) medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm ,moderately hard in part, common rock flour, sub-blocky.
		40	SANDSTONE: clear to translucent, medium to very coarse, predominantly coarse, moderately well sorted, sub-angular to sub-rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, trace white argillaceous matrix, poor to fair inferred and visual porosity. **FLUORESCENCE: 2%: No oil staining, dull bright patchy green yellow Fluorescence, very slow blooming crush cut, thin pale green yellow ring residue.**
3445	3450	5	COAL: as above.
		15	CLAYSTONE: very light grey to pale orange, light brown, firm to mocc moderately hard, soft in part, sub-blocky.
		50	SILTSTONE: pale brown to dark yellow brown, arenaceous, trace micro-micaceous, soft to firm, common rock flour, sub-blocky.
		30	SANDSTONE: clear to translucent, opaque, medium to coarse, very coarse in part, predominantly coarse, moderately sorted, sub-angular to sub-rounded, occasionally fractured quartz grains, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, trace white argillaceous matrix, poor to fair inferred and visual porosity. **FLUORESCENCE: Trace: No oil staining, dull green yellow Fluorescence, very slow blooming crush cut, thin pale green yellow ring residue.**
3450	3455	5	COAL: as above.
		30	CLAYSTONE: as above.
		50	SILTSTONE: (1) (20%) pale brown to dark yellow brown, arenaceous, trace micro-micaceous, soft to firm, common rock flour, sub-blocky. SILTSTONE: (2) (30%) medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm ,moderately hard in part, common rock flour, sub-blocky.
		15	SANDSTONE: clear to translucent, opaque, medium to coarse, very coarse in part, predominantly coarse, moderately sorted, sub-angular to sub-rounded, occasionally fractured quartz grains, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, trace white argillaceous matrix, poor to fair inferred and visual porosity. **FLUORESCENCE: Trace: No oil staining, dull green yellow Fluorescence, very slow blooming crush cut, thin pale green yellow ring residue.**
3455	3460	5	COAL: dusky brown, earthy, firm to moderately hard, uneven, sub-blocky, woody texture.
		15	CLAYSTONE: as above.

West Kingfish W6A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		30	SILTSTONE: (1) (20%) pale brown to dark yellow brown, arenaceous, trace micro-micaceous, soft to firm, common rock flour, sub-blocky. SILTSTONE: (2) (50%) medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm ,moderately hard in part, common rock flour, sub-blocky.
		50	SANDSTONE: clear to translucent, opaque, medium to very coarse, moderately well sorted, occasionally fractured quartz grains, dominantly loose, clean, trace white argillaceous matrix, friable in aggregates, fair inferred and visual porosity. No Fluorescence.
3460	3465	30	CLAYSTONE: as above.
		30	SILTSTONE (1) (10%): as above. SILTSTONE: (2) (20%): as above.
		40	SANDSTONE: clear to translucent, opaque, medium to very coarse, moderately well sorted, trace pyrite cement, occasionally fractured quartz grains, dominantly loose, clean, trace white argillaceous matrix, friable in aggregates, fair inferred and visual porosity. No Fluorescence.
3465	3470	20	CLAYSTONE: as above.
		50	SILTSTONE (1) (10%): as above. SILTSTONE: (2) (40%): as above.
		30	SANDSTONE: clear to translucent, opaque, medium to very coarse, moderately well sorted, trace pyrite cement, occasionally fractured quartz grains, dominantly loose, clean, trace white argillaceous matrix, friable in aggregates, fair inferred and visual porosity. No Fluorescence.
3470	3475	30	CLAYSTONE: very light grey to pale orange, light brown, firm to mocc moderately hard, soft in part, sub-blocky.
		50	SILTSTONE: (1) (20%) pale brown to dark yellow brown, arenaceous, trace micro-micaceous, soft to firm, common rock flour, sub-blocky. SILTSTONE: (2) (30%) medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm ,moderately hard in part, common rock flour, sub-blocky.
		20	SANDSTONE: clear to translucent, pale brown in part, medium to very coarse, dominantly coarse, moderately well sorted, trace pyrite cement, occasionally fractured quartz grains, dominantly loose, clean, trace white argillaceous matrix, friable in aggregates, fair inferred and visual porosity. No Fluorescence.
3475	3477	30	CLAYSTONE: as above.
	TD	50	SILTSTONE: (1) (20%) pale brown to dark yellow brown, arenaceous, trace micro-micaceous, soft to firm, common rock flour, sub-blocky. SILTSTONE: (2) (30%) medium to medium dark grey, arenaceous, common micro-pyrite, soft to firm ,moderately hard in part, common rock flour, sub-blocky.
		20	SANDSTONE: clear to translucent, opaque, medium to very coarse, moderately well sorted, trace pyrite cement, occasionally fractured quartz grains, dominantly loose, clean, trace white argillaceous matrix, friable in aggregates, fair inferred and visual porosity. No Fluorescence. **WKF W6A reached a TD of 3477.0 mMDRT = 2371.1 mTVDRT (-2337.7 mTVDSS) at 1200 hrs on 17 September 2006.**

APPENDIX 4a

WEST KINGFISH W6A

Mud Log

MASTERLOG
WKF-W6A

GENERAL
Country : AUSTRALIA
Permit : VIC L8
Field : Kingfish
Basin : GIPPSLAND
Well Type : DEVELOPMENT
Rig Name : NABORS 453

SURFACE POSITON
Longitude : 148 06 19.764E
Latitude : 38 35 34.706S
MGA Co-ord X : 596273.69mE
MGA Co-ord Y : 5727810.57mN
RT to MSL : 33.43m
RT to Sea Bed : 109.56m

HOLE / CASING INFO
8-1/2" Hole to 3477.0m MDRT

10-3/4" Csg Shoe at 694.8m MDRT
7" Production Csg at 3470.0m MDRT

DATE / DEPTH
Spud Date : 07-09-2006
Total Depth Date : 17-09-2006
Total Depth : 3477.0m MDRT
True Vertical Depth : 2371.1m TVDRT
Log Scale : 1/ 500

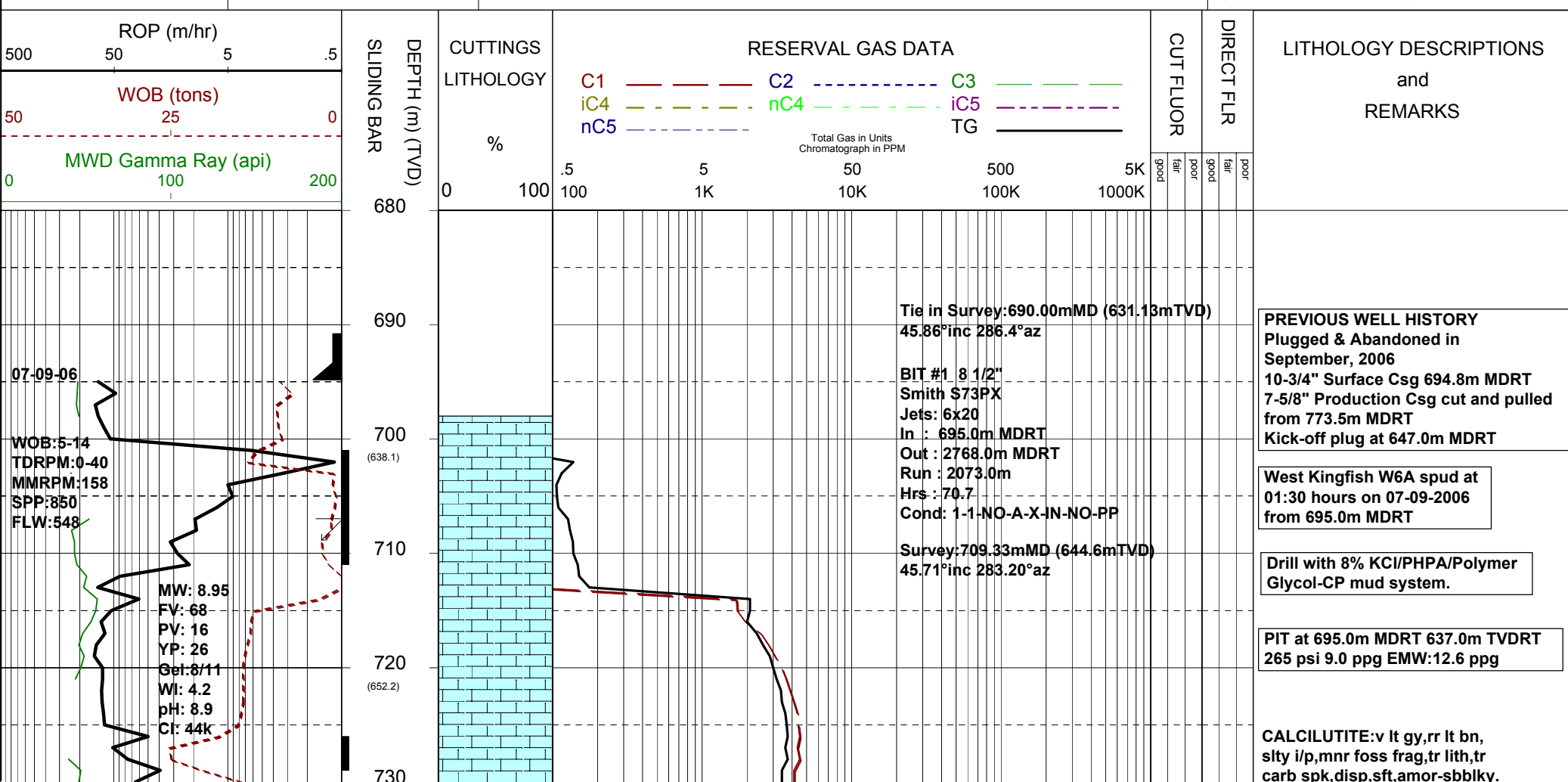
ENGINEERS
Steve Oades
Mark Smith
Nick Abolins

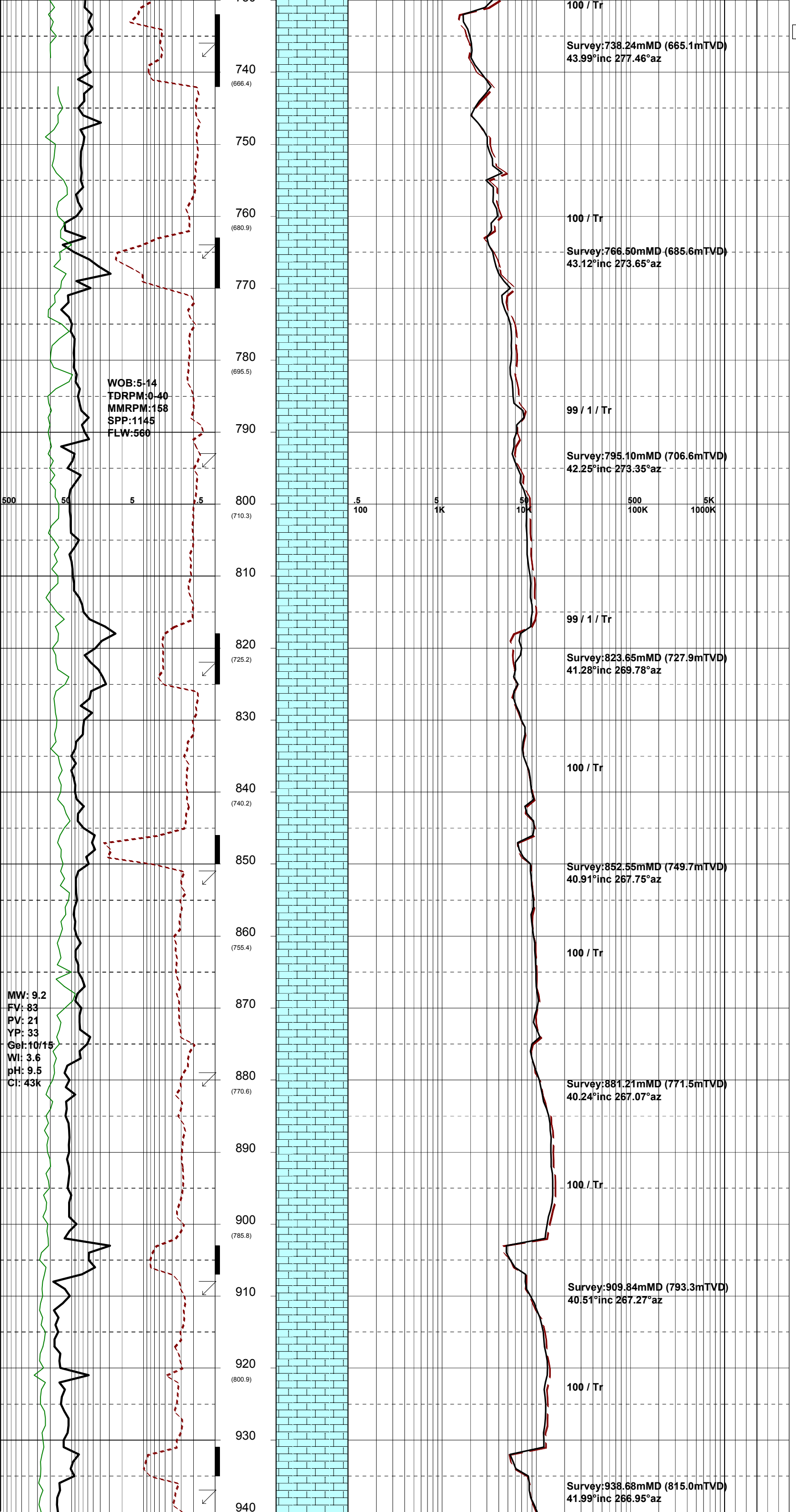
ABBREVIATIONS

MW	Mud Weight	WOB	Weight on Bit (klbs)
FV	Funnel Viscosity	RPM	Rotations Per Min
PV	Plastic Viscosity	FLW	Flow Rate (gpm)
YP	Yield Point	SPP	Pump Pressure (psi)
Gel	Gel Strength	RR	Re-Run Bit
WL	Water Loss	TG	Trip Gas
KCl	Potassium Chloride	CG	Connection Gas
Cl	Chlorides	BG	Background Gas
Incl	Inclination	DGP	Drilled Gas Peak
Az	Azimuth	MM	Mud Motor

LITHOLOGY LEGEND
CLAYSTONE, MARL, BRYOZOA, CARB FRAGMENT
SILTSTONE, LIMESTONE, RADIOLARITES, QUARTZITE
SANDSTONE, DOLOMITE, ECHINOIDS, INTRUSIVES
SHALE, CHERT, CORALS, GLAUCONITE
CONGLOMERATE, FORAMINIFERA, PYRITE
COAL, LITHIC FRAGMENT, CEMENT

ENGINEERING LEGEND
CASING SHOE, WIRELINE LOGS
LINER HANGER, MDT POINTS:
BIT CHANGE, PRESSURE ONLY
DEVIA. SURVEY, SAMPLE
SWC UNRECOV, SEAL FAILURE
SIDEWALL CORE, TIGHT
CORE, SLIDING




100 / Tr
Survey:738.24mMD (665.1mTVD)
43.99°inc 277.46°az
740
(666.4)
750
760
(680.9)
100 / Tr
Survey:766.50mMD (685.6mTVD)
43.12°inc 273.65°az
770
780
(695.5)
WOB:5-14
TDRPM:0-40
MMRPM:158
SPP:1145
FLW:560
790
99 / 1 / Tr
Survey:795.10mMD (706.6mTVD)
42.25°inc 273.35°az
500
50
5
.5
800
(710.3)
.5
100
5
1K
50
10K
500
100K
5K
1000K
810
99 / 1 / Tr
820
(725.2)
Survey:823.65mMD (727.9mTVD)
41.28°inc 269.78°az
830
840
(740.2)
100 / Tr
850
Survey:852.55mMD (749.7mTVD)
40.91°inc 267.75°az
860
(755.4)
100 / Tr
MW: 9.2
FV: 83
PV: 21
YP: 33
Gel:10/15
WI: 3.6
pH: 9.5
Cl: 43k
870
880
(770.6)
Survey:881.21mMD (771.5mTVD)
40.24°inc 267.07°az
890
100 / Tr
900
(785.8)
910
Survey:909.84mMD (793.3mTVD)
40.51°inc 267.27°az
920
(800.9)
100 / Tr
930
940
Survey:938.68mMD (815.0mTVD)
41.99°inc 266.95°az
No H2S or CO2 Detected
CALCILUTITE:v lt gy,rr lt bn, slty i/p,mnr foss frag,tr lith,tr carb spk,disp,sft,amor-sbblky.
CALCILUTITE:v lt gy-lt gy, slty i/p,tr-mnr foss frag,tr nod pyr,tr carb spk,disp,sft,amor-sbblky.
CALCILUTITE:v lt gy-lt gy, slty i/p,tr-mnr foss frag,tr nod pyr,tr carb spk,disp,sft,amor-sbblky.
CALCILUTITE:v pl gy,lt gy, slty i/p,tr-mnr foss frag,tr carb spk,disp,sft,amor-sbblky.
CALCILUTITE:v pl gy-lt gy, slty i/p,tr-mnr foss frag,tr carb spk,disp,sft,amor-sbblky.
CALCILUTITE:v pl gy-lt gy, slty i/p,tr-mnr foss frag,tr carb spk,disp,sft,amor-sbblky.
CALCILUTITE:v pa gy-lt gy, slty i/p,tr-mnr foss frag,tr carb spk,disp,sft,amor-sbblky.

950
960
(830.8)
970
980
(845.7)
990
1000
(860.6)
1010
1020
(875.5)
1030
1040
(890.4)
1050
1060
(905.3)
1070
1080
(920.3)
1090
1100
(935.3)
1110
1120
(950.1)
1130
1140
(964.9)
1150

WOB:5-14
TDRPM:0-40
MMRPM:158
SPP:1465
FLW:598

500 50 5 .5

MW: 9.25
FV: 83
PV: 21
YP: 35
Gel:10/16
WI: 3.2
pH: 9.5
Cl: 45k

08-09-06

WOB:5-14
TDRPM:0-40
MMRPM:158
SPP:1525
FLW:580

.5 5 50 500 5K
100 1K 10K 100K 1000K

100 / Tr

Survey:967.42mMD (836.3mTVD)
41.91°inc 266.94°az

Survey:996.03mMD (857.7mTVD)
41.55°inc 267.19°az

Survey:1024.68mMD (879.0mTVD)
42.13°inc 267.43°az

100 / Tr

Survey:1053.07mMD (900.1mTVD)
41.86°inc 267.04°az

100 / Tr

Survey:1082.11mMD (921.9mTVD)
41.04°inc 267.01°az

Survey:1110.24mMD (942.9mTVD)
42.41°inc 265.86°az

99 / 1 / Tr

99 / 1

Survey:1139.08mMD (964.2mTVD)
42.37°inc 265.61°az

CALCILUTITE:v pl gy-lt gy, slty i/p,tr-mnr foss frag,tr carb spk,disp,sft,amor-sbblky.

CALCILUTITE:v pl gy-lt gy, slty i/p,tr-mnr foss frag,tr carb spk,disp,sft,amor-sbblky.

CALCILUTITE:v pl gy-lt gy, slty i/p,tr-mnr foss frag,tr carb spk,disp,sft,amor-sbblky.

CALCILUTITE:v pl gy-lt gy, slty i/p,tr-mnr foss frag,tr carb spk,disp,sft,amor-sbblky.

10m SAMPLES BAGGED FROM 1110.0m MDRT TO 1160.0m MDRT

CALCILUTITE:(95%) v pl gy-lt gy, slty i/p,tr-mnr foss frag,tr carb spk,disp,sft,amor-sbblky.

CALCARENITE:(5%) lt gy,trnsp,lt bn, vf g/t clslt i/p,wl srt,arg mtx, sa-sr,tr foss frag,fri-mod hd i/p, pr vis por,no fluor.

CALCILUTITE:(90%) v pl gy-lt gy, slty i/p,tr-mnr foss frag,tr carb spk,disp,sft,amor-sbblky.

CALCARENITE:(10%) lt gy,trnsp,lt bn, vf g/t clslt i/p,wl srt,arg mtx, sa-sr,tr foss frag,fri-mod hd i/p, pr vis por,no fluor.

CALCILUTITE:(80%) v pa gy-lt gy, slty i/p,tr-mnr foss frag,tr carb spk,disp,sft,amor-sbblky.

CALCARENITE:(20%) trnsp,lt-med bn, vf g/t clslt i/p,wl srt,arg mtx, sa-sr,tr foss frag,tr dissem pyr,fri-mod hd i/p,pr vis por,no fluor.
CALCILUTITE:(90%) pl-lt gy,v lt bn, slty,mnr foss frag,tr carb spk,tr lith,disp-sft,amor-sbblky.

500 50 5 .5

.5 5 50 500 5K
100 1K 10K 100K 1000K

1160 (979.3)
1170
1180 (993.4)
1190
1200 (1007.1)
1210
1220 (1020.3)
1230
1240 (1032.9)
1250
1260 (1045.3)
1270
1280 (1057.3)
1290
1300 (1069.3)
1310
1320 (1081.2)
1330
1340 (1093.2)
1350
1360

MW: 9.1
FV: 65
PV: 22
YP: 35
Gel:10/15
WI: 3.0
pH: 9.3
Cl: 46k

WOB:7-14
TDRPM:0-40
MMRPM:158
SPP:1525
FLW:580

WOB:7-17
TDRPM:0-40
MMRPM:158
SPP:1758
FLW:610

MW: 9.05
FV: 69
PV: 21
YP: 37
Gel:10/16
WI: 4.2
pH: 9.5
Cl: 40k

99 / 1 / Tr

Survey:1167.71mMD (984.9mTVD)
44.96°inc 265.60°az

98 / 1 / 1

Survey:1196.36mMD (1004.7mTVD)
47.43°inc 264.84°az

98 / 1 / 1

98 / 1 / 1

Survey:1225.27mMD (1023.8mTVD)
50.24°inc 262.40°az

98 / 1 / 1

Survey:1254.31mMD (1041.9mTVD)
52.65°inc 262.37°az

98 / 1 / 1

Survey:1283.07mMD (1059.1mTVD)
53.53°inc 261.94°az

98 / 1 / 1

Survey:1311.71mMD (1076.3mTVD)
53.01°inc 261.83°az

98 / 1 / 1

Survey:1340.41mMD (1093.4mTVD)
53.44°inc 262.45°az

98 / 1 / 1

CALCARENITE:(10%) trnsp-lt gy,lt-med bn,vf g/t clslt i/p,wl srt,sa-sr, arg mtx,tr foss frag,tr dissem pyr, fri-mod hd,pr vis por,no fluor.

CALCILUTITE:(90%) pl-lt gy,v lt bn, slty,mnr foss frag,tr carb spk,tr lith,disp-sft,amor-sbblky.

CALCISILTITE:(10%) lt bn gy,lt gy, aren i/p,slty i/p,tr carb spk,tr foss frag,tr lith,frm,sbblky.

CALCILUTITE:(30%) pl-lt gy,v lt bn, slty,mnr foss frag,tr carb spk,tr lith,disp-sft,amor-sbblky.
CALCISILTITE:(50%) lt bn gy,lt gy, aren i/p,slty i/p,tr carb spk,tr foss frag,tr lith,frm-mod hd,sbfiss-sbblky.
CALCARENITE:(20%) trnsp-lt gy,lt-med bn,vf g/t clslt i/p,wl srt,sa-sr, arg mtx,tr foss frag,tr dissem pyr, fri-mod hd,pr vis por,no fluor.

CALCILUTITE:(20%) pl-lt gy,v lt bn, slty,mnr foss frag,tr carb spk,tr lith,disp-sft,amor-sbblky.
CALCISILTITE:(70%) lt bn gy,lt gy, aren i/p,slty i/p,tr carb spk,tr foss frag,tr lith,frm-mod hd,sbfiss-sbblky.

CALCARENITE:(10%) trnsp-lt gy,lt-med bn,vf g/t clslt i/p,wl srt,sa-sr, arg mtx,tr foss frag,tr dissem pyr, fri-mod hd,pr vis por,no fluor.

CALCILUTITE:(20%) pl-lt gy,v lt bn, slty,mnr foss frag,tr carb spk,tr lith,disp-sft,amor-sbblky.

CALCISILTITE:(70%) lt bn gy,lt gy, aren i/p,slty i/p,tr carb spk,tr foss frag,tr lith,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(20%) pl-lt gy,v lt bn, slty,mnr foss frag,tr carb spk,tr lith,disp-sft,amor-sbblky.
CALCISILTITE:(80%) lt bn gy,lt gy, aren i/p,slty i/p,tr carb spk,tr foss frag,tr lith,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(40%) pl-lt gy,v lt bn, slty,mnr foss frag,tr carb spk,tr lith,disp-sft,amor-sbblky.
CALCISILTITE:(60%) lt bn gy,lt gy, aren i/p,slty i/p,tr carb spk,tr foss frag,tr lith,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(40%) pl-lt gy,v lt bn, slty,mnr foss frag,tr carb spk,tr lith,disp-sft,amor-sbblky.
CALCISILTITE:(60%) lt bn gy,lt gy, aren i/p,slty i/p,tr carb spk,tr foss frag,tr lith,frm-mod hd,sbfiss-sbblky.

09-09-06

500 50 5 .5

.5 5 50 500 5K
100 1K 10K 100K 1000K

1370
1380
(1117.2)
1390
1400
(1129.2)
1410
1420
(1141.1)
1430
1440
(1153)
1450
1460
(1164.9)
1470
1480
(1176.7)
1490
1500
(1188.5)
1510
1520
(1200.3)
1530
1540
(1212.2)
1550
1560
(1224)
1570

MW: 9.00
FV: 65
PV: 21
YP: 34
Gel:10/15
WL: 4.2
pH: 9.5
Cl: 39k

WOB:7-17
TDRPM:0-100
MMRPM:158
SPP:1758
FLW:610

Survey:1369.31mMD (1110.8mTVD)
52.88°inc 262.58°az

98 / 1 / 1

Survey:1398.19mMD (1128.1mTVD)
53.32°inc 262.64°az

98 / 1 / 1

Survey:1426.95mMD (1145.2mTVD)
53.72°inc 261.79°az

98 / 1 / 1

Survey:1455.72mMD (1162.3mTVD)
53.27°inc 261.54°az

98 / 1 / 1

Survey:1484.35mMD (1179.3mTVD)
54.06°inc 261.12°az

98 / 1 / 1

98 / 1 / 1

Survey:1513.16mMD (1196.3mTVD)
53.59°inc 260.70°az

98 / 1 / 1

Survey:1541.86mMD (1213.3mTVD)
53.98°inc 261.26°az

98 / 1 / 1

Survey:1570.30mMD (1230.1mTVD)

CALCILUTITE:(60%) pl-lt gy,v lt bn, slty,mnr foss frag,tr carb spk,tr lith,disp-sft,amor-sbblky.
CALCISILTITE:(40%) lt bn gy,lt gy, aren i/p,slty i/p,tr carb spk,tr foss frag,tr lith,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(60%) pl-lt gy,v lt bn, slty,mnr foss frag,tr carb spk,tr lith,disp-sft,amor-sbblky.
CALCISILTITE:(40%) lt bn gy,lt gy, aren i/p,slty i/p,tr carb spk,tr foss frag,tr lith,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(60%) pl-lt gy,v lt bn, slty,mnr foss frag,tr carb spk,tr lith,disp-sft,amor-sbblky.
CALCISILTITE:(40%) lt bn gy,lt gy, aren i/p,slty i/p,tr carb spk,tr foss frag,tr lith,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(50%) v lt-lt gy,slty, tr foss frag,tr carb mat,disp-sft,amor-sbblky.
CALCISILTITE:(50%) lt gy,lt-med bn gy,tr carb spk,frm-rr mod hd,sbblky.

CALCILUTITE:(30%) v lt-lt gy,slty, tr foss frag,tr carb mat,disp-sft,amor-sbblky.
CALCISILTITE:(70%) lt gy,lt-med bn gy,tr carb spk,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(20%) v lt-lt gy,slty, tr foss frag,tr carb mat,disp-sft,amor-sbblky.
CALCISILTITE:(80%) lt gy,lt-med bn gy,tr carb spk,frm-mod hd,sbfiss-sbblky.

500 50 5 .5 .5 100 5 1K 50 10K 500 100K 5K 1000K

1580
(1235.8)
1590
1600
(1247.6)
1610
1620
(1259.5)
1630
1640
(1271.4)
1650
1660
(1283.4)
1670
1680
(1295.4)
1690
1700
(1307.2)
1710
1720
(1319.1)
1730
1740
(1331)
1750
1760
(1342.8)
1770
1780

WOB:7-17
TDRPM:0-100
MMRPM:158
SPP:1860
FLW:610

MW: 9.10
FV: 78
PV: 22
YP: 37
Gel:11/18
Wl: 3.8
pH: 9.3
Cl: 40k

WOB:7-17
TDRPM:0-100
MMRPM:178
SPP:1990
FLW:610

MW: 9.05
FV: 71
PV: 22
YP: 36
Gel:10/15
Wl: 4.0
pH: 9.5
Cl: 43k

53.53 inc 260.76 az

98 / 1 / 1

Survey:1599.05mMD (1247.1mTVD)
53.88°inc 262.48°az

98 / 1 / 1

Survey:1627.43mMD (1263.9mTVD)
53.47°inc 262.47°az

98 / 1 / 1

Survey:1656.18mMD (1281.1mTVD)
52.81°inc 262.34°az

98 / 1 / 1

Survey:1685.11mMD (1298.4mTVD)
53.85°inc 262.93°az

98 / 1 / 1

Survey:1713.71mMD (1315.3mTVD)
53.65°inc 263.19°az

98 / 1 / 1

Survey:1742.69mMD (1332.6mTVD)
53.28°inc 263.21°az

98 / 1 / 1

Survey:1771.13mMD (1349.4mTVD)
54.15°inc 263.26°az

CALCILUTITE:(20%) v lt-lt gy,slty, tr foss frag,tr carb mat,disp-sft,amor-sbblky.

CALCISILTITE:(80%) lt gy,lt-med bn gy,tr carb spk,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(40%) lt gy-lt bn gy,slty, tr foss frag,tr carb mat,sft-frm, sbblky.

CALCISILTITE:(60%) lt-med bn,bn gy i/p,aren g/t vf clcar i/p,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(30%) lt gy-lt bn gy,slty, tr foss frag,tr carb mat,sft-frm, sbblky.

CALCISILTITE:(70%) lt-med bn,bn gy i/p,aren g/t vf clcar i/p,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(30%) lt gy-lt bn gy,slty, tr foss frag,tr carb mat,sft-frm, sbblky.

CALCISILTITE:(70%) lt-med bn,bn gy i/p,aren g/t vf clcar i/p,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(40%) lt gy-lt bn gy,slty, tr foss frag,tr carb mat,sft-frm, sbblky.

CALCISILTITE:(60%) lt-med bn,bn gy i/p,aren g/t vf clcar i/p,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(30%) lt gy-lt bn gy,slty, tr foss frag,tr carb mat,sft-frm, sbblky.

CALCISILTITE:(70%) lt-med bn,bn gy i/p,aren g/t vf clcar i/p,frm-mod hd,sbfiss-sbblky.

CALCILUTITE:(30%) lt gy-lt bn gy,slty, tr foss frag,tr carb mat,sft-frm, sbblky.

CALCISILTITE:(70%)lt-med bn,bn gy i/p,aren g/t vf clcar i/p,frm-mod hd,sbfiss-sbblky.

500 50 5 .5

.5 5 50 500 5K
100 1K 10K 100K 1000K

1790

1800
(1366.4)

1810

1820
(1378.2)

1830

1840
(1390)

1850

1860
(1401.8)

1870

1880
(1413.7)

1890

1900
(1425.6)

1910

1920
(1437.5)

1930

1940
(1449.4)

1950

1960
(1461.3)

1970

1980
(1473.3)

1990

99 / 1

Survey:1800.06mMD (1366.4mTVD)
53.99°inc 263.13°az

CALCILUTITE:(40%)lt gy-lt bn gy,slty, tr foss frag,tr carb mat,sft-frm, sbblky.

CALCISILTITE:(60%) lt-med bn,bn gy i/p,aren g/t vf clcar i/p,frm-mod hd,sbfiss-sbblky.

99 / 1

Survey:1828.94mMD (1383.4mTVD)
53.63°inc 262.43°az

CALCILUTITE:(40%) lt gy-lt bn gy,slty, tr foss frag,tr carb mat,sft-frm, sbblky.

CALCISILTITE:(60%) lt-med bn,bn gy i/p,aren g/t vf clcar i/p,frm-mod hd,sbfiss-sbblky.

WOB:7-17
TDRPM:0-110
MMRPM:194
SPP:2180
FLW:610

99 / 1

Base of High Velocity Channel
1845.0mMDRT 1392.9mTVDRT
(-1359.5mTVDSS)

10-09-06

Survey:1857.75mMD (1400.5mTVD)
53.88°inc 262.42°az

CALCILUTITE:(50%)lt gy-lt bn gy,slty, tr foss frag,tr carb mat,sft-frm, sbblky.

CALCISILTITE:(50%) lt-med bn,bn gy i/p,aren g/t vf clcar i/p,frm-mod hd,sbfiss-sbblky.

99 / 1

MW: 9.05
FV: 71
PV: 22
YP: 38
Gel:10/15
WI: 3.8
pH: 9.5
Cl: 42k

Survey:1886.75mMD (1417.7mTVD)
53.18°inc 262.52°az

CALCILUTITE:(60%) v lt-lt gy,slty, tr carb mat,tr dissem pyr,tr lith, sft-frm,sbblky.

CALCISILTITE:(40%) lt-med bn,bn gy, aren g/t vf clcar i/p,tr carb mat, tr dissem pyr,frm-rr mod hd,sbblky.

99 / 1

Survey:1915.07mMD (1434.6mTVD)
53.60°inc 262.27°az

CALCILUTITE:(70%) v lt-lt gy,slty,tr carb mat,tr dissem & nod pyr,tr glauc,tr lith,sft-frm,sbblky.

CALCISILTITE:(30%) lt-med bn,bn gy, aren i/p,tr carb mat,tr dissem pyr, tr lith,frm-rr mod hd,sbblky.

98 / 1 / 1

REPLACED DELASCO RUBBER ON GZG DEGASSER AT 06:00HRS ON 10-09-06

WOB:7-17
TDRPM:0-110
MMRPM:194
SPP:2180
FLW:610

Survey:1944.54mMD (1452.1mTVD)
53.61°inc 262.66°az

CALCILUTITE:(50%) v lt-lt gy,slty,tr carb mat,tr dissem & nod pyr,tr glauc,tr lith,sft-frm,sbblky.

CALCISILTITE:(50%) lt-med bn,bn gy, aren i/p,tr carb mat,tr dissem pyr, tr lith,frm-rr mod hd,sbblky.

99 / 1 / Tr

Survey:1973.18mMD (1469.2mTVD)
52.93°inc 262.51°az

CALCILUTITE:(70%) v lt-lt gy,slty,tr carb mat,tr dissem & nod pyr,tr glauc,tr lith,sft-frm,sbblky.

CALCISILTITE:(30%) lt-med bn,bn gy, aren i/p,tr carb mat,tr dissem pyr, tr lith,frm-rr mod hd,sbblky.

500 50 5 .5

.5 100 5 1K 50 10K 500 100K 5K 1000K

2000 (1485.4)

2010

2020 (1497.3)

2030

2040 (1509.2)

2050

2060 (1521.1)

2070

2080 (1533.1)

2090

2100 (1545)

2110

2120 (1556.9)

2130

2140 (1568.8)

2150

2160 (1580.8)

2170

2180 (1592.7)

2190

2200

MW: 9.00
FV: 72
PV: 23
YP: 37
Gel:10/15
WI: 3.4
pH: 9.5
Cl: 42k

WOB:7-33
TDRPM:125
MMRPM:177
SPP:2340
FLW:610

MW: 9.00
FV: 75
PV: 27
YP: 41
Gel:12/22
WI: 3.4
pH: 9.3
Cl: 43k

Survey:2001.77mMD (1486.4mTVD)
52.96°inc 264.12°az

99 / 1 / Tr

CALCILUTITE:(80%) v lt-lt gy,slty,tr carb mat,tr dissem & nod pyr,tr glauc,tr lith,sft-frm,sbblky.

CALCISILTITE:(20%) lt-med bn,bn gy, aren i/p,tr carb mat,tr dissem pyr, tr lith,frm-rr mod hd,sbblky.

Survey:2030.97mMD (1503.8mTVD)
53.86°inc 263.51°az

CALCILUTITE:(90%) v lt-lt gy,slty,tr carb mat,tr dissem & nod pyr,tr glauc,tr lith,sft-frm,sbblky.

CALCISILTITE:(10%) lt-med bn,bn gy, aren i/p,tr carb mat,tr dissem pyr, tr lith,frm-rr mod hd,sbblky.

99 / 1 / Tr

Survey:2059.35mMD (1520.7mTVD)
53.09°inc 263.20°az

CALCILUTITE:(60%) v lt-lt gy,slty,tr carb mat,tr dissem & nod pyr,tr glauc,tr lith,sft-frm,sbblky.

CALCISILTITE:(40%) lt-med bn,bn gy, aren i/p,tr carb mat,tr dissem pyr, tr lith,frm-rr mod hd,sbblky.

Survey:2087.64mMD (1537.7mTVD)
53.38°inc 263.07°az

99 / 1 / Tr

CALCILUTITE:(40%) v lt-lt gy,slty,tr carb mat,tr dissem & nod pyr,sft-frm,sbblky.

CALCISILTITE:(60%) lt-med bn,bn gy i/p,aren i/p,tr carb mat,tr dissem & nod pyr,tr lith,frm-rr mod hd, sbblky.

Survey:2116.53mMD (1554.8mTVD)
53.75°inc 262.65°az

99 / 1 / Tr

CALCILUTITE:(80%) lt-med gy,gy bn, slty,tr carb mat,tr dissem & nod pyr,sft-frm,sbblky.

CALCISILTITE:(20%) lt-med bn,bn gy i/p,aren i/p,tr carb mat,tr dissem & nod pyr,tr lith,frm-rr mod hd, sbblky.

Survey:2145.71mMD (1572.2mTVD)
53.13°inc 262.89°az

99 / 1 / Tr

CALCILUTITE:(100%) lt-med gy,gy bn, slty,tr carb mat,tr dissem & nod pyr,sft-frm,sbblky.

CALCISILTITE:(tr) lt-med bn,bn gy i/p,aren i/p,tr carb mat,tr dissem & nod pyr,tr lith,frm-rr mod hd, sbblky.

Survey:2174.44mMD (1589.4mTVD)
53.32°inc 263.02°az

99 / 1 / Tr

CALCILUTITE:(100%) lt-med gy,gy bn, slty,tr carb mat,tr dissem & nod pyr,sft-frm,sbblky.

CALCISILTITE:(tr) lt-med bn,bn gy i/p,aren i/p,tr carb mat,tr dissem & nod pyr,tr lith,frm-rr mod hd, sbblky.

.5 100 5 1K 50 10K 500 100K 5K

WOB:7-34
TDRPM:125
MMRPM:177
SPP:2648
FLW:609

11-09-06

WOB:15-35
TDRPM:123
MMRPM:177
SPP:2800
FLW:610

MW: 9.00
FV: 73
PV: 23
YP: 38
Gel:12/19
WI: 3.2
pH: 9.5
Cl: 43k

2210
2220
(1616.6)
2230
2240
(1628.6)
2250
2260
(1640.6)
2270
2280
(1652.6)
2290
2300
(1664.5)
2310
2320
(1676.4)
2330
2340
(1688.3)
2350
2360
(1700.2)
2370
2380
(1712.1)
2390
2400
(1723.9)
2410

500 50 5 .5

100 1K 10K 100K 1000K

Survey:2203.17mMD (1606.5mTVD)
53.65°inc 262.30°az

99 / 1 / Tr

CALCILUTITE:lt-med gy,gy bn, slty,tr carb mat,tr dissem & nod pyr,sft-frm,sbblky.

Survey:2231.77mMD (1623.6mTVD)
52.82°inc 261.92°az

99 / 1 / Tr

CALCILUTITE:lt-med gy,gy bn, slty,tr carb mat,tr dissem & nod pyr,sft-frm,sbblky.

Survey:2260.74mMD (1641.1mTVD)
53.08°inc 261.38°az

CALCILUTITE:lt-med gy,gy bn, slty,tr carb mat,tr dissem & nod pyr,sft-frm,sbblky.

Survey:2289.24mMD (1658.1mTVD)
53.40°inc 260.97°az

99 / 1 / Tr

CALCILUTITE:lt-med gy,gy bn, slty,tr carb mat,tr dissem & nod pyr,sft-frm,sbblky.

Survey:2317.55mMD (1674.9mTVD)
53.91°inc 260.96°az

99 / 1 / Tr

CALCILUTITE:lt-med gy,med bn gy, slty,rr dissem pyr,tr glauc,tr foss frag,tr carb mat,sft-frm,mod hd i/p,sbblky.

Survey:2346.50mMD (1692.2mTVD)
52.97°inc 260.82°az

99 / 1 / Tr

CALCILUTITE:med gy,med bn gy, slty,rr dissem pyr,tr glauc,tr foss frag,tr carb mat,mod hd, sbblky.

Survey:2374.77mMD (1709.0mTVD)
53.67°inc 262.16°az

99 / 1 / Tr

CALCILUTITE:med gy,med bn gy, slty,rr dissem pyr,tr glauc,tr foss frag,tr carb mat,mod hd, sbblky.

Survey:2403.76mMD (1726.2mTVD)
53.94°inc 263.26°az

2420
(1735.8)

2430

2440
(1747.8)

2450

2460
(1759.8)

2470

2480
(1771.8)

2490

2500
(1783.8)

2510

2520
(1795.7)

2530

2540
(1807.7)

2550

2560
(1819.7)

2570

2580
(1831.6)

2590

2600
(1843.6)

2610

2620

WOB:20-35
TDRPM:123
MMRPM:177
SPP:3000
FLW:610

MW: 9.20
FV: 73
PV: 24
YP: 44
Gel:12/20
WI: 3.0
pH: 9.3
Cl: 43k

WOB:20-40

500 50 5 .5

.5 5 50 500 5K
100 1K 10K 100K 1000K

Survey:2432.54mMD (1743.3mTVD)
53.14°inc 262.81°az

99 / 1 / Tr / Tr

Survey:2461.11mMD (1760.5mTVD)
52.81°inc 262.65°az

99 / 1 / Tr / Tr

Survey:2489.92mMD (1777.8mTVD)
53.49°inc 263.17°az

99 / 1 / Tr / Tr

Survey:2517.99mMD (1794.5mTVD)
53.46°inc 263.01°az

Survey:2546.97mMD (1811.9mTVD)
52.75°inc 262.81°az

99 / 1 / Tr / Tr

Survey:2575.68mMD (1829.0mTVD)
53.70°inc 262.57°az

Survey:2604.19mMD (1846.1mTVD)
52.78°inc 262.57°az

98 / 1 / 1 / Tr

CALCILUTITE:lt-med gy,med dk gy i/p,slty,rr dissem pyr,tr glauc,tr foss frag,sft-frm,loc mod hd, sbblky.

CALCILUTITE:lt-med gy,med dk gy i/p,lt olv gy i/p,slty,rr dissem pyr, tr glauc,tr foss frag,sft-frm,loc mod hd,sbblky.

CALCILUTITE:lt-med gy,med dk gy i/p,lt olv gy i/p,slty,rr dissem pyr, tr glauc,tr foss frag,sft-frm,loc mod hd,sbblky.

CALCILUTITE:(90%) lt-med gy,med dk gy i/p,lt olv gy i/p,slty,rr dissem pyr,tr glauc,tr foss frag,sft-frm, loc mod hd,sbblky.
CALCISILTITE:(10%) med gy,olv gy, aren g/t clcar i/p,rr dissem pyr,tr carb spk,tr lith,frm-mod hd,sbblky-sbfiss i/p.

CALCILUTITE:(90%) lt-med gy,med dk gy i/p,lt olv gy i/p,slty,rr dissem pyr,tr glauc,tr foss frag,sft-frm, loc mod hd,sbblky.
CALCISILTITE:(10%) med gy,olv gy, aren g/t clcar i/p,rr dissem pyr,tr carb spk,tr lith,frm-mod hd,sbblky-sbfiss i/p.

CALCILUTITE:(90%) lt-med gy,med dk gy i/p,lt olv gy i/p,slty,rr dissem pyr,tr glauc,tr foss frag,sft-frm, loc- mod hd,sbblky.
CALCISILTITE:(10%) med gy,olv gy, aren g/t clcar i/p,rr dissem pyr,tr carb spk,tr lith,frm-mod hd,sbblky-sbfiss i/p.

CALCILUTITE:lt-med gy,med dk gy i/p,lt olv gy i/p,slty,rr dissem pyr,tr glauc,tr foss frag,sft-frm, loc mod hd,sbblky.
CALCISILTITE:(Tr%) med gy,olv gy, aren g/t clcar i/p,rr dissem pyr,tr carb spk,tr lith,frm-mod hd,sbblky-sbfiss i/p.

TDRPM:120
MMRPM:177
SPP:3200
FLW:610

MW: 9.20
FV: 71
PV: 24
YP: 44
Gel:12/21
WI: 3.0
pH: 9.1
Cl: 42k

2630

2640
(1867.5)

2650

2660
(1879.3)

2670

12-09-06

2680
(1891.1)

2690

2700
(1903)

2710

2720
(1914.8)

WOB:20-50
TDRPM:120
MMRPM:176
SPP:3300
FLW:610

2730

2740
(1926.8)

2750

MW: 9.25
FV: 70
PV: 21
YP: 39
Gel:12/20
WI: 3.0
pH: 9.1
Cl: 41k

2760
(1938.7)

14-09-06

2770

WOB:5-25
TDRPM:115
MMRPM:176
SPP:3200
FLW:610

2780
(1950.5)

2790

500 50 5 .5

2800
(1962.3)

MW: 9.60
FV: 73
PV: 24
YP: 39
Gel:12/20
WI: 3.0
pH: 9.1
Cl: 42k

2810

2820
(1974)

15-09-06

2830

Survey:2632.63mMD (1863.2mTVD)
53.53°inc 262.51°az

Survey:2661.88mMD (1880.4mTVD)
54.17°inc 262.17°az

98 / 1 / 1 / Tr

Survey:2690.32mMD (1897.2mTVD)
53.40°inc 261.96°az

Survey:2719.04mMD (1914.3mTVD)
53.76°inc 262.04°az

98 / 1 / 1 / Tr

Survey:2746.92mMD (1930.9mTVD)
53.08°inc 261.78°az

98 / 1 / 1 / Tr

BIT #1RR 8 1/2"
Smith S73PX
Jets: 6x20
In : 2768.0m MDRT
Out : 3477.0
Run : 709.0m
Hrs : 29.8
Cond: 1-3-LT-N-X-1/16-ER/CT-TD

Survey:2778.51mMD (1949.7mTVD)
53.97°inc 261.32°az

97 / 1 / 1 / 1

.5 5 50 500 5K
100 1K 10K 100K 1000K

Survey:2807.18mMD (1966.5mTVD)
54.24°inc 261.80°az

CALCILUTITE:lt-med gy,lt bn gy,
lt olv gy i/p,slty,tr dissem pyr,
tr foss frag,tr carb spk,sft-frm,
occ mod hd,sbblky.

CALCILUTITE:lt-med gy,lt bn gy,
lt olv gy i/p,slty,tr dissem pyr,
tr foss frag,tr lith,sft-frm,
occ mod hd,sbblky.

CALCILUTITE:lt-med gy,lt bn gy,
lt olv gy i/p,slty,tr dissem pyr,
rr foss frag,tr lith,tr glauc,sft,
frm-mod hd,sbblky.

CALCILUTITE:lt-med gy,olv gy,
lt bn gy i/p,slty i/p,tr dissem & nod
pyr,tr foss frag,tr glauc,sft-frm,
rr mod hd,sbblky,rr sbfiss.

CALCILUTITE:lt-med gy,olv gy,
lt bn gy i/p,slty i/p,tr dissem & nod
pyr,tr foss frag,tr glauc,sft-frm,
rr mod hd,sbblky,rr sbfiss.

PULL OUT TO CHANGE SAVER SUB
FOR TAPERED 4"/5" DRILL STRING

CALCILUTITE:lt-med dk gy,olv gy,
lt bn gy i/p,slty,tr dissem pyr,tr
lith,tr foss frag,tr glauc,sft-frm,
rr mod hd,sbblky,rr sbfiss.

CALCILUTITE:med-med dk gy,bn gy,
olv gy i/p,slty,tr dissem & nod pyr,
tr lith,tr foss frag,tr glauc,frm-mod
hd,sbblky-sbfiss i/p.

WOB:10-40
TDRPM:115
MMRPM:175
SPP:3350
FLW:600

2840
(1985.8)

2850

2860
(1997.7)

2870

2880
(2009.5)

2890

WOB:10-30
TDRPM:115
MMRPM:176
SPP:3450
FLW:605

2900
(2021.3)

2910

2920
(2033.2)

MW: 9.60
FV: 70
PV: 26
YP: 42
Gel:12/20
WI: 2.8
pH: 9.5
Cl: 41k

2930

2940
(2045)

2950

2960
(2056.9)

2970

2980
(2068.8)

2990

500 50 5 .5 3000
(2080.8)

.5 5 50 500 5K
100 1K 10K 100K 1000K

3010

3020
(2092.9)

WOB:15-30
TDRPM:116
MMRPM:168
SPP:3450
FLW:580

3030

3040

Survey:2835.60mMD (1983.2mTVD)
53.62°inc 261.31°az

97 / 1 / 1 / 1

Survey:2864.27mMD (2000.2mTVD)
53.49°inc 262.06°az

97 / 1 / 1 / 1

Survey:2893.11mMD (2017.3mTVD)
54.05°inc 262.02°az

97 / 1 / 1 / 1

97 / 1 / 1 / 1

Survey:2922.03mMD (2034.3mTVD)
53.61°inc 261.68°az

97 / 1 / 1 / 1

Survey:2950.86mMD (2051.4mTVD)
53.68°inc 261.99°az

Lakes Entrance
2952.0mMDRT 2052.1mTVDRT
(-2018.7mTVDSS)

97 / 1 / 1 / 1

Survey:2978.82mMD (2068.1mTVD)
53.21°inc 262.06°az

Survey:3007.83mMD (2085.5mTVD)
52.97°inc 262.77°az

97 / 1 / 1 / 1

Survey:3035.59mMD (2102.3mTVD)
52.66°inc 262.33°az

CALCILUTITE:med-med dk gy,lt bn gy,slty i/p,tr dissem & nod pyr, tr lith,tr foss frag,tr glauc,frm-, mod hd i/p,sft,sbblky-sbfiss i/p.

CALCILUTITE:lt bn gy-bn gy, med-med dk gy,slty i/p,tr dissem pyr, tr carb mat,tr foss frag,sft-frm, mod hd i/p,sbblky-sbfiss i/p.

CALCILUTITE:lt gy-lt bn gy, med-med dk gy,bn-olv gy,slty, tr dissem & nod pyr,sft-frm, rr mod hd,sbblky,rr sbfiss.

CALCILUTITE:lt gy-lt bn gy, med-med dk gy,bn-olv gy,slty, tr dissem & nod pyr,sft-frm, rr mod hd,sbblky,rr sbfiss.

CALCILUTITE:lt gy-lt bn gy, med-med dk gy,bn-olv gy,slty, tr dissem & nod pyr,sft-frm, rr mod hd,sbblky,rr sbfiss.

CALCAREOUS CLAYSTONE:med lt gy-med gy,olv gy,lt bn gy i/p,mod calc, slty,tr dissem pyr,sft-mod hd,sbblky.

CALCILUTITE:lt gy-lt bn gy, med-med dk gy,bn-olv gy,slty, tr dissem & nod pyr,sft-frm, rr mod hd,sbblky,rr sbfiss.

CALCAREOUS CLAYSTONE:lt-med bn gy,med dk gn gy,lt bn,mod calc, slty,tr dissem & nod pyr,tr lith, sft-mod hd i/p,sbblky.

CALCILUTITE:lt gy-lt bn gy, med-med dk gy,bn-olv gy,slty, tr dissem & nod pyr,sft-frm, rr mod hd,sbblky,rr sbfiss.

CALCAREOUS CLAYSTONE:lt-med bn gy,med dk gn gy,v lt-lt bn,mod calc,slty,tr dissem pyr,tr lith, frm-mod hd,sft i/p,sbblky.

3050
3060
(2117)
3070
3080
(2128.8)
3090
3100
(2140.6)
3110
3120
(2152.3)
3130
3140
(2164.1)
3150
3160
(2175.9)
3170
3180
(2187.8)
3190
3200
(2200)
3210
3220
(2212.2)
3230
3240
(2224.5)
3250

MW: 9.60
FV: 74
PV: 31
YP: 46
Gel:13/21
WI: 2.8
pH: 9.1
Cl: 41k

16-09-06

WOB:15-35
TDRPM:115
MMRPM:165
SPP:3500
FLW:570

MW: 9.60
FV: 80
PV: 28
YP: 48
Gel:12/21
WI: 2.8
pH: 9.3
Cl: 41k

500 50 5 .5

WOB:15-20
TDRPM:115
MMRPM:168
SPP:3500
FLW:580

MW: 9.90
FV: 79
PV: 33

.5 5 50 500 5K
100 1K 10K 100K 1000K

Survey:3064.95mMD (2120.0mTVD)
53.36°inc 262.68°az

97 / 1 / 1 / 1

Survey:3094.17mMD (2137.2mTVD)
54.32°inc 262.81°az

96 / 2 / 1 / 1

Survey:3123.14mMD (2154.1mTVD)
54.15°inc 262.62°az

96 / 2 / 1 / 1

Survey:3152.01mMD (2171.1mTVD)
53.63°inc 262.32°az

Survey:3179.78mMD (2187.7mTVD)
53.10°inc 262.07°az

94 / 2 / 2 / 2

Survey:3208.82mMD (2205.3mTVD)
52.19°inc 261.96°az

94 / 2 / 2 / 2

Survey:3237.72mMD (2223.1mTVD)
51.83°inc 261.90°az

92 / 4 / 2 / 2

CALCAREOUS CLAYSTONE:lt-med bn,med dk gn gy,med gy,mod calc, slty,tr dissem pyr,tr lith, sft-frm,mod hd i/p,sbblky.

CALCAREOUS CLAYSTONE:lt-med bn,med gy-gn gy,mod calc,slty, tr dissem pyr,tr lith,tr carb mat, sft-frm,rr mod hd,sbblky.

CALCAREOUS CLAYSTONE:lt-med bn,med gy-gn gy,mod calc,slty, tr dissem pyr,tr lith,tr carb mat, sft-frm,rr mod hd,sbblky.

CALCAREOUS CLAYSTONE:lt-med bn,med gy-gn gy,mod calc,slty, tr dissem pyr,tr lith,tr carb mat, sft-frm,rr mod hd,sbblky.

Carbide Lag check at 3173.0m MDRT
Theoretical 7906 stks
Actual 9993 stks
Difference 2087 stks
26% OPEN HOLE OVERGAUGE

CALCAREOUS CLAYSTONE:lt-med bn,lt gy bn,mod calc,slty i/p, tr dissem pyr,tr foss,tr carb mat,sft-com frm,sbblky.

WIPER TRIP TO 2082.0m MDRT TO PICK UP EXTRA 5" DP

BARACARB IN SAMPLES FROM 3210.0m MDRT

CALCAREOUS CLAYSTONE:lt-med bn,lt gy bn,med dk gn gy i/p,mod calc,slty,tr dissem pyr,tr lith, sft-frm,sbblky.

CALCAREOUS CLAYSTONE:lt-med bn,lt gy bn,med dk gn gy,mod calc,

YP: 49
Gel:14/26
WI: 2.4
pH: 9.0
Cl: 41k

3260
(2237)

3270

3280
(2249.5)

17-09-06

3290

3300
(2262.1)

WOB:15-20
TDRPM:115
MMRPM:171
SPP:3500
FLW:590

3310

3320
(2274.7)

3330

3340
(2287.3)

WOB:15-20
TDRPM:115
MMRPM:171
SPP:3450
FLW:590

MW: 9.80
FV: 78
PV: 29
YP: 45
Gel:13/21
WI: 2.4
pH: 9.2
Cl: 41k

3350

3360
(2299.8)

3370

3380
(2312.2)

3390

500 50 5 .5

3400
(2324.5)

3410

3420
(2336.8)

3430

3440
(2348.9)

3450

3460

Survey:3266.31mMD (2240.9mTVD)
51.32°inc 262.10°az

90 / 5 / 3 / 2

88 / 5 / 4 / 2 / 1

Survey:3295.03mMD (2258.9mTVD)
50.77°inc 261.90°az

Contact in P1.1 at 3331.5m MDRT on this log is equivalent to P1.1 at 3327.5m MDRT on the wireline logs. Gas readings on this log should effectively shift upwards to co-incide with the wireline logs.

82 / 7 / 6 / 4 / 1

Survey:3323.76mMD (2277.1mTVD)
50.89°inc 261.78°az

36 / 13 / 21 / 20 / 10

Survey:3352.54mMD (2295.1mTVD)
51.40°inc 261.23°az

38 / 13 / 21 / 19 / 9

38 / 13 / 21 / 19 / 9

Survey:3381.41mMD (2313.1mTVD)
51.71°inc 261.06°az

22 / 12 / 24 / 28 / 14

.5 5 50 500 5K
100 1K 10K 100K 1000K

26 / 11 / 22 / 26 / 15

Survey:3409.74mMD (2330.5mTVD)
52.40°inc 260.55°az

26 / 10 / 22 / 27 / 15

25 / 9 / 22 / 28 / 16

Survey:3438.82mMD (2348.2mTVD)
52.74°inc 260.11°az

21 / 8 / 22 / 30 / 19

Survey:3455.28mMD (2358.1mTVD)
53.13°inc 259.96°az

slty,tr dissem pyr,tr lith,frm-mod hd,sbblky-sbfiss i/p.

CALCAREOUS CLAYSTONE:lt-med bn,lt gy bn,med dk gn gy,mod calc, slty,tr dissem pyr,tr lith,tr carb mat,sft-frm,rr mod hd, sbblky-sbfiss i/p.

Top of Latrobe
3280.0mMDRT 2249.5mTVDRT
(-2216.1mTVDSS)

CLAYSTONE:1) wh,v lt gy-v lt gn,tr pel glauc,sft-rr frm,disp i/p,amor.

SILTSTONE:1) pl bn-dk yel bn,v aren g/t vf SST i/p,tr micmic,tr glauc, frm-mod hd,sbfiss-sbblky.

SANDSTONE:wh-pl gn,lt yel bn,dom vf-f,wl srt,sa-sr,tr glauc mtx,fri-mod hd,ti vis por,no fluor.

CLAYSTONE:2) lt-med olv bn,sft, disp,amor,com rock flour.

SANDSTONE:wh-pl gn,opq i/p,vf-f, wl srt,sa-sr,tr glauc mtx,fri-mod hd,ti inf & vis por,no fluor.

SILTSTONE:1) pl bn-dk yel bn,aren g/t vf SST i/p,tr micmic,frm,mod mod hd i/p,sbblky.

SANDSTONE:wh-pl gn,vf-f,wl srt, sa-sr,tr glauc mtx,fri-mod hd, ti inf & vis por,no fluor.

Top of P1.1 (FSP1)
3323.5mMDRT 2276.9mTVDRT
(-2243.5mTVDSS)

SANDSTONE:wh-pl gn,clr-trnsl,vf,wl srt,sa-sr,tr glauc mtx,mod hd agg, ti inf & vis por,fluor.

SANDSTONE:clr-trnsl,f-occ v crs, dom med-crs,mod srt,sa-sr,wk pyr cmt,tr nod pyr,dom lse,gen cln, fr inf & vis por,fluor.

FLUORESCENCE:3323.5m-3350.0m 2-10% No oil stain,dll-mod brt yel gn sptd-ptchy fluor,no-v slw diff crsh cut,ptchy-thk pl gn ring res.

SILTSTONE:2) lt-med gy,aren,com micr-pyr,sft,mod hd-hd i/p,sbblky.

CLAYSTONE:2) lt-med olv bn,med bn, sft,disp,amor,com rock flour.

Base of P1.1 (SBP1)
3338.0mMDRT 2286.0mTVDRT
(-2252.6mTVDSS)

Top of P1.2
3345.0mMDRT 2290.4mTVDRT
(-2257.0mTVDSS)

Top of M1.2L
3352.0mMDRT 2294.8mTVDRT
(-2261.4mTVDSS)

Base of M1.2
3356.0mMDRT 2297.3mTVDRT
(-2263.9mTVDSS)

Top of M1.3U (PS6)
3367.0mMDRT 2304.1mTVDRT
(-2270.7mTVDSS)

Top of M1.3U (PS5)
3374.5mMDRT 2308.8mTVDRT
(-2275.4mTVDSS)

Top of M1.3U (PS4)
3379.0mMDRT 2311.6mTVDRT
(-2278.2mTVDSS)

Top of M1.3L (PS3)
3397.0mMDRT 2322.7mTVDRT
(-2289.3mTVDSS)

SANDSTONE:clr-trnsl,f-vcrs, dom med-crs,mod srt,sa-sr, tr-rr pyr nod,dom lse,gen cln,fri agg,fr inf & vis por.

FLUORESCENCE:3350m-3400m 10%-15% No oil stain,slight hydrocarbon odour in samples, dll-mod brt yel fluor,slow blooming cut,slow crsh cut,mod thk pl yel ring res.

Top of M1.3L (PS2)
3408.0mMDRT 2329.5mTVDRT
(-2296.1mTVDSS)

SANDSTONE:clr-trnsl,pl bn, mod-v crs,mod srt,sa-sr, wk sil cmt,tr pyr nods,dom lse,gen cln,fr inf & vis por.

FLUORESCENCE:3400m-3430m 5%,No oil stain,dll-mod brt ptchy gn yel fluor,slw blooming crsh cut,thn pl yel film res.

Top of M1.3L (PS1)
3422.0mMDRT 2338.0mTVDRT
(-2304.6mTVDSS)

Base of M1.3L/Top of M1.4
3441.0mMDRT 2349.5mTVDRT
(-2316.1mTVDSS)

SANDSTONE:clr-trnsl,opq, mod-crs,v crs i/p,mod srt, sa-sr,occ frac qtz grns, wk pyr cmt,tr-rr mod pyr, lse,gen cln,fri-mod hd aggs i/p,fr inf por.

FLUORESCENCE:3430m-3450m 5% decreasing to trace

WOB:15-20
TDRPM:115
MMRPM:171
SPP:3280
FLW:599

MW: 9.80
FV: 79
PV: 26
YP: 42
Gel:12/19
WI: 2.4
pH: 9.1
Cl: 41k

3470

20 / 6 / 20 / 32 / 22

3480

Projection to TD
Survey:3477.00mMDRT (2371.09mTVDRT)
53.50°inc 259.80°az

3490

ROP (m/hr)
500 50 5 .5

WOB (tons)
50 25 0

MWD Gamma Ray (api)
0 100 200
.

Total gas in Units / Chromatograph in ppm

.5 5 50 500 5K
100 1K 10K 100K 5000K
.
.5 5 50 500 5K
.
100 1K 10K 100K 5000K
.

3500

3510

dll yel gn fluor,v slw blooming crsh cut,th pl gn yel ring res.

COAL:dsky bn,ea,frm, mod hd,unevn,wdy text, sbblky.

SILTSTONE:(1)20% pl bn-dk yel bn, aren,tr micmic,frm-mod hd,sbblky, (2)30% lt-med gy,tr micmic, frm-mod hd,sbblky.
CLAYSTONE:2) lt-med olv bn,med bn,non calc,sft,disp,amorph.

WKF-W6A reached Total Depth of 3477.0m MDRT 2371.1m TVDRT (-2337.7m TVDSS) at 12:00 hours on 17-09-2006

Run Precision Energy Services compact shuttle logging from 3474.0m MDRT to 3112.0m MDRT, 1244.0m MDRT to 1015.0m MDRT MCG-MDN-MPD-MSS-MDL-MAI

7" Production Casing shoe set at 3470.0m MDRT

APPENDIX 4b

WEST KINGFISH W6A

Well Completion Log

ESSO AUSTRALIA RESOURCES PTY LTD.

WELL COMPLETION LOG
Scale – 1:200
WEST KINGFISH W6A

Gippsland Basin, Victoria
Concession: VIC/L8

POST-DRILL LOCATION: *Top of Latrobe*	Latitude:	38º 35' 8.16" S	**COMPILED BY:**	Sheryl Sazenis
	Longitude:	148º 04' 58.44" E		
	MGA X:	594091.59m E	**DRAFTED BY:**	Arnaldo Ribeiro
	MGA Y:	5727664.29m N		
	Depth:	3280.0 mMDRT	**DRILL RIG:**	Nabors Rig 453
		2249.5 mTVDRT		
		(-2216.1 mTVDSS)	**Datum:**	GDA94
ELEVATION:	G.L.:	-76.13 m	**Spheroid:**	GRS80
	R.T.:	33.43 m	**Projection:**	UTM
	Water Depth:	76.13 m	**Map Grid/Cent.Meridian**	MGA Zone 55/147 deg E
			TOTAL DEPTH:	3477.0 mMDRT / 2371.1 mTVDRT
DATES:	Spudded:	07/09/2006	**PLUGGED BACK T.D.:**	3442 mMDRT
	Rig Released:	03/10/2006		
	I.P. Established:	12/10/2006	**CLASSIFICATION:**	Oil Development
	(Initial production)			
			STATUS:	Cased and Completed

SERVICE COMPANIES:

DRILLING CONTRACTOR:	International Sea Drilling Limited (Nabors Rig 453)	PRODUCTION TESTING:	n/a
MWD/DIRECT. DRLG:	Schlumberger Anadrill	WELLSITE GEOLOGIST:	AIPC (Australian International Petro-Consultants)
GYRO SURVEYING:	SDI (Scientific Drilling Int.)	MUD LOGGING:	Geoservices Overseas S.A.
CORING:	n/a	PRESSURE RECORDING:	n/a
PIPE CONVEYED LOGGING:	Precision Energy Services (Reeves Compact Shuttle Logging System)	WELL VELOCITY SURVEY:	n/a
CEMENTING:	Halliburton	MUD ENGINEERING:	Halliburton- Baroid
CASING:	Weatherford	LINER:	n/a

LEGEND

2.7m NOS
Ø = 17%
Sw = 32%

No Rec.
CORE
Rec.

PERFORATED INTERVAL

PLUG

SST RECOVERED SIDE WALL CORE LITHOLOGY
SST - Sandstone CLST - Claystone
SLST - Siltstone LMST - Limestone
MST - Mudstone ML - Marl
SH - Shale COAL - Coal

SIDE WALL CORE - NO RECOVERY

FIT

P2/11 MDT/RFT PRETEST RUN/SEAT NUMBER

S11/2 MDT/RFT SAMPLE RUN/SAMPLE NUMBER

P2/40 MDT VERTICAL/HORIZONTAL PERMEABILITY TEST

PACKER

BRIDGE PLUG

LOG ANALYSIS DATA
NS - Net Sand
NOS - Net Oil Sand
NGS - Net Gas Sand
Sw - Water Saturation

MUD DATA
Ø - Porosity
Snd - Sand
MW - Mud Weight
FV - Funnel Velocity
PV - Plastic Velocity
YP - Yield Point
Gel - Gel Strength
pH - Acidity/Alkalinity
WL - Water Loss
Cl - Chloride
Ca - Calcium
Sol - Solids
H2O - Water
Oil -Oil

SHOW OR STAIN

HYDROCARBON CUT

FLUORESCENCE

GAS SHOW

OIL PRODUCTIVE

GAS PRODUCTIVE

INTERPRETED OIL PRODUCTION

INTERPRETED GAS PRODUCTION

INTERPRETED WATER PRODUCTION

WATER PRODUCTIVE

CONDENSATE PRODUCTION

INTEPRETED CONDENSATE BEARING

DSTG DST WITH GAS RECOVERED

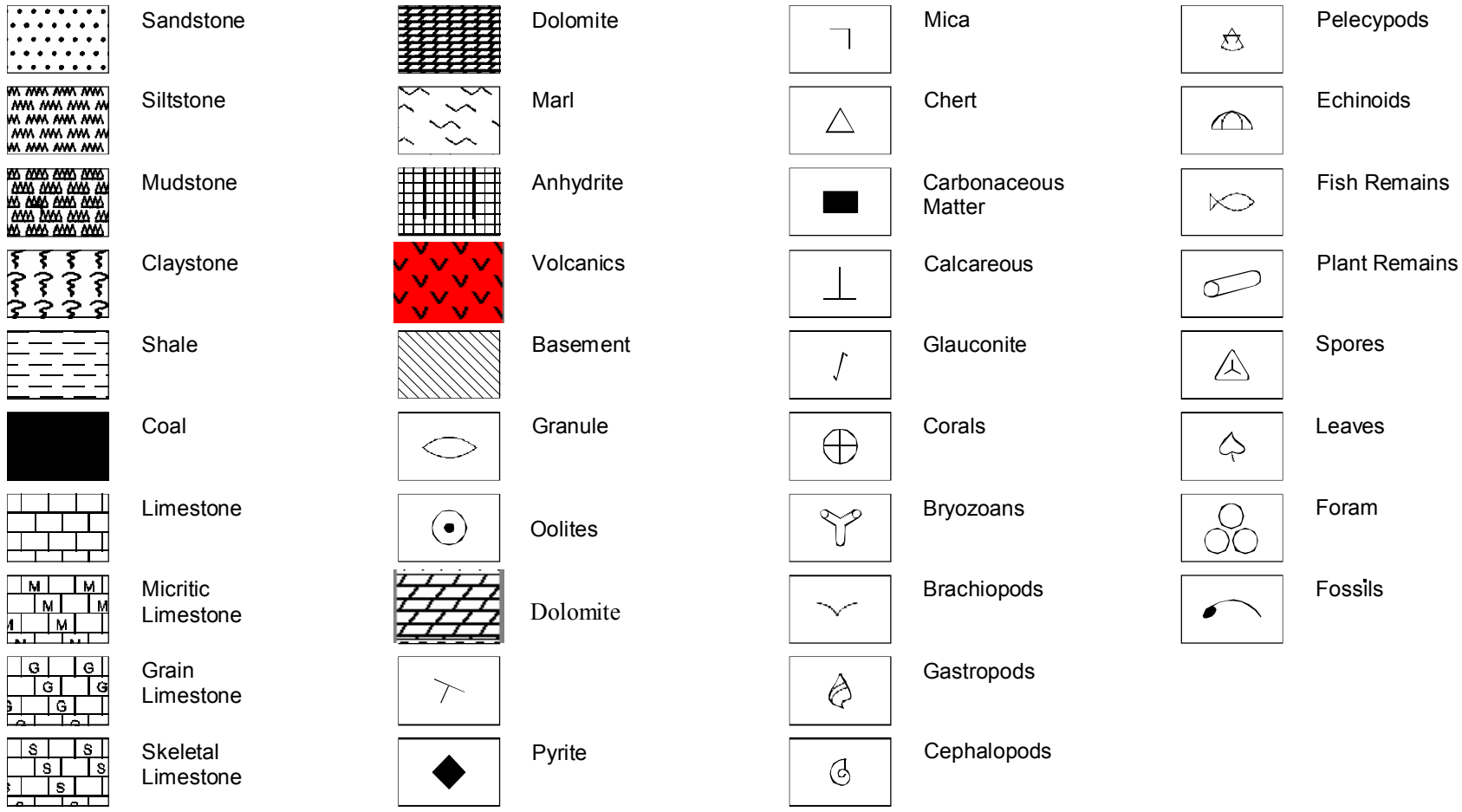
DSTO DST WITH OIL RECOVERED

SURVEY POINT

13-3/8" CASING SHOE

MUD

LITHOLOGICAL SYMBOLS



LOGGING AND SURVEYING

Anadrill Schlumberger	Interval (mMDRT)	Precision Energy Services Logging	Interval (mMDRT)
MWD (Directional & GR) – 2 Runs	695.0m - 3477.0m MDRT (GR 695m -3455.28m MDRT)	MCG-MDN-MPD-MSS-MDL-MAI – 1 Run (GR-Neutron-Density-Sonic-Dual Laterlog-Induction)	3477.0m -695.0m MDRT

WELL DATA

Date	06 September 2006 - 12 September 2006	13 September 2006 - 17 September 2006		18 September 2006 - 19 September 2006
Run	MWD # 1	MWD # 2		Wireline Run #1 on shuttle
Log	Powerpulse Directional & GR	Powerpulse Directional & GR		MCG-MDN-MPD-MSS-MDL-MAI
Depth Driller	2768.0m MDRT	3477.0m MDRT		3477.0m MDRT
Depth Logger	2768.0m MDRT	3477.0m MDRT		3477.0m MDRT
Bottom Log Interval	2747.68m MDRT	3455.28m MDRT		3461.0m MDRT (Resistivity)
Top Log Interval	695.0m MDRT	2747.68m MDRT		695.0m MDRT
Casing Driller	695.0m MDRT	695.0m MDRT		695.0m MDRT
Casing Logger	695.0m MDRT	695.0m MDRT		695.0m MDRT
Casing Size	10.75"	10.75"		10.75"
Casing Weight	40.5 ppf	40.5 ppf		40.5 ppf
Bit Size	8.5"	8.5"		8.5"
Type of Fluid in Hole	KCl/PHPA/GLYCOL	KCl/PHPA/GLYCOL		KCl/PHPA/GLYCOL
Density	9.25 ppg	9.90 ppg		9.8 ppg
Rm @ Measured Temp.	N/A	N/A		0.125 @ 25 deg
Rmf @ Measured Temp.	N/A	N/A		0.096 @ 25 deg
Rmc @ Measured Temp.	N/A	N/A		0.102 @ 25 deg
Max. Recorded Temp.	76.0°C	85.0°C		94.6°C
Equipment / Location	Sale	Sale		Sale
Recorded By	R. Borjas / B. Pattarakorn	R. Borjas / B. Pattarakorn		B. Moss / J Blessing
Witnessed By	D. van der Aa	D. van der Aa		D. van der Aa

CORES

From (mMDRT)	To (mMDRT)	Rec %
---	---	
---	---	

PERFORATIONS

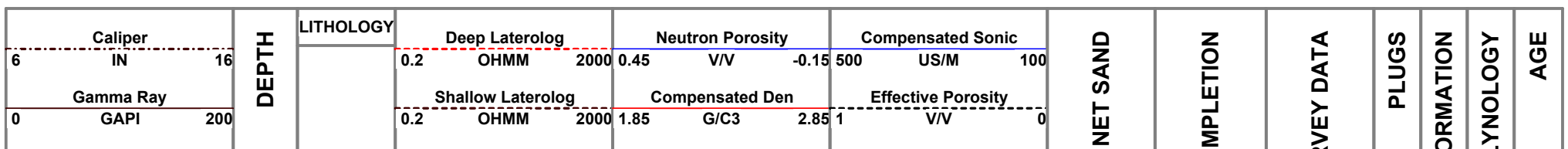
From (mMDRT)	To (mMDRT)	Gun Type
3321.5	3325.5	HSD

CASING

Size	Set @ (mMDRT)	SX Cmt	Formation
10. 75"	694.8	---	Gippsland Limestone
7”	3469.0	1450	Latrobe Group

PLUGS

From (mMDRT)	To (mMDRT)	SXCmt
3477(TD)	3442.0(PBTD)	--



3275

3250
(-2197.3)

3225
(-2181.9)

mMDRT
(mTVDSS)

3200

Bulk Vol Water
V/V
1
0

10 3/4"
694.8m

CO

MUD / SUR

3208.82
ANG 52.19
DIR 261.96
(-2171.90)

3237.72
ANG 51.83
DIR 261.90
(-2189.69)

3245.0
MW **9.9ppg**
FV **79sec/qt**
PV **33cP**
YP **49**
pH **9**

3266.31
ANG 51.32
DIR 262.10
(-2207.46)

LAKES ENTRANCE FM

FO

PAL

OLIGOCENE - MIOCENE

(-2212.9)

Top of Latrobe Group (TOL)
3280.0m MDRT
(-2216.1m TVDSS)

3300
(-2228.7)

SBN3 (N.asperus Seq Boundary)
3312.3mMD
(-2236.4m TVDSS)

Top P1.0
3321.3m MDRT

Top P1.1 (FSP1)
3323.7m MDRT
(-2243.6m TVDSS)

3325
(-2244.4)

P1.1 COWC
3328.6m MDRT
(-2246.7m TVDSS)

Base P1.1 (SBP1)
3338.0m MDRT
(-2252.6m TVDSS)

Top P1.2 (FP12)
3347.1m MDRT
(-2258.3m TVDSS)

3350
(-2260.1)

Base P1.2 (SP12)
3351m MDRT
(-2260.8m TVDSS)

Top M1.2L
3351.8m MDRT
(-2261.3m TVDSS)

3295.03
ANG 50.77
DIR 261.90
(-2225.52)

3321.5m

Oil bearing
1.8 mMD Net
1.1 mTVD Net
∅ 15% Sw 75%
Oil bearing
4.7 mMD Net
2.9 mTVD Net
∅ 19% Sw 46%

3325.5

3323.76
ANG 50.89
DIR 261.78
(-2243.66)

OWC @ 3328.6m MD

Water bearing
∅19% Sw 94%

FLUORESCENCE:3323.5m-3350.0m
2-10% No oil stain, dll-mod brt yel gn sptd-ptchy fluor, no-v slw diff crsh cut, ptchy-thk pl gn ring res.

FLUORESCENCE: 3350m-3400m 10% - 15% No oil stain, slight hydrocarbon odour in samples, dll-mod brt yel fluor, slow blooming cut, slow crsh cut, mod thk pl yel ring res.

(non-net)

Oil bearing
∅12% Sw 81%

Oil bearing
4.7 mMD Net
2.9 mTVD Net
∅ 17% Sw 52%

Base M1.2L (BM12)
3356.5m MDRT
(-2264.2m TVDSS)

Base M1.2L (BM12W)
3361.1m MDRT
(-2267.0m TVDSS)

M1.3U PS6 sand (PSB7)
3366.7m MDRT
(-2270.5m TVDSS)

Oil bearing
1.2 mMD Net
0.8 mTVD Net
∅ 18% Sw 55%

Oil bearing
5.8 mMD Net
3.6 mTVD Net
∅ 19% Sw 49%

OWC @ 3372.5m MD

Water bearing
∅23% Sw 85%

PS5 sand (PSB6)
3374.5m MDRT
(-2275.4m TVDSS)

Water bearing
∅21% Sw 92%

3375
(-2275.7)

PS4 sand (PSB5)
3379.0m MDRT
(-2278.2m TVDSS)

Water bearing
∅23% Sw 89%

3352.54
ANG 51.40
DIR 261.23
(-2261.72)

3365.0
MW 9.8ppg
FV 78sec/qt
PV 29cP
YP 45
pH 9

3381.41
ANG 51.71
DIR 261.06
(-2279.67)

LATROBE GROUP

EARLY EOCENE

M1.3L PS3 sand (PSB4)
3396.8m MDRT
(-2289.1m TVDSS)

Water bearing
∅24% Sw 96%

3400
(-2291.1)

FLUORESCENCE: 3400m-3430m
5%, No oil stain, dll-mod brt
ptchy gn yel fluor, slw blooming
crsh cut, thn pl yel film res.

PS2 sand (PSB3)
3407.9m MDRT
(-2296.0m TVDSS)

Water bearing
∅23% Sw 95%

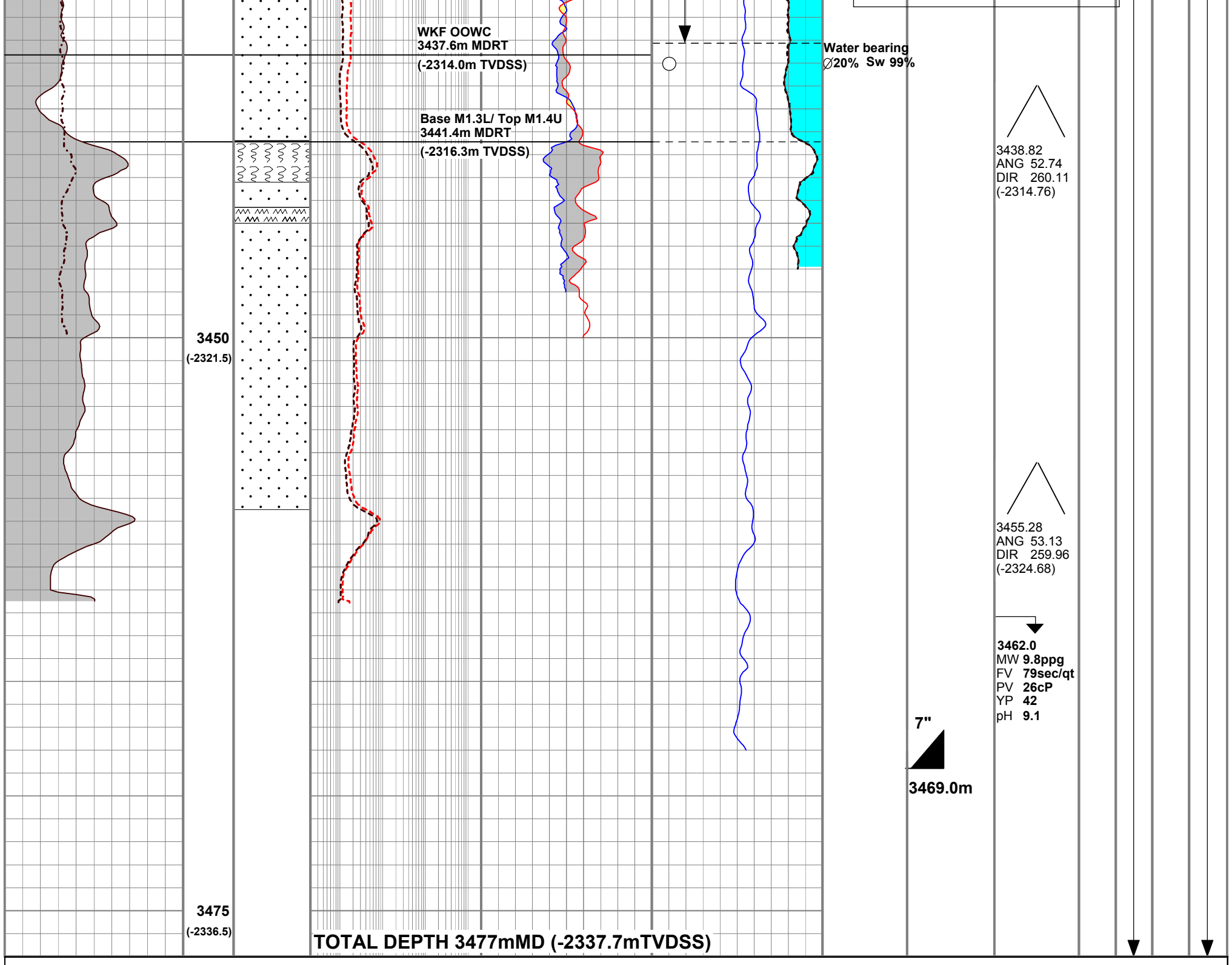
3409.74
ANG 52.40
DIR 260.55
(-2297.09)

PS1 sand (PSB2)
3422m MDRT
(-2304.5m TVDSS)

Water bearing
∅22% Sw 87%

3425
(-2307.0)

FLUORESCENCE: 3430m-3450m
5% decreasing to trace dll yel gn
fluor, v slw blooming crsh cut, th pl
gn yel ring res.



West Kingfish W6A
Initial Production Date: 12/10/2006
Production Zone: P1.1
Initial Total Liquid Rate 311kL/day
Initial water cut: 78%
Initial Oil rate:69 kL/day