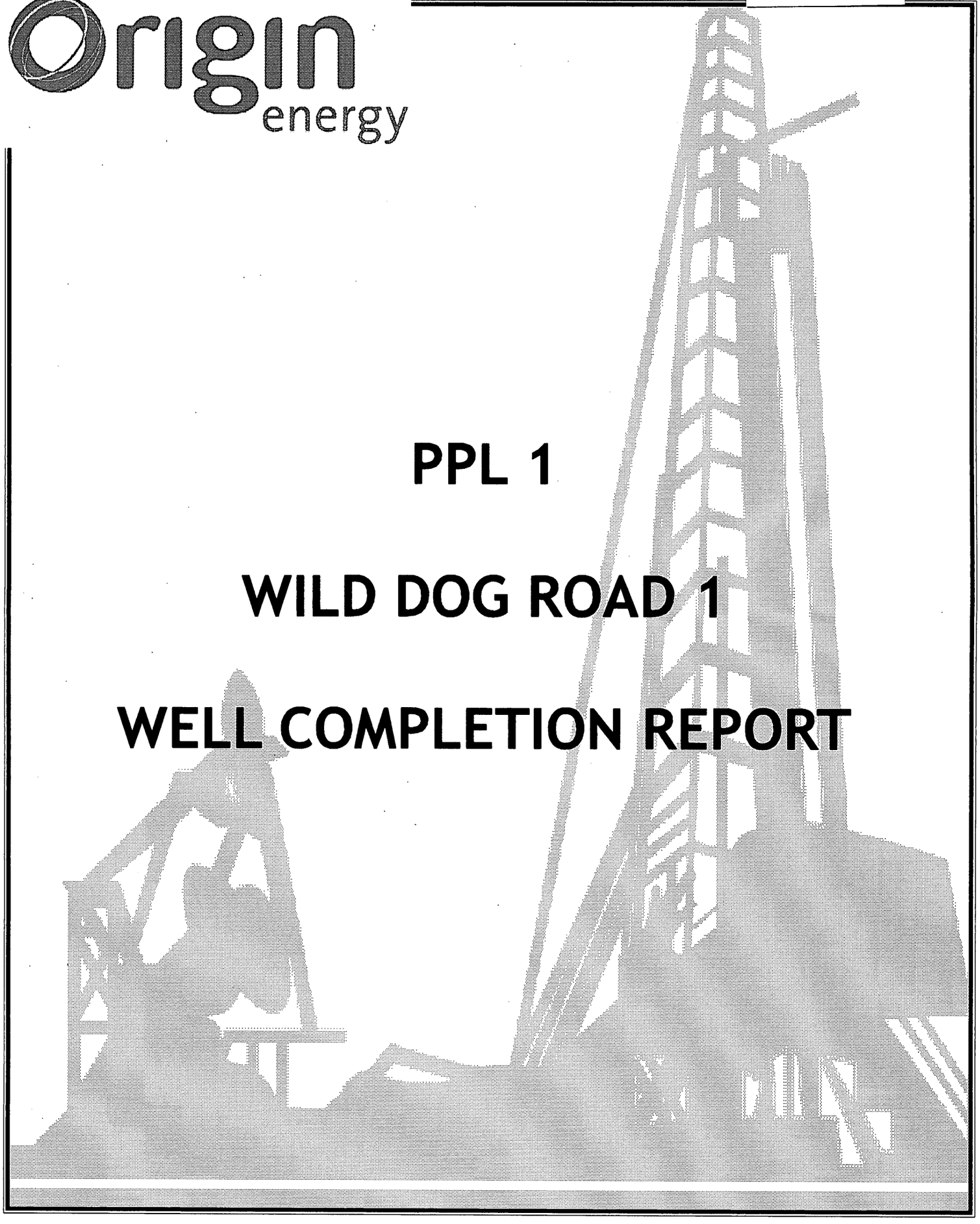
Origin energy



PPL 1

WILD DOG ROAD 1

WELL COMPLETION REPORT

ORIGIN ENERGY RESOURCES LTD.

WILD DOG ROAD-1

WELL COMPLETION REPORT

PPL 1 - VICTORIA

Authors:
S F Simeone
D A Short

Origin Energy Resources Ltd
1 King William Street
ADELAIDE SA 5000

October, 2000

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LIST OF ENCLOSURES (Pocket)

Location:	Latitude:	38°32'57.13"S
	Longitude:	142°58'41.56"E
	Station:	CDP 2335
	Line:	8990
Elevation:	GL:	123.4 metres
	KB:	128.0 metres
Map:	Colac	1 : 250000
Grid:	Easting:	672 386.75
	Northing:	5 731 377.10
Date Spudded:	08/12/1999	0430 hours
Reached TD	15/12/1999	2100 hours
Date rig release:	18/12/1999	0100 hours
Type Structure:	Fault Closure	

Status:	Gas Well	
Rig:	OD&E 30	
Total Depth:	Driller:	1678.0m.
	Logger:	1679.0m. (Extrap)
Plugs:	none	
Casing :	Size	Shoe
(a) Surface	244mm	392.5
(b) Production	178mm	1675.9m

STRATIGRAPHIC UNITS PENETRATED

AGE	FORMATION	R.T. Depths	TVD Depths	MSL Depths	Thickness
E-L. Miocene	Port Campbell Ls.	4.6	4.6	123.4	50.4
Oligocene	Gellibrand Marl	55.0	55.0	73.0	237.0
E. Oligocene	Clifton Fm.	292.0	292.0	-164.0	7.0
L. Eocene	Narrawaturk Marl	299.0	299.0	-171.0	46.0
L. Eocene	Mepunga Fm.	345.0	345.0	-217.0	38.0
M. Eocene	Dilwyn Fm.	383.0	383.0	-255.0	249.7
E. Eocene	Pember Mudstone	637.5	632.7	-504.7	53.5
E-L. Palaeocene	Pebble Point Fm.	698.0	686.2	-558.2	75.5
L. Cretaceous	Paaratte Fm.	786.0	761.7	-633.7	359.1
L. Cretaceous	Skull Creek Mbr.	1206.1	1120.8	-992.8	133.4
L. Cretaceous	Nullawarre Greensand	1364.3	1254.2	-1126.2	117.0
L. Cretaceous	Belfast Fm.	1505.2	1371.2	-1243.2	44.8
L. Cretaceous	Waarre Fm. (Unit D)	1558.1	1416.0	-1288.0	24.7
L. Cretaceous	Waarre Fm. (Unit C)	1586.8	1440.7	-1312.7	81.6
	T.D. (Logs)	1679.0	1522.3	-1394.3	

WIRELINE LOGS

Type Log	Run	Interval	BHT / Time
PEX (RXOZ- HLLS-HLLD-BHC-GR-RHOZ-TNPH)	1	1674.0 – 393.0	57°C after 6.25 hrs
FMI-GR	2	1675.6 - 1200	60°C after 11.5 hrs
MDT-GR	3	1635.5-1589	58°C after 17.25 rs

FORMATION TESTS

No	Interval / Formation (metres)	Periods (mins)	EMP IP/FP (psi)	EMP FSIP (psi)	Fluid to surface (mins)	Surface Press. (max) (psi)	TC. mm.	BC. mm.	Rev. Out	Result.
	None									

FULL HOLE CORES

No.	Interval	Formation	Cut (m)	Rec.(m)
	None			

PERFORATIONS

Interval	Formation	Shots / ft.
1587 – 1591m.	Waarre Fm. Unit "C"	12

Interval	Formation	Shots / ft.

LOG INTERPRETATION

Interval (MSL Depths)	GROSS (m)	Pay/Sand(m)	Vsh (fr)	Sw (fr)	Porosity (fr)	K (mD)
1313.01 – 1322.63	9.62	9.571	0.119	0.4	0.177	207.5
1322.63 – 1323.7	1.07	0				
1323.70 – 1327.3	3.6	3.608	0.291	0.774	0.163	25.5
1327.30 - 1329.5	2.2	1.605	0.407	1	0.139	6.3
1329.50 –1335.2	5.7	5.76	0.064	0.949	0.229	420.9
1335.20 – 1336.3	1.1	0				
1336.30 – 1350.2	13.9	13.849	0.063	0.886	0.293	2256.9
1350.20 – 1352.8	2.6	0				
1352.80 – 1358.5	5.7	5.67	0.022	0.955	0.272	1086.3
1358.50 – 1370.7	12.2	4.872	0.419	1	0.149	6.936
1370.70 – 1390.6	19.9	19.87	0.099	0.97	0.249	1643.3

SIDEWALL CORES

Depth (m)	Lithology
None	

Depth (m)	Lithology

SUMMARY

Wild Dog Road-1 was drilled as an exploration well in PPL-1, 8 km north north-west of Port Campbell in the onshore Victorian Otway Basin. The primary objective for the well was the upper Cretaceous Waarre Formation (Unit "C" sand) of the Sherbrook Group. The North Paaratte Gasfield is located 1 km west southwest and produces from the Unit "C" sand.

The closest well is North Paaratte-2 about 0.6 km to the west southwest of the Wild Dog Road-1 surface location. Wild Dog Road-1 was directionally drilled and intersected the target Waarre Unit "C" sand about 526 m and 63^{0}T from the surface location.

Wild Dog Road-1 penetrated a typical Otway Basin (Port Campbell embayment) stratigraphic sequence. The primary objective Waarre Unit "C" sandstone was intersected 0.6 m high to prognosis.

Wild Dog Road-1 spudded on 08th December 1999. Severe lost circulation problems were encountered at 14 m immediately after drilling out of the conductor. Attempts to plug the zone were unsuccessful and 340 mm casing was set at 26 m. Surface hole (311 mm) was drilled to 397 m and surface casing (244 mm) set at 392.5 m. A 216 mm hole (deviated below 480 m) was then drilled to a total depth of 1678.0m (driller). Total depth was reached on 15th December 1999.

A strong gas show (299 units max.) was recorded in the Unit "C" sand of the Waarre Formation. No other significant gas shows or fluorescence were encountered while drilling.

After logging and evaluation, the well was cased (178 mm) to 1675.9 m and the rig released to completion operations on 18th December 1999.

Wild Dog Road-1 was completed as a single string producer from the Waarre "C" sand. After perforating the well flowed gas on clean-up @ 15 Mmcfd with 1495 psi on a 5/8" choke. The rig was released from completion operations on 21st December 1999.

Wellsite Geologist: D.A. Short **Card Prepared by:** D.A. Short / S.F.Simeone **Date:** 10/00

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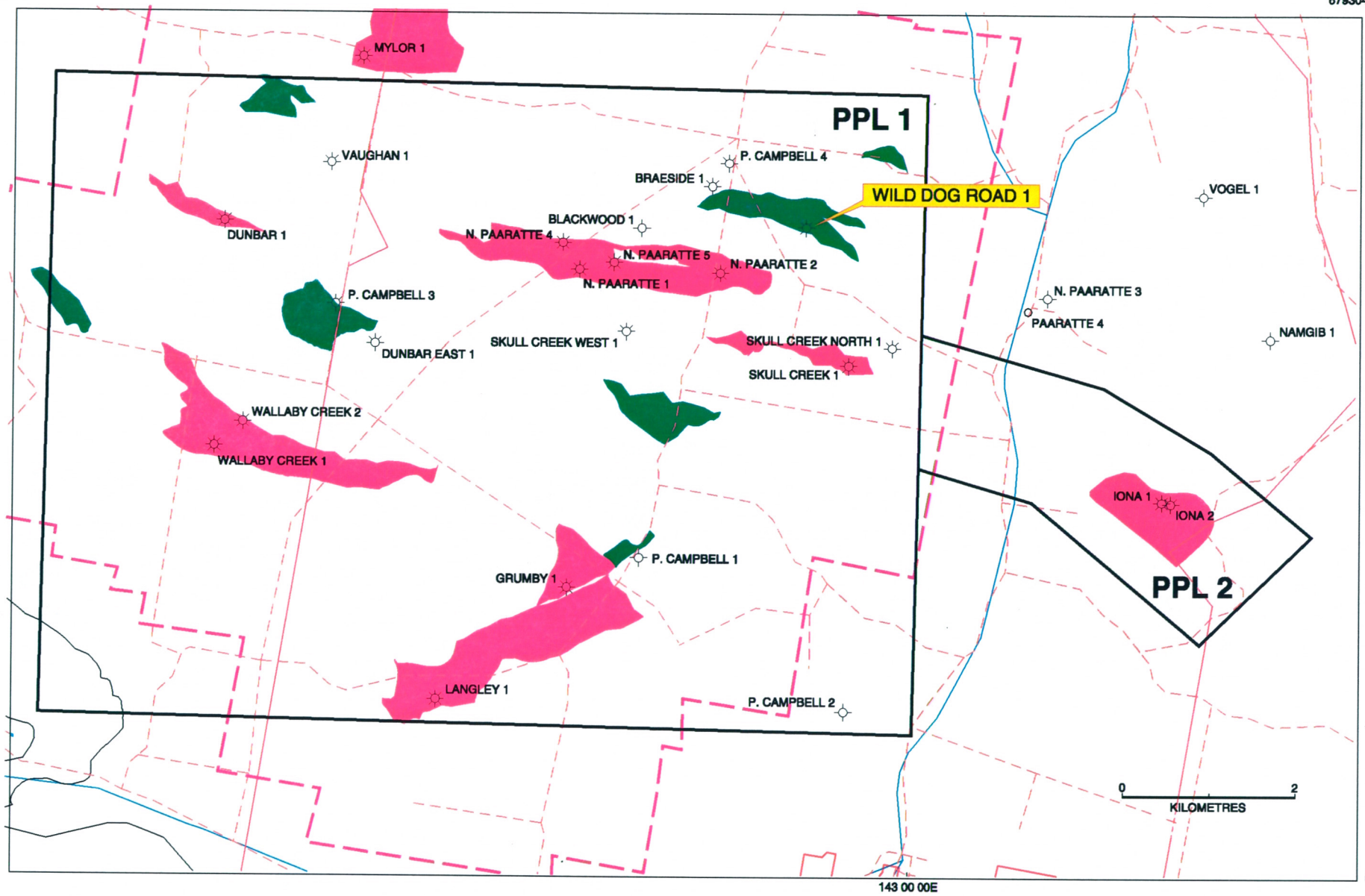


OTWAY BASIN - VICTORIA - **WILD DOG ROAD 1**

CPK

Figure 1

2.0 WELL HISTORY

2.1 General Data

2.1.1	Well Name and Number	:	Wild Dog Road-1
2.1.2	Location	:	Latitude : 38°32'57.13"S Longitude : 142°58'41.56"E Easting : 672 386.75 Northing : 5 731 377.10 Seismic : Station CDP 2335 Inline 8990
2.1.3	Elevations	:	G.L. : 123.4m A.S.L. R.T.. : 128.0m A.S.L.
2.1.4	Petroleum Tenement	:	PPL 1
2.1.5	Permit Operator	:	ORIGIN ENERGY RESOURCES LTD A.B.N. 66 007 845 338 AMP Centre Level 6, 1 King William Street, ADELAIDE SA 5000
2.1.6	Drilling Manager	:	OIL COMPANY OF AUSTRALIA LIMITED A.B.N. 68 001 646 331 1st Floor, North Court, John Oxley Centre, 339 Coronation Drive, MILTON Qld 4064
2.1.7	Date Drilling Commenced:		0430 hours 08th December, 1999
2.1.8	Date Drilling Completed	:	2100 hours 15th December, 1999
2.1.9	Date Rig Released	:	0100 hours 18th December, 1999
2.1.10	Drilling Time to T.D.	:	7.7 days total (3.31 days rotating)
2.1.11	Total Depth	:	Driller : 1678.0m Logger : 1679.0m (Extrap)
2.1.12	Status	:	Completed Gas Well.

1679 - 1228 / 1551

2.2 Rig Data

2.2.1	Drilling Contractor	:	O.D.&E. Pty. Limited 8th Level, 9 Bligh Street, SYDNEY NSW 2000
2.2.2	Rig	:	Number 30 Make - Ideco Rated - 3,350m. / 11,000ft.
2.2.3	Draw Works	:	Type - Ideco Hydrair 725D Drive System - 4 Caterpillar 3412-PCTA Transmission - SCR Drill Line - 28mm/1-1/8" (Diesel- electric SCR Brown Boveri 600 volt - 3 phase 60 Htz)
2.2.4	Mast	:	Type - Draco -cantilever Height - 38.7 metres/127 ft Capacity - 227,678 kg/510,000 lbs
2.2.5	Substructure	:	Floor Height - 4.6 metres / 15.1 feet KB Height - 4.9 metres / 16.1 feet
2.2.6	Rotary Table	:	Type - Oilwell A 20.5"
2.2.7	Hook Block	:	Type - Crosby McKissock Capacity - 250 tonnes / 250 tons (2240lb)
2.2.8	Swivel	:	Type - Oilwell PC-300
2.2.9	Mud Pumps (2)	:	Type - Gardner-Denver PZ-8 Power - EMD Output - 800 hp
2.2.10	Mud System	:	Tanks - 800-bbl system
2.2.11	Shale Shaker	:	Type - DFE - SCR01 Linear Motion
2.2.12	Desander	:	Type - None
2.2.13	Desilter	:	Type - Harrisburg 12 cone.
2.2.14	Ram Type BOP	:	Type - Shaffer LWS Bore Size - 346mm / 13.625" Rating - 34,475 kpa/5000 psi

2.2.15	Annular Type BOP	:	Type -	Hydril
			Bore Size -	346mm / 13.625"
			Rating -	21,000 kpa/3000 psi
2.2.16	Accumulator	:	Type -	Wagner 130-160 3 BND
2.2.17	Choke Manifold	:	Size -	1 x 5000psi with McEvoy and 1x3" positive & 1 Swaco 3"superchoke
2.2.18	Drill Pipe	:	Size -	4.5" (2750 metres)
			Weight -	16.6 lb/ft
			Grade -	G
			Connection -	4.0" IF
			Size -	4.5" (250 metres)
			Weight -	16.6 lb/ft
			Grade -	E
			Connection -	4.0" IF
2.2.19	HW Drill Pipe	:	Size -	4.5" (15 joints)
			Weight -	45.0 lb/ft
			Connection -	4.0" IF
2.2.20	Drill Collars	:	Number/Size -	24 x 6 1/4"
			Connection -	4.0" IF

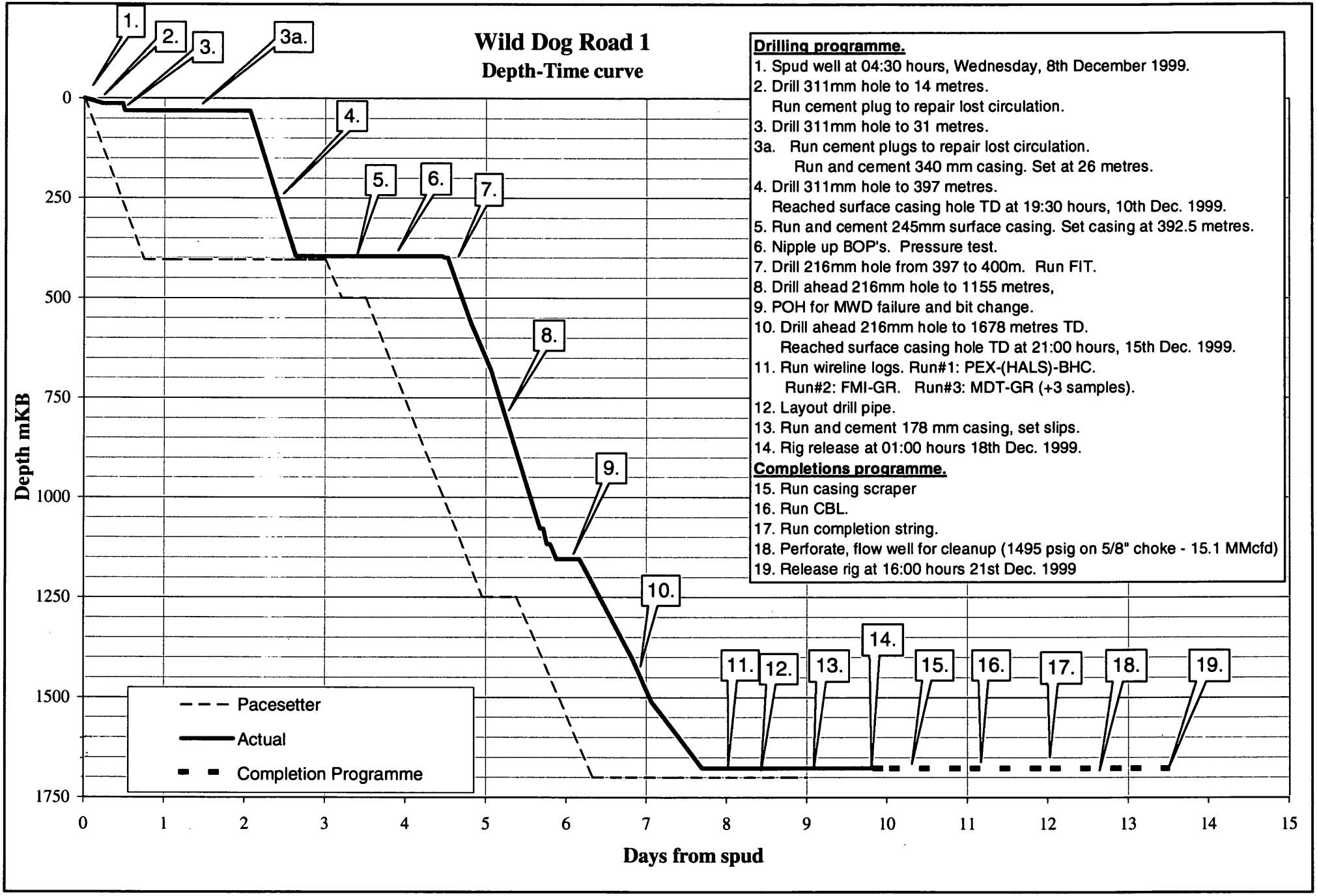


Figure 2

Wild Dog Road No.1
Time Analysis

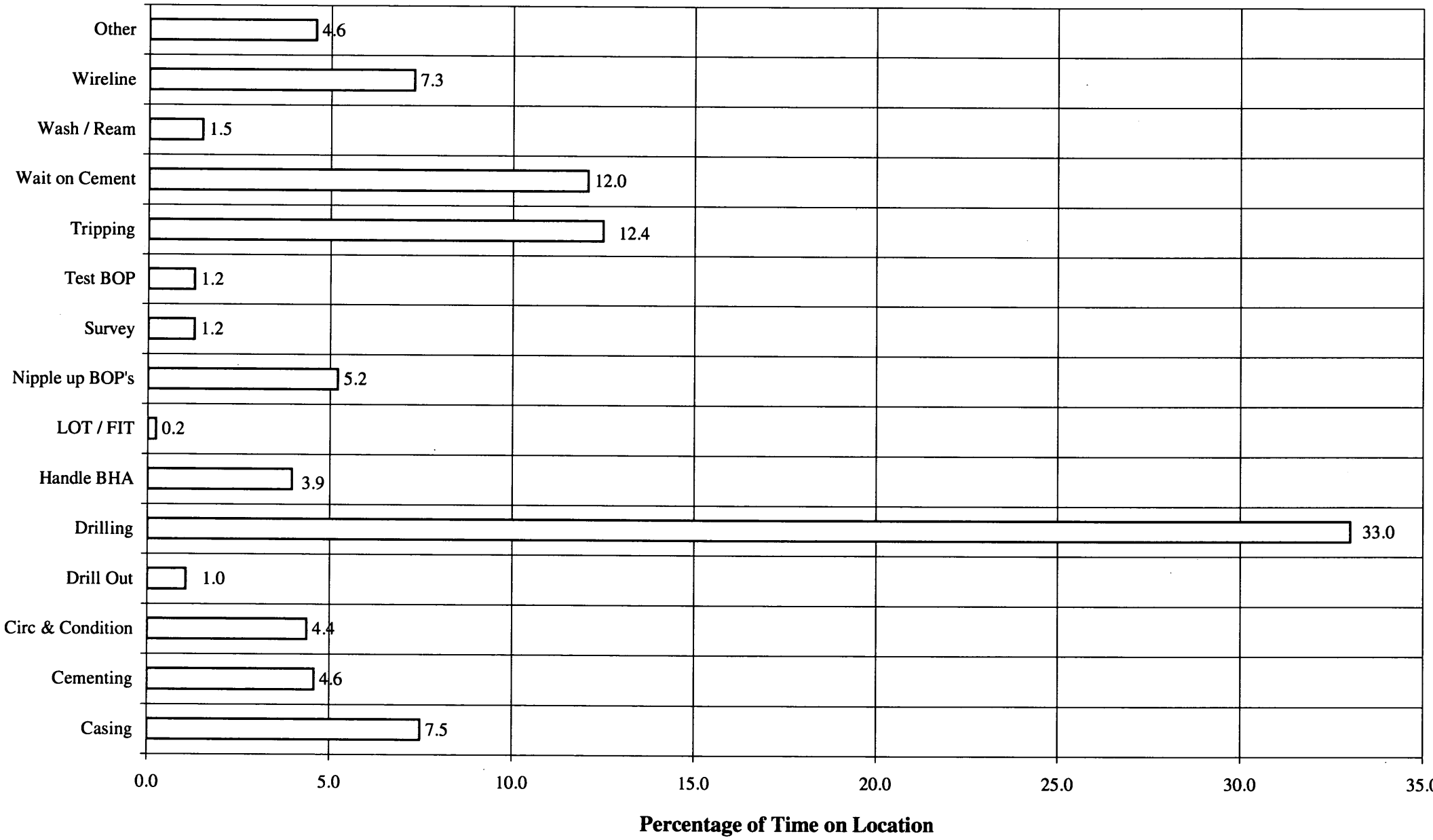


Figure 3

2.3 Drilling Data

2.3.1 Drilling Data Summary

The following is the drilling summary for Wild Dog Road-1 compiled from the tour sheets and daily drilling reports. Onsite drilling supervision for Oil Company of Australia Limited was by B. Beetson. Further details are provided in the time/depth curve (Figure 2) and the time analysis chart (Figure 3).

Conductor and Surface hole (0.0 – 397.0 m)

Wild Dog Road was spudded at 0430 hours 08th December 1999. The bottom of the conductor was tagged at 13 m. A 311 mm hole was drilled to 14 m. At this depth, circulation was lost, and attempts with chemicals to regain circulation failed. Approximately 10 bbls of cement were pumped to try and fill the hole, but the well bore kept taking fluid. Lost circulation material (LCM) was added, and the hole was re-cemented with a 50 sack plug. After waiting on cement, the bit was made up and run in to drill out the cement from surface to 14 m. Circulation failed, and 6 sacks of quick seal were dropped before drilling ahead to 31 m. There were still no returns, so cement was pumped to fill the hole. After waiting on cement, the bit and BHA were made up, and the hole washed and reamed to 31 m. Circulation was not re-established, and as a result, 100 sacks of cement were mixed and pumped with HOWCO. After waiting on cement, 14 bbls of brine were pumped into the hole to fill the annulus. The annulus was filled to 12.7 m R.T.. Continued to wait on cement whilst mixing LCM.

LCM hivis gel was used to drill out, establishing partial returns through the rathole. The rathole was plugged and returns were not re-established. Consequently, the bit was pulled out and replaced with a 362 mm bit that widened the hole down to 31 m R.T.. The drill string was pulled out of the hole prior to rigging down the existing conductor. A new 340 mm conductor was prepared, run in to 26 m (2 joints) and cemented.

After waiting on cement, the flow nipple was welded to the conductor casing and connected to the flow line. The hole was filled, and the fluid level remained static. Cement was cleaned out from 21 m to 31 m before drilling a 311 mm hole from 31 m to 397 m with surveys. At this depth, the hole was circulated prior to a wiper trip. The drill string was pulled out (strapped out) of the hole to 34 m and then run in to 385 m where the kelly was picked up to wash and ream to 397 m. The hole was circulated and cleaned prior to pulling out and laying out the BHA.

A total of 32 joints of 244 mm 36 ppf, K55 surface casing were run, with the shoe set at 392.5 m. The surface casing was cemented with a tail of 260 sacks of class G cement and a lead of 280 sacks of class G cement with 2.5 % Gel and 0.2 % CFR 3. After waiting on cement and slacking off on the casing, the landing joint was backed out. The "A" section was installed and the BOPs nippled up.

The BOPs were successfully function and pressure tested. The directional drilling assembly was made up and successfully tested at surface before running in and taking surveys every 100 m.

Production hole (397.0 – 1678.0 m)

The BOPs were pressure tested before drilling out the shoe track and drilling new hole to 400 m. At this depth the hole was displaced to KCl/PHPA/Polymer mud prior to conducting a LOT to an EMW of 13.2 ppg (1.59 S.G.).

Directional drilling commenced, and a 216 mm hole was drilled to 1079 m, with the build section from 480 m – 680 m. At 1079 m the MWD tools failed and 15 bbls of water were used to try and flush the tool. The tool response was regained and drilling resumed. At a depth of 1117 m, the tool pulse became erratic and the tools were unable to survey. Drilling continued to 1155 m, with the MWD tools not functioning. Bottoms up were circulated before pulling out of the hole and performing a flow check – no flow was detected.

The MWD was changed out and successfully function tested before running in to 373 m. A total of 20 m of drilling line was slipped before running in to 1143 m. The kelly was picked up and the hole washed to bottom. Directional drilling resumed, and a total depth of 1678 m was reached at 2100 hours 15th December 1999.

Bottoms up were circulated before preforming a wiper trip to 1100 m. The hole was circulated and conditioned prior to pulling out and rigging up to run wireline logs: Run 1: PEX-BHC-AMS, Run 2: FMS, Run 3: MDT-GR.

The bit and bitsub were made up and run in to 1637 m, washing to bottom, picking up singles to T.D.. After conditioning the hole, the drill string and BHA were laid out. The production casing (178 mm) was run, set at 1675.9 m and cemented with 480 sacks of class G cement with 1.2 % Halad 322. The rig was released to completion status at 0100 hours 18th December 1999.

2.3.2 Hole Sizes and Depths :

311mm to 397.0m
216mm to 1678.0m (T.D.)

2.3.3 Casing and Cementing :

Surface / Conductor	
Size -	13 3/8" / 340 mm
Weight -	68 lb/ft, 101.2 kg/m
Grade -	K55 (2 Joints)
Shoe Setting Depth -	26.0 m
Cement (lead) -	
Cement (tail) -	
Interval Cemented -	

Surface

Size -	9 5/8" / 244 mm
Weight -	36 lb/ft, 53.6 kg/m
Grade -	K55 (32 joints)
Shoe Setting Depth -	392.5 m
Cement (lead) -	280 sacks 'G' + 2.5 % gel & 0.2% CFR3
Cement (tail) -	260 sacks 'G'
Interval Cemented -	To surface

Production

Size -	7" / 178 mm
Weight -	26 lb/ft, 38.77 kg/m
Grade -	K55
Shoe Setting Depth -	1675.9 m
Quantity of Cement -	480 sacks "G" + 1% HALAD 322
Interval Cemented -	TD to 100 m

2.3.4 Deviation Surveys :

Depth (metres)	Deviation (degrees)	Depth (metres)	Deviation (degrees)
30	misrun	202	0.25
58	1.00	300	0.25
95	0.25	394	1.00

Directional surveys are listed in Appendix 6.

2.3.5 Drilling Fluid :

(a) Spud – 397 m	Fluid -	Fresh water - Gel
	Additives -	Caustic. Duovis, Kwik Seal M, M-I Bar M-I Gel, Mica Coarse, Mica Fine, Mica Medium, KCl, Soda Ash.
(b) 406 m - TD	Fluid -	KCl - PHPA - Polymer
	Additives -	Caustic. Duovis, Glute 25, M-I Bar, OS-1, Polypac R, Polyplus, KCl, Soda Ash,

2.3.6 Physical Mud Properties :

Date	Depth	SG	Vis.	WL	pH	FC	Sand	Solid	K+ (%)	Cl-
08/12	31	1.03	28	nc	9.5		0.1	2	2	10000
09/12	31	1.02	28	nc	9.5			1	0.75	3800
10/12	397	1.09	43	nc	9.3	3	0.1	5.5	2	11000
11/12	397	1.09	41	nc	9.2	3	0.1	5.5	2	11000
12/12	566	1.07	43	7.5	9.5	1	0.2	4	3.5	20000
13/12	1127	1.12	48	6.3	9.3	2	0.2	7.2	3	18500
14/12	1402	1.12	44	5	9.5	1	0.2	7.1	3.45	20000
15/12	1678	1.12	45	5.2	9.5	1	0.1	6.7	3.4	18100
16/12	1678	1.12	44	5.4	9.3	1	0.1	7.1	3.4	20000
17/12	1678	1.12	44	5.4	9.3	1	0.1	7.1	3.4	20000

Chemicals Used :

Product	Units	Amount
Caustic Soda	12 Drum	300 kg
Duovis	10 Sack	250 kg
Glute 25	2 Drum	50 L
Kwik Seal M	43 Sack	780 kg.
M-I Bar	100 Sack	2500 kg
M-I Gel	197 Sack	4925 kg
Mica Coarse	10 Sack	250 kg.
Mica Fine	6 Sack	150 kg.
Mica Medium	7 Sack	175 kg.
OS-1	6 Sack	150 kg
Polypac-R	16 Sack	400 kg.
Polyplus	38 Sack	950 kg
KCl	490 Sack	12250 kg
Soda Ash	10 Sack	250 kg

2.3.7 Water Supply :

Water was trucked from a mains supply about 5 km from the lease.

2.3.8 Perforation Record :

1587.0 - 1591.0 m 114 mm (4.5") 12 spf Ø=45° 22.7gm

2.3.9 Plugging and Cementing :

Nil

2.4 Logging and Testing

2.4.1 Wellsite Geologist :

D. A. Short

2.4.2 Mudlogging :

Mudlogging services were provided by Geoservices Overseas SA. Cuttings gas was monitored from surface casing shoe to total depth using a hot-wire gas detector and a FID gas chromatograph. A mudlog recording lithology, penetration rate, mud gas and other data was prepared and is an enclosure to this report.

2.4.3 Ditch Cutting Samples :

Cuttings were collected at 10 m intervals from the surface to 1500 m, then at 3 m intervals to T.D.. The cutting samples and sets were:

Sample Type	No. Sets
Unwashed (ORIGIN)	1
Washed (DNRE(2) / ORIGIN(1))	3
Samplex Trays (ORIGIN)	1

2.4.4 Coring :

None.

2.4.5 Sidewall Cores :

None.

2.4.6 Testing :

14 MDT's were taken in the Waarre Sandstone. (See Appendix 7)

2.4.7 Wireline Logs :

One suite of logs (PEX) was run by Schlumberger

Type Log	Interval (base) m	Interval (top) m
PEX(HALS)-BHC	1677.21	30
FMI-GR	1675.6	1200
MDT-GR	1635.5	1589

2.4.8 Temperature Surveys :

The maximum recorded temperature was 60°C from the FMI-GR.

2.4.9 Velocity Survey :

None.

3.0 GEOLOGY

3.1 Reasons for Drilling

Introduction

Wild Dog Road-1 is an onshore Otway Basin exploration well in PPL-1, Victoria and was drilled to test a tilted fault block play matured from the 1999 reinterpretation of the Waarre 3D Seismic Survey. The primary objective for the well was the Waarre Sandstone member of the Upper Cretaceous Sherbrook Group.

The surface location of the Wild Dog Road-1 well was located approximately 8 km north north-west of Port Campbell in southern Victoria. The well was directionally drilled using a surface location about 550 m to the southwest of the sub-surface Waarre location.

Origin Energy Resources Ltd has 100% equity in Wild Dog Road-1. The North Paaratte-1 gas discovery well was drilled in the original PEP 93 by Beach Petroleum NL and subsequent discoveries (Grumby and Wallaby Creek) confirmed local prospectivity. The PPL-1 production lease was awarded on 1st March 1985, and PPL-2 was issued to Parker and Parsley Australasia following discovery of the Iona Field. The participating parties (Beach and PPA) sold their interests to GFCV in 1989 and interests were subsequently transferred to GFE. Basin Oil NL purchased the interests from GFE in 1996 and Boral Energy (now Origin Energy) assumed ownership of PPL-1 in 1998 with the acquisition of Otway Basin assets from Cultus Petroleum NL.

Previous Drilling

The Otway Basin has been recognised as a potential petroleum province since the 1860's. Salt Creek-1 in South Australia was the first exploration well in the Otway Basin in 1866 (Sprigg, 1986). Since then, over 150 wells have been drilled in the Otway Basin, both onshore and offshore.

The first hydrocarbon discovery was made in 1959, when Frome-Broken Hill drilled Port Campbell-1 and flowed gas from the Late Cretaceous Waarre Formation at an initial rate of 1.5 MMcfd. However, it was deemed non-commercial as the rate declined rapidly.

Shell initiated drilling offshore in the Victorian section of the Basin in 1967, followed closely by Esso, though there were no significant discoveries.

The first commercial hydrocarbon discovery was in 1979 when North Paaratte-1 well was drilled by Beach Petroleum NL. The well was located on the southern flank of an elongate, east-west trending faulted anticline in the Port Campbell embayment of the Otway Basin and intersected gas in the Waarre Sandstone member of the Upper Cretaceous Sherbrook Group. Subsequent testing flowed GTS at rates up to 9.5 MMcfd and confirmed a new field discovery. North Paaratte-2 was drilled in 1981 approximately 1.6 km to the east and intersected a similar high-deliverability reservoir in the Waarre Sandstone. North Paaratte-3 was located further to the east but was drilled on a separate structure with no gas column.

Following the North Paaratte gas discovery, the Wallaby Creek and Grumby gas fields were discovered by Beach in 1981 (also Waarre Formation). Subsequent exploration resulted in the discovery, by Beach, of the Iona gas field in 1988, and the Boggy Creek CO_2 field, by GFE Resources, in late 1991.

The first offshore success was with BHP Petroleum's Minerva 1, in 1993, offshore from Port Campbell.

The Mylor gas and oil field was discovered in 1994 by Bridge/GFE, yielding the first recovery of oil from the Waarre Formation (Foster and Hodgson, 1995). The Langley gas field was also discovered (GFE) in 1994. The most recent discovery in the area was made by Basin Oil in 1996 with the Skull Creek gas field (Waarre Formation).

In 1999, the updip North Paaratte-4 & 5 wells were drilled by Boral Energy (Origin Energy) and both wells proved the continuity of the gas accumulation in the Waarre Formation.

Regional Geology

The Otway Basin is approximately 500km long and extends both onshore and offshore west-northwest from the Victorian Mornington Peninsula in the east to Cape Jaffa, South Australia, in the west. PPL-1 is located in the Victorian portion of the onshore Otway Basin approximately 50km northwest of Cape Otway. PPL1 lies in the Port Campbell embayment, which is bounded to the east by erosion along the emergent Otway Ranges and to the north and west by erosional thinning and pinch-out.

Formation of the Otway Basin commenced in the late Jurassic with the initiation of rifting between Australia and Antarctica. Depositional growth occurred as superimposed sedimentary sequences were laid down during different phases of the separation of the Antarctic continental landmass from Australia's southern margin. The oldest strata comprise the Early Cretaceous Crayfish subgroup and overlying Eumeralla Formation, the latter comprising lithic-rich, volcanogenic sandstones with generally poor reservoir potential. Following deposition of the Eumeralla Formation widespread uplift and erosion occurred and this has been interpreted to be due to the onset of sea floor spreading. The Sherbrook Group was deposited on the resulting unconformity as a condensed sandstone sequence further onshore, whilst offshore and near the coast it can be subdivided into formations representing the various facies of a delta system. The basal member, the Waarre Formation, comprises sands and shales with marine and shoreface facies. Buffin (1989) subdivided the Formation into four units and unit 'C' constitutes the objective gas reservoir in the gas fields in PPL-1 and 2. The Waarre Formation is overlain by the Belfast Mudstone, a massive siltstone sequence which is interpreted to represent offshore pro-deltaic facies, and to be the time equivalent Nullawarre Greensand. The Skull Creek Mudstone and Paaratte Formation, an interbedded sand and shale sequence, comprise the upper members of the Sherbrook Group.

Fault movements during deposition of the Sherbrook Group are apparent in seismic sections but fault throws diminish above the Belfast Mudstone. The

eventual large reduction in the number of faults by the top of the Paaratte Formation indicates relative quiescence by the end of the Cretaceous.

The basal Tertiary section is defined by an unconformity with the Cretaceous and consists of sandstones and claystones of the Wangerrip Group probably deposited onshore in a fluvial-deltaic setting (Gravestock et al., 1986). The basal transgressive sandstone unit is the Pebble Point Formation which comprises conglomeratic and commonly ferruginous sands. Pro-delta muds and silts of the Pember Mudstone Member grade into the overlying sands and shales of the Dilwyn Formation which represent a series of stacked transgressive-regressive deltaic cycles (Laing et al, 1989).

The rate of sea floor spreading appears to have increased markedly during the upper Eocene resulting in a major marine transgression in the Otway Basin. The Tertiary sequence unconformably overlying the Dilwyn Formation is dominated by marine marls and limestones as a result of this inundation.

The tectonic framework of the Otway Basin is dominated by extensional processes which produced a series of normal fault blocks. Continued block faulting and subsidence during the lower Cretaceous led to the development of an extensive rift valley system throughout southeast Australia. Pull-apart tectonics continued until the late upper Cretaceous and faulting, recognised as 'down to the basin' movement, represented reactivation of the initial rift system faults. By the Late Eocene drifting rates increased and a period of out-building occurred; subsidence was slow and tectonic activity became relatively quiet resulting in a relatively undeformed carbonate sequence.

During Late Cretaceous and possibly continuing to Early Tertiary times a right lateral couple was applied (Figure 5, in Buffin 1989) resulting in the formation of a series of northeast-trending anticlines (e.g. Port Campbell Anticline). The structural grain generated as a result of this couple produced the combination fault and three-way dip closures targeted by drilling in the Port Campbell Embayment.

In Middle Eocene, the rate of seafloor spreading south of Australia increased considerably. At this time there was also a strong pulse of northwest-southeast compression, resulting in northeasterly trending folds and faults, and reactivation of earlier structures in the Otway ranges High and nearby areas.

Structure

The Wild Dog Road structure was remapped following the acquisition by Boral Energy of the Cultus interest in PPL1. The seismic database is the Waarre 3D seismic survey which was recorded in 1993.

The Wild Dog Road structure is an elongate fault dependent closure and forms a mirror-image to the North Paaratte gas field. The main southern bounding fault of the prospect throws to the south thus juxtaposing the primary objective, the Waarre Sandstone, against the Belfast Mudstone (sealing formation) on the downthrown side of the fault. The closure to the north, east, and the west is by structural dip.

The Wild Dog Road structure is illustrated on the seismic traverse oriented in the same direction as the proposed well path. The surface location is about 550 m to the southwest of the subsurface location (Inline 8990, CDP 2345) with the well path deviated to the northeast to the crestal target location (Inline 9155, CDP 2205).

The regional structural grain in PPL1 is dominated by east-northeast trending faults, which is the same trend as the Wild Dog Road prospect.

Source and Migration

The discovery of the gas in the North Paaratte, Wallaby Creek, Grumby, Langley, and Iona fields, and gas and oil in the Mylor field, confirms that generation and migration of hydrocarbons has occurred in the area. The gas is most likely to have been generated deeper in the section, probably from basal coals in the Eumeralla Formation, and migrated along faults and sandstone layers.

Reservoir and Seal

The Waarre Formation is interpreted to be an open marine facies with sandstones deposited in the upper to middle shoreface. The sequence of interbedded sand and shale has led to an informal sub-division of the Formation into the A (basal), B, C and D (top) units. The Unit 'A' sand and Unit 'B' shale units tend to be out of closure and therefore unprospective and exploration potential is highest in the unit 'C' sandstones. Unit 'C' sandstones were deposited in the highest energy, shallow marine upper shoreface environment and comprise medium to coarse grainsize, Core-2 in North Paaratte-2 recovered poorly consolidated sands from this interval with porosity and permeability ranging up to 26.5% and 1026 md respectively. The typically porous and permeable sandstone in Unit 'C' is ubiquitous in PPL-1 and reservoir quality is regarded as low risk. Palaeo-relief has potential to influence shoreface sands but the marine shale facies of Unit 'B', which incorporate an interpreted maximum flooding surface, should offer an essentially flat substrate onto which the Unit 'C' sands prograded during a period of relative baselevel fall, and in view of this interpretation variation in net sand caused by syn-depositional relief should not be significant.

The Belfast Mudstone is a competent seal providing both vertical and cross-fault seal for the Waarre Sandstone reservoir. The juxtaposition of reservoir sands against mudstones across the fault is expected to provide adequate sealing mechanism, but the main risk involved is the sealing mechanism of the fault plane shearing zone which may be ineffective, as the main fault controlling the structure has been reactivated, which may have resulted in hydrocarbon leakage.

Objectives

The primary objective for Wild Dog Road-1 is the unit 'C' sandstone of the Waarre Formation. The well is prognosed to penetrate in excess of 20-40m of reservoir thickness above the lowest closing contour. The proposed TD of -1399.8 m TVDSS will allow sufficient rathole to perforate the reservoir and junk the perforating subs at the bottom of the hole.

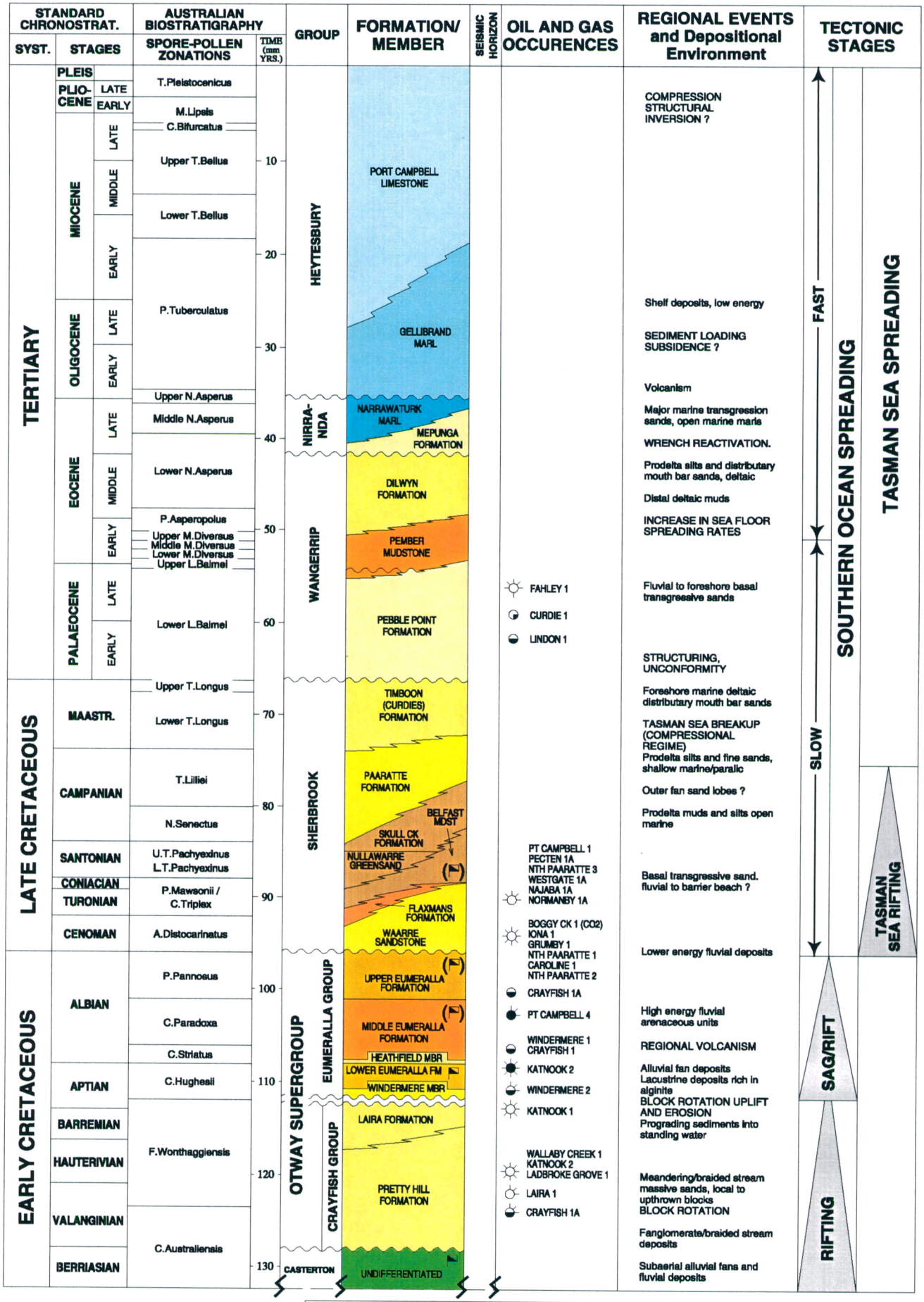
3.2 Stratigraphic Prognosis

The stratigraphic prognosis was made utilising the results of nearby wells and the available seismic coverage.
A comparison between prognosed and actual formation tops is given below.

Formation	Predicted TVD (m R.T.)	Actual TVD (m R.T.)	Difference (m)
Port Campbell Ls.	4.6	4.6	0.0
Gellibrand Marl	89.3	55.0	34.3
Clifton Fm.	287.3	292.0	-4.7
Narrawaturk Marl	304.3	299.0	5.3
Mepunga Fm.	327.3	345.0	-17.7
Dilwyn Fm.	391.3	383.0	8.3
Pember Mudstone	616.3	632.7	-16.4
Pebble Point Fm.	668.3	686.2	-17.9
Paaratte Fm.	769.3	761.7	7.6
Skull Creek Mbr.	1110.3	1120.8	-10.5
Nullawarre Greensand	1224.3	1254.2	-29.9
Belfast Fm.	1316.3	1371.2	-54.9
Waarre Fm. (Unit D)	-	1416.0	-
Waarre Fm. (Unit C)	1441.3	1440.7	0.6
T.D. (Logs)	1528.0	1522.3	5.7

PEP 101/111/133, PPL 1 - OTWAY BASIN

STRATIGRAPHIC COLUMN



(Modified from LUXTON & EGAN, 1991)

15827.1298 Figure 4

3.3 Stratigraphy

The following stratigraphic summary describes the formations drilled at Wild Dog Road-1. The depths in brackets are true vertical depths (TVD) and thicknesses are true vertical thickness. The stratigraphic section encountered at Wild Dog Road –1 is displayed graphically in Figure 4.

PORT CAMPBELL LIMESTONE

4.6 - 55.0 metres (4.6 - 55.0 m TVD) Thickness : 50.4 metres

4.6 - 55.0 m (4.6 - 55.0 m)	LIMESTONE, grades to calcareous-arenite, white to pale grey, sucrosic, fine to medium calcite grains, moderate to well sorted, trace fossil fragments, trace grey silty claystone inclusions, occasionally well cemented, predominantly friable, good porosity.

GELLIBRAND MARL

55.0 - 292.0 metres (55.0 - 292.0 m TVD) Thickness : 237.0 metres

55.0 - 292.0 m (55.0 - 292.0 m)	MARL, light to moderate grey to blue-grey, soft, very argillaceous, trace pyrite, abundant white to pinkish brown fossil fragments, (bryozoan, forams, mollusc shell) and some calcite grains, trace glauconite nodules.

CLIFTON FORMATION

292.0 - 299.0 metres (292.0 - 299.0 m TVD) Thickness : 7.0 metres

292.0 - 299.0 m (292.0 - 299.0 m)	SANDSTONE, clear, loose, very fine to fine, sub-angular to sub-rounded, moderate to well sorted quartz grains, minor translucent yellow-brown iron stained grains, good apparent porosity. GLAUCONITE, dark green to black, fine to coarse rounded pellets / nodules.

NARRAWATURK MARL

299.0 - 345.0 metres (299.0 - 345.0 m TVD) Thickness : 46.0 metres

299.0 - 345.0 m (299.0 - 345.0 m)	MARL, light to moderate brown to grey-brown, occasionally dark brown, soft, argillaceous, silty, fossiliferous, minor pyrite and glauconite.

MEPUNGA FORMATION

345.0 - 383.0 metres (345.0 - 383.0 m TVD) Thickness : 38.0 metres

345.0 - 383.0 m (345.0 - 383.0 m) MARL, light to moderate brown, soft, very argillaceous, common dark green, fine to medium, well rounded glauconite nodules / pellets, fossiliferous.

DILWYN FORMATION

383.0 - 637.5 metres (383.0 - 632.7 m TVD) Thickness : 249.7 metres

383.0 - 637.5 m (383.0 - 632.7 m) SANDSTONE with interspersed and interbedded CLAYSTONE.
SANDSTONE, clear to milky white, fine to coarse, occasionally very coarse, predominantly rounded to well rounded, occasionally sub-angular, poor to moderate sorted, polished, loose quartz grains, trace pyrite, rare yellow-brown, silica cemented aggregates, good to very good porosity.
CLAYSTONE, dark brown to occasionally black, soft, silty, very dispersive, slightly calcareous in part, rare pyrite.

PEMBER MUDSTONE

637.5 - 698.0 metres (632.7 - 686.2 m TVD) Thickness : 53.5 metres

637.5 - 698.0 m (632.7 - 686.2 m) CLAYSTONE, light to moderate brown, olive-brown, soft to firm, silty, trace very fine dispersive quartz grains, common to abundant dark green glauconite pellets, trace pyrite.

PEBBLE POINT FORMATION

698.0 - 786.0 metres (686.2 - 761.7 m TVD) Thickness : 75.5 metres

698.0 - 720.0 m (686.2 - 705.2 m) SANDSTONE with interbedded CLAYSTONE.
SANDSTONE, translucent to milky white, medium to very coarse, sub-angular to rounded, poor to moderate sorted, loose quartz grains, good inferred porosity.
CLAYSTONE, light to moderate brown, moderate grey to blue-grey, soft, silty, glauconitic, trace pyrite.

720.0 - 751.0 m (705.2 - 731.8 m) SANDSTONE with minor CLAYSTONE.
SANDSTONE, clear to translucent pale yellow-brown, loose, medium to coarse, some very coarse, sub-angular to rounded, moderate sorted, good porosity.

CLAYSTONE, grey to grey-brown, bluish grey, soft, silty, glauconitic, trace pyrite.

751.0 - 786.0 m SILTSTONE with minor SANDSTONE interbeds.
(731.8 - 761.7 m) SILTSTONE, light to moderate grey, soft to firm, very argillaceous.
SANDSTONE, translucent yellow-brown, fine to coarse, loose, sub-rounded to rounded, good porosity.

PAARATTE FORMATION

786.0 - 1206.1 metres (761.7 - 1120.8 m TVD) Thickness : 359.1 metres

786.0 - 1206.1 m SANDSTONE with minor SILTSTONE and rare COAL.
(761.7 - 1120.8 m) SANDSTONE, clear to translucent white, predominantly coarse to very coarse, occasionally granular, angular (fractured) to rounded, moderate sorted, loose, trace pink-red, grey, grey-green quartzite grains, trace pyrite and black pyritized coal fragments, very good porosity; also minor white, very fine, sub-angular to sub-rounded, moderate to well sorted, moderate clay matrix, slightly calcareous, friable, fair porosity.
SILTSTONE, light to moderate grey, moderate to dark brown, rare dark grey to greenish grey, soft, very argillaceous and grades to claystone, trace pyrite, trace coal / carbonaceous material.
COAL, brown-black, dull, lignitic.

SKULL CREEK MEMBER

1206.1 - 1364.3 metres (1120.8 - 1254.2 m TVD) Thickness : 133.4 metres

1206.1 - 1244.0 m SILTSTONE with trace SANDSTONE.
(1120.8 - 1153.2 m) SILTSTONE, moderate to dark grey, soft, dispersive, amorphous, very argillaceous, trace carbonaceous material, rare pyrite.
SANDSTONE, white, minor pale orange-brown, very fine, very argillaceous and grades to siltstone, calcareous in part, trace carbonaceous material, very poor to poor porosity.

1244.0 - 1263.0 m SANDSTONE , with minor interbedded SILTSTONE.
(1153.2 - 1169.3 m) SANDSTONE, clear to translucent, medium to very coarse, angular to sub-angular, moderate sorted, loose quartz grains, trace pyrite, fair to good porosity.
SILTSTONE, light to moderate grey, soft, dispersive, trace carbonaceous material, rare pyrite; minor white, soft, sandy, argillaceous, calcareous.

1263.0 - 1364.3 m SILTSTONE with trace SANDSTONE.

(1169.3 - 1254.2 m) SILTSTONE, light to moderate grey, light to moderate grey-brown, moderate to dark brown, soft to firm, trace carbonaceous material, rare pyrite, very argillaceous with cay supported sand / silt, grades to very fine sandstone.

SANDSTONE, pale greenish white, very fine, grades to siltstone, trace carbonaceous material, abundant clay matrix, slightly calcareous, very poor to poor porosity; minor medium to coarse, loose translucent quartz grains.

NULLARWARRE GREENSAND

1364.3 - 1505.2 metres (1254.2 - 1371.2 m TVD) Thickness : 117.0 metres

1364.3 -1505.2 m SANDSTONE with minor SILTSTONE.

(1254.2 - 1371.2 m) SANDSTONE, clear to translucent yellow-green to moderate green, pale yellow-brown, fine to coarse, sub-angular to rounded, moderate sorted quartz grains, occasionally polished, common dark green glauconite pellets, trace dark brown ironstone pellets, dispersive greenish white silty clay matrix, friable to loose, fair to predominantly good porosity.

SILTSTONE, light to moderate green, minor moderate to dark grey-brown, rare greenish blue, purple brown, soft, glauconitic, sandy and argillaceous; also moderate grey-brown, soft, very argillaceous, trace carbonaceous specks.

BELFAST FORMATION

1505.2 - 1558.1 metres (1371.2 - 1416.0 m TVD) Thickness : 44.8 metres

1505.2 -1558.1 m SILTSTONE with trace SANDSTONE.

(1371.2 - 1416.0 m) SILTSTONE, moderate to dark grey-brown to greenish grey, soft, dispersive, argillaceous, glauconitic and sandy in part with very fine to medium sand grains, rare pyrite.

SANDSTONE, clear to translucent, fine to medium, sub-angular to sub-rounded, moderate sorted, loose quartz grains, trace glauconite pellets

WAARRE FORMATION (Unit 'D')

1558.1 - 1586.8 metres (1416.0 - 1440.7 m TVD) Thickness : 24.7 metres

1558.1 - 1586.8 m SILTSTONE with rare COAL.

(1416.0 - 1440.7 m) SILTSTONE, light to moderate grey to grey-brown, greenish grey, soft, dispersive, argillaceous, glauconitic, minor white to off-white, pale brown, soft to firm, very calcareous in part, sandy in part with trace fine to medium sand grains..

COAL, (1584m.), black, dull to sub-vitreous lustre.

WAARRE FORMATION (Unit 'C' sand)

1586.8 - 1679.0 metres (1440.7 - 1522.3 m TVD) Thickness : 81.6 metres

1586.8 - 1639.0 m SANDSTONE with minor interbedded SILTSTONE..

(1440.7 - 1486.6 m) SANDSTONE, clear to translucent white, fine to very coarse, sub-angular to sub-rounded, poor to moderate sorted, loose quartz grains, rare pyrite, trace pink and yellow quartzite grains, trace clay matrix, minor calcite cement mostly with fine grains, good to very good porosity.

SILTSTONE, light to dark brown, soft to firm, very argillaceous, trace coal and carbonaceous material, trace pyrite.

1639.0 - 1653.0 m. SILTSTONE with trace SANDSTONE.

(1486.6 - 1499.1 m) SILTSTONE, light brown, moderate to dark grey to grey-brown, greenish grey, soft, argillaceous, trace carbonaceous material, rare glauconite and pyrite.

SANDSTONE, white, very fine, argillaceous, very calcareous in part, poor porosity.

1653.0 - 1679.0 m. SANDSTONE with minor SILTSTONE..

(1499.1 - 1522.3 m) SANDSTONE, clear to translucent white, fine to coarse, occasionally very coarse, sub-angular, moderate sorted, trace quartz overgrowths, trace pyrite, trace clay matrix with finer grains, calcareous in part, good porosity.

SILTSTONE, light grey, soft, argillaceous, trace carbonaceous material, rare pyrite, some white, sandy, calcareous.

1679 - 1586.8 / 92.2

1522.3 - 1440.7 / 81.6

TOTAL DEPTH

Driller:	1678.0 metres	(1521.5 m TVD)
Logger:	1679.0 metres (Extrapolated)	(1522.3 m TVD)

Table 1 : WILD DOG ROAD-1 - STRATIGRAPHIC TABLE

AGE	FORMATION	R.T. Depths	TVD Depths	MSL Depths	Thickness
E-L. Miocene	Port Campbell Ls.	4.6	4.6	123.4	50.4
Oligocene	Gellibrand Marl	55.0	55.0	73.0	237.0
E. Oligocene	Clifton Fm.	292.0	292.0	-164.0	7.0
L. Eocene	Narrawaturk Marl	299.0	299.0	-171.0	46.0
L. Eocene	Mepunga Fm.	345.0	345.0	-217.0	38.0
M. Eocene	Dilwyn Fm.	383.0	383.0	-255.0	249.7
E. Eocene	Pember Mudstone	637.5	632.7	-504.7	53.5
E-L. Palaeocene	Pebble Point Fm.	698.0	686.2	-558.2	75.5
L. Cretaceous	Paaratte Fm.	786.0	761.7	-633.7	359.1
L. Cretaceous	Skull Creek Mbr.	1206.1	1120.8	-992.8	133.4
L. Cretaceous	Nullawarre Greensand	1364.3	1254.2	-1126.2	117.0
L. Cretaceous	Belfast Fm.	1505.2	1371.2	-1243.2	44.8
L. Cretaceous	Waarre Fm. (Unit D)	1558.1	1416.0	-1288.0	24.7
L. Cretaceous	Waarre Fm. (Unit C)	1586.8	1440.7	-1312.7	81.6
	T.D. (Logs)	1679.0	1522.3	-1394.3	

3.4 Hydrocarbon Shows

The only significant gas show encountered while drilling Wild Dog Road-1 was from the Unit "C" sand of the Waarre Formation.

The sand from 1586.8 to 1598.5 m (1440.7 to 1451.0 m TVD) had very good porosity / permeability and gas shows to 299 units (99/1/Tr/Tr)

A thinner sand from 1602.0 to 1604.0 m (1454.0 to 1455.8 m TVD) had fair to good porosity and gas shows to 170 units and is probably just above the gas / water contact.

Cuttings and wireline logs indicate the sands below 1606 m (1457.5 m TVD) have good porosity but gas readings and log analysis show them to be water saturated.

The well was completed as a single string producer from the Waarre "C" sand (1587.0-1591.0 m / 1440.9-1444.4 m TVD) and after perforating flowed gas on clean-up @ 15Mmcfd with 1495psi on a 5/8" choke.

4.0 DISCUSSION AND CONCLUSIONS

The Wild Dog Road-1 exploration well discovered a new gasfield in the Unit C Sandstone of the Waarre Formation. The well confirmed the excellent reservoir character of the Unit C sandstone.

The Unit C sandstone was intersected 0.6 m high to prognosis, an excellent result reflecting the good well control in the region.

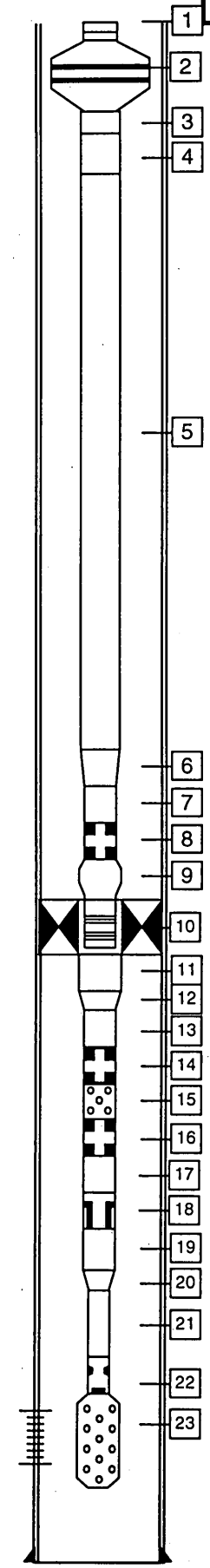
These results highlight the potential for further gas discoveries at other prospects in the area.

The only significant problems encountered while drilling was a severe lost circulation problem encountered at 14 m immediately after drilling out of the conductor. Attempts to plug the zone were unsuccessful and 340 mm casing was set at 26 m. This resulted in a time loss of nearly 2 days. Despite this the well was drilled in 9.9 days compared to a budgeted time of 9 days.

BEPL

Downhole Installation Diagram

Well: Wild Dog Road 1



PBTD: 1660 mRT

Item No.	Description	Length (m)	Depth (m RT)	Min ID (in)
1	RT to top of tubinghead spool	4.60	0.00	
2	Hanger, 4-1/2" K-Fox x 4-1/2" EUE, 4.0" Nat BPV	0.30	4.60	4.000
3	4-1/2" K-Fox x 4-1/2" NV L80 x-over	0.38	4.90	3.958
4	4-1/2" NV L80 pup joints	3.12	5.28	3.958
5	161 jnts 4-1/2" 12.6 ppf New Vam L80 tubing	1544.48	8.40	3.958
6	4-1/2" NV x 3-1/2" BH3 L80 x-over	0.43	1552.88	2.992
7	3-1/2" BH3 L80 pup Joint	1.71	1553.31	2.992
8	X nipple, 3-1/2" BH3, (2.750 X)	0.57	1555.02	2.750
9	3-1/2" BH3 K-22 Seal Latch Assembly, 80DA-40	0.08	1555.59	2.992
10	Baker SAB-3 retainer prod packer, 84 SAB 40x32	1.5	1555.67	3.250
11	4-1/2" LTC pin x NV pin millout extension	1.66	1557.17	3.958
12	4-1/2" NV x 3-1/2" EUE pin x-over swage	0.53	1558.83	**2.992**
13	Pup joint, 10' x 3-1/2" EUE J55	2.44	1559.36	2.992
14	X nipple, 3-1/2" EUE, (2.750 X)	0.43	1561.80	2.750
15	Pup joint, 10' x 3-1/2" EUE J55 perforated	3.04	1562.23	2.992
16	XN nipple, 3-1/2" EUE, (2.750 X, 2.635 NoGo)	0.38	1565.27	2.635
17	Pup joint, 8' x 3-1/2" EUE J55	2.44	1565.65	2.992
18	3-1/2" EUE Gun Release sub	1.02	1568.09	1.790
19	Pup joint, 6' x 3-1/2" EUE	1.85	1569.11	2.992
20	Crossover, 3-1/2" EUE x 2-3/8" EUE	0.24	1570.96	1.995
21	One joint x 2-3/8" EUE, 4.7 ppf, J55, R2 tbg	9.53	1571.20	1.995
22	2-3/8" EUE open firing Head	2.17	1580.73	
23	4-1/2" TCP Guns (Safety spacer)	4.1	1587.00	
24	Perforations	4	1591.00	

PERFORATIONS		Gun		Charges			
Formation	Interval (m RT)	Size	Type	SPF	Type	Ph	gm
Waarre Fm-unit'C' sand	1587 to 1591 m KB	4.5"	TCP	12	HMX	45	22.7

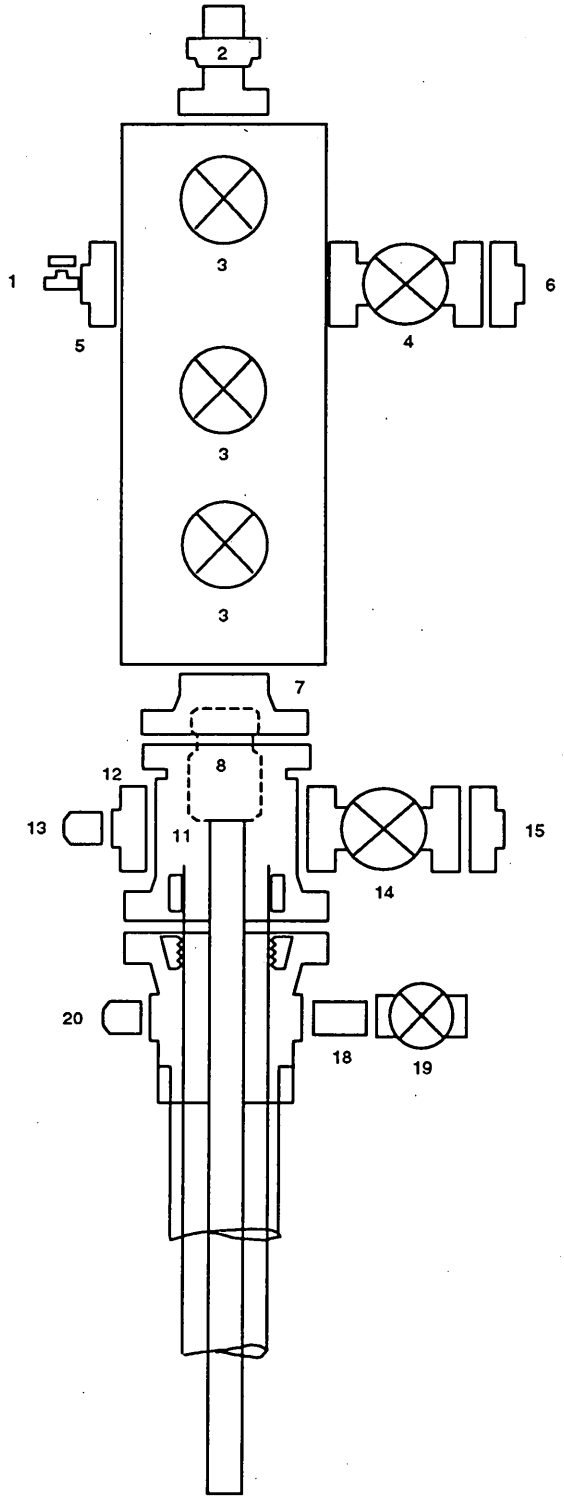
Surface Casing	9-5/8" 36 ppf K55	Shoe at 392.5 m RT	
Production Casing	7" 26 ppf K55 Buttress	Shoe at 1675.9 m RT	
Cementing Details	Cemented with 480sx"G" with 1.2%halad 322		
Remarks	Set packer, held 3500psi for 20mins, tested on		
	annulus with 1000psi, OK PBTD 1660mtrs		
String Weight Calculated	60	**Actual**	58

Wellsite Supervisor	Barry Beetson			Not to Scale	
Date of Installation	20/12/99			Proposed	
Drafted by	PCS	Date:	20/12/99	Re-Completion	
Checked by	RAW	Date:	4/01/00	Completion	X

Figure 5

BEPL **Wellhead Diagram**

Well: Wild Dog Road 1



C - Section	
1	Needle Valve, 1/2" NTP 10M SS
2	Tree cap , 4-1/16" 5M SS trim w/ 4-1/2" EUE lift thread
3	Block Valve Assembly, 4-1/16" 5M SS trim, dbl manual master v/v's, single master swab v/v,
4	Gate valve, 4-1/16" 5M flanged SS trim
5	Companion flange, 2-1/16" 5M SS trim x 1/2" NPT plug
6	Companion flange, 4-1/16" 5M SS trim x 2" NPT
	Accessories
	Studs, nuts and ring gaskets, as required

B - Section	
7	EN bonnet, 7-1/16" 5M x 4-1/16" 5M SS trim studded up
8	Tbg hgr, SS EN 7-1/16" x 4-1/2" K'Fox x 4-1/2" EUE
9	Tbg spool, 11" 3M x 7-1/16 5M w/ 2 x 2-1/16" std outlets
10	Secondary seal, 10" x 7"
11	VR plug
12	Companion flange, 2-1/16 5M x 2" NPT
13	Bull plug 2" NPT tapped, not plugged
14	Gate valve, 2-1/16" 5M flanged regular trim
15	Companion flange, 2-1/16 5M x 2" NPT
	w/ 2" NPT tapped bull plug, needle valve and vaetrix
	Accessories
	Studs, nuts and ring gaskets, as required

A - Section	
16	Casing Hanger, 11" x 7"
17	Casing head, 11" 3M w/ 2 x 2" NPT outlets
18	Nipple, 6" x 2" NPT 3M
19	Ball valve, 2" NPT 3M
20	Bull plug, 2" NPT tapped 1/2" NPT
	Accessories - studs, nuts, ring gaskets

Well Details	Surface	Production	Tubing
Size (inches)	9-5/8"	7.0"	4-1/2"
Weight (ppf)	36	26	12.6
Grade	K55	K55	L80
Shoe (m RT)	392.5	1675.9	1591

Remarks and Comments	Full Kvaerner Wellhead
	4.0" Kvaerner BPV thread in hanger

Rig Supervisor	Barry Beetson		
Date Installed	21/12/99		
Drafted by	PCS	Date	21/10/99
Checked by	RAW	Date	4/01/00

Proposed		Actual	X

Figure 6

5.0 COMPLETION

The completion of Wild Dog Road-1 was carried out between 18th December 1999 and 21st December 1999. Barry Beetson provided wellsite supervision.

After the well had been cased and cemented, the well was immediately completed using the drilling rig (OD&E Rig 30).

After a bit and scraper run, the well was perforated using 4-1/2" TCP guns suspended below a Model SAB-3 Baker Retainer Production Packer run in on 4-1/2" New Vam tubing. Perforations were as detailed:

SAND	INTERVAL PERFORATED
Waarre Unit "C"	1587.0 – 1591.0 m

After perforating, Wild Dog Road flowed gas on clean-up @ 15 Mmcfd with 1495 psi on a 5/8" choke.

Immediately post perforation and clean up flow, a PX plug and prong was set in the tailpipe as a safety precaution for rigging down and moving out the drilling rig.

The rig was released from completion operations on the 21st December 1999.

6.0 REFERENCES

Aburas A. — Proposal to Drill Wild Dog Road-1, PPL 1, Otway Basin Victoria, Unpublished report for Boral Energy Resources Limited, November 1999.

Oil Company of Australia Limited; — Drilling Programme : PPL-1 : Wild Dog Road-1, Unpublished report for Boral Energy Petroleum Limited, October 1999.

APPENDIX 1

CUTTINGS DESCRIPTIONS

DEPTH (ROP min/m)	%	OERL WILD DOG ROAD 1 CUTTINGS DESCRIPTIONS	TG GAS (%)
20		No Returns	
30		No Returns	
40	100	LIMESTONE, grades to calcareous-arenite, white to pale grey, sucrosic, fine to medium calcite grains, moderate to well sorted, trace fossil fragments, trace grey silty claystone inclusions, occasionally well cemented, predominantly friable, good porosity.	
50 (1.2)	100	LIMESTONE, a.a.	0.0 (0:0:0:0:0)
60 (1.8)	100	MARL, moderate grey, silty, argillaceous, very calcareous, trace fossil fragments.	0.0 (0:0:0:0:0)
70 (2.1)	100	MARL, a.a. – light to moderate grey, silty and argillaceous.	0.0 (0:0:0:0:0)
80 (1.2)	100	MARL, a.a. – light to moderate grey to blue-grey, soft, very argillaceous, trace pyrite, abundant (50%) white to pinkish brown fossil fragments, (bryozoan, forams, mollusc shell) and some calcite grains, trace glauconite nodules.	0.0 (0:0:0:0:0)
90 (1.1)	100	MARL, a.a. – (20%) fossil fragments.	0.0 (0:0:0:0:0)
100 (1.2)	100	MARL, moderate grey, soft, very argillaceous, calcareous, common white to pale pinkish brown fossil fragments.	0.0 (0:0:0:0:0)
110 (0.7)	100	MARL, a.a. – (10%) fossil fragments.	0.0 (0:0:0:0:0)
120 (0.6)	100	MARL, a.a. – (20%) fossil fragments.	0.0 (0:0:0:0:0)
130 (0.6)	100	MARL, a.a. – some bluish green to grey, glauconitic, (20%) fossil fragments.	0.0 (0:0:0:0:0)
140 (1.0)	100	MARL, a.a. – moderate grey to blue-grey, very argillaceous, (10%) fossil fragments.	0.0 (0:0:0:0:0)
150 (0.8)	100	MARL, a.a. – mostly moderate bluish grey, some grey to brown-grey, (10%) fossil fragments.	0.0 (0:0:0:0:0)
160 (0.9)	100	MARL, a.a. -(5%) fossil fragments.	0.0 (0:0:0:0:0)
170 (1.0)	100	MARL, a.a.	0.0 (0:0:0:0:0)
180 (1.0)	100	MARL, a.a. – moderate grey to bluish grey, very argillaceous, (10%) fossil fragments.	0.0 (0:0:0:0:0)
190 (0.6)	100	MARL, a.a.	0.0 (0:0:0:0:0)
200 (0.5)	100	MARL, a.a. - (20%) fossil fragments.	0.0 (0:0:0:0:0)
210 (0.5)	100	MARL, a.a.	0.0 (0:0:0:0:0)
220 (0.5)	100	MARL, a.a.	0.0 (0:0:0:0:0)
230 (0.5)	100	MARL, a.a. – light to moderate blue to bluish grey, moderate to dark grey, very argillaceous, (20%) fossil fragments.	0.0 (0:0:0:0:0)
240 (0.5)	100	MARL, a.a. – predominantly light to moderate bluish grey, (10%) fossil fragments.	0.0 (0:0:0:0:0)
250 (0.6)	100	MARL, a.a. – blue to blue-grey and grey, (10%) fossil fragments.	0.0 (0:0:0:0:0)
260 (0.6)	100	MARL, a.a.	0.0 (0:0:0:0:0)
270 (0.6)	100	MARL, a.a.	0.0 (0:0:0:0:0)
280 (0.7)	100	MARL, a.a. – predominantly blue to blue-grey.	0.0 (0:0:0:0:0)
290 (0.7)	100	MARL, a.a. – (40%); also (50%) cream to pale brown, pale olive-brown, soft, argillaceous, very calcareous, (10%) fossil fragments.	0.0 (0:0:0:0:0)

DEPTH (ROP min/m)	%	OERL WILD DOG ROAD 1 CUTTINGS DESCRIPTIONS	TG GAS (%)
300 (0.8)	20 10 70	SANDSTONE, clear, loose, very fine to fine, sub-angular to sub-rounded, moderate to well sorted quartz grains, minor translucent yellow-brown iron stained grains, good apparent porosity. GLAUCONITE, dark green to black, fine to coarse rounded pellets / nodules. MARL, moderate brown, soft, very argillaceous, minor glauconite, fossiliferous, pinkish shell, bryozoan and foram fragments.	0.0 (0:0:0:0:0)
310 (0.5)	10 90 Tr	SANDSTONE, a.a. – rare coarse, well rounded grains. MARL, light to moderate brown to grey-brown, minor blue-grey, soft, argillaceous, silty, fossiliferous. GLAUCONITE, a.a.	0.0 (0:0:0:0:0)
320 (0.8)	100	SANDSTONE, a.a. MARL, a.a. - trace pyrite and glauconite, (10%) fossil fragments.	0.0 (0:0:0:0:0)
330 (0.9)	100	MARL, light to moderate brown, soft, silty and argillaceous, trace pyrite and glauconite, (20%) fossil fragments.	0.0 (0:0:0:0:0)
340 (1.1)	100	MARL, a.a. – moderate to dark brown, soft, trace pyrite, fossiliferous.	0.0 (0:0:0:0:0)
350 (1.2)	100	MARL, light to moderate brown, soft, silty and argillaceous, trace pyrite and glauconite, (10%) fossil fragments.	0.0 (0:0:0:0:0)
360 (0.9)	100	MARL, a.a.	0.0 (0:0:0:0:0)
370 (0.8)	100	MARL, light to moderate brown, soft, comm dark green, fine to medium, well rounded glauconite nodules / pellets, (10%) fossil fragments.	0.0 (0:0:0:0:0)
380 (0.9)	100	MARL, pale brown, minor moderate brown, soft, very argillaceous, common glauconite, fossiliferous.	0.0 (0:0:0:0:0)
390 (1.1)	70 30	SANDSTONE, translucent yellow-brown, loose, medium to very coarse, rounded to well rounded, moderate sorted, polished quartz grains, common moderate to dark green glauconite nodules, good porosity. MARL, a.a. – fossiliferous.	0.0 (0:0:0:0:0)
400 (0.8)	70 30	SANDSTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
410 (2.2)	100 Tr	SANDSTONE, clear to milky white, translucent yellow-brown, medium to very coarse, rounded to well rounded, moderate sorted, polished, loose quartz grains, iron stained in part, good porosity. CLAYSTONE, dark brown to black, soft, dispersive, silty, slightly calcareous in part.	0.0 (0:0:0:0:0)
420 (1.3)	100 Tr	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
430 (0.4)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a. – trace calcareous.	0.0 (0:0:0:0:0)
440 (0.5)	70 30	SANDSTONE, a.a. CLAYSTONE, a.a. – rare pyrite.	0.0 (0:0:0:0:0)
450 (0.9)	70 30	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
460 (0.4)	90 10	SANDSTONE, clear to milky white, fine to very coarse, sub-rounded to well rounded, poor to moderate sorted, polished, loose quartz grains, good porosity. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
470 (0.5)	90 10	SANDSTONE, a.a. – rare pyrite nodules and pyrite cemented quartz grains. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
480 (0.4)	80 20	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
490 (1.2)	80 20	SANDSTONE, a.a. CLAYSTONE, a.a. – very dispersive.	0.0 (0:0:0:0:0)
500 (1.5)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
510 (1.9)	20 80	SANDSTONE, a.a. CLAYSTONE, dark brown, soft, silty, rare pyrite, very dispersive.	0.0 (0:0:0:0:0)
520 (1.0)	90 10	SANDSTONE, a.a. – mostly fine to coarse, sub-angular to rounded, moderate sorted. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)

DEPTH (ROP min/m)	%	OERL WILD DOG ROAD 1 CUTTINGS DESCRIPTIONS	TG GAS (%)
530 (1.2)	90 10	SANDSTONE, a.a. – fine to very coarse, loose, good porosity; trace yellow-brown, silica cemented aggregates, poor porosity. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
540 (1.2)	90 10	SANDSTONE, a.a. – fine to granular, trace pyrite. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
550 (1.0)	50 50	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
560 (1.9)	20 80	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
570 (1.0)	50 50	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
580 (2.4)	20 80	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
590 (1.6)	60 40	SANDSTONE, a.a. – clear to milky white, fine to very coarse, sub-angular to well rounded, poorly sorted, some polished grains, loose, good porosity. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
600 (1.3)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
610 (1.5)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
620 (1.1)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
630 (1.0)	100 Tr	SANDSTONE, a.a. – sub-rounded to rounded, occasionally well rounded, loose quartz grains, good porosity. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
640 (1.9)	100 Tr	SANDSTONE, a.a. – predominantly fine to medium, sub-angular to sub-rounded, some coarse to very coarse, sub-angular to rounded, poorly sorted, trace pyrite, good porosity. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
650 (3.3)	50 50	SANDSTONE, a.a. CLAYSTONE, light to moderate brown, olive-brown, soft to firm, common to abundant dark green glauconite pellets, trace pyrite.	0.0 (0:0:0:0:0)
660 (1.7)	30 70	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
670 (1.3)	10 90	SANDSTONE, a.a. CLAYSTONE, a.a. – silty, very fine dispersive quartz grains, minor glauconite and trace pyrite.	0.0 (0:0:0:0:0)
680 (2.7)	10 90	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
690 (1.5)	Tr 100	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
700 (1.1)	Tr 100	SANDSTONE, a.a. CLAYSTONE, moderate to dark brown, minor moderate grey, soft, dispersive, minor glauconite, silty in part.	0.0 (0:0:0:0:0)
710 (1.0)	20 80	SANDSTONE, translucent to milky white, medium to very coarse, sub-angular to rounded, poor to moderate sorted, loose quartz grains, good inferred porosity. CLAYSTONE, light to moderate brown, moderate grey to blue-grey, soft, silty, glauconitic, trace pyrite.	0.1 (100:0:0:0:0)
720 (1.0)	60 40	SANDSTONE, a.a. CLAYSTONE, grey to grey-brown, bluish grey, soft, silty, glauconitic, trace pyrite.	1.0 (100:0:0:0:0)
730 (1.3)	100	SANDSTONE, clear to translucent pale yellow-brown, loose, medium to coarse, some very coarse, sub-angular to rounded, moderate sorted, good porosity.	1.0 (100:0:0:0:0)
740 (0.9)	100 Tr	SANDSTONE, a.a. CLAYSTONE, a.a.	1.0 (100:0:0:0:0)
750 (0.7)	100 Tr	SANDSTONE, a.a. – fine to coarse, mostly medium, loose, good porosity. CLAYSTONE, a.a.	1.0 (100:0:0:0:0)
760 (1.0)	70 30	SANDSTONE, a.a. – translucent yellow-brown, fine to coarse, sub-rounded to rounded, good porosity. CLAYSTONE, a.a.	1.0 (100:0:0:0:0)

DEPTH (ROP min/m)	%	OERL WILD DOG ROAD 1 CUTTINGS DESCRIPTIONS	TG GAS (%)
770 (0.9)	90 10	SANDSTONE, a.a. – coarse to very coarse, sub-rounded to rounded, polished, loose quartz grains, good porosity. CLAYSTONE, a.a.	1.6 (100:0:0:0:0)
780 (0.7)	90 10	SANDSTONE, a.a. SILTSTONE, light to moderate grey, soft to firm, very argillaceous.	2.1 (100:0:0:0:0)
790 (0.8)	100 Tr	SANDSTONE, a.a. – medium to very coarse, very good porosity. SILTSTONE, a.a.	2.7 (100:0:0:0:0)
800 (0.8)	100	SANDSTONE, a.a. – trace yellow, grey, greenish grey and pinkish red lithic / quartzite grains, very good porosity.	0.5 (100:0:0:0:0)
810 (0.7)	100	SANDSTONE, a.a. – coarse to very coarse, occasionally granular, angular (fractured) to rounded, moderate sorted, loose, minor lithic / quartzite grains, trace pyrite, very good porosity.	1.0 (100:0:0:0:0)
820 (0.8)	100	SANDSTONE, clear to translucent white, minor translucent yellow, medium to very coarse, sub-angular to rounded, poor to moderate sorted, loose, quartz and trace pink-red, grey, grey-green quartzite grains, good porosity.	1.2 (100:0:0:0:0)
830 (1.0)	100	SANDSTONE, a.a.	0.9 (100:0:0:0:0)
840 (0.6)	100	SANDSTONE, a.a. – angular (fractured) to rounded, loose quartz and trace quartzite grains, good porosity.	1.0 (100:0:0:0:0)
850 (0.9)	100	SANDSTONE, a.a. – predominantly sub-rounded to rounded, trace black pyritic coal fragments, good porosity.	1.1 (100:0:0:0:0)
860 (0.6)	100	SANDSTONE, a.a. – angular to sub-rounded, good porosity.	1.6 (100:0:0:0:0)
870 (0.9)	100	SANDSTONE, a.a. – medium to very coarse, minor lithic / quartzite grains, trace pyrite, good porosity.	1.9 (100:0:0:0:0)
880 (0.7)	100 Tr	SANDSTONE, a.a. SILTSTONE, light grey, soft, very argillaceous.	3.2 (100:0:0:0:0)
890 (1.0)	100	SANDSTONE, a.a.	1.5 (100:0:0:0:0)
900 (1.0)	100 Tr	SANDSTONE, clear to translucent white, medium to very coarse, angular to sub-rounded, poor to moderate sorted, loose quartz grains, trace yellow and grey quartzite grains, trace pyrite, good porosity. SILTSTONE, a.a.	3.3 (100:0:0:0:0)
910 (0.7)	90 10	SANDSTONE, a.a. SILTSTONE, light to grey, soft to firm, very argillaceous, trace pyrite and carbonaceous material.	5.6 (100:0:0:0:0)
920 (0.6)	100 Tr	SANDSTONE, a.a. – clear to translucent white, medium to very coarse, trace quartzite grains and pyrite. SILTSTONE, a.a.	3.0 (100:0:0:0:0)
930 (0.7)	100 Tr	SANDSTONE, a.a. SILTSTONE, a.a.	3.6 (100:0:0:0:0)
940 (0.6)	100	SANDSTONE, a.a.	2.2 (100:0:0:0:0)
950 (0.6)	100 Tr	SANDSTONE, a.a. SILTSTONE, a.a.	4.5 (100:0:0:0:0)
960 (1.3)	100 Tr	SANDSTONE, minor loose, coarse to very coarse grains, mostly very fine, white to light grey, sub-angular to sub-rounded, moderate sorted, minor lithics, moderate silty clay matrix, moderate calcite cement, friable, fair porosity. SILTSTONE, a.a.	6.3 (100:0:0:0:0)
970 (1.7)	60 40	SANDSTONE, white, very fine (aggregates) to medium-coarse (loose) and occasionally very coarse, angular to rounded, poorly sorted, trace pyrite, silty clay matrix and calcite cement with finer grains fair porosity. SILTSTONE, moderate to dark grey to greenish grey, soft to firm, very argillaceous, trace carbonaceous material.	2.6 (100:0:0:0:0)
980 (0.9)	100	SANDSTONE, clear to translucent white, medium to very coarse, sub-angular to rounded, moderate sorted, loose quartz grains, good porosity.	1.7 (100:0:0:0:0)
990 (0.7)	100	SANDSTONE, a.a. – trace pyrite.	1.2 (100:0:0:0:0)
1000 (0.8)	100	SANDSTONE, a.a.	1.6 (100:0:0:0:0)

DEPTH (ROP min/m)	%	OERL WILD DOG ROAD 1 CUTTINGS DESCRIPTIONS	TG GAS (%)
1010 (0.7)	100	SANDSTONE, a.a. – medium to very coarse, angular to sub-rounded, good porosity.	1.8 (100:0:0:0:0)
1020 (0.7)	100	SANDSTONE, a.a. – sub-angular to sub-rounded, loose, good porosity.	1.7 (100:0:0:0:0)
1030 (0.5)	100	SANDSTONE, a.a. – medium to coarse, some very coarse, angular to sub-rounded, trace pyrite, good porosity.	1.8 (100:0:0:0:0)
1040 (1.7)	100 Tr	SANDSTONE, a.a. – sub-rounded, moderate sorted, good porosity. SILTSTONE, moderate to dark brown, soft, very argillaceous and grades to claystone, trace carbonaceous material.	2.2 (100:0:0:0:0)
1050 (2.2)	70 30	SANDSTONE, a.a. – medium to coarse, some very coarse, good porosity. SILTSTONE, a.a.	0.9 (100:0:0:0:0)
1060 (2.1)	80 20	SANDSTONE, a.a. – medium to very coarse, sub-angular to sub-rounded, good porosity. SILTSTONE, a.a.	0.0 (100:0:0:0:0)
1070 (0.9)	90 10	SANDSTONE, a.a. SILTSTONE, a.a.	1.0 (100:0:0:0:0)
1080 (1.1)	100 Tr	SANDSTONE, a.a. SILTSTONE, a.a.	0.7 (100:0:0:0:0)
1090 (0.9)	100 Tr	SANDSTONE, translucent white, medium to very coarse, sub-angular to rounded, moderate sorted, loose, trace pyrite, good porosity. SILTSTONE, a.a. – light to moderate grey.	0.0 (0:0:0:0:0)
1100 (1.1)	80 20	SANDSTONE, a.a. SILTSTONE, light to moderate grey, soft, dispersive, very argillaceous, carbonaceous specks.	0.0 (0:0:0:0:0)
1110 (1.0)	90 10	SANDSTONE, a.a. – mostly medium to very coarse, good porosity. SILTSTONE, a.a.	0.0 (0:0:0:0:0)
1120 (1.2)	90 10	SANDSTONE, a.a. SILTSTONE, a.a. – common coal / carbonaceous specks.	0.0 (0:0:0:0:0)
1130 (1.5)	100 Tr	SANDSTONE, a.a. SILTSTONE, a.a.	0.0 (0:0:0:0:0)
1140 (1.8)	100 Tr	SANDSTONE, a.a. – minor white, very fine, sub-angular to sub-rounded, moderate to well sorted, moderate clay matrix, slightly calcareous, friable, fair porosity. SILTSTONE, a.a.	0.0 (0:0:0:0:0)
1150 (2.8)	100	SANDSTONE, minor loose coarse to very coarse quartz grains, mostly white, very fine, sub-angular to sub-rounded, moderate to well sorted, moderate clay matrix, calcareous in part, friable, fair porosity.	0.0 (0:0:0:0:0)
1160 (2.0)	100	SANDSTONE, clear to translucent, medium to coarse, occasional very coarse, sub-angular to rounded, moderate sorted, loose quartz grains, trace pyrite, good porosity.	0.0 (0:0:0:0:0)
1170 (1.6)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
1180 (1.7)	90 10	SANDSTONE, a.a. SILTSTONE, moderate to dark grey, soft, argillaceous, trace coal and carbonaceous material.	0.0 (0:0:0:0:0)
1190 (2.5)	20 80	SANDSTONE, a.a. – fine to medium and occasionally coarse, loose quartz grains. SILTSTONE, white, soft, very argillaceous, grades to very argillaceous fine sandstone in part, also moderate to dark grey, soft, argillaceous, carbonaceous.	0.0 (0:0:0:0:0)
1200 (1.6)	100 Tr	SANDSTONE, white to off-white, very fine, sub-rounded, moderate to well sorted, trace lithics and carbonaceous material, minor clay matrix, calcareous in part, friable, fair porosity. SILTSTONE, light to moderate grey, soft, very argillaceous, trace carbonaceous material, rare pyrite.	0.0 (0:0:0:0:0)
1210 (1.5)	10 90	SANDSTONE, white, very fine, very argillaceous and grades to siltstone, trace carbonaceous material. SILTSTONE, a.a.	0.0 (0:0:0:0:0)
1220 (1.4)	20 80	SANDSTONE, a.a. – grades to siltstone, calcareous in part. SILTSTONE, a.a.	0.0 (0:0:0:0:0)

DEPTH (ROP min/m)	%	OERL WILD DOG ROAD 1 CUTTINGS DESCRIPTIONS	TG GAS (%)
1230 (3.7)	Tr 100	SANDSTONE, a.a. SILTSTONE, moderate to dark grey, soft, dispersive, amorphous, very argillaceous, trace carbonaceous material, rare pyrite.	0.0 (0:0:0:0:0)
1240 (5.5)	Tr 100	SANDSTONE, a.a. – minor very pale orange-brown, very fine, calcareous. SILTSTONE, a.a.	0.4 (0:0:0:0:0)
1250 (1.5)	30 70	SANDSTONE, clear to white, very fine to medium, occasionally coarse to very coarse, sub-angular to sub-rounded, poorly sorted, medium to coarse grains loose, very fine to fine grains have moderate to abundant white clay matrix, trace pyrite, slightly calcareous, very fine argillaceous fraction has clay supported sand grains and grades to siltstone, very poor to fair porosity. SILTSTONE, a.a.	1.3 (100:0:0:0:0)
1260 (1.1)	80 20	SANDSTONE, clear to translucent, medium to very coarse, angular to sub-angular, moderate sorted, loose quartz grains, trace pyrite, fair to good porosity. SILTSTONE, a.a.	1.1 (100:0:0:0:0)
1270 (1.9)	30 70	SANDSTONE, a.a. SILTSTONE, light to moderate grey, soft, dispersive, trace carbonaceous material, rare pyrite; minor white, soft, sandy, argillaceous, calcareous.	1.2 (100:0:0:0:0)
1280 (2.7)	100	SILTSTONE, a.a. – light to moderate grey, soft, dispersive, trace carbonaceous material, rare pyrite; minor white, soft, very argillaceous with cay supported sand / silt, grades to very fine sandstone.	1.0 (100:0:0:0:0)
1290 (4.6)	100	SILTSTONE, a.a. – light to moderate grey, trace carbonaceous material; 10% white, soft, very argillaceous, grades to very fine sandstone.	0.3 (100:0:0:0:0)
1300 (3.7)	10 90	SANDSTONE, pale greenish white, very fine, grades to siltstone, trace carbonaceous material, abundant clay matrix, slightly calcareous, very poor to poor porosity; minor medium to coarse, loose translucent quartz grains. SILTSTONE, a.a. – light to moderate grey to grey-brown, soft, very argillaceous, carbonaceous specks.	0.2 (100:0:0:0:0)
1310 (3.0)	Tr 100	SANDSTONE, a.a. SILTSTONE, a.a.	1.0 (100:0:0:0:0)
1320 (3.7)	Tr 100	SANDSTONE, a.a. SILTSTONE, moderate to dark grey-brown, soft, very argillaceous, trace very fine quartz grains.	1.2 (100:0:0:0:0)
1330 (3.9)	Tr 100	SANDSTONE, a.a. SILTSTONE, a.a.	1.0 (100:0:0:0:0)
1340 (1.9)	Tr 100	SANDSTONE, a.a. SILTSTONE, a.a.	1.1 (100:0:0:0:0)
1350 (3.0)	80 20	SANDSTONE, clear to translucent, minor pale green mostly very fine to fine, some medium to very coarse, sub-angular to sub-rounded, poor to moderate sorted, loose quartz grains, trace glauconite pellets and greenish stained quartz grains, trace pyrite, fair to good porosity. SILTSTONE, a.a.	1.0 (100:0:0:0:0)
1360 (3.1)	90 10	SANDSTONE, a.a. SILTSTONE, light to moderate grey, light to moderate grey-brown, soft to firm, argillaceous, trace carbonaceous material, trace very fine quartz grains.	1.1 (100:0:0:0:0)
1370 (2.0)	60 40	SANDSTONE, translucent yellow-green to moderate green, fine to coarse, sub-angular to rounded, moderate sorted quartz grains, common dark green glauconite pellets, dispersive greenish white silty clay matrix, friable to loose, fair porosity. SILTSTONE, light to moderate green, soft, glauconitic, sandy and argillaceous; also moderate grey-brown, soft, very argillaceous.	1.0 (100:0:0:0:0)
1380 (1.9)	60 40	SANDSTONE, a.a. SILTSTONE, predominantly moderate green, soft, very argillaceous, sandy in part; minor light to moderate purple-brown, soft, carbonaceous specks, argillaceous and sandy in part.	0.9 (100:0:0:0:0)
1390 (1.6)	80 20	SANDSTONE, clear to translucent yellow-brown, bluish green, fine to coarse, sub-angular to rounded, moderate sorted, loose quartz grains, greenish blue dispersive glauconitic clay matrix, trace glauconite pellets, friable to loose, good porosity. SILTSTONE, a.a.	0.3 (100:0:0:0:0)

DEPTH (ROP min/m)	%	OERL WILD DOG ROAD 1 CUTTINGS DESCRIPTIONS	TG GAS (%)
1400 (1.7)	100	SANDSTONE, translucent yellow-brown, fine to coarse, sub-angular to rounded, moderate sorted, minor dispersive greenish blue glauconitic clay matrix, trace brown ironstone pellets, good porosity.	0.0 (100:0:0:0:0)
1410 (1.1)	100	SANDSTONE, a.a. – trace clay matrix.	0.0 (0:0:0:0:0)
1420 (1.1)	100	SANDSTONE, translucent yellow-brown (iron stained), fine to coarse, sub-angular to sub-rounded, moderate sorted, some polished, loose quartz grains and minor ironstone pellets, good porosity.	0.0 (100:0:0:0:0)
1430 (1.2)	100	SANDSTONE, a.a. – trace greenish white glauconitic clay matrix, good porosity.	0.0 (100:0:0:0:0)
1440 (1.8)	90 10	SANDSTONE, clear to translucent yellow-brown, fine to coarse, sub-angular to rounded, poor to moderate sorted, trace ironstone grains, trace greenish white dispersive glauconite clay matrix, loose, fair to good porosity. SILTSTONE, yellow-green, greenish blue, purple brown, soft, argillaceous, glauconitic.	0.7 (100:0:0:0:0)
1450 (1.3)	100	SANDSTONE, clear, translucent yellow-brown, fine to coarse, sub-rounded to rounded, moderate sorted, loose quartz grains, trace dark brown ironstone pellets, trace greenish white dispersive clay matrix, good porosity.	4.0 (100:0:0:0:0)
1460 (1.0)	90 10	SANDSTONE, a.a. SILTSTONE, a.a.	5.6 (100:0:0:0:0)
1470 (1.0)	100 Tr	SANDSTONE, a.a. SILTSTONE, a.a.	4.4 (100:0:0:0:0)
1480 (1.0)	90 10	SANDSTONE, a.a. SILTSTONE, a.a.	6.2 (100:0:0:0:0)
1490 (2.0)	90 10	SANDSTONE, a.a. SILTSTONE, a.a.	5.7 (100:0:0:0:0)
1500 (6.3)	40 60	SANDSTONE, a.a. SILTSTONE, moderate to dark grey-brown, soft, very argillaceous, trace carbonaceous material.	3.4 (99:1:0:0:0)
1503 (8.4)	30 70	SANDSTONE, a.a. SILTSTONE, a.a.	3.7 (100:0:0:0:0)
1506 (6.3)	20 80	SANDSTONE, clear to translucent, fine to medium, sub-angular to sub-rounded, moderate sorted, loose quartz grains, trace glauconite pellets. SILTSTONE, dark grey, soft, argillaceous, trace green glauconite pellets.	3.5 (100:0:0:0:0)
1509 (4.0)	50 50	SANDSTONE, a.a. SILTSTONE, a.a.	3.8 (98:2:0:0:0)
1512 (3.8)	20 80	SANDSTONE, a.a. SILTSTONE, a.a. – rare pyrite.	5.0 (100:0:0:0:0)
1515 (4.8)	20 80	SANDSTONE, a.a. SILTSTONE, a.a.	6.0 (99:1:0:0:0)
1518 (3.7)	10 90	SANDSTONE, a.a. SILTSTONE, light grey-brown, moderate to dark brown, soft, argillaceous, common dark green glauconite pellets.	6.0 (98:2:0:0:0)
1521 (3.7)	Tr 100	SANDSTONE, a.a. SILTSTONE, a.a.	6.5 (98:2:0:0:0)
1524 (4.2)	Tr 100	SANDSTONE, a.a. SILTSTONE, dark grey, dark grey-brown, soft to firm, very argillaceous, trace glauconite, rare calcareous bands.	8.5 (98:2:0:0:0)
1527 (5.5)	Tr 100	SANDSTONE, a.a. SILTSTONE, moderate grey-brown, greenish grey, soft, dispersive, argillaceous, common green glauconite pellets.	10.7 (96:3:1:0:0)
1530 (3.6)	100	SILTSTONE, moderate to dark grey-brown to greenish grey, soft, dispersive, argillaceous, glauconitic and sandy in part with very fine to medium sand grains.	10.3 (96:3:1:0:0)
1533 (5.3)	100	SILTSTONE, a.a. – moderate to abundant dark green glauconitic pellets.	9.8 (97:3:0:0:0)
1536 (5.4)	100	SILTSTONE, a.a.	10.0 (96:3:1:0:0)
1539 (6.8)	100	SILTSTONE, a.a.	7.2 (98:2:0:0:0)

DEPTH (ROP min/m)	%	OERL WILD DOG ROAD 1 CUTTINGS DESCRIPTIONS	TG GAS (%)
1542 (5.8)	100	SILTSTONE, a.a. – light to moderate grey to grey-brown, light greenish grey, glauconitic.	9.3 (98:2:0:0:0)
1545 (5.7)	100	SILTSTONE, a.a. – light grey to light greenish grey.	11.3 (98:2:0:0:0)
1548 (5.2)	100	SILTSTONE, a.a.	11.0 (98:2:0:0:0)
1551 (9.3)	100	SILTSTONE, a.a.	9.2 (99:1:0:0:0)
1554 (7.6)	100	SILTSTONE, a.a. – glauconitic.	18.3 (98:2:0:0:0)
1557 (5.4)	100	SILTSTONE, a.a.	9.8 (99:1:0:0:0)
1560 (4.5)	100	SILTSTONE, light to moderate grey to grey-brown, greenish grey, soft, dispersive, argillaceous, glauconitic, minor white to off-white, pale brown, soft to firm, very calcareous.	7.8 (99:1:0:0:0)
1563 (6.3)	100	SILTSTONE, a.a. – moderate to dark grey to grey-brown, greenish grey, minor white to pale brown, very calcareous.	8.8 (99:1:0:0:0)
1566 (6.6)	100	SILTSTONE, a.a. – trace fine to medium sand grains.	12.5 (98:2:0:0:0)
1569 (6.4)	100	SILTSTONE, a.a. – light grey to grey-brown, very argillaceous, soft, light green, argillaceous, glauconitic, sandy in part.	7.3 (99:1:0:0:0)
1572 (6.1)	100	SILTSTONE, predominantly pale grey, soft, argillaceous, some pale greenish grey, soft, argillaceous, some white to pale brown, pale green, argillaceous, glauconitic, sandy in part, very calcareous.	11.5 (99:1:0:0:0)
1575 (6.1)	100	SILTSTONE, a.a.	12.5 (99:1:0:0:0)
1578 (7.1)	100	SILTSTONE, 90% pale grey to occasional pale greenish grey, argillaceous, soft, trace pyrite and glauconite. 10% white to pale brown, very calcareous and grades to marl, trace very fine sand grains.	7.8 (99:1:0:0:0)
1581 (6.3)	100	SILTSTONE, a.a.	10.2 (99:1:0:0:0)
1584 (3.7)	100 Tr	SILTSTONE, a.a. COAL, black, dull to sub-vitreous lustre.	26.0 (99:1:0:0:0)
1587 (4.0)	100 Tr	SILTSTONE, a.a. COAL, a.a.	37.8 (99:1:0:0:0)
1590 (2.0)	90 10	SANDSTONE, clear, fine to medium, occasionally coarse, sub-angular to sub-rounded, moderate sorted, loose quartz grains, rare pyrite, good porosity. SILTSTONE, light to dark brown, firm, coal / carbonaceous material, trace pyrite.	244.3 (100:0:0:0:0)
1593 (2.0)	100 Tr	SANDSTONE, a.a. – fine to coarse, loose, sub-angular to sub-rounded, moderate sorted quartz grains, good porosity. SILTSTONE, a.a.	291.2 (100:0:0:0:0)
1596 (2.0)	100 Tr	SANDSTONE, a.a. – medium to very coarse, mostly coarse, sub-angular to rounded, moderate sorted, loose quartz grains, good porosity. SILTSTONE, a.a.	188.5 (100:0:0:0:0)
1599 (3.9)	90 10	SANDSTONE, clear to translucent white, medium to very coarse, sub-angular to sub-rounded, poor to moderate sorted, loose, clean quartz grains, good porosity. SILTSTONE, light to dark brown, firm, carbonaceous specks, trace pyrite, some greenish grey, moderate to dark grey, firm, glauconitic, calcareous in part.	103.2 (100:0:0:0:0)
1602 (2.9)	90 10	SANDSTONE, a.a. – minor white, fine, moderate to strong calcite cement. SILTSTONE, a.a.	97.2 (100:0:0:0:0)
1605 (3.5)	20 20 60	SANDSTONE, clear to translucent white, fine to coarse, sub-angular, poor to moderate sorted quartz grains, good porosity. SANDSTONE, white, very fine, sub-angular, moderate to well sorted, white argillaceous matrix, very calcareous, friable, poor porosity. SILTSTONE, light to moderate brown, soft to firm, very argillaceous, trace coal and carbonaceous material.	102.3 (100:0:0:0:0)

DEPTH (ROP min/m)	%	OERL WILD DOG ROAD 1 CUTTINGS DESCRIPTIONS	TG GAS (%)
1608 (3.4)	20	SANDSTONE, clear to translucent white, fine to very coarse, sub-angular, poor to moderate sorted quartz grains, good porosity.	51.0 (99:1:0:0:0)
	20	SANDSTONE, white, very fine, sub-angular, moderate to well sorted, white argillaceous matrix, very calcareous, friable, poor porosity.	
	60	SILTSTONE, a.a.	
1611 (2.4)	80	SANDSTONE, clear to translucent white, fine to very coarse, sub-angular, poor to moderate sorted quartz grains, minor white clay matrix good porosity.	33.5 (100:0:0:0:0)
	20	SILTSTONE, a.a.	
1614 (3.6)	70	SANDSTONE, clear to translucent white, medium to very coarse, sub-angular, poor to moderate sorted, loose quartz grains, trace pink and yellow quartzite grains, minor white clay matrix, rare calcite, good porosity.	36.8 (100:0:0:0:0)
	30	SILTSTONE, a.a. – minor green, very argillaceous, soft, glauconitic.	
1617 (1.5)	80	SANDSTONE, a.a.	38.0 (100:0:0:0:0)
	20	SILTSTONE, a.a.	
1620 (1.7)	80	SANDSTONE, a.a.	48.8 (100:0:0:0:0)
	20	SILTSTONE, a.a.	
1623 (1.5)	90	SANDSTONE, clear to translucent white, fine to very coarse, sub-angular, poor to moderate sorted, loose quartz grains, trace clay matrix, minor calcite cement with fine grains, good porosity.	41.7 (100:0:0:0:0)
	10	SILTSTONE, a.a.	
1626 (1.6)	80	SANDSTONE, a.a.	34.5 (100:0:0:0:0)
	20	SILTSTONE, a.a.	
1629 (2.3)	70	SANDSTONE, a.a. – sub-angular to sub-rounded, minor dispersive clay matrix, good porosity.	29.0 (100:0:0:0:0)
	30	SILTSTONE, light to moderate grey to grey-brown, soft, argillaceous, trace pyrite and coal / carbonaceous fragments.	
1632 (4.1)	60	SANDSTONE, a.a. – fine to very coarse, good porosity.	20.2 (100:0:0:0:0)
	40	SILTSTONE, a.a.	
1635 (1.6)	80	SANDSTONE, a.a. – medium to coarse, angular to sub-angular, loose, good porosity.	29.2 (100:0:0:0:0)
	20	SILTSTONE, a.a.	
1638 (2.8)	70	SANDSTONE, a.a.	16.8 (100:0:0:0:0)
	30	SILTSTONE, a.a.	
1641 (5.4)	50	SANDSTONE, a.a. – medium to very coarse, angular to sub-angular, loose, trace pyrite, good porosity.	12.2 (100:0:0:0:0)
	50	SILTSTONE, a.a.	
1644 (6.7)	30	SANDSTONE, a.a. – minor very fine, argillaceous, very calcareous.	10.0 (100:0:0:0:0)
	70	SILTSTONE, a.a.	
1647 (5.3)	20	SANDSTONE, a.a.	11.0 (100:0:0:0:0)
	80	SILTSTONE, moderate to dark grey to grey-brown, greenish grey, soft, very argillaceous, trace carbonaceous material.	
1650 (4.3)	20	SANDSTONE, a.a. – medium to coarse, loose quartz grains, minor very fine, argillaceous, very calcareous, poor porosity.	20.3 (100:0:0:0:0)
	80	SILTSTONE, light brown, light grey, soft, argillaceous, trace carbonaceous material, rare glauconite and pyrite.	
1653 (2.0)	70	SANDSTONE, clear to translucent, fine to very coarse, sub-angular to rounded, poor to moderate sorted, trace pyrite, moderate clay matrix with fine fraction, very calcareous in part, predominantly loose, good porosity.	22.2 (100:0:0:0:0)
	30	SILTSTONE, a.a.	
1656 (2.2)	80	SANDSTONE, clear to translucent white, fine to coarse, sub-angular, moderate sorted, trace pyrite, trace clay matrix, calcareous in part, good porosity.	36.2 (100:0:0:0:0)
	20	SILTSTONE, a.a.	
1659 (1.0)	80	SANDSTONE, a.a.	26.7 (100:0:0:0:0)
	20	SILTSTONE, a.a.	
1662 (1.0)	100	SANDSTONE, a.a. – medium to coarse, sub-angular to sub-rounded, moderate sorted, trace quartz overgrowths, trace clay matrix with finer grains, minor calcite, good porosity.	26.3 (100:0:0:0:0)
	Tr	SILTSTONE, a.a.	
1665 (1.6)	100	SANDSTONE, a.a.	36.7 (100:0:0:0:0)
	Tr	SILTSTONE, a.a.	

DEPTH (ROP min/m)	%	OERL WILD DOG ROAD 1 CUTTINGS DESCRIPTIONS	TG GAS (%)
1668 (1.7)	80 20	SANDSTONE, a.a. – trace calcite, good porosity. SILTSTONE, light grey, soft, argillaceous, trace carbonaceous material, rare pyrite, some white, sandy, calcareous.	41.7 (100:0:0:0:0)
1671 (2.1)	90 10	SANDSTONE, a.a. – predominantly coarse to very coarse, good porosity. SILTSTONE, a.a.	16.8 (100:0:0:0:0)
1674 (2.1)	70 30	SANDSTONE, a.a. SILTSTONE, a.a.	25.2 (100:0:0:0:0)
1677 (3.5)	50 50	SANDSTONE, a.a. SILTSTONE, a.a.	27.8 (100:0:0:0:0)
		Drillers TD of 1678m. reached, 2100hrs 15th December 1999.	

APPENDIX 2

PETROPHYSICS REPORT

Origin energy

PETROPHYSICS REPORT

WILD DOG ROAD 1

PPL 1

OTWAY BASIN

VICTORIA

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Origin Energy Resources Limited
Level 12
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ADELAIDE SA 5000

August 2000

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ENCLOSURES

1.0 INTRODUCTION

The Wild Dog Road 1 exploration well was drilled in PPL-1, onshore Otway Basin, Victoria. The Wild Dog Road structure is an elongate fault dependent closure and forms a mirror image of the North Paaratte gas field. The main southern bounding fault of the structure throws to the south thus juxtaposing the primary objective, the Waarre Sandstone, against the Belfast Mudstone on the downthrown side of the fault. The closure to the north, east and west is by structural dip.

This report documents the methodologies and results of a petrophysical evaluation performed on the Waarre Formation of Wild Dog Road-1. Terrastation petrophysical software was used during the evaluation.

2.0 LOG DATASET

Schlumberger were contracted to provide wireline logs for the Wild Dog Road-1 exploration well. Table 1 provides details of the logging program;

Table 1 - Wild Dog Road 1 Wireline Logging Suite

TABLE 1 - WILD DOG ROAD 1 WIRELINE LOGGING SUITE											
TOOL	DEPTH INTERVAL		CIRCn TIME	BHT	Rm	T-Rm	Rmf	T-Rmf	Rmc	T-Rmc	COMMENT
	Top	Base									
	(mKB)	(mKB)	hrs:min	degC	ohmm	degC	ohmm	degC	ohmm	degC	
PEX(HALS) - BHC	30	1677.21	6:15	57	0.24	28	0.189	26	0.309	20	
FMI-GR	1200	1675.6	11:30	60	0.24	28	0.189	26	0.309	20	
MDT-GR	1589	1635.5	17:15	58	0.24	28	0.189	26	0.309	20	14 Pre-tests, 3 Samples

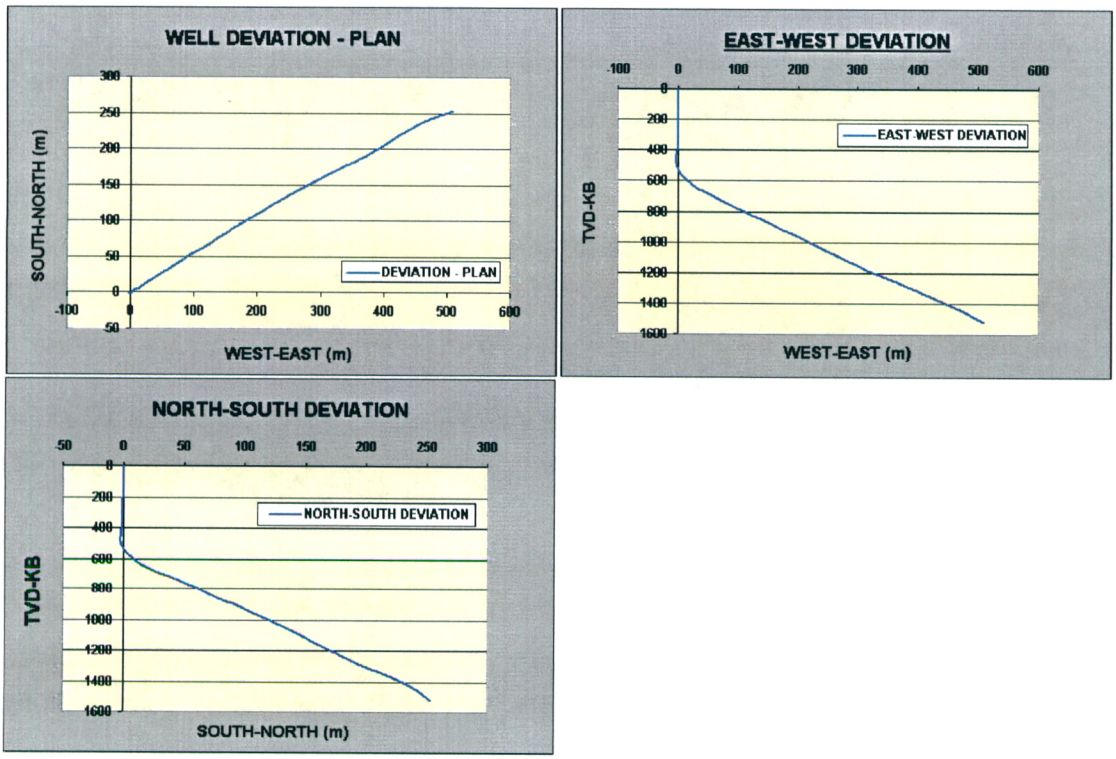
3.0 WELL DEVIATION and TVD

The Wild Dog Road 1 well was deviated 524m to the north-east to intersect the Waarre "C" Sandstone objective. At Total Depth, the well was 565m north-east of the surface location. Well Path control was provided by Sperry Sun MWD equipment. Table 2 provides deviation data. Figure 1 displays well deviation in Plan and in North-South and East-West transects.

Table 2 - Wild Dog Road 1, Well Path Deviation Data

MEASURED DEPTH (KB)	DEVI deg	AZI deg	VERTICAL DEPTH (KB)	LATITUDE m		DEPARTURE m		VERTICAL SECTION	DOG LEG
0	0	0	0	0		0		0	0
404	0.8	229.2	403.99	-1.84	S	-2.14	W	-2.75	0.06
433.37	0.8	227.4	433.35	-2.12	S	-2.44	W	-3.15	0.03
461.89	0.9	224.1	461.87	-2.41	S	-2.74	W	-3.56	0.12
480.92	1	171.9	480.9	-2.68	S	-2.82	W	-3.76	1.33
509.45	5.1	56.5	509.39	-2.23	S	-1.73	W	-2.58	5.89
537.99	9.5	57	537.69	-0.25	S	1.3	E	1.03	4.63
566.54	14.3	59.4	565.62	2.83	N	6.32	E	6.91	5.07
595.07	18.1	63.3	593.02	6.62	N	13.31	E	14.86	4.15
623.61	21.3	58.7	619.88	11.31	N	21.7	E	24.47	3.74
652.08	25.5	60.9	646.01	16.98	N	31.49	E	35.77	4.52
680.54	30.1	59.9	671.18	23.54	N	43.02	E	49.03	4.87
709.03	30.4	59.2	696.79	30.81	N	55.39	E	63.37	0.49
737.56	31.1	61.6	720.31	38.01	N	68.07	E	77.95	1.49
766.05	30.9	61.7	744.73	44.98	N	80.93	E	92.63	0.22
794.49	32	61.6	768.99	52.03	N	94.04	E	107.46	1.16
832.52	31.1	62.1	801.4	61.42	N	111.59	E	127.36	0.74
861.02	30.6	62.4	825.86	68.22	N	124.52	E	141.98	0.55
889.52	32.5	60.9	850.15	75.31	N	137.64	E	156.89	2.16
918.01	32.6	59.9	874.17	82.88	N	150.97	E	172.21	0.58
946.49	31.5	59.5	898.3	90.5	N	164.01	E	187.31	1.18
975.01	32.3	61.8	922.52	97.88	N	177.15	E	202.38	1.53
1003.53	31.4	62.3	946.74	104.94	N	190.45	E	217.43	0.99
1032.04	30.6	61.6	971.18	111.84	N	203.41	E	232.11	0.92
1070.07	31.2	62.7	1003.81	120.96	N	220.67	E	251.64	0.65
1136.63	29.1	62.3	1061.37	136.4	N	250.33	E	285.07	0.95
1174.68	31.5	66.2	1094.22	144.71	N	267.62	E	304.24	2.45
1203.19	32.3	66.2	1118.42	150.79	N	281.4	E	319.26	0.84
1231.69	31.7	65.7	1142.59	156.95	N	295.2	E	334.32	0.69
1260.21	30.8	65.5	1166.97	163.06	N	308.67	E	349.09	0.95
1298.24	33.9	66.9	1199.1	171.26	N	327.29	E	369.37	2.52
1317.23	33.9	66.7	1214.86	175.43	N	337.02	E	379.93	0.18
1345.79	32.9	67.6	1238.7	181.54	N	351.51	E	395.58	1.17
1374.37	33	66.4	1262.63	187.6	N	365.78	E	411.02	0.69
1402.86	34.5	62.1	1286.38	194.5	N	380.06	E	426.87	2.96
1440.84	34	61.3	1317.77	204.63	N	398.88	E	448.24	0.53
1469.35	33.8	60.2	1341.43	212.4	N	412.76	E	464.14	0.68
1497.86	33.7	60.6	1365.14	220.22	N	426.53	E	479.98	0.26
1526.38	32.3	63.9	1389.06	227.46	N	440.27	E	495.5	2.4
1564.39	31	67.2	1421.42	236.72	N	458.41	E	151.4	1.71
1602.38	28.7	69.7	1454.37	242.68	N	475.99	E	534.18	2.06
1659.39	26.9	73.6	1504.8	251.07	N	501.2	E	560.37	1.35
1679	26.3	75	1521.44	253.32	N	509.22	E	568.51	1.4

Figure 1 - Well Path Deviation Diagrams



4.0 DEPTH MATCHING

The Platform Express Tool provides real time, depth matched logs. The Dipmeter and MDT tools were depth matched to the PEX logs.

5.0 ENVIRONMENTAL CORRECTIONS

5.1 Resistivity Logs

The Laterolog Resistivity Tools were environmentally corrected using standard correction algorithms taken from the Schlumberger chartbook. The RXO was corrected using chart Rxo-3 whilst the HLLS and HLLD were corrected using chart Rcor-2.

In order to determine True Formation Resistivity (Rt), Invaded Zone Resisitivity (Rxo) and Invasion Diameter (DI), Tornado Chart Rint-9a was applied.

5.2 Gamma Ray Log

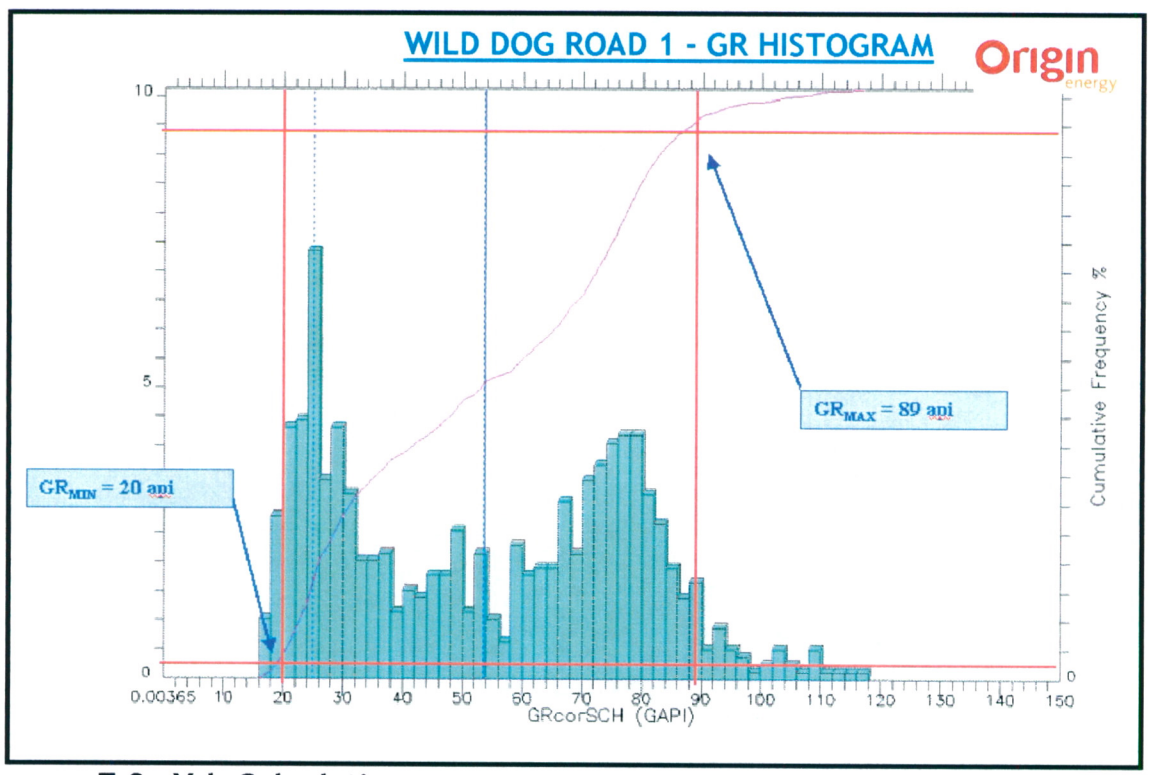
Environmental Correction to the Gamma Ray log was performed using the Schlumberger correction algorithm in Terrastation.

7.0 VOLUME OF SHALE

7.1 Gamma-Ray Cut-Offs

Volume of Shale was determined using the environmentally corrected Gamma-Ray Log. GR clean and GR shale cutoffs were determined by picking the 5% and 95% values on a Gamma Ray histogram (Figure 2). The histogram was restricted to the Waarre Formation (Units A to D).

Figure 2 - Wild Dog Road 1 Waarre Fm, GR Histogram



7.2 Vsh Calculation

Six methods of Vsh calculation, 3 linear and 3 non-linear, have been tested on the wells of the Port Campbell Embayment. The results of these Vsh calculations were analysed and comparisons made against core and mudlog descriptions. The conservative Linear Clavier function was chosen to represent Volume of Shale for the wells of the Port Campbell Embayment.

CLAVIER

$$Vsh_{CLAVIER} = 1.7 - \left[3.38 - \{[Vsh_{LINEAR}] + 0.7\}^2\right]^{0.5}$$ Equation 1

Where; GR_{LOG} = Environmentally Corrected Gamma Ray Log Value

GR_{CLEAN} = Gamma Ray Clean Sand Value

GR_{SHALE} = Gamma Ray Shale Value

The resulting Clavier Vsh log at Wild Dog Road 1 can be seen in Figure 9.

8.0 Porosity

8.1 Density Porosity

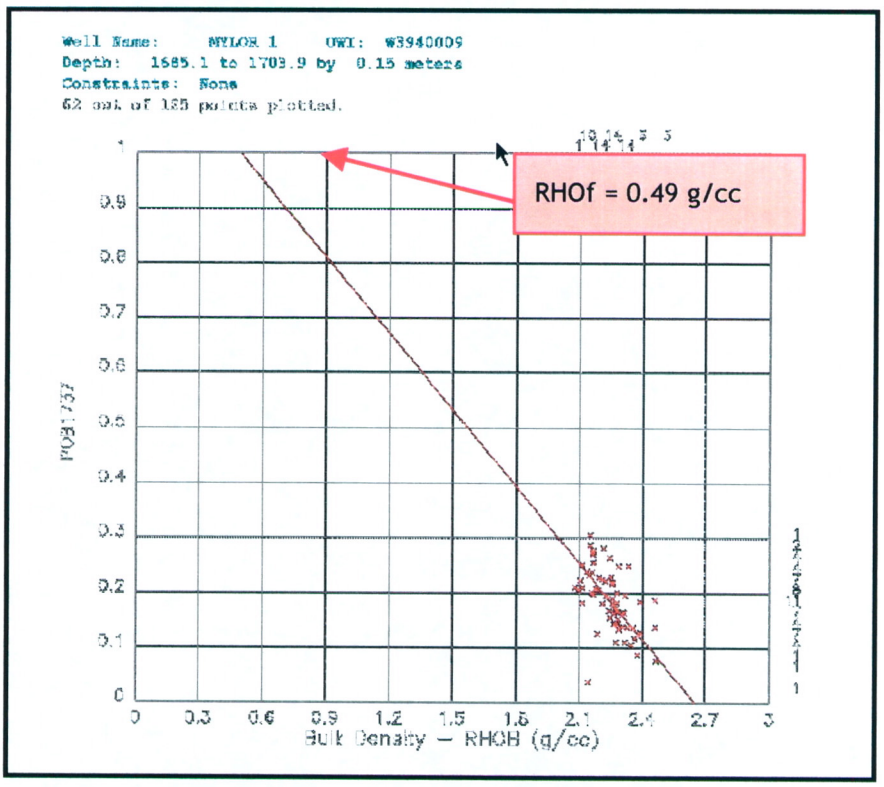
8.1.1 Mean Grain Density

In the absence of core data at Wild Dog Road 1, Mean Grain density for the Waarre "C" was determined from a histogram of core grain density from wells drilled in the Port Campbell Embayment. A substantial database of Waarre "C" core exists, including Mylor 1, North Paaratte 2, Skull Creek West 1, Iona 1, Langley 1 and Braeside 1. An arithmetic Mean Grain Density (RHOg) of 2.675gm/cc was calculated for the Waarre C Sandstone and was used in subsequent Density Porosity calculations.

8.1.2 Fluid Density

Fluid Density was determined by fixed point regression of Bulk Density (RHOB) vs Overburden Core Porosity (POB) for water and hydrocarbon zones. Figure 3 shows the Gas Zone RHOf crossplot for Mylor 1.

Figure 3 - Mylor 1 Gas Density Crossplot



Overburden Porosity at EQHS Pressure of 1737psi was crossplotted against RHOB (Bulk Density). At zero porosity, RHOB is equal to a RHOg of 2.675g/cc (determined previously from RHOg Histogram). This point provides a fixed point for the regression (2.675,0). If the regression line is extrapolated to a porosity of 1, this point represents the fluid density of the zone. In this case, the fluid density of the gas zone is 0.49 g/cm^3.

8.3 Neutron Porosity

8.3.1 Matrix Correction

TNPHI was corrected to sandstone units using the Schlumberger Por13a algorithm within Terrastation. The result of the correction can be seen in track 7 of Figure 9.

8.3.2 Shale Correction

The objective of the neutron shale correction is to provide a neutron porosity curve which tracks density porosity over varying degrees of shaliness. Density Porosity in shales is assumed to be a reasonable approximation to actual shale total porosity.

Density Porosity of shale and Neutron Porosity of shale was determined by crossplotting Density Porosity vs Vsh (Figure 4) and Neutron Porosity vs Vsh (Figure 5).

Figure 4 - Density Porosity vs V-shale

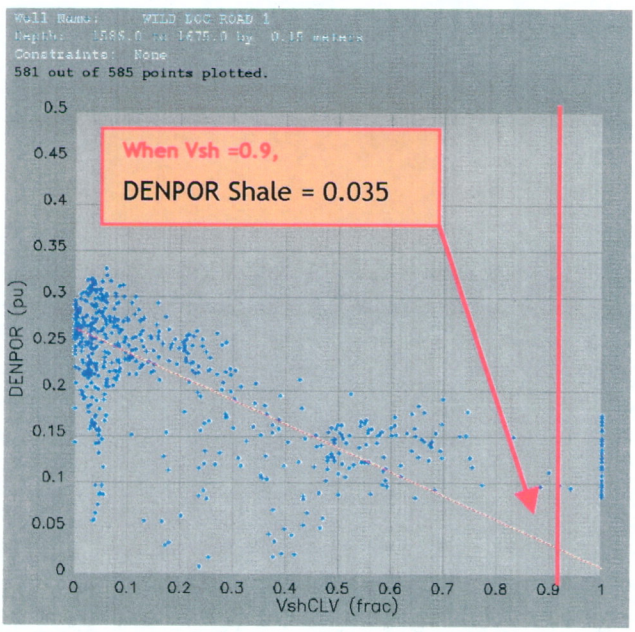
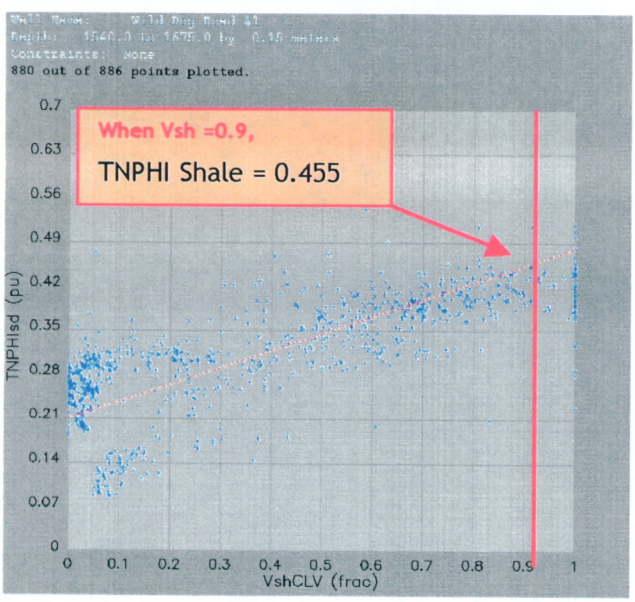


Figure 5 - Neutron Porosity vs V-shale



The difference between the higher neutron porosity and density porosity in shales provides the correction for neutron porosity to track density porosity as shale increases. Therefore in the case of Wild Dog Road 1, the equation for shale corrected Neutron Porosity is;

$$NPSC = NPHI - Vsh(NPHI_{SHALE} - DENPOR_{SHALE})$$
$$NPSC_{WILDDOGROAD1} = NPHI - Vsh(0.455 - 0.035)$$

Equation 2

Where;

NPSC	-	Neutron Porosity Shale Corrected
NPHI	-	Neutron Porosity (Matrix Corrected)
Vsh	-	Volume of Shale (Clavier)
$NPHI_{SHALE}$	-	Neutron Porosity at 90% Shale
$DENPOR_{SHALE}$	-	Density Porosity at 90% Shale

8.3.3 Neutron Porosity Core Calibration

Ideally, Neutron Porosity should be calibrated with core. However, core was not acquired at Wild Dog Road 1. Therefore, instead of calibrating NPSC with core, it was calibrated with Density Porosity. The crossplot (Figure 6) shows a fixed point regression of shale corrected neutron porosity with density porosity.

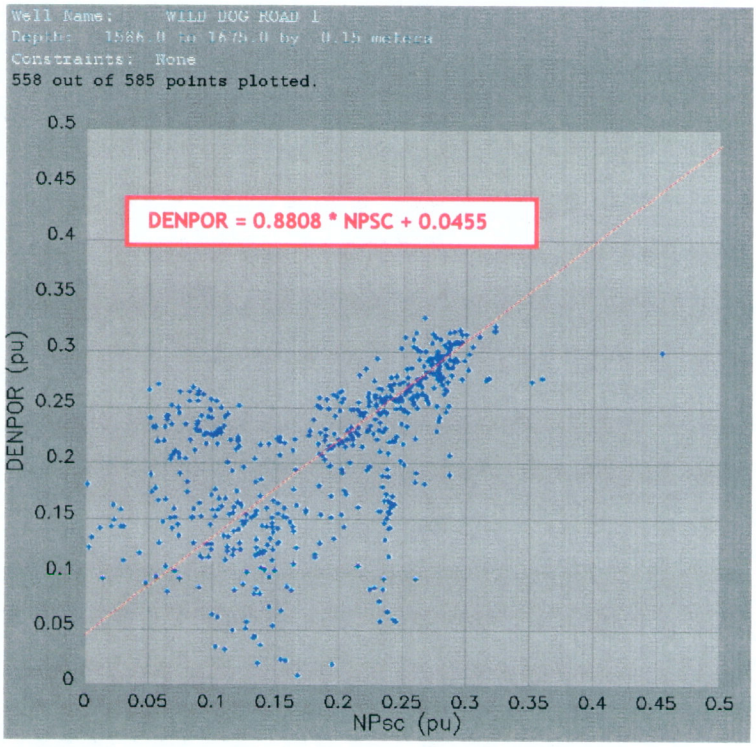
The fixed point is NPSC = NPMX (Neutron response to zero porosity clay free matrix) when Density Porosity is equal to zero. In order to find NPMX, the petrological analysis of core in Mylor 1 and Skull Creek West 1 was examined. For each sample analysed by the petrographer, the percentage of each component identified was multiplied by its Neutron response as quoted in the Schlumberger chartbook. These component responses were summed and averaged to get a final NPMX. Table 3 shows this procedure;

Table 3 - Mylor 1 NPMX from Petrology

TABLE 9 - MYLOR 1 NPMX from PETROLOGY															SUM	SUM
Sample DEPTH	COMPONENT FRACTION	Fqz fr	Ffld fr	Flth fr	Fmica fr	Fglc fr	Facc fr	Mcly fr	Mmud fr	Mopq fr	Mqz fr	Mpyr fr	Mkao fr	Mcrb fr	COM-PONENTS	NEUTRON RESPONSE
	CNL pu	-0.04	-0.03	-0.02	0.12	0.13		0.36		0.40	-0.04	-0.03	0.36	-0.01		
1681.5	COMPONENT (fr)	0.78	0.12	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.02	0.00	0	1	
	NEUT RESPONSE	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0		-0.03
1686.2	COMPONENT (fr)	0.81	0.09	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.06	0	1	
	NEUT RESPONSE	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0		-0.01
1688.6	COMPONENT (fr)	0.81	0.06	0.01	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.06	0	1	
	NEUT RESPONSE	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0		-0.01
1690.4	COMPONENT (fr)	0.81	0.10	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.06	0	1	
	NEUT RESPONSE	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0		-0.01
1692.2	COMPONENT (fr)	0.91	0.05	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0	1	
	NEUT RESPONSE	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0		-0.04
1696.1	COMPONENT (fr)	0.83	0.06	0.01	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.06	0	1	
	NEUT RESPONSE	-0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0		0.00
1698.2	COMPONENT (fr)	0.70	0.06	0.02	0.00	0.00	0.00	0.06	0.00	0.02	0.01	0.06	0.06	0	1	
	NEUT RESPONSE	-0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.02	0		0.02
1700.3	COMPONENT (fr)	0.82	0.06	0.01	0.00	0.00	0.00	0.04	0.00	0.01	0.00	0.02	0.04	0	1	
	NEUT RESPONSE	-0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0		-0.01
1701.2	COMPONENT (fr)	0.82	0.07	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.06	0	1	
	NEUT RESPONSE	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0		-0.01
1702.4	COMPONENT (fr)	0.73	0.07	0.11	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.01	0.03	0	1	
	NEUT RESPONSE	-0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0		-0.01
1705.4	COMPONENT (fr)	0.76	0.06	0.07	0.00	0.00	0.00	0.04	0.00	0.01	0.01	0.01	0.04	0.00117	1	
	NEUT RESPONSE	-0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	-1E-05		0.00
1708.4	COMPONENT (fr)	0.75	0.13	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.12563	1	
	NEUT RESPONSE	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	-0.0013		-0.01
AVERAGE																-0.01

AVERAGE NPMX
=>FIXED POINT is (-0.01,0)

Figure 6 - Neutron Porosity (Shale Corrected) Density Porosity Calibration



$$NPSCcore = 0.8808 \times NPSC + 0.0455$$ Equation 3

8.3.4 NEUTRON POROSITY SUMMARY

The above procedure provides a matrix and shale corrected neutron porosity which mimics density porosity but which deviates in the opposite sense when either fluids or matrix properties impair density porosity (Figure 9).

8.4 DENSITY-NEUTRON POROSITY (SHALE CORRECTED)

The density tool responds primarily to matrix and requires constant matrix densities to indicate pore fluids. The neutron tool responds primarily to fluids. Fortunately, most minerals and fluids which cause density porosity to under calculate, cause shale corrected neutron porosity to over calculate. Density-Neutron porosity reduces grain density error to less than half because dense minerals tend to have positive hydrogen indices, partially cancelling the error.

Gas zones can be most effectively evaluated by utilising the opposing effect which gas has on the density and neutron tools ("gas effect"). To calculate Density-Neutron porosity the following equation was used;

$$\Phi DN = \sqrt{\frac{\Phi D^2 + \Phi N^2}{2}}$$ Equation 4

Where;

ΦDN	=	Density-Neutron Porosity
ΦD	=	Density Porosity
ΦN	=	Shale Corrected, Core Calibrated Neutron Porosity

8.4.1 DENSITY-NEUTRON POROSITY - CORE CALIBRATED

To calibrate Density-Neutron porosity to overburden core porosity, two crossplots of Overburden Porosity vs Density-Neutron Porosity were made using core data from the Port Campbell Embayment (Figures 7 and 8). The first plotted these two parameters over the identified gas zones only whilst the second was restricted to the water zones.

The inset tables show the regression derived equations used to calibrate Density-Neutron Porosity to core. To calibrate Neutron-Density porosity at Wild Dog Road 1 where no core was available, the composite multiwell equation was used.

Core Calibrated Density Neutron-Porosity appears in Red in Track 7 of Figure 9. Above the GWC, the gas zone equation was used whilst below the GWC the water zone equation was used.

Figure 7
Multiwell X-plot, Density-Neutron Porosity vs Core Overburden Porosity (Gas Zone)

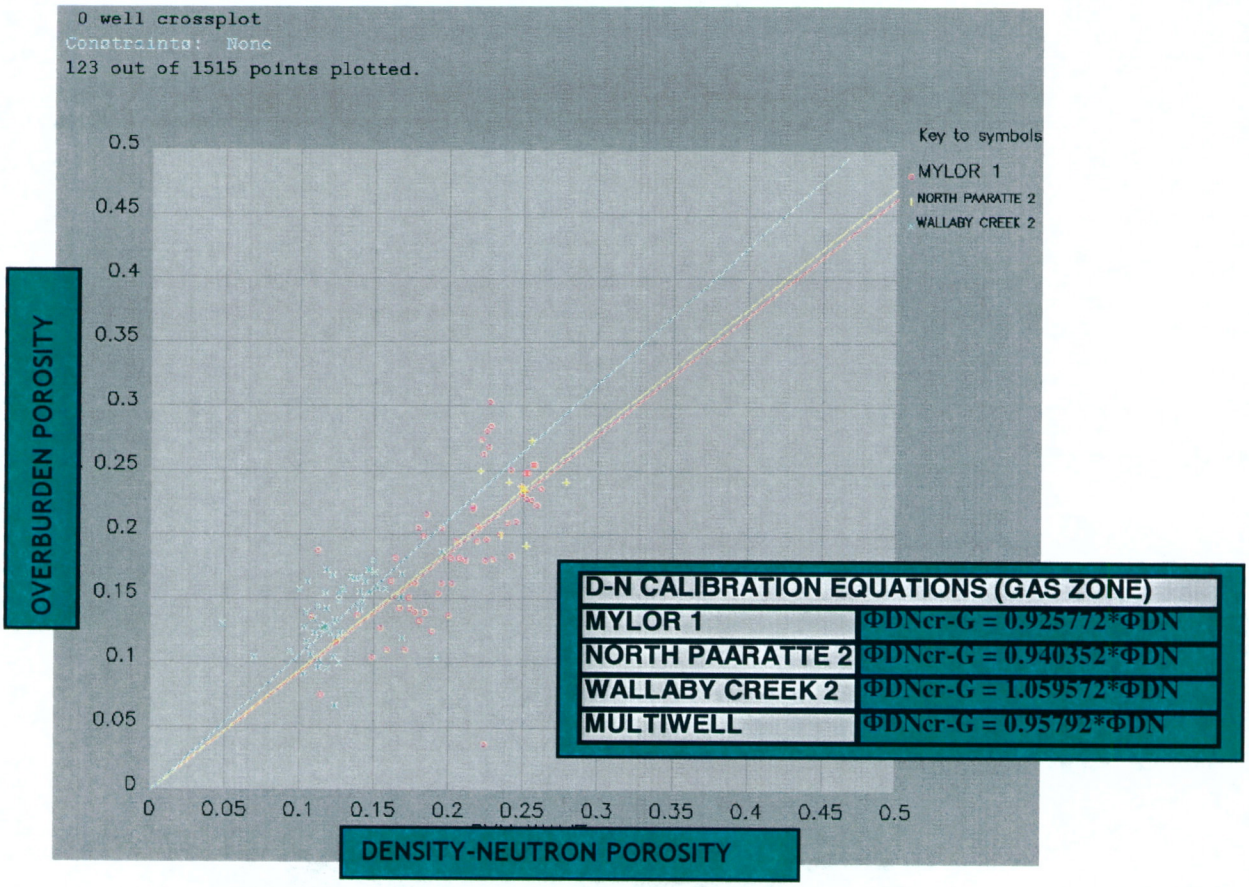
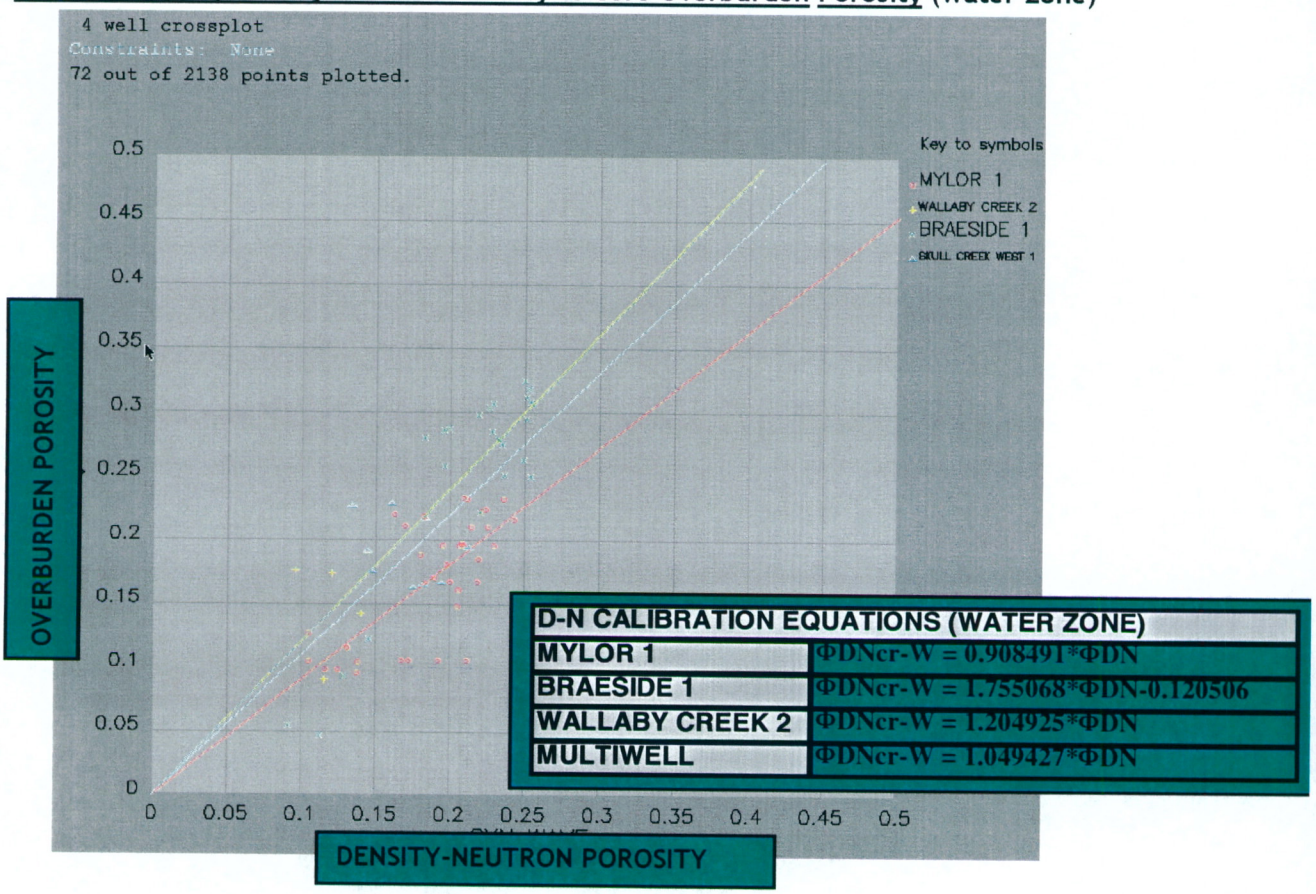


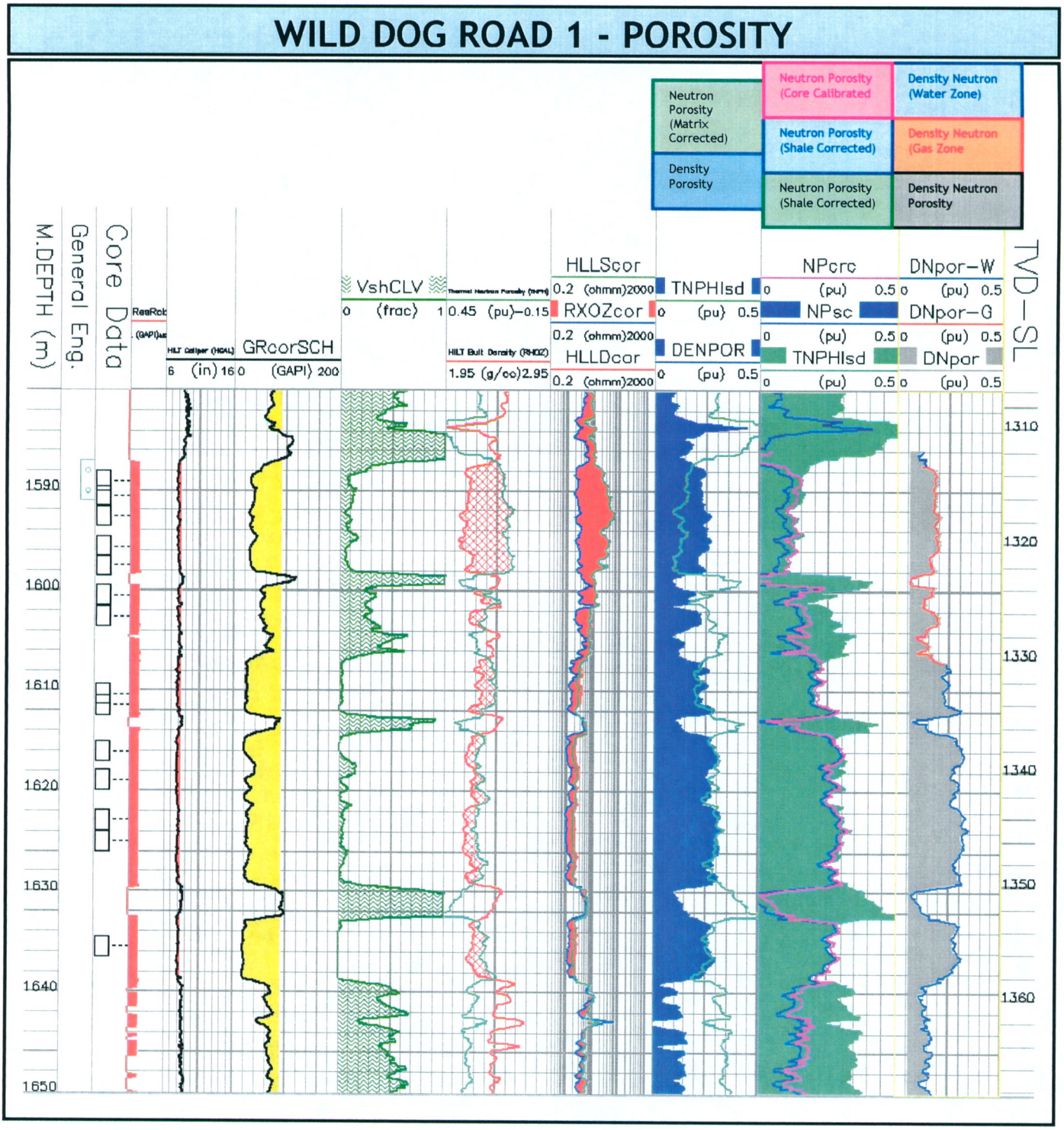
Figure 8
Multiwell X-plot, Density-Neutron Porosity vs Core Overburden Porosity (Water Zone)



8.5 BADHOLE POROSITY

Hole enlargement above 10.5 inches (HCAL) or DRHO values greater than 0.1 and less than -0.1 were used to flag badhole. Over the Waarre Formation interval, none of the criteria for badhole were met and it was un-necessary to substitute Sonic Porosity or V-Shale Porosity backups.

Figure 9 - Wild Dog Road 1 Porosity Composite



9.0 WATER SATURATION (Sw)

9.1 ARCHIE APPARENT WATER RESISTIVITY (Rwa)

Apparent water resistivity (Rwa) is calculated from the Archie equation with Water Saturation (Sw) set at unity;

$$Sw^2 = \frac{a \times Rw}{\Phi^m \times Rt}$$

Equation 5 (Archie)

Therefore, when Sw=1 (ie. 100% Water Saturated Formation), the Equation becomes;

$$1^2 = \frac{a \times Rwa}{\Phi^m \times Rt}$$

$$Rwa = \frac{\Phi^m \times Rt}{a}$$

Equation 6 (Rwa)

Where;

Sw	=	Water Saturation (frac)		Rw	=	Water Resistivity	
a	=	Tortuosity Factor		Rwa	=	Apparent Water Resistivity	
Φ	=	Porosity (pu)		m	=	Cementation Exponent	
Rt	=	True Formation Resistivity					

9.1.1 Pickett Plots

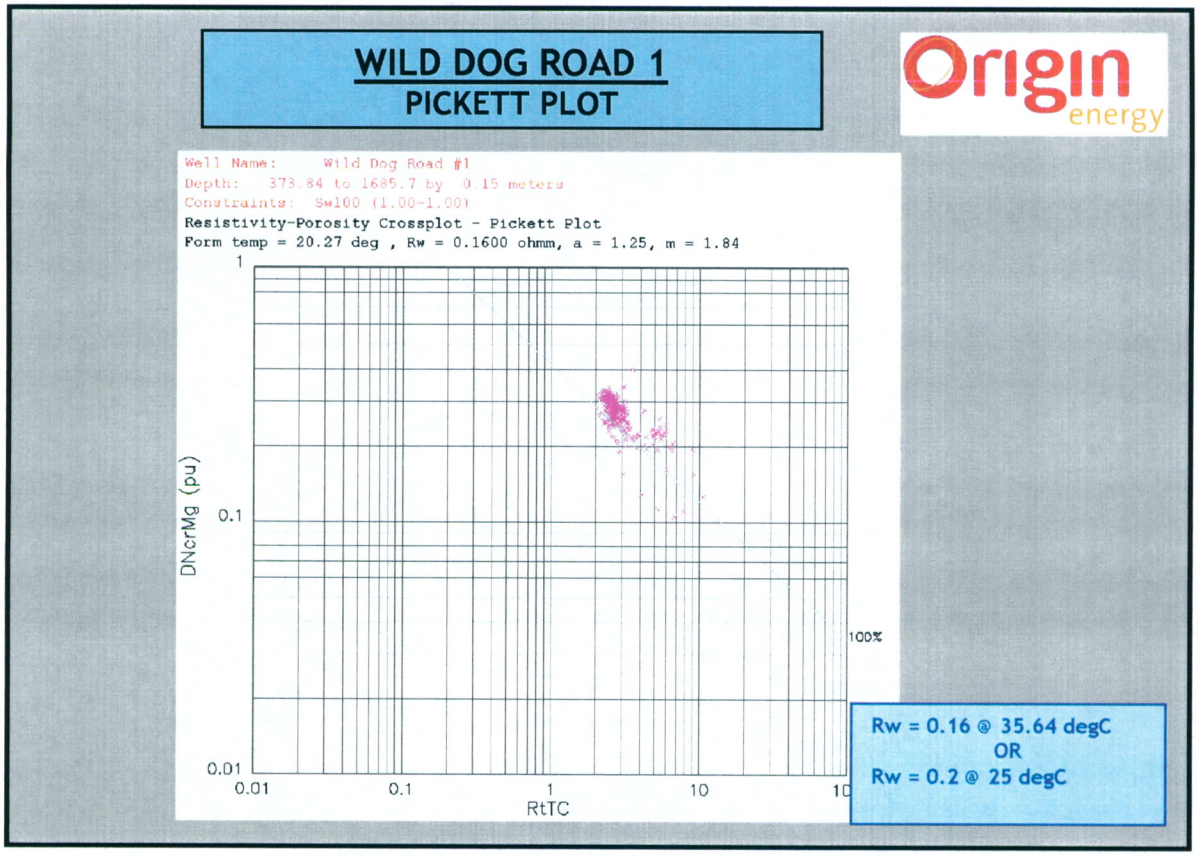
Pickett Plots were used to determine Rwa. However, before Rt could be plotted against Porosity, a number of steps needed to be taken;

1. Rwa assumes 100% water saturated reservoir. A Pickett plot of 100% water saturated sands only is much safer than a minimum Rwa from Pickett plots. In order to plot only wet sands, total gas, and cuttings and show descriptions were examined to ensure intervals were in fact fully saturated.

2. Resistivity varies with temperature. To eliminate temperature error in the Resistivity tool, True Formation Resistivity (Rt) was corrected to a temperature of 35.6°C using the Arps equation.

Following these two steps, temperature corrected resistivity (RtTC) was plotted against porosity for water saturated sands only. Figure 10 shows the resulting Pickett plot for Wild Dog Road 1;

Figure 10
Pickett Plot - Waarre Formation, Wet Sands



The regression line which achieved the best fit for the Wild Dog Road1 Pickett plot had a, Rw and m parameters of;

a	=	1.25
Rw	=	0.16Ωm @ 35.6 °C (or 0.2Ωm at 25 °C)
m	=	1.84

Pickett plots for the wells North Paaratte 2, North Paaratte 4, North Paaratte 5, Wallaby Creek 1, Grumby 1, and Braeside 1 have been made previously. Good fits were achieved with each of these Pickett Plots using the above values of a, Rw and m.

9.1.2 RECOVERED FORMATION WATER RESISTIVITY

Independent confirmation of Rw was achieved by examining formation water recoveries from PPL1. The Rw required is from water in the hydrocarbon zone but pore water in this zone is immovable and cannot be flowed to the surface. Water from the aquifer may have been flushed following hydrocarbon emplacement with salinities unrelated to immovable water in the hydrocarbon zone. The transition zone is less likely to have been effected by aquifer flushing and provides the water sample of choice.

It is extremely important to understand the source of each water sample, its acquisition method and therefore whether it is likely to be representative of the hydrocarbon zone. Generally, well tests are the best sources of Rw

because of the large volumes of produced water which dilute contaminants. However, well tests may suffer from aquifer contamination and behind casing flows. Alternatively, wireline samples, whilst not sampling large volumes, can produce representative samples. Figure 11 and Table 4 lists all water samples obtained and their acquisition details.

Figure 11 shows that there is little reliable water analysis from which to determine Rw. Water samples from DST appear contaminated where significant volumes were produced. An RFT at Fenton Creek 1 (SANTOS, PEP 108) recovered a water sample from a large chamber with a Rw of 0.2 at 25°C. This is consistent with values of Rw derived from Pickett plots (Chapter 10.1).

Figure 11 - Waarre Formation Water Analysis

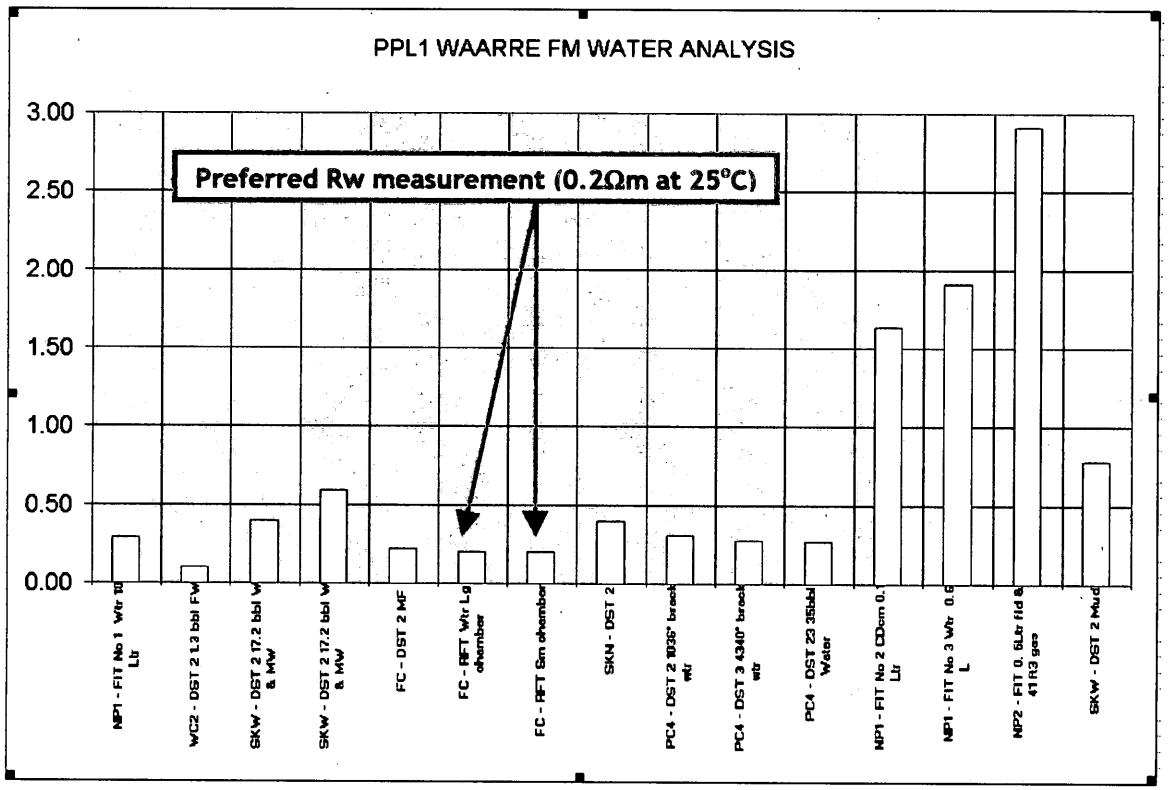


Table 4 - Waarre Formation Water Analysis

PPL1 WAARRE FM WATER ANALYSIS					
Well	Comment	DEPTH m MDKB	Rw @ 25degF	Source	Comment
North Paaratte 1	NP1 - FIT No 1 Wtr 10 Ltr	1494	0.29	DME Vic	Water Sample from FIT No 1 (4902 ft) 10 Litres
Wallaby Creek 2	WC2 - DST 2 1.3 bbl FW	1510	0.10	DST 2	
Skull Creek West 1	SKW - DST 2 17.2 bbl W & MW	1311	0.40	DST 2 sample 3	Water Sample
Skull Creek West 1	SKW - DST 2 17.2 bbl W & MW	1311	0.69	DST 2 sample 2	Water Sample
Fenton Creek 1	FC - DST 2 MF	1574	0.22	DST 2, Sample 9	Mud Filtrate
Fenton Creek 1	FC - RFT Wtr Lg chamber	1662	0.20	RFT Sample 1	Water Sample, 1662m, Lg Sample
Fenton Creek 1	FC - RFT Sm chamber	1665	0.20	RFT Sample 2	Small sample chamber
Skull Creek North 1	SKN - DST 2	1280	0.40	DST 2	
Port Campbell 4	PC4 - DST 2 1036' brack wtr	1612	0.31	DST2	1036' brackish water (+90' mud and water)
Port Campbell 4	PC4 - DST 3 4340' brack wtr	1625	0.28	DST 3	90' rhm, 180' mcw, 4340' brackish water
Port Campbell 4	PC4 - DST 23 35bbl Water	1604	0.27	DST 23	35BBL Water swabbed
North Paaratte 1	NP1 - FIT No 2 CDcm 0.1 Ltr	1460	1.64	DME Vic	Sample from FIT No 2 100mL Condensate cut mud
North Paaratte 1	NP1 - FIT No 3 Wtr 0.6 L	1456	1.91	DME Vic	Water Sample from FIT No 3 (4778ft) 0.6 L
North Paaratte 2	NP2 - FIT 0. 6Ltr fld & 41 ft3 gas	1481	2.91		FIT at 1481m, 600mL of fluid and 41 cuft gas
Skull Creek West 1	SKW - DST 2 Mud	1311	0.78	DST 2 sample 4	Mud Sample

9.2 SATURATION EXPONENT "n"

Electrical resistivities of partially saturated plugs were measured during Special Core Analysis performed on 7 plugs from Braeside 1 and North Paaratte 2. Resistivity Index values were calculated and the results tabulated below.

Table 5 - SCAL Saturation Exponent "n"

TABLE 16 - SCAL SATURATION EXPONENT "n"						
	SAMPLE	K	POR	FF	Sw	RI
NORTH PAARATTE 2	2H	1170	0.232	11.5	1	1
					0.693	1.97
					0.512	3.4
					0.395	5.42
					0.309	8.5
NORTH PAARATTE 2	5H	587	0.251	9.9	1	1
					0.673	1.98
					0.561	2.75
					0.483	3.55
					0.446	3.94
BRAESIDE 1	1	529	0.258	10.3	1	1
					0.875	1.25
					0.614	2.41
					0.475	3.71
					0.411	4.38
					0.352	6.62
					0.276	10.8
BRAESIDE 1	8	2770	0.283	8.3	1	1
					0.941	1.12
					0.405	5.29
					0.248	12.1
					0.224	14.8
					0.189	23.8
					0.153	31.6
BRAESIDE 1	11	5860	0.274	9.5	1	1
					0.868	1.3
					0.271	10.5
					0.192	17.1
					0.182	18.4
					0.169	21.7
					0.143	26.8
BRAESIDE 1	20	270	0.249	11.1	1	1
					0.902	1.21
					0.615	2.34
					0.502	3.65
					0.438	4.76
					0.367	6.26
					0.219	16.9
BRAESIDE 1	23	4420	27.2	9.2	1	1
					0.821	1.43
					0.325	6.83
					0.26	9.61
					0.224	13.1
					0.186	22.5
					0.153	28.8

Resistivity Index is defined as the ratio of Rt and Ro;

$$RI = \frac{Rt}{Ro}$$ Equation 7

and is related to Sw by the equation;

$$RI = \frac{Rt}{Ro} = Sw^{-n}$$ Equation 8

Taking the LOG of both sides gives;

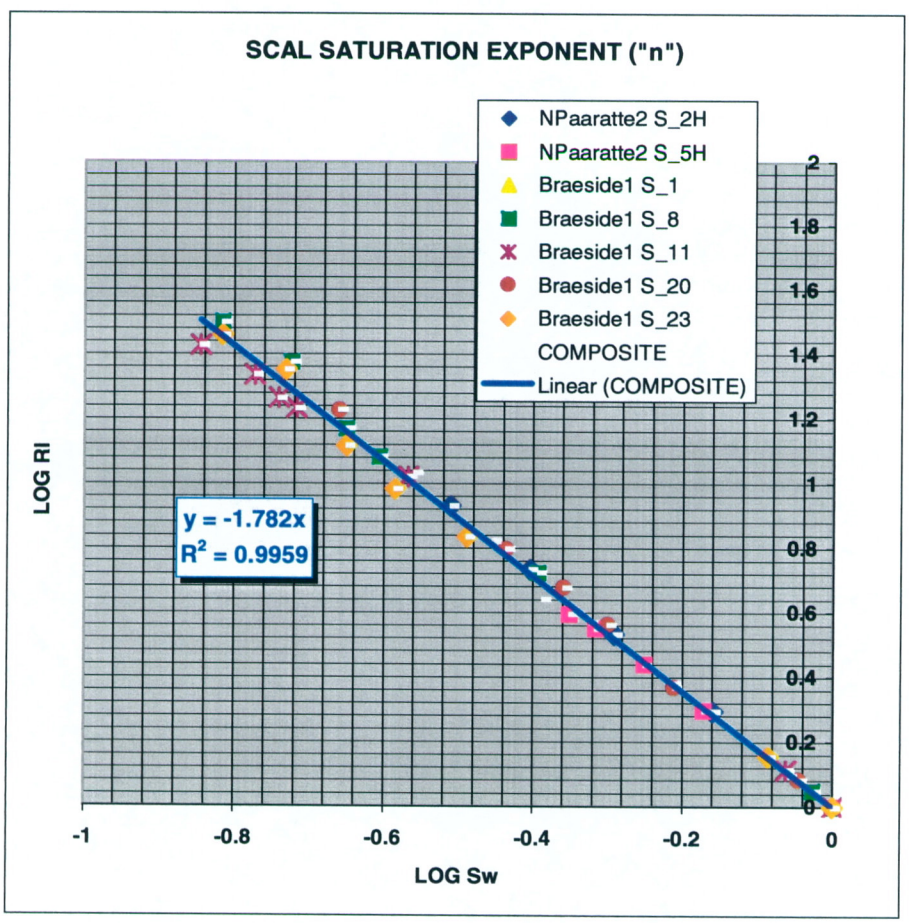
$$LOG(RI) = LOG(Sw^{-n})$$
$$LOG(RI) = -n * LOG(Sw)$$

Equation 9

Therefore, by plotting the log of Resistivity Index against the log of Sw, the slope of the regression line is the value of "n" (Figure 12).

The regression line in figure 12 has a slope or "n" value of 1.782. The regression has a 99% correlation, suggesting that "n" does not vary systematically with overburden. Therefore it is inappropriate to vary "n" from the ambient SCAL measurements.

Figure 12 - Saturation Exponent



9.3 Sw100 PLOTS

In order to confirm the derived resistivity equation parameters of a, Rw, m and n, Archie Water Saturation was calculated in the previously defined 100% water saturated zones (Sw100). A result of Sw equal to 1 in these zones would confirm that these parameters were correct. Figure 13 shows Archie Water Saturation in the Sw100 zones of Wild Dog Road 1;

Figure 13 - Archie Water Saturation in Sw100 Zones at Wild Dog Road 1

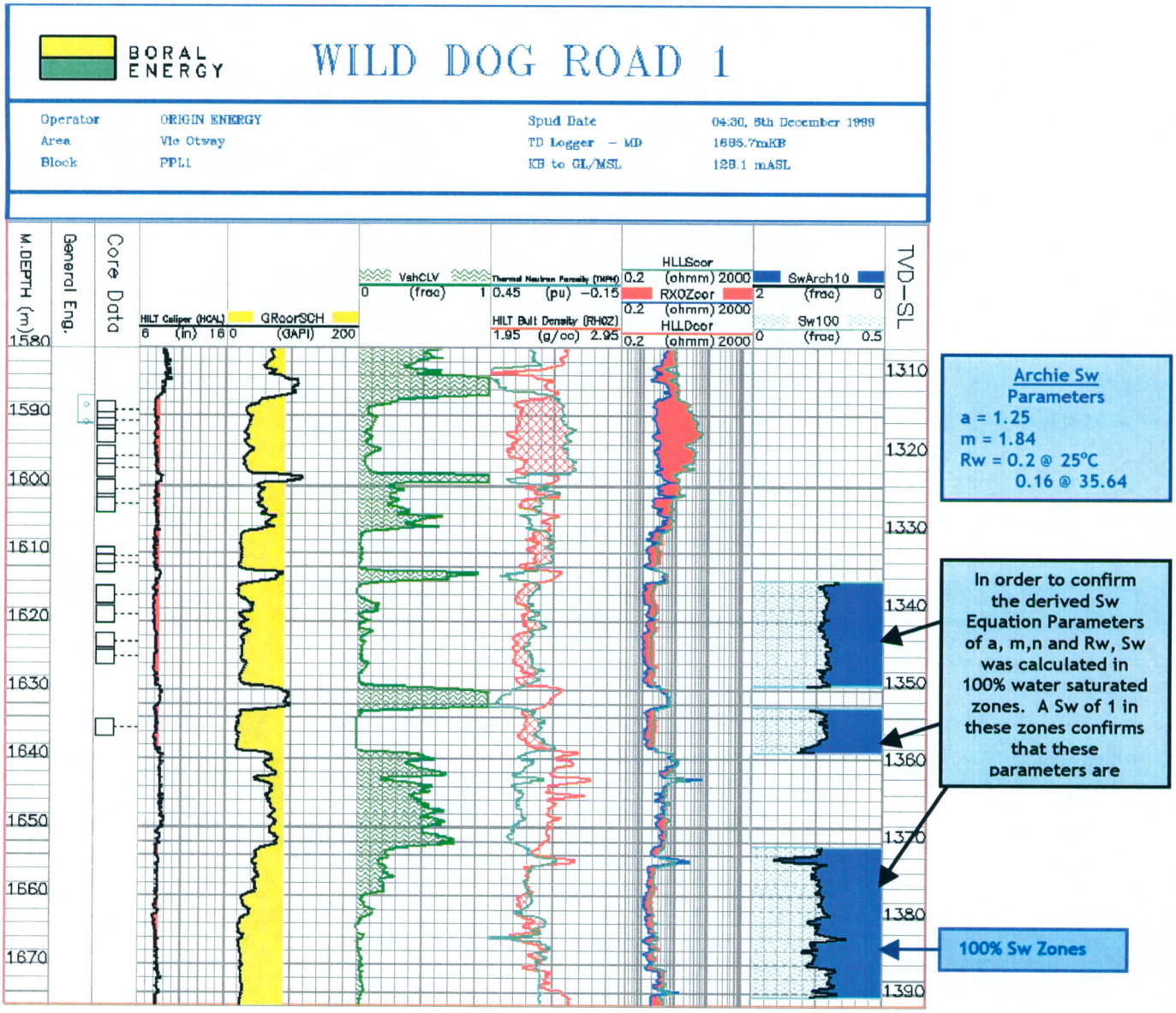
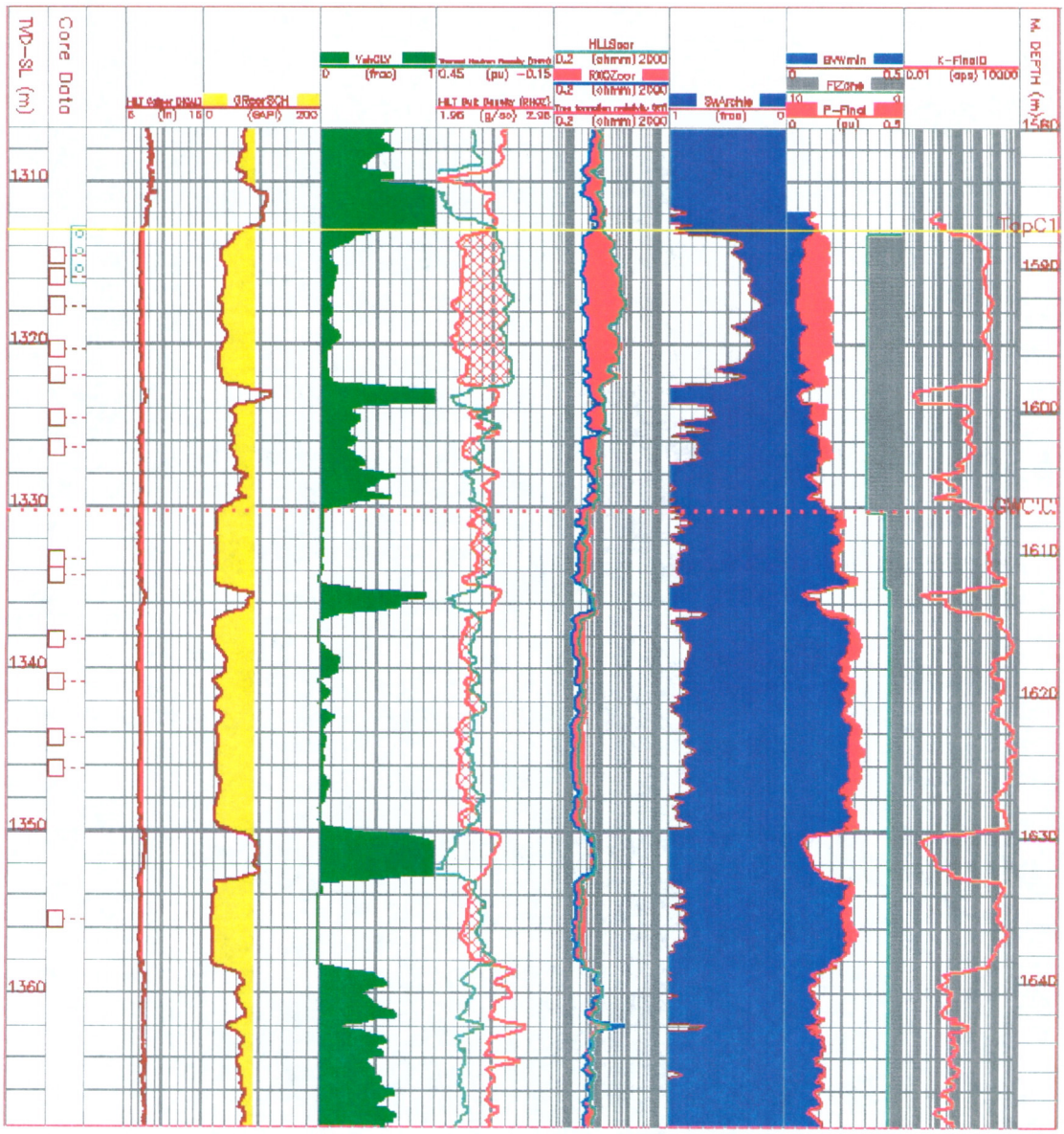


Table 6 - Sw Equation Parameters.

Sw Equation Parameter	Value
a	1.25
m	1.84
n	1.782
Rw	0.2 @ 25degC

Following confirmation of these values, Archie water saturation was run over the entire Waarre Formation interval in Wild Dog Road 1. Calculated Water Saturation for Wild Dog Road 1 is shown in track 7 of figure 14. Track 8 shows Water Saturation and Gas Saturation as a fraction of overall porosity (Bulk Volume Water and Bulk Volume Gas);

Figure 14 - Archie Water Saturation, Wild Dog Road 1



9.4 FLUID ZONE CLASIFICATION

Fluid zone classification determines whether or not calculated hydrocarbons will be included in Net Pay and Volumetric calculations. During the classification process, horizontal slices of formation containing different fluids are identified. Fluid Zone categories are;

Gas Zone
Oil Zone
Transition Zone
Residual Oil Zone and water encroachment Zone
Water Zone

Initially, the fluid zone classification was done without reference to RFT pressure data. Instead, fluid zones were defined by reference to;

Resistivity response
Neutron-Density separation
Calculated Sw and Bulk Hydrocarbon Volume.
Lithlog/Mudlog Cut, Fluorescence, Stain, Chromatograph
Produced fluids from DST and RFT

Current, Original and Palaeo Gas-Water contacts, or Original Gas Down To and Original Water Up To, were deduced from the above information and tabulated (Table 7). At this stage no reference was made to RFT derived contacts.

Table 7 - Wild Dog Road 1 Fluid Zone Table

WILD DOG ROAD 1			
KB	128.1		
FLUID ZONE	MD	TVDSS	
Top Reservoir	1587	1312.8	
Current GWC	1606.5	1330.3	
Original GWC			
Palaeo GWC			
Palaeo GDTo	1612.5	1335.1	
Palaeo WUTo	1614	1336.6	
RFT GWC	1606.5	1330.3	
Original OWC			
COMMENT	MDT @ 1602.5 gas sampled in 1 gallon chamber	1326.3	
	MDT @ 1592.5 gas sampled in 1 gallon chamber	1317.6	
	Clean Up Flow From Perfs 1587-1592	1312.8-1318	
SUMMARY	GWC is interpreted at 1330.3 mSS.		

Fluid Zone 1	1614-1677	1336.6-1392.3	Water Zone
Fluid Zone 1.5	1606.5-1612.5	1329.8-1335.1	Palaeo Gas Column
Fluid Zone 2	x	x	Oil Zone
Fluid Zone 3	1587-1606.5	1312.8-1329.8	Gas Zone

In Wild Dog Road field, it was found that the original Gas-Water contact identified by this methodology was entirely consistent with the Gas-Water contact suggested by the RFT pressure data. The final agreed GWC was 1330.3mSS.

10.0 PERMEABILITY

10.1 Poro-Permeability (K-Φ)

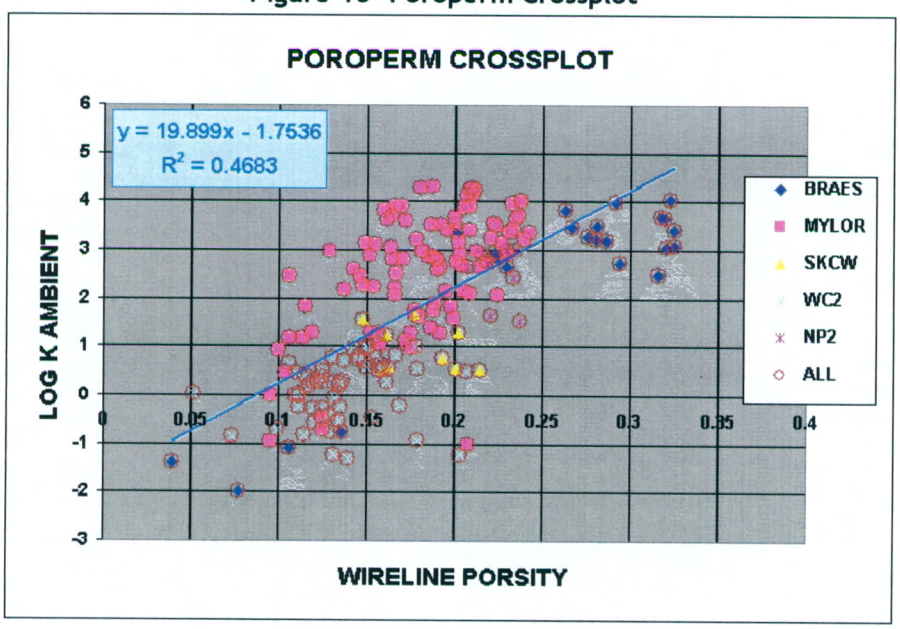
The traditional permeability predictor is porosity. The advantages of porosity are;

Relatively well defined by log evaluation
Can be used over all fluid zones
Simple, traditional, universally accepted

The disadvantage is that it often does not correlate with permeability as well as saturation, and it places unnecessary dependence on RHOB, resulting in an "under-determined" evaluation (Deakin, 1999).

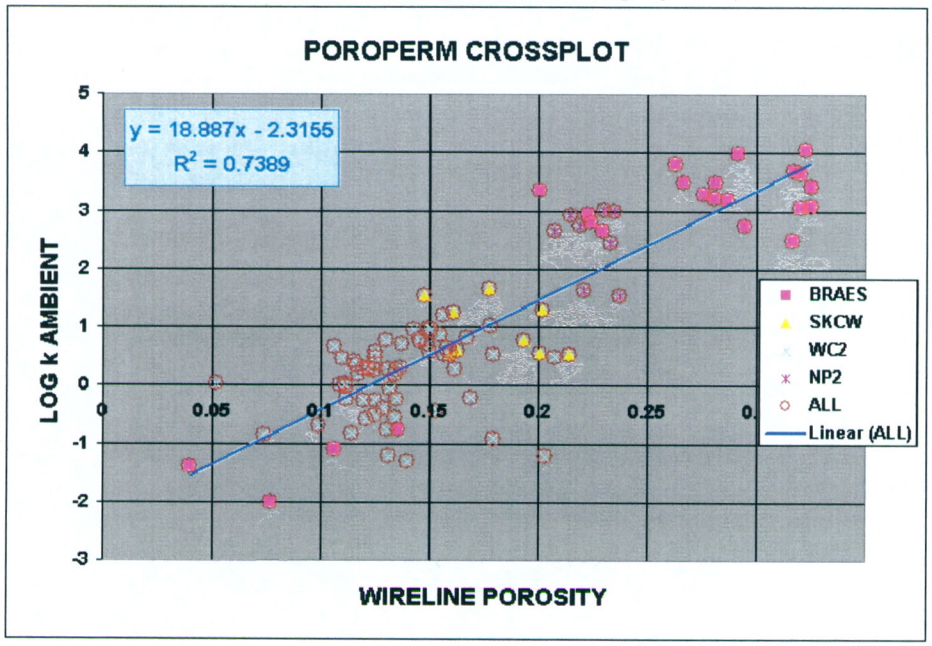
The Porosity-Permeability relationship was defined in this study by crossplotting the wireline porosity against Ambient Core Permeability for the wells North Paaratte 2, Wallaby Creek 2, Skull Creek West 1, Mylor 1 and Braeside 1 (Figure 15);

Figure 15- Poroperm Crossplot



The Poroperm crossplot (Figure 15) shows a moderate correlation factor of 47%, chiefly due to data from Mylor 1. It was thought that a better correlation could be achieved if Mylor was excluded (Figure 16).

Figure 16- Poroperm Crossplot (excluding Mylor 1)



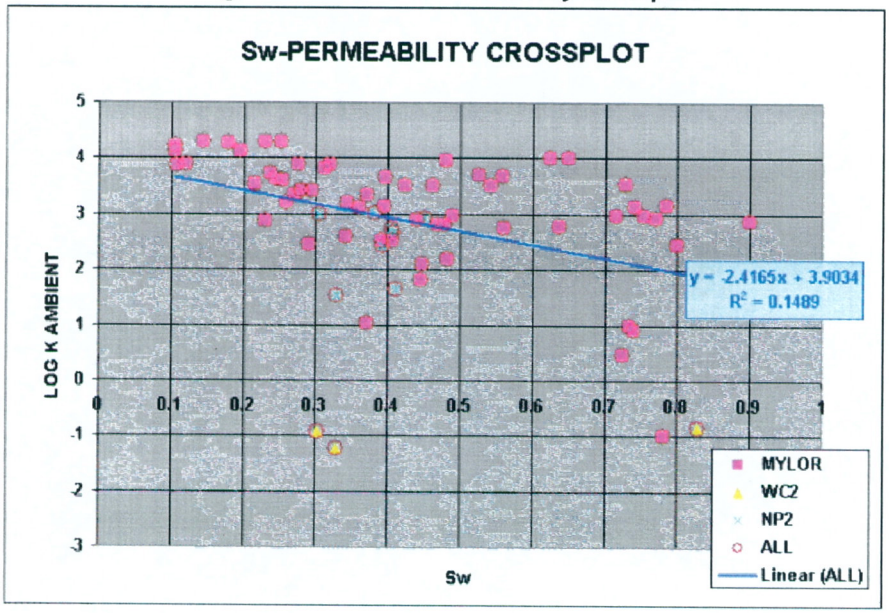
A much stronger correlation (74%) was achieved by excluding Mylor 1. The formation of diagenetic clays would alter the porosity-permeability relationship. It may be that the Waarre Formation at Mylor 1 has undergone a different style of diagenesis compared with wells to the south.

10.1 Water Saturation Permeability (K-Sw)

Both permeability and water saturation are influenced by pore throat size and pore surface area. This creates a stronger relationship between Swi (Irreducible Water Saturation) and K (Permeability) than between Φ (Porosity) and K. The Sw-K relationship is also more stable across changing pore geometry than the k-Φ. The basic concept of predicting permeability with Sw has been in existence for 50 years (Wyllie and Rose 1950). Given that Sw is determined with reasonable accuracy during evaluation, it is the ideal candidate for hydrocarbon zone permeability prediction if contacts are known with reasonable certainty (Deakin, 1999).

Unfortunately, the Sw-K Crossplot for this study did not show the close relationship which has been described above (Figure 17). A correlation coefficient of 15% resulted, 22% if the Wallaby Creek 2 core points were excluded.

Figure 17- Sw vs Permeability Crossplot



10.3 Vsh-Permeability (K-Vsh)

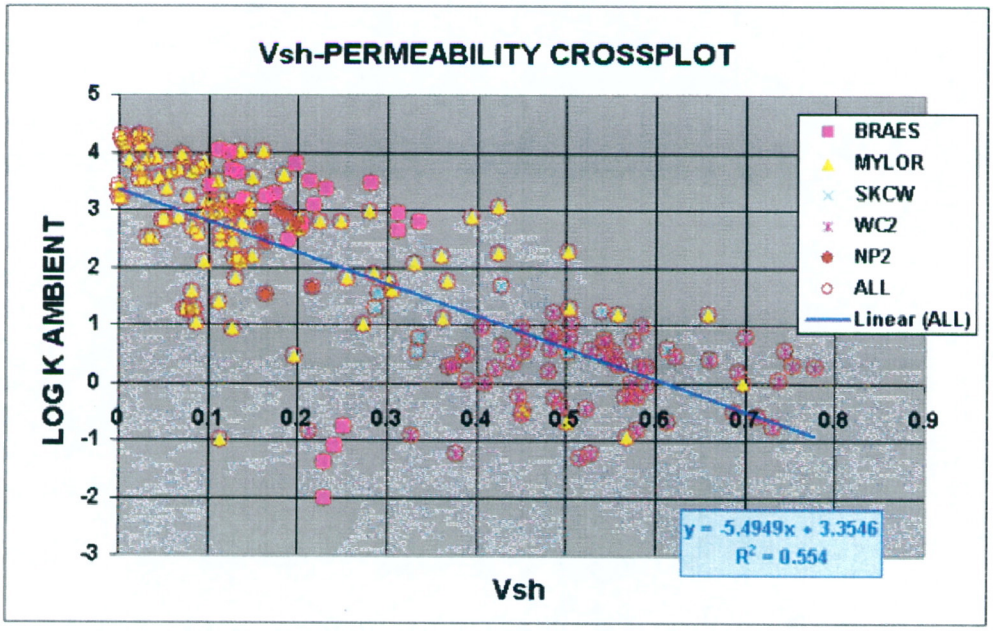
Shale volume (Vsh) is the least useful of the permeability predictors. However, in fields with poor porosity data, Vsh will provide benefit. The advantages of Vsh prediction are;

Provides independent input as insurance against tool error
Remains more valid over badhole than K-Φ and K-Sw
Corresponds to "gut" feelings as to what is and is not good reservoir.

Disadvantages are;
Reliable, but poor correlation coefficient with core K.
Vsh may not correlate with dispersed clays which are influential to Core K .
Vsh is usually inaccurate

(Deakin, 1999)

Figure 18- Vsh-Permeability Crossplot



Surprisingly, the Vsh-Permeability Crossplot (Figure 18) achieved a respectable correlation factor of 55%, easily surpassing the Sw-K relationship.

10.4 FINAL PERMEABILITY

Final Permeability was predicted from a weighted average of individual predictions found to influence permeability i.e. Porosity, Vsh and Sw. The weighting was determined by the correlation coefficients of the linear regressions in each case;

Table 8 - Permeability Equation Correlation Coefficients

	CORRELATION COEFFICIENT	K EQUATION
PORO-K	73.89%	$k = 10^{18.887\ (\phi) - 2.3155}$
Sw-K	14.90%	$k = 10^{-2.4165\ (Sw) + 3.9034}$
Vsh-K	55.40%	$k = 10^{-5.4949\ (Vsh) + 3.3546}$

The Final Permeability equation contained the greatest weighting on the Porosity-Permeability relationship and the Vsh-Permeability relationship. The Sw-Permeability relationship received a very minor weighting.

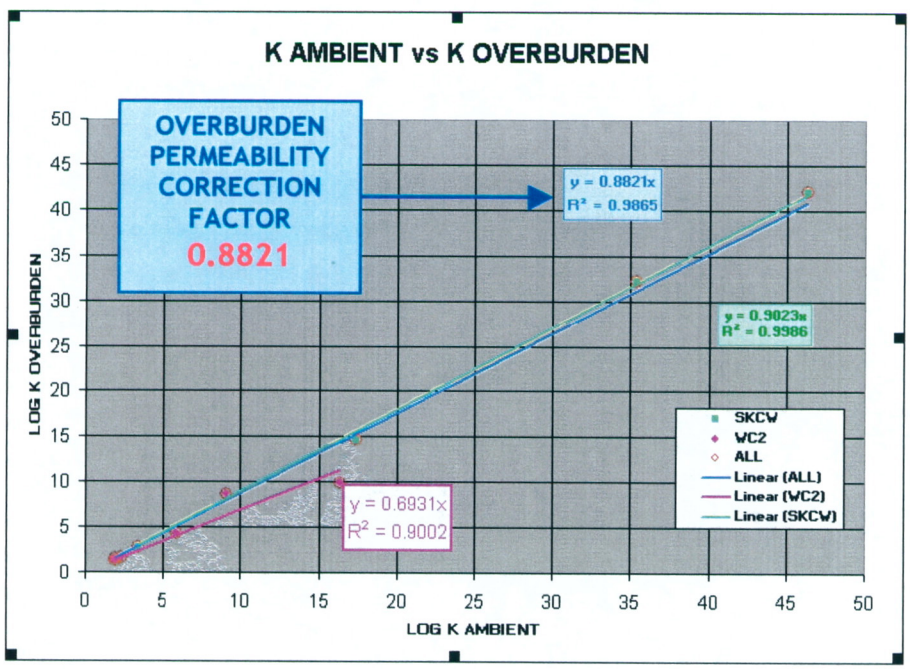
$$K = [0.6 \times fn(\Phi)] + [0.3 \times fn(Vsh)] + [0.1 \times fn(Sw)]$$ Equation 10

10.5 OVERBURDEN PERMEABILITY CORRECTION

Overburden Permeability analysis was performed on core from Skull Creek West 1 and Wallaby Creek 2. At Skull Creek West 1, air permeability was calculated for four core plugs which were placed under an overburden pressure of 2550psi. At Wallaby Creek 2, overburden pressure of 2500psi was applied to six core plugs.

Equivalent Hydrostatic Stress (EQHS) for the Waarre Formation at Skull Creek West 1 and Wallaby Creek 2 was 1311psi and 1577psi respectively. A linear interpolation was applied to correct SCAL overburden permeabilities to EQHS. A crossplot of Ambient Permeabilty versus Overburden Permeability was used to define a composite overburden permeability correction factor. This factor was applied to Ambient Permeability calculations for wells within PPL1.

Figure 19 - Ambient Permeability vs Overburden Permeability



11.0 NET PAY

11.1 NET PAY CUTOFFS

The objective of a net pay cutoff is to delineate intervals containing fluids which make no contribution to production during the life of a field. Fluids which move or experience a change in pressure during production will make a finite, if small, contribution to production. This includes fluids which move at sub-commercial rates (Deakin, 1999).

Permeability is the preferred criteria for net determination because it is a measure of a rock's ability to pass fluids. Shale volume and porosity are inadequate measures

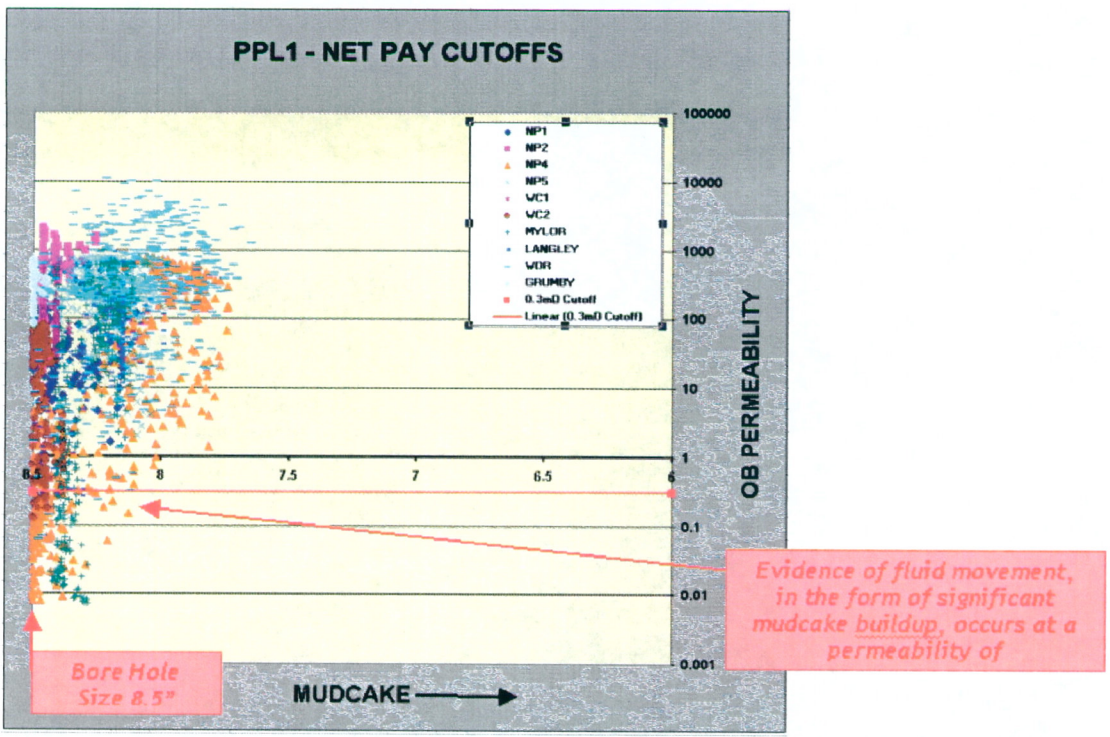
of a rock's ability to pass fluids. A rock will or will not pass fluids for a given shale content or porosity, depending on shale distribution and pore geometry. Conversely, permeability is the result of such influences and measures directly the rock's ability to pass fluids. The relationship between net indicators and permeability is stronger than with porosity and shale volume (Deakin, 1999).

11.1.1 Evidence of Fluid Movement - Mudcake

Mudcake provides direct evidence of net intervals because filtration (fluid movement) is implied. If the borehole has remained in gauge, a correctly calibrated caliper log will detect mudcake build-up. Shading the log from caliper to bitsize reveals intervals where mudcake has built-up.

In order to relate mudcake build-up and fluid movement/net pay to permeability, a crossplot of mudcake vs permeability was made (Figure 20).

Figure 20 - Crossplot of Mudcake vs Permeability (Waarre Formation Interval)



Evidence of fluid movement, and hence net pay, is indicated by mudcake build-up at a permeability of 0.3mD. Therefore, the permeability cut-off for net pay is 0.3mD.

11.1.2 Evidence of Fluid Movement - Invasion

A resistivity invasion profile will show one of three things;

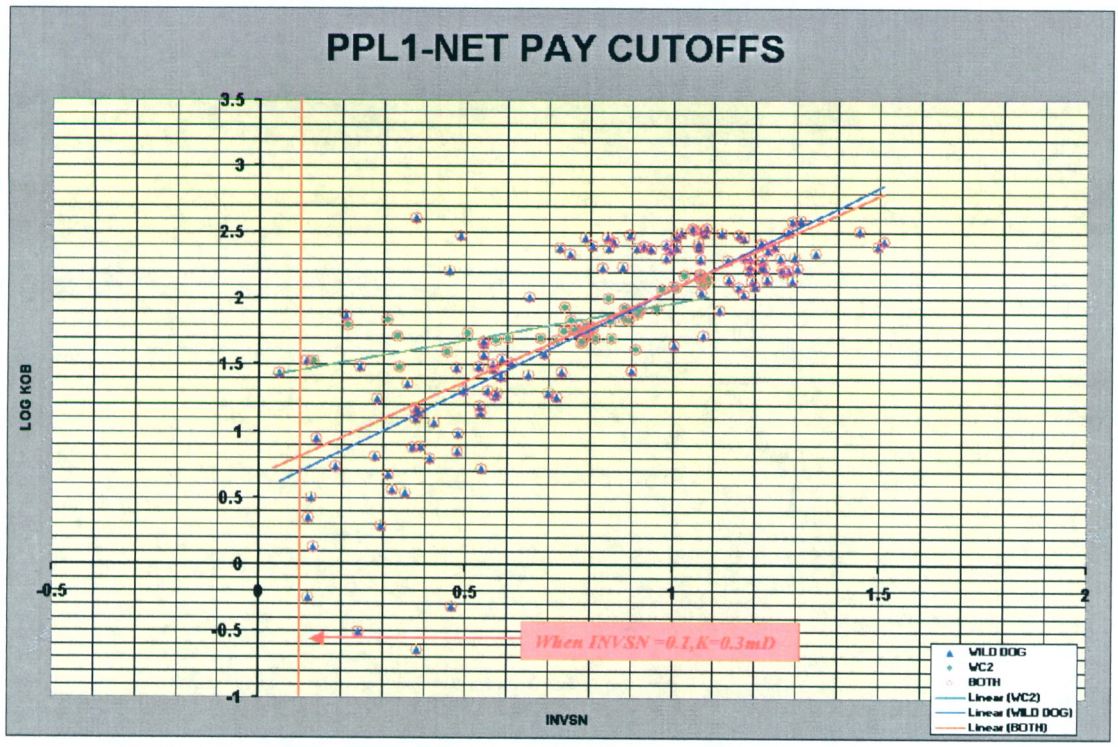
Impermeable massive shales
Porous hydrocarbon zones
Porous water zones.

Impermeable shales show approximately overlying Rshallow, Rmedium and Rdeep. The lack of invasion results in little change in resistivity from the borehole wall to further into the formation. Good reservoir quality, hydrocarbon saturated units will show clear invasion profiles with Rdeep>> Rshallow. Such units are clearly net pay.

Crossplots of a parameter named INVSN (Equation 11) with overburden core permeability at Wallaby Creek 2 and Wild Dog Road 1 indicated that invasion profiles began to develop at permeabilities of 0.7 mD (Figure 21).

Where , $$INVSN = LOG(Rt) - LOG(Rxo) > 0.1$$ Equation 11

Figure 21 - Permeability vs INVSN at WC2 and WDR1 (Gas zones only)



11.1.3 FINAL CUTOFFS

Final Net Pay was run within Fluid Zone 3 (Chapter 10.5) using a permeability cut-off of 0.3 mD as defined by the Mudcake vs Permeability crossplot (Figure 20). A backup Vsh cut-off of 50% was added to ensure reservoir quality. Table 9 is a summary of the Net Pay cutoffs;

Table 9 - Net-Pay Cutoffs

FINAL NET PAY CUT-OFFS	
Fluid Zone	3
Permeability	0.3mD
Vsh	0.5

11.2 NET PAY

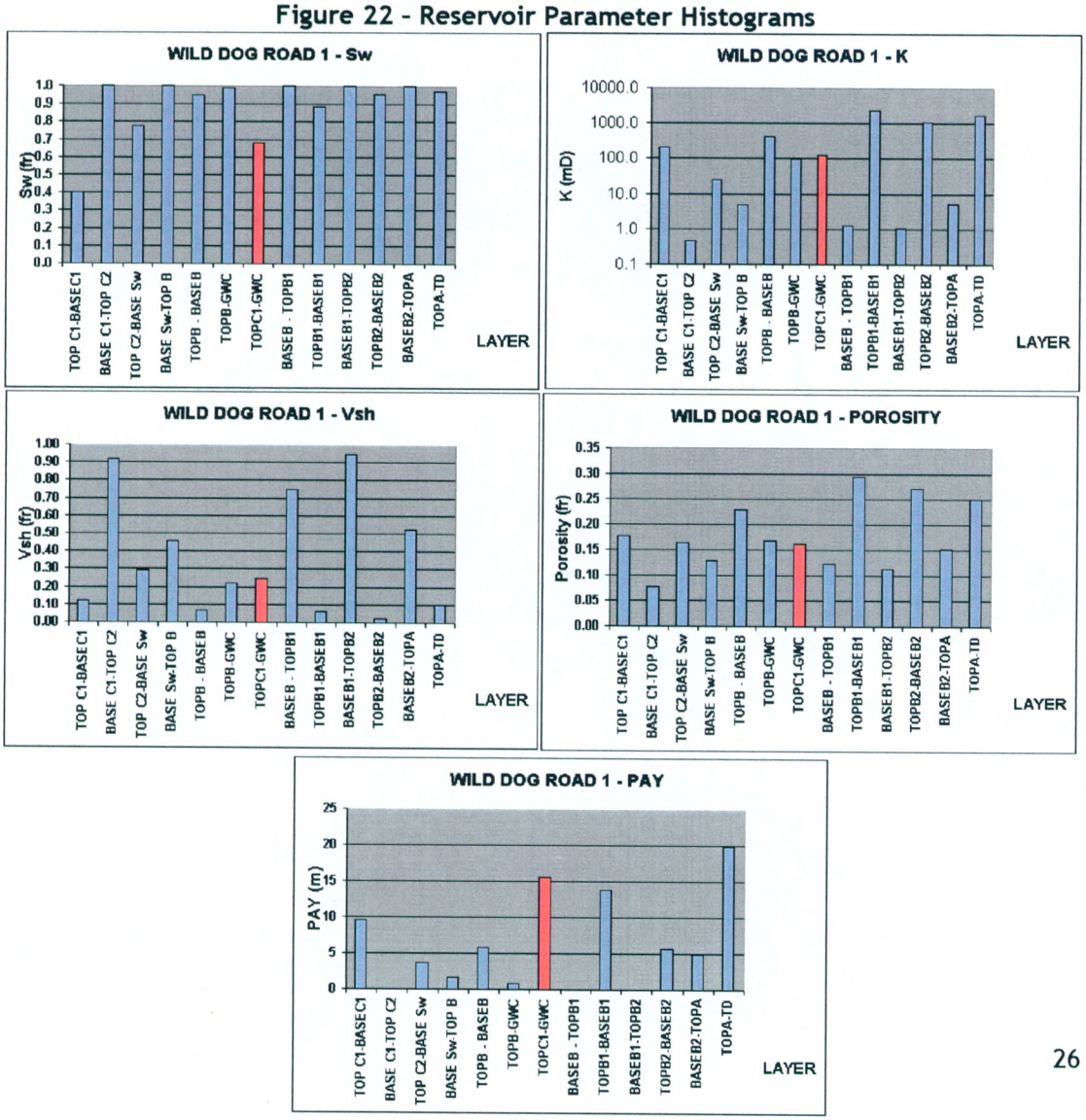
Table 10 lists net pay and average reservoir parameters for Wild Dog Road1. Figures appearing in black are pays and averages for stratigraphic subdivisions, whereas those in red are well totals. Enclosure 1 provides a guide to stratigraphic subdivisions and correlations. A complete pay-depth listing for each well can be found in Appendix 1.

Histograms for Net Pay, Hydrocarbon Thickness, Porosity, Water Saturation, Permeability and Volume of Shale are shown in Figure 22.

Table 10 - Net Pay & Pay Statistics

WILD DOG ROAD 1 - AVERAGE RESERVOIR PARAMETERS & PAY													
LAYER	TOP	BASE	GROSS	NO CUTOFF				CUTOFF APPLIED (K>0.3mD, Vsh<0.5)					
	mSS	mSS	m	Vshale	Sw	Porosity	Perm(mD)	PAY THK	Vsh	Sw	Por	K	N/G
TOP C1-BASEC1	1313.01	1322.63	9.62	0.119	0.400	0.177	207.454	9.571	0.119	0.400	0.177	207.454	0.99
BASE C1-TOP C2	1322.63	1323.7	1.07	0.917	1.706	0.077	0.462	0.000					0.00
TOP C2-BASE Sw	1323.7	1327.3	3.6	0.291	0.774	0.163	25.530	3.608	0.291	0.774	0.163	25.530	1.00
BASE Sw-TOP B	1327.3	1329.5	2.2	0.454	1.181	0.130	4.897	1.605	0.407	1.066	0.139	6.305	0.73
TOPB - BASEB	1329.5	1335.2	5.7	0.064	0.949	0.229	420.864	5.760	0.064	0.949	0.229	420.864	1.01
TOPB-GWC	1329.5	1330.3	0.8	0.219	0.990	0.167	96.982	0.803	0.219	0.990	0.167	96.982	1.00
TOPC1-GWC	1313.01	1330.3	17.29	0.250	0.682	0.162	126.903	15.587	0.193	0.584	0.169	139.754	0.90
BASEB - TOPB1	1335.2	1336.3	1.1	0.750	1.565	0.123	1.260	0.000					0.00
TOPB1-BASEB1	1336.3	1350.2	13.9	0.063	0.886	0.293	2256.942	13.849	0.063	0.886	0.293	2256.942	1.00
BASEB1-TOPB2	1350.2	1352.8	2.6	0.944	1.629	0.114	1.054	0.000					0.00
TOPB2-BASEB2	1352.8	1358.5	5.7	0.022	0.955	0.272	1086.330	5.670	0.022	0.955	0.272	1086.330	0.99
BASEB2-TOPA	1358.5	1370.7	12.2	0.522	1.107	0.151	5.089	4.872	0.419	1.052	0.149	6.936	0.40
TOPA-TD	1370.7	1390.6	19.9	0.099	0.970	0.249	1643.305	19.869	0.099	0.970	0.249	1643.305	1.00

Figure 22 - Reservoir Parameter Histograms



12.0 REFERENCES

Deakin, M., (1997) Integrating Petrophysical Data - Established and Emerging Techniques. Course Notes (Unpublished).

Boral Energy Resources (1999) Wild Dog Road 1 Well Proposal (Unpublished)

APPENDIX 1

NET PAY LISTING

WILD DOG ROAD 1 - NET PAY LISTING

LAYER	TOP	BASE	GROSS	NO CUTOFF				CUTOFF APPLIED (K>0.3mD, Vsh<0.5)						N/G
				Vshale	Sw	Porosity	Perm(mD)			PAY THK	Vsh	Sw	Por	K	
TOP C1-BASEC1	1313.01	1322.63	9.62	0.119	0.400	0.177	207.454			9.571	0.119	0.400	0.177	207.454	0.99
BASE C1-TOP C2	1322.63	1323.7	1.07	0.917	1.706	0.077	0.462			0.000					0.00
TOP C2-BASE Sw	1323.7	1327.3	3.6	0.291	0.774	0.163	25.530			3.608	0.291	0.774	0.163	25.530	1.00
BASE Sw-TOP B	1327.3	1329.5	2.2	0.454	1.181	0.130	4.897			1.605	0.407	1.066	0.139	6.305	0.73
TOPB - BASEB	1329.5	1335.2	5.7	0.064	0.949	0.229	420.864			5.760	0.064	0.949	0.229	420.864	1.01
TOPB-GWC	1329.5	1330.3	0.8	0.219	0.990	0.167	96.982			0.803	0.219	0.990	0.167	96.982	1.00
TOPC1-GWC	1313.01	1330.3	17.29	0.250	0.682	0.162	126.903			15.587	0.193	0.584	0.169	139.754	0.90
BASEB - TOPB1	1335.2	1336.3	1.1	0.750	1.565	0.123	1.260			0.000					0.00
TOPB1-BASEB1	1336.3	1350.2	13.9	0.063	0.886	0.293	2256.942			13.849	0.063	0.886	0.293	2256.942	1.00
BASEB1-TOPB2	1350.2	1352.8	2.6	0.944	1.629	0.114	1.054			0.000					0.00
TOPB2-BASEB2	1352.8	1358.5	5.7	0.022	0.955	0.272	1086.330			5.670	0.022	0.955	0.272	1086.330	0.99
BASEB2-TOPA	1358.5	1370.7	12.2	0.522	1.107	0.151	5.089			4.872	0.419	1.052	0.149	6.936	0.40
TOPA-TD	1370.7	1390.6	19.9	0.099	0.970	0.249	1643.305			19.869	0.099	0.970	0.249	1643.305	1.00

M.DEPTH			TVD	VSH_CLV	SwArchie	P-Final	K-FinOB	PAY	INCR	PAY THK	Vsh	Sw	Por	K	
1587.2459			1313.0129	0.43146	0.88275	0.13866	2.77562	1			0.43146	0.88275	0.13866	2.77562	
1587.3983			1313.1455	0.37497	0.95969	0.1188	3.23265	1	0.13257	0.13257	0.37497	0.95969	0.1188	3.23265	
1587.5507			1313.278	0.30272	0.72462	0.14262	18.06115	1	0.13244	0.13244	0.30272	0.72462	0.14262	18.06115	
1587.7031			1313.4105	0.2854	0.5654	0.16255	28.44484	1	0.13257	0.13257	0.2854	0.5654	0.16255	28.44484	
1587.8555			1313.543	0.25551	0.46989	0.1747	44.47503	1	0.13245	0.13245	0.25551	0.46989	0.1747	44.47503	
1588.0079			1313.6755	0.24905	0.41611	0.17754	52.671	1	0.13257	0.13257	0.24905	0.41611	0.17754	52.671	
1588.1603			1313.8081	0.19771	0.38461	0.18209	81.40528	1	0.13257	0.13257	0.19771	0.38461	0.18209	81.40528	
1588.3127			1313.9407	0.13616	0.38446	0.18612	140.48599	1	0.13256	0.13256	0.13616	0.38446	0.18612	140.48599	
1588.4651			1314.0734	0.09931	0.42044	0.18462	198.69275	1	0.13269	0.13269	0.09931	0.42044	0.18462	198.69275	
1588.6175			1314.2058	0.07841	0.45223	0.17929	245.14778	1	0.13245	0.13245	0.07841	0.45223	0.17929	245.14778	
1588.7699			1314.3385	0.07579	0.46548	0.17641	250.65987	1	0.13269	0.13269	0.07579	0.46548	0.17641	250.65987	
1588.9223			1314.4711	0.08081	0.44733	0.1782	238.73543	1	0.13257	0.13257	0.08081	0.44733	0.1782	238.73543	
1589.0747			1314.6038	0.08373	0.42049	0.18058	234.47214	1	0.13269	0.13269	0.08373	0.42049	0.18058	234.47214	
1589.2271			1314.7365	0.08632	0.39055	0.18264	232.18927	1	0.13269	0.13269	0.08632	0.39055	0.18264	232.18927	
1589.3795			1314.8691	0.07592	0.36666	0.18135	263.47897	1	0.13269	0.13269	0.07592	0.36666	0.18135	263.47897	
1589.5319			1315.0017	0.10308	0.35973	0.17437	196.3345	1	0.13257	0.13257	0.10308	0.35973	0.17437	196.3345	
1589.6843			1315.1345	0.1166	0.348	0.17158	172.24225	1	0.13281	0.13281	0.1166	0.348	0.17158	172.24225	
1589.8367			1315.2672	0.14847	0.36934	0.16987	123.09476	1	0.13269	0.13269	0.14847	0.36934	0.16987	123.09476	
1589.9891			1315.3998	0.14986	0.37145	0.1773	122.7526	1	0.13257	0.13257	0.14986	0.37145	0.1773	122.7526	
1590.1415			1315.5326	0.14046	0.36549	0.18232	136.39519	1	0.13281	0.13281	0.14046	0.36549	0.18232	136.39519	
1590.2939			1315.6653	0.13886	0.3485	0.18193	141.14697	1	0.13269	0.13269	0.13886	0.3485	0.18193	141.14697	
1590.4463			1315.7981	0.12811	0.32875	0.18073	159.42099	1	0.13282	0.13282	0.12811	0.32875	0.18073	159.42099	
1590.5987			1315.9308	0.12846	0.30083	0.17934	164.35138	1	0.13269	0.13269	0.12846	0.30083	0.17934	164.35138	
1590.7511			1316.0636	0.12626	0.29839	0.17856	168.01518	1	0.13281	0.13281	0.12626	0.29839	0.17856	168.01518	
1590.9035			1316.1964	0.12442	0.30787	0.17699	168.3421	1	0.13281	0.13281	0.12442	0.30787	0.17699	168.3421	
1591.0559			1316.3292	0.12583	0.31985	0.17511	163.31064	1	0.13281	0.13281	0.12583	0.31985	0.17511	163.31064	
1591.2083			1316.462	0.11671	0.31516	0.17718	179.52359	1	0.13282	0.13282	0.11671	0.31516	0.17718	179.52359	
1591.3607			1316.5949	0.10979	0.31021	0.17985	193.74661	1	0.13281	0.13281	0.10979	0.31021	0.17985	193.74661	
1591.5131			1316.7277	0.10444	0.31623	0.17718	202.21239	1	0.13281	0.13281	0.10444	0.31623	0.17718	202.21239	
1591.6655			1316.8606	0.10388	0.32476	0.17163	200.41513	1	0.13294	0.13294	0.10388	0.32476	0.17163	200.41513	
1591.8179			1316.9933	0.07991	0.31766	0.17004	258.40448	1	0.13269	0.13269	0.07991	0.31766	0.17004	258.40448	
1591.9703			1317.1262	0.06433	0.27877	0.17636	315.96521	1	0.13293	0.13293	0.06433	0.27877	0.17636	315.96521	
1592.1227			1317.2592	0.04995	0.24069	0.18496	382.09177	1	0.13294	0.13294	0.04995	0.24069	0.18496	382.09177	
1592.2751			1317.392	0.05042	0.22022	0.19584	391.8382	1	0.13281	0.13281	0.05042	0.22022	0.19584	391.8382	
1592.4275			1317.5249	0.07185	0.21113	0.19921	322.21127	1	0.13293	0.13293	0.07185	0.21113	0.19921	322.21127	
1592.5799			1317.6578	0.08857	0.21791	0.19798	273.08627	1	0.13294	0.13294	0.08857	0.21791	0.19798	273.08627	
1592.7323			1317.7908	0.09658	0.2307	0.1964	248.96722	1	0.13293	0.13293	0.09658	0.2307	0.1964	248.96722	
1592.8847			1317.9237	0.10239	0.27373	0.19025	220.65855	1	0.13294	0.13294	0.10239	0.27373	0.19025	220.65855	
1593.0371			1318.0566	0.10546	0.30253	0.18142	204.26782	1	0.13293	0.13293	0.10546	0.30253	0.18142	204.26782	
1593.1895			1318.1896	0.08445	0.30876	0.17678	249.54797	1	0.13294	0.13294	0.08445	0.30876	0.17678	249.54797	
1593.3419			1318.3226	0.07025	0.31926	0.17626	287.60657	1	0.13305	0.13305	0.07025	0.31926	0.17626	287.60657	
1593.4943			1318.4556	0.05649	0.34113	0.17988	331.06268	1	0.13294	0.13294	0.05649	0.34113	0.17988	331.06268	
1593.6467			1318.5885	0.062	0.34338	0.18657	313.10403	1	0.13293	0.13293	0.062	0.34338	0.18657	313.10403	
1593.7991			1318.7216	0.07422	0.39276	0.19019	267.85117	1	0.13306	0.13306	0.07422	0.39276	0.19019	267.85117	
1593.9515			1318.8546	0.08128	0.46204	0.19414	241.96361	1	0.13305	0.13305	0.08128	0.46204	0.19414	241.96361	
1594.1039			1318.9877	0.09238	0.45576	0.19885	217.27367	1	0.13306	0.13306	0.09238	0.45576	0.19885	217.27367	
1594.2563			1319.1206	0.11458	0.42543	0.19233	171.3685	1	0.13294	0.13294	0.11458	0.42543	0.19233	171.3685	
1594.4087			1319.2538	0.14912	0.38251	0.18488	124.19467	1	0.13317	0.13317	0.14912	0.38251	0.18488	124.19467	
1594.5611			1319.3868	0.16651	0.34719	0.18522	112.0149	1	0.13306	0.13306	0.16651	0.34719	0.18522	112.0149	
1594.7135			1319.5199	0.17865	0.31917	0.18988	108.76164	1	0.13306	0.13306	0.17865	0.31917	0.18988	108.76164	
1594.8659			1319.653	0.15547	0.29485	0.19487	137.68774	1	0.13305	0.13305	0.15547	0.29485	0.19487	137.68774	
1595.0183			1319.7861	0.12896	0.2933	0.19412	170.95381	1	0.13318	0.13318	0.12896	0.2933	0.19412	170.95381	
1595.1707			1319.9192	0.10936	0.2942	0.19071	201.9857	1	0.13306	0.13306	0.10936	0.2942	0.19071	201.9857	
1595.3231			1320.0525	0.09626	0.2802	0.19239	233.1701	1	0.1333	0.1333	0.09626	0.2802	0.19239	233.1701	
1595.4755			1320.1856	0.0846	0.28174	0.19615	262.81622	1	0.13306	0.13306	0.0846	0.28174	0.19615	262.81622	
1595.6279			1320.3186	0.06954	0.30198	0.19692	301.45789	1	0.13305	0.13305	0.06954	0.30198	0.19692	301.45789	
1595.7803			1320.4519	0.05989	0.32262	0.19651	329.03323	1	0.1333	0.1333	0.05989	0.32262	0.19651	329.03323	
1595.9327			1320.585	0.05607	0.33235	0.18986	337.71255	1	0.13306	0.13306	0.05607	0.33235	0.18986	337.71255	
1596.0851			1320.7183	0.05465	0.33805	0.17731	337.80872	1	0.1333	0.1333	0.05465	0.33805	0.17731	337.80872	
1596.2375			1320.8514	0.06108	0.34891	0.16515	310.17975	1	0.13318	0.13318	0.06108	0.34891	0.16515	310.17975	
1596.3899			1320.9847	0.05889	0.36935	0.15878	313.78098	1	0.1333	0.1333	0.05889	0.36935	0.15878	313.78098	
1596.5423			1321.1179	0.06292	0.41252	0.15487	293.37177	1	0.13318	0.13318	0.06292	0.41252	0.15487	293.37177	
1596.6947			1321.2512	0.059	0.47831	0.15722	300.6116	1	0.1333	0.1333	0.059	0.47831	0.15722	300.6116	

1596.8471			1321.3844	0.06096	0.55775	0.1593	288.52765	1	0.13318	0.13318	0.06096	0.55775	0.1593	288.52765	
1596.9995			1321.5177	0.06062	0.61331	0.16	287.19464	1	0.1333	0.1333	0.06062	0.61331	0.16	287.19464	
1597.1519			1321.651	0.07203	0.60441	0.15801	250.07025	1	0.1333	0.1333	0.07203	0.60441	0.15801	250.07025	
1597.3043			1321.7843	0.07837	0.49209	0.16057	238.33482	1	0.1333	0.1333	0.07837	0.49209	0.16057	238.33482	
1597.4567			1321.9176	0.07907	0.3598	0.16347	251.96848	1	0.1333	0.1333	0.07907	0.3598	0.16347	251.96848	
1597.6091			1322.0508	0.0822	0.34756	0.16957	246.45776	1	0.13318	0.13318	0.0822	0.34756	0.16957	246.45776	
1597.7615			1322.1842	0.09565	0.43852	0.1743	201.92465	1	0.13342	0.13342	0.09565	0.43852	0.1743	201.92465	
1597.9139			1322.3175	0.10705	0.54625	0.1784	170.49411	1	0.1333	0.1333	0.10705	0.54625	0.1784	170.49411	
1598.0663			1322.4509	0.1443	0.71655	0.162	103.16054	1	0.13343	0.13343	0.1443	0.71655	0.162	103.16054	
1598.2187			1322.5842	0.36426	1.07474	0.12106	6.99199	1	0.1333	0.1333	0.36426	1.07474	0.12106	6.99199	
1598.3711	BaseC1	TopC2	1322.7177	0.74998	1.51121	0.09127	0.2286	0	0.13342						
1598.5235			1322.851	1	1.96721	0.07131	0.06248	0	0.1333						
1598.6759			1322.9845	1	2.03908	0.0648	0.04723	0	0.13355						
1598.8283			1323.1178	1	2.14305	0.05843	0.03576	0	0.1333						
1598.9807			1323.2513	1	1.778	0.06494	0.05584	0	0.13354						
1599.1331			1323.3846	1	1.66171	0.06626	0.06834	0	0.1333						
1599.2855			1323.5182	1	1.68963	0.06775	0.06838	0	0.13355						
1599.4379			1323.6516	0.58373	0.8555	0.13514	3.13288	0	0.13342						
1599.5903	TOPC2	BaseSw	1323.785	0.35354	0.66411	0.17503	17.46661	1	0.13342	0.13342	0.35354	0.66411	0.17503	17.46661	
1599.7427			1323.9186	0.27467	0.63418	0.17283	29.52526	1	0.13355	0.13355	0.27467	0.63418	0.17283	29.52526	
1599.8951			1324.052	0.24643	0.66363	0.16464	35.07122	1	0.13342	0.13342	0.24643	0.66363	0.16464	35.07122	
1600.0475			1324.1856	0.23893	0.64866	0.1647	38.20862	1	0.13355	0.13355	0.23893	0.64866	0.1647	38.20862	
1600.1999			1324.319	0.27872	0.62699	0.16756	27.89962	1	0.13342	0.13342	0.27872	0.62699	0.16756	27.89962	
1600.3523			1324.4526	0.34205	0.6081	0.16954	19.28361	1	0.13367	0.13367	0.34205	0.6081	0.16954	19.28361	
1600.5047			1324.5861	0.33828	0.71832	0.14807	13.83837	1	0.13342	0.13342	0.33828	0.71832	0.14807	13.83837	
1600.6571			1324.7197	0.35257	0.85006	0.13073	9.56098	1	0.13367	0.13367	0.35257	0.85006	0.13073	9.56098	
1600.8095			1324.8533	0.29988	0.92637	0.12991	15.41412	1	0.13354	0.13354	0.29988	0.92637	0.12991	15.41412	
1600.9619			1324.9868	0.28525	0.91446	0.13314	18.3413	1	0.13355	0.13355	0.28525	0.91446	0.13314	18.3413	
1601.1143			1325.1204	0.25531	0.84105	0.13023	26.36438	1	0.13354	0.13354	0.25531	0.84105	0.13023	26.36438	
1601.2667			1325.254	0.24717	0.66892	0.13372	32.48467	1	0.13367	0.13367	0.24717	0.66892	0.13372	32.48467	
1601.4191			1325.3877	0.24512	0.77011	0.12211	30.36466	1	0.13367	0.13367	0.24512	0.77011	0.12211	30.36466	
1601.5715			1325.5212	0.25028	0.92905	0.12609	27.01808	1	0.13354	0.13354	0.25028	0.92905	0.12609	27.01808	
1601.7239			1325.6549	0.26619	0.97017	0.13937	22.65504	1	0.13367	0.13367	0.26619	0.97017	0.13937	22.65504	
1601.8763			1325.7886	0.28913	0.86395	0.16174	20.06146	1	0.13366	0.13366	0.28913	0.86395	0.16174	20.06146	
1602.0287			1325.9222	0.31523	0.80122	0.17722	19.25244	1	0.13367	0.13367	0.31523	0.80122	0.17722	19.25244	
1602.1811			1326.0559	0.29519	0.76925	0.1852	25.28886	1	0.13367	0.13367	0.29519	0.76925	0.1852	25.28886	
1602.3335			1326.1896	0.27004	0.76053	0.18809	31.85726	1	0.13367	0.13367	0.27004	0.76053	0.18809	31.85726	
1602.4859			1326.3232	0.23406	0.74976	0.19245	45.2559	1	0.13366	0.13366	0.23406	0.74976	0.19245	45.2559	
1602.6383			1326.4569	0.22889	0.76099	0.19342	47.6198	1	0.13367	0.13367	0.22889	0.76099	0.19342	47.6198	
1602.7907			1326.5906	0.2566	0.7803	0.19348	37.57246	1	0.13367	0.13367	0.2566	0.7803	0.19348	37.57246	
1602.9431			1326.7244	0.29506	0.78167	0.19443	29.08069	1	0.13379	0.13379	0.29506	0.78167	0.19443	29.08069	
1603.0955			1326.858	0.30425	0.75657	0.19827	30.11639	1	0.13366	0.13366	0.30425	0.75657	0.19827	30.11639	
1603.2479			1326.9918	0.34351	0.73218	0.18623	19.81924	1	0.13379	0.13379	0.34351	0.73218	0.18623	19.81924	
1603.4003			1327.1255	0.36059	0.79099	0.1664	12.43237	1	0.13367	0.13367	0.36059	0.79099	0.1664	12.43237	
1603.5527			1327.2592	0.38677	0.92607	0.14977	7.4479	1	0.13367	0.13367	0.38677	0.92607	0.14977	7.4479	
1603.7051	BaseSw	TopB	1327.3929	0.38744	1.0565	0.14034	6.18615	1	0.13378	0.13378	0.38744	1.0565	0.14034	6.18615	
1603.8575			1327.5266	0.32551	1.05224	0.14389	11.6707	1	0.13367	0.13367	0.32551	1.05224	0.14389	11.6707	
1604.0099			1327.6604	0.31047	1.03991	0.14461	13.79389	1	0.13379	0.13379	0.31047	1.03991	0.14461	13.79389	
1604.1623			1327.7941	0.36514	1.0479	0.13917	7.60574	1	0.13367	0.13367	0.36514	1.0479	0.13917	7.60574	
1604.3147			1327.9279	0.4634	1.04181	0.1395	3.45531	1	0.13379	0.13379	0.4634	1.04181	0.1395	3.45531	
1604.4671			1328.0617	0.64728	1.70233	0.08994	0.30996	0	0.13379						
1604.6195			1328.1954	0.59297	1.592	0.09988	0.55689	0	0.13378						
1604.7719			1328.3291	0.52057	1.33902	0.11591	1.34404	0	0.13367						
1604.9243			1328.463	0.48184	1.19451	0.12472	2.20428	1	0.13391	0.13391	0.48184	1.19451	0.12472	2.20428	
1605.0767			1328.5967	0.46755	0.99505	0.14044	3.60955	1	0.13367	0.13367	0.46755	0.99505	0.14044	3.60955	
1605.2291			1328.7306	0.43639	0.98689	0.14534	4.70039	1	0.13391	0.13391	0.43639	0.98689	0.14534	4.70039	
1605.3815			1328.8644	0.40509	0.94799	0.14992	6.38995	1	0.13379	0.13379	0.40509	0.94799	0.14992	6.38995	
1605.5339			1328.9981	0.36196	0.99302	0.15	8.74612	1	0.13367	0.13367	0.36196	0.99302	0.15	8.74612	
1605.6863			1329.132	0.39705	1.12229	0.13757	5.36277	1	0.13391	0.13391	0.39705	1.12229	0.13757	5.36277	
1605.8387			1329.2658	0.47928	1.31155	0.11605	1.9323	1	0.13379	0.13379	0.47928	1.31155	0.11605	1.9323	
1605.9911			1329.3995	0.6197	1.46993	0.09863	0.48179	0	0.13379						
1606.1435	TopB	BaseB	1329.5333	0.42509	0.95969	0.14517	5.20281	1	0.13379	0.13379	0.42509	0.95969	0.14517	5.20281	
1606.2959			1329.6672	0.31508	0.97072	0.16019	14.77166	1	0.13391	0.13391	0.31508	0.97072	0.16019	14.77166	
1606.4483			1329.801	0.23511	1.08209	0.15959	33.66406	1	0.13379	0.13379	0.23511	1.08209	0.15959	33.66406	
1606.6007			1329.9349	0.16956	1.04304	0.16565	73.98857	1	0.13391	0.13391	0.16956	1.04304	0.16565	73.98857	
1606.7531			1330.0687	0.10781	0.91168	0.17849	160.03491	1	0.13379	0.13379	0.10781	0.91168	0.17849	160.03491	
1606.9055	GWC	GWC	1330.2026	0.05932	0.97526	0.19297	294.22842	1	0.13391	0.13391	0.05932	0.97526	0.19297	294.22842	
1607.0579			1330.3364	0.03774	1.03818	0.21891	405.99139	1	0.13379	0.13379	0.03774	1.03818	0.21891	405.99139	
1607.2103			1330.4705	0.02496	0.88366	0.23956	338.83508	1	0.13403	0.13403	0.02496	0.88366	0.23956	338.83508	
1607.3627			1330.6043	0.02986	0.91672	0.23231	293.00259	1	0.13379	0.13379	0.02986	0.91672	0.23231	293.00259	
1607.5151			1330.738	0.02719	0.9758	0.239	329.87518	1	0.13379	0.13379	0.02719	0.9758	0.239	329.87518	
1607.6675			1330.8721	0.03034	0.86957	0.25312	421.77063	1	0.13403	0.13403	0.03034	0.86957	0.25312	421.77063	
1607.8199			1331.0059	0.0293	0.80627	0.25708	465.53384	1	0.13379	0.13379	0.0293	0.80627	0.25708	465.53384	
1607.9723			1331.1398	0.02803	0.8604	0.24645	372.84811	1	0.13391	0.13391	0.02803	0.8604	0.24645	372.84811	
1608.1247			1331.2737	0.0309	0.94867	0.22624	269.84009	1	0.13391	0.13391	0.0309	0.94867	0.22624	269.84009	
1608.2771			1331.4077	0.03091	0.89607	0.21885	251.17488	1	0.13403	0.13403	0.03091	0.89607	0.21885	251.17488	
1608.4295			1331.5415	0.02291	0.8775	0.21775	270.37708	1	0.13379	0.13379	0.02291	0.8775	0.21775	270.37708	
1608.5819			1331.6755	0.01803	0.96979	0.22592	304.61496	1	0.13404	0.13404	0.01803	0.96979	0.22592	304.61496	
1608.7343			1331.8095	0.01757	1.00094	0.23499	338.38559	1	0.13391	0.13391	0.01757	1.00094	0.23499	338.38559	
1608.8867			1331.9434	0.02595	0.95971	0.24665	379.83694	1	0.13391	0.13391	0.02595	0.95971	0.24665	379.83694	

1609.0391			1332.0773	0.0291	0.97678	0.24513	360.89398	1	0.13391	0.13391	0.0291	0.97678	0.24513	360.89398	
1609.1915			1332.2112	0.02061	0.93115	0.25113	430.3056	1	0.13391	0.13391	0.02061	0.93115	0.25113	430.3056	
1609.3439			1332.3452	0.02871	0.87593	0.24792	381.80444	1	0.13403	0.13403	0.02871	0.87593	0.24792	381.80444	
1609.4963			1332.4791	0.03124	0.84232	0.24127	331.51642	1	0.13392	0.13392	0.03124	0.84232	0.24127	331.51642	
1609.6487			1332.6132	0.03321	0.85591	0.23336	288.63232	1	0.13403	0.13403	0.03321	0.85591	0.23336	288.63232	
1609.8011			1332.7471	0.03944	0.90905	0.22373	242.14449	1	0.13391	0.13391	0.03944	0.90905	0.22373	242.14449	
1609.9535			1332.8811	0.03684	0.91538	0.22278	245.73882	1	0.13403	0.13403	0.03684	0.91538	0.22278	245.73882	
1610.1059			1333.015	0.025	0.90263	0.22348	277.811	1	0.13391	0.13391	0.025	0.90263	0.22348	277.811	
1610.2583			1333.1491	0.02527	0.9171	0.22552	282.65228	1	0.13404	0.13404	0.02527	0.9171	0.22552	282.65228	
1610.4107			1333.2831	0.0271	0.93743	0.22708	282.30978	1	0.13403	0.13403	0.0271	0.93743	0.22708	282.30978	
1610.5631			1333.4171	0.01555	0.93827	0.23058	327.22607	1	0.13403	0.13403	0.01555	0.93827	0.23058	327.22607	
1610.7155			1333.551	0.02443	0.92314	0.23361	312.71188	1	0.13392	0.13392	0.02443	0.92314	0.23361	312.71188	
1610.8679			1333.6852	0.0286	0.9363	0.2289	284.12607	1	0.13415	0.13415	0.0286	0.9363	0.2289	284.12607	
1611.0203			1333.8191	0.03057	0.93069	0.22685	272.52148	1	0.13391	0.13391	0.03057	0.93069	0.22685	272.52148	
1611.1727			1333.9531	0.02365	0.94366	0.22629	289.39789	1	0.13403	0.13403	0.02365	0.94366	0.22629	289.39789	
1611.3251			1334.0872	0.01369	0.92897	0.24267	389.75729	1	0.13404	0.13404	0.01369	0.92897	0.24267	389.75729	
1611.4775			1334.2212	0.00978	0.90314	0.26678	659.28308	1	0.13403	0.13403	0.00978	0.90314	0.26678	659.28308	
1611.6299			1334.3554	0.00945	0.89766	0.29043	1371.12878	1	0.13416	0.13416	0.00945	0.89766	0.29043	1371.12878	
1611.7823			1334.4893	0.00856	0.89015	0.30361	2229.75317	1	0.13391	0.13391	0.00856	0.89015	0.30361	2229.75317	
1611.9347			1334.6234	0.00784	0.89525	0.30344	2217.52271	1	0.13415	0.13415	0.00784	0.89525	0.30344	2217.52271	
1612.0871			1334.7575	0.02351	0.92593	0.28748	1194.7594	1	0.13404	0.13404	0.02351	0.92593	0.28748	1194.7594	
1612.2395			1334.8916	0.06516	1.00589	0.25192	339.18558	1	0.13415	0.13415	0.06516	1.00589	0.25192	339.18558	
1612.3919			1335.0256	0.17361	1.15698	0.20156	56.38969	1	0.13403	0.13403	0.17361	1.15698	0.20156	56.38969	
1612.5443			1335.1598	0.35582	1.53345	0.14816	5.58446	1	0.13416	0.13416	0.35582	1.53345	0.14816	5.58446	
1612.6967	BaseB	TopB1	1335.2938	0.68418	2.26834	0.09436	0.27102	0	0.13403						
1612.8491			1335.428	0.91951	2.54994	0.07567	0.09983	0	0.13416						
1613.0015			1335.562	0.89985	1.80744	0.09923	0.27414	0	0.13403						
1613.1539			1335.696	0.75522	1.20847	0.14043	1.64569	0	0.13403						
1613.3063			1335.8302	0.67213	1.2007	0.14159	1.76875	0	0.13416						
1613.4587			1335.9642	0.69667	1.2493	0.13514	1.33477	0	0.13403						
1613.6111			1336.0985	0.6937	1.15308	0.14516	2.04162	0	0.13428						
1613.7635			1336.2325	0.6768	1.08074	0.15112	2.64263	0	0.13403						
1613.9159	TopB1	BaseB1	1336.3667	0.48996	0.93608	0.16949	6.35585	1	0.13416	0.13416	0.48996	0.93608	0.16949	6.35585	
1614.0683			1336.5009	0.28537	0.75702	0.2044	34.31177	1	0.13415	0.13415	0.28537	0.75702	0.2044	34.31177	
1614.2207			1336.635	0.16099	0.67301	0.24253	176.70859	1	0.13416	0.13416	0.16099	0.67301	0.24253	176.70859	
1614.3731			1336.7692	0.08276	0.74327	0.27046	568.90747	1	0.13416	0.13416	0.08276	0.74327	0.27046	568.90747	
1614.5255			1336.9034	0.03129	0.89046	0.28487	1069.61108	1	0.13427	0.13427	0.03129	0.89046	0.28487	1069.61108	
1614.6779			1337.0375	0.00546	0.97068	0.28821	1282.95129	1	0.13404	0.13404	0.00546	0.97068	0.28821	1282.95129	
1614.8303			1337.1718	0.01086	0.97271	0.28091	1008.31671	1	0.13427	0.13427	0.01086	0.97271	0.28091	1008.31671	
1614.9827			1337.3059	0.01098	0.90966	0.28234	1037.83655	1	0.13416	0.13416	0.01098	0.90966	0.28234	1037.83655	
1615.1351			1337.4401	0.00392	0.9032	0.28711	1241.50549	1	0.13415	0.13415	0.00392	0.9032	0.28711	1241.50549	
1615.2875			1337.5742	0	0.90746	0.29955	1942.75549	1	0.13416	0.13416	0	0.90746	0.29955	1942.75549	
1615.4399			1337.7084	0	0.90284	0.30683	2555.29492	1	0.13415	0.13415	0	0.90284	0.30683	2555.29492	
1615.5923			1337.8427	0.00252	0.88135	0.31173	3081.78027	1	0.13428	0.13428	0.00252	0.88135	0.31173	3081.78027	
1615.7447			1337.9768	0.00133	0.87728	0.31104	3003.9021	1	0.13416	0.13416	0.00133	0.87728	0.31104	3003.9021	
1615.8971			1338.1111	0	0.87924	0.31223	3152.35938	1	0.13427	0.13427	0	0.87924	0.31223	3152.35938	
1616.0495			1338.2454	0	0.87338	0.31562	3605.75049	1	0.13428	0.13428	0	0.87338	0.31562	3605.75049	
1616.2019			1338.3796	0.01016	0.85354	0.32004	4271.57178	1	0.13428	0.13428	0.01016	0.85354	0.32004	4271.57178	
1616.3543			1338.5138	0.02128	0.82312	0.32487	5174.67334	1	0.13415	0.13415	0.02128	0.82312	0.32487	5174.67334	
1616.5067			1338.6481	0.03082	0.82181	0.32194	4555.46582	1	0.13428	0.13428	0.03082	0.82181	0.32194	4555.46582	
1616.6591			1338.7824	0.04968	0.82112	0.31958	4087.71729	1	0.13428	0.13428	0.04968	0.82112	0.31958	4087.71729	
1616.8115			1338.9166	0.07667	0.83165	0.31513	3351.39307	1	0.13428	0.13428	0.07667	0.83165	0.31513	3351.39307	
1616.9639			1339.0508	0.09349	0.83877	0.31	2682.20044	1	0.13415	0.13415	0.09349	0.83877	0.31	2682.20044	
1617.1163			1339.1851	0.11561	0.83649	0.30367	2036.42786	1	0.13428	0.13428	0.11561	0.83649	0.30367	2036.42786	
1617.2687			1339.3193	0.15744	0.85232	0.2856	937.18011	1	0.13428	0.13428	0.15744	0.85232	0.2856	937.18011	
1617.4211			1339.4536	0.17222	0.85098	0.27118	512.59558	1	0.13427	0.13427	0.17222	0.85098	0.27118	512.59558	
1617.5735			1339.5879	0.15938	0.85849	0.26534	411.2236	1	0.13428	0.13428	0.15938	0.85849	0.26534	411.2236	
1617.7259			1339.7222	0.14508	0.86331	0.27225	549.25391	1	0.13428	0.13428	0.14508	0.86331	0.27225	549.25391	
1617.8783			1339.8566	0.14284	0.86282	0.27771	684.97131	1	0.1344	0.1344	0.14284	0.86282	0.27771	684.97131	
1618.0307			1339.9908	0.15701	0.88351	0.27085	513.06891	1	0.13427	0.13427	0.15701	0.88351	0.27085	513.06891	
1618.1831			1340.1251	0.15748	0.90706	0.26605	423.84564	1	0.13428	0.13428	0.15748	0.90706	0.26605	423.84564	
1618.3355			1340.2594	0.13035	0.90885	0.26149	371.60153	1	0.13428	0.13428	0.13035	0.90885	0.26149	371.60153	
1618.4879			1340.3938	0.08449	0.91118	0.25982	394.64099	1	0.1344	0.1344	0.08449	0.91118	0.25982	394.64099	
1618.6403			1340.5281	0.04064	0.88407	0.27214	677.75696	1	0.13428	0.13428	0.04064	0.88407	0.27214	677.75696	
1618.7927			1340.6625	0.00444	0.87221	0.28763	1261.56519	1	0.1344	0.1344	0.00444	0.87221	0.28763	1261.56519	
1618.9451			1340.7968	0.00544	0.90152	0.29523	1641.74854	1	0.13427	0.13427	0.00544	0.90152	0.29523	1641.74854	
1619.0975			1340.931	0.02129	0.90204	0.29861	1806.5238	1	0.13428	0.13428	0.02129	0.90204	0.29861	1806.5238	
1619.2499			1341.0656	0.03703	0.90554	0.29552	1567.11401	1	0.13452	0.13452	0.03703	0.90554	0.29552	1567.11401	
1619.4023			1341.1998	0.05286	0.88286	0.29495	1499.41736	1	0.13428	0.13428	0.05286	0.88286	0.29495	1499.41736	
1619.5547			1341.3342	0.07323	0.8461	0.29925	1741.20178	1	0.1344	0.1344	0.07323	0.8461	0.29925	1741.20178	
1619.7071			1341.4685	0.09142	0.83652	0.28893	1129.94189	1	0.13428	0.13428	0.09142	0.83652	0.28893	1129.94189	
1619.8595			1341.603	0.08129	0.90476	0.275	672.18494	1	0.13452	0.13452	0.08129	0.90476	0.275	672.18494	
1620.0119			1341.7373	0.05614	0.94265	0.27024	606.35236	1	0.13427	0.13427	0.05614	0.94265	0.27024	606.35236	
1620.1643			1341.8717	0.03037	0.92302	0.27893	874.14575	1	0.1344	0.1344	0.03037	0.92302	0.27893	874.14575	
1620.3167			1342.0061	0.01408	0.90868	0.28675	1192.1897	1	0.1344	0.1344	0.01408	0.90868	0.28675	1192.1897	
1620.4691			1342.1406	0.0078	0.96379	0.27628	868.27209	1	0.13452	0.13452	0.0078	0.96379	0.27628	868.27209	
1620.6215			1342.2749	0.01348	0.99	0.26178	570.03009	1	0.13428	0.13428	0.01348	0.99	0.26178	570.03009	
1620.7739			1342.4094	0.01303	0.96289	0.25929	538.75238	1	0.13452	0.13452	0.01303	0.96289	0.25929	538.75238	
1620.9263			1342.5438	0.02533	0.97449	0.25559	459.79929	1	0.1344	0.1344	0.02533	0.97449	0.25559	459.79929	
1621.0787			1342.6781	0.05629	0.9696	0.25157	350.54684	1	0.13428	0.13428	0.05629	0.9696	0.25157	350.54684	

1621.2311			1342.8126	0.09382	0.90187	0.26412	443.36969	1	0.13452	0.13452	0.09382	0.90187	0.26412	443.36969	
1621.3835			1342.947	0.12649	0.89944	0.27625	657.13031	1	0.1344	0.1344	0.12649	0.89944	0.27625	657.13031	
1621.5359			1343.0815	0.09919	0.88745	0.29169	1253.21399	1	0.13452	0.13452	0.09919	0.88745	0.29169	1253.21399	
1621.6883			1343.2159	0.07766	0.88595	0.29951	1753.50598	1	0.1344	0.1344	0.07766	0.88595	0.29951	1753.50598	
1621.8407			1343.3505	0.05953	0.91182	0.30582	2300.06641	1	0.13452	0.13452	0.05953	0.91182	0.30582	2300.06641	
1621.9931			1343.4849	0.04176	0.91069	0.31217	3022.50879	1	0.1344	0.1344	0.04176	0.91069	0.31217	3022.50879	
1622.1455			1343.6194	0.03267	0.90555	0.31603	3565.15918	1	0.13452	0.13452	0.03267	0.90555	0.31603	3565.15918	
1622.2979			1343.7538	0.02391	0.86993	0.32541	5282.8291	1	0.1344	0.1344	0.02391	0.86993	0.32541	5282.8291	
1622.4503			1343.8883	0.03212	0.84732	0.328	5865.08838	1	0.13453	0.13453	0.03212	0.84732	0.328	5865.08838	
1622.6027			1344.0228	0.03535	0.83915	0.32678	5564.20215	1	0.13452	0.13452	0.03535	0.83915	0.32678	5564.20215	
1622.7551			1344.1574	0.04918	0.83826	0.32107	4351.72803	1	0.13452	0.13452	0.04918	0.83826	0.32107	4351.72803	
1622.9075			1344.2918	0.05928	0.85214	0.31507	3370.23413	1	0.1344	0.1344	0.05928	0.85214	0.31507	3370.23413	
1623.0599			1344.4263	0.05431	0.87452	0.30911	2642.37476	1	0.13452	0.13452	0.05431	0.87452	0.30911	2642.37476	
1623.2123			1344.5608	0.05051	0.87147	0.30971	2715.84595	1	0.13452	0.13452	0.05051	0.87147	0.30971	2715.84595	
1623.3647			1344.6953	0.04843	0.85715	0.31538	3435.07031	1	0.13452	0.13452	0.04843	0.85715	0.31538	3435.07031	
1623.5171			1344.8298	0.03762	0.82563	0.32822	5907.58936	1	0.13452	0.13452	0.03762	0.82563	0.32822	5907.58936	
1623.6695			1344.9644	0.03088	0.78095	0.34026	9860.52734	1	0.13453	0.13453	0.03088	0.78095	0.34026	9860.52734	
1623.8219			1345.099	0.03356	0.78132	0.34062	10005.9961	1	0.13464	0.13464	0.03356	0.78132	0.34062	10005.9961	
1623.9743			1345.2334	0.03819	0.80392	0.33235	7030.45166	1	0.1344	0.1344	0.03819	0.80392	0.33235	7030.45166	
1624.1267			1345.368	0.0402	0.8597	0.31734	3744.30127	1	0.13464	0.13464	0.0402	0.8597	0.31734	3744.30127	
1624.2791			1345.5026	0.04367	0.86029	0.31319	3148.06323	1	0.13452	0.13452	0.04367	0.86029	0.31319	3148.06323	
1624.4315			1345.6372	0.03686	0.87485	0.3124	3062.74097	1	0.13465	0.13465	0.03686	0.87485	0.3124	3062.74097	
1624.5839			1345.7717	0.02543	0.87267	0.31516	3457.90649	1	0.13452	0.13452	0.02543	0.87267	0.31516	3457.90649	
1624.7363			1345.9063	0.03122	0.87428	0.31538	3475.17212	1	0.13452	0.13452	0.03122	0.87428	0.31538	3475.17212	
1624.8887			1346.0409	0.03864	0.854	0.32126	4409.88574	1	0.13464	0.13464	0.03864	0.854	0.32126	4409.88574	
1625.0411			1346.1754	0.0285	0.84052	0.32327	4822.19434	1	0.13453	0.13453	0.0285	0.84052	0.32327	4822.19434	
1625.1935			1346.3101	0.02567	0.83674	0.31849	3962.40283	1	0.13464	0.13464	0.02567	0.83674	0.31849	3962.40283	
1625.3459			1346.4446	0.02813	0.84406	0.31711	3737.6626	1	0.13452	0.13452	0.02813	0.84406	0.31711	3737.6626	
1625.4983			1346.5792	0.035	0.83013	0.32311	4772.6001	1	0.13464	0.13464	0.035	0.83013	0.32311	4772.6001	
1625.6507			1346.7138	0.05237	0.86285	0.31695	3658.98022	1	0.13453	0.13453	0.05237	0.86285	0.31695	3658.98022	
1625.8031			1346.8485	0.06793	0.88411	0.31148	2888.57861	1	0.13476	0.13476	0.06793	0.88411	0.31148	2888.57861	
1625.9555			1346.983	0.09091	0.87342	0.30542	2217.59766	1	0.13452	0.13452	0.09091	0.87342	0.30542	2217.59766	
1626.1079			1347.1178	0.08392	0.8344	0.30735	2412.03369	1	0.13477	0.13477	0.08392	0.8344	0.30735	2412.03369	
1626.2603			1347.2523	0.07867	0.81211	0.30572	2260.9646	1	0.13452	0.13452	0.07867	0.81211	0.30572	2260.9646	
1626.4127			1347.387	0.0736	0.78231	0.29797	1652.55847	1	0.13464	0.13464	0.0736	0.78231	0.29797	1652.55847	
1626.5651			1347.5216	0.06619	0.80977	0.2893	1184.98535	1	0.13465	0.13465	0.06619	0.80977	0.2893	1184.98535	
1626.7175			1347.6563	0.05939	0.85781	0.28371	966.65411	1	0.13464	0.13464	0.05939	0.85781	0.28371	966.65411	
1626.8699			1347.7909	0.05746	0.99898	0.27338	671.35352	1	0.13464	0.13464	0.05746	0.99898	0.27338	671.35352	
1627.0223			1347.9255	0.05402	0.9651	0.27133	632.78381	1	0.13465	0.13465	0.05402	0.9651	0.27133	632.78381	
1627.1747			1348.0603	0.04396	0.94372	0.2766	777.42157	1	0.13476	0.13476	0.04396	0.94372	0.2766	777.42157	
1627.3271			1348.195	0.03701	0.88394	0.28288	983.41333	1	0.13465	0.13465	0.03701	0.88394	0.28288	983.41333	
1627.4795			1348.3296	0.02616	0.92095	0.27581	800.17041	1	0.13464	0.13464	0.02616	0.92095	0.27581	800.17041	
1627.6319			1348.4642	0.01548	0.94027	0.27372	780.24609	1	0.13464	0.13464	0.01548	0.94027	0.27372	780.24609	
1627.7843			1348.599	0.01204	0.96116	0.28084	985.2049	1	0.13477	0.13477	0.01204	0.96116	0.28084	985.2049	
1627.9367			1348.7336	0.01453	0.91965	0.29585	1648.24316	1	0.13464	0.13464	0.01453	0.91965	0.29585	1648.24316	
1628.0891			1348.8684	0.02042	0.91904	0.30421	2244.33813	1	0.13477	0.13477	0.02042	0.91904	0.30421	2244.33813	
1628.2415			1349.0032	0.02339	0.93662	0.30354	2177.8457	1	0.13476	0.13476	0.02339	0.93662	0.30354	2177.8457	
1628.3939			1349.1379	0.01531	0.9392	0.30404	2245.06958	1	0.13477	0.13477	0.01531	0.9392	0.30404	2245.06958	
1628.5463			1349.2726	0.01223	0.91601	0.30405	2256.06812	1	0.13464	0.13464	0.01223	0.91601	0.30405	2256.06812	
1628.6987			1349.4072	0.019	0.86818	0.30724	2532.29126	1	0.13465	0.13465	0.019	0.86818	0.30724	2532.29126	
1628.8511			1349.542	0.03126	0.84131	0.30687	2461.40259	1	0.13476	0.13476	0.03126	0.84131	0.30687	2461.40259	
1629.0035			1349.6768	0.05178	0.8127	0.31299	3105.37646	1	0.13477	0.13477	0.05178	0.8127	0.31299	3105.37646	
1629.1559			1349.8115	0.12383	0.93732	0.28472	924.9856	1	0.13476	0.13476	0.12383	0.93732	0.28472	924.9856	
1629.3083			1349.9463	0.21623	1.1497	0.24531	174.81293	1	0.13477	0.13477	0.21623	1.1497	0.24531	174.81293	
1629.4607			1350.0811	0.37501	1.38568	0.19234	18.12598	1	0.13476	0.13476	0.37501	1.38568	0.19234	18.12598	
1629.6131	BaseB1	TopB2	1350.2158	0.58576	1.58416	0.13556	1.49498	0	0.13477						
1629.7655			1350.3506	0.77298	1.70092	0.10179	0.31949	0	0.13477						
1629.9179			1350.4854	0.88405	2.02061	0.08356	0.14112	0	0.13476						
1630.0703			1350.6202	0.94138	2.25448	0.07579	0.09971	0	0.13489						
1630.2227			1350.7549	1	2.18164	0.0779	0.10802	0	0.13464						
1630.3751			1350.8898	1	2.07613	0.0821	0.1295	0	0.13489						
1630.5275			1351.0245	1	2.21817	0.08958	0.17891	0	0.13477						
1630.6799			1351.1593	1	2.14861	0.09218	0.20025	0	0.13476						
1630.8323			1351.2942	1	1.96515	0.09873	0.26582	0	0.13489						
1630.9847			1351.429	1	1.50925	0.1058	0.36131	0	0.13477						
1631.1371			1351.5638	1	1.39848	0.11315	0.49693	0	0.13488						
1631.2895			1351.6986	1	1.56909	0.11675	0.58098	0	0.13477						
1631.4419			1351.8335	1	1.56739	0.11883	0.63591	0	0.13489						
1631.5943			1351.9683	1	1.54036	0.11938	0.65117	0	0.13476						
1631.7467			1352.1033	1	1.32409	0.1209	0.69579	0	0.13501						
1631.8991			1352.238	1	1.22415	0.12849	0.96728	0	0.13477						
1632.0515			1352.3729	1	1.08655	0.14533	2.0109	0	0.13488						
1632.2039			1352.5078	1	0.98687	0.16145	4.05343	0	0.13489						
1632.3563			1352.6427	1	1.04658	0.15537	3.11149	0	0.13489						
1632.5087			1352.7776	0.69798	1.17778	0.16406	4.58334	0	0.13489						
1632.6611	TopB2	BaseB2	1352.9124	0.4271	1.11509	0.21089	36.1338	1	0.13476	0.13476	0.4271	1.11509	0.21089	36.1338	
1632.8135			1353.0474	0.17772	1.02949	0.25507	269.11356	1	0.13501	0.13501	0.17772	1.02949	0.25507	269.11356	
1632.9659			1353.1821	0.02478	0.9724	0.28426	1063.80444	1	0.13477	0.13477	0.02478	0.9724	0.28426	1063.80444	
1633.1183			1353.3171	0.01547	0.95121	0.29161	1409.60413	1	0.13501	0.13501	0.01547	0.95121	0.29161	1409.60413	
1633.2707			1353.452	0.02262	0.90969	0.29943	1859.92639	1	0.13489	0.13489	0.02262	0.90969	0.29943	1859.92639	

1633.4231			1353.587	0.03242	0.86831	0.29982	1861.85071	1	0.13501	0.13501	0.03242	0.86831	0.29982	1861.85071	
1633.5755			1353.7218	0.02887	0.86235	0.29285	1436.21204	1	0.13476	0.13476	0.02887	0.86235	0.29285	1436.21204	
1633.7279			1353.8568	0.01255	0.88144	0.28954	1318.60767	1	0.13501	0.13501	0.01255	0.88144	0.28954	1318.60767	
1633.8803			1353.9917	0	0.8994	0.28565	1197.17615	1	0.13489	0.13489	0	0.8994	0.28565	1197.17615	
1634.0327			1354.1267	0	0.89472	0.28226	1073.83069	1	0.13501	0.13501	0	0.89472	0.28226	1073.83069	
1634.1851			1354.2616	0	0.84978	0.27809	945.22137	1	0.13489	0.13489	0	0.84978	0.27809	945.22137	
1634.3375			1354.3966	0.00395	0.86304	0.27207	781.75873	1	0.13501	0.13501	0.00395	0.86304	0.27207	781.75873	
1634.4899			1354.5316	0.00188	0.95544	0.26633	679.39899	1	0.13501	0.13501	0.00188	0.95544	0.26633	679.39899	
1634.6423			1354.6665	0	0.96967	0.26827	720.49139	1	0.13488	0.13488	0	0.96967	0.26827	720.49139	
1634.7947			1354.8015	0	0.90728	0.28092	1046.65784	1	0.13501	0.13501	0	0.90728	0.28092	1046.65784	
1634.9471			1354.9364	0	0.85368	0.28483	1165.76196	1	0.13489	0.13489	0	0.85368	0.28483	1165.76196	
1635.0995			1355.0715	0	0.83989	0.28436	1147.92761	1	0.13513	0.13513	0	0.83989	0.28436	1147.92761	
1635.2519			1355.2064	0	0.86566	0.27979	994.96222	1	0.13489	0.13489	0	0.86566	0.27979	994.96222	
1635.4043			1355.3414	0	0.90392	0.27504	864.8844	1	0.13501	0.13501	0	0.90392	0.27504	864.8844	
1635.5567			1355.4764	0	0.90115	0.27911	974.73181	1	0.13501	0.13501	0	0.90115	0.27911	974.73181	
1635.7091			1355.6115	0	0.89333	0.2835	1116.75891	1	0.13501	0.13501	0	0.89333	0.2835	1116.75891	
1635.8615			1355.7465	0	0.86957	0.28929	1350.96582	1	0.13501	0.13501	0	0.86957	0.28929	1350.96582	
1636.0139			1355.8816	0	0.85526	0.29317	1544.79761	1	0.13513	0.13513	0	0.85526	0.29317	1544.79761	
1636.1663			1356.0165	0	0.85805	0.29784	1825.07056	1	0.13489	0.13489	0	0.85805	0.29784	1825.07056	
1636.3187			1356.1516	0.00166	0.86008	0.30604	2472.58569	1	0.13513	0.13513	0.00166	0.86008	0.30604	2472.58569	
1636.4711			1356.2866	0.00137	0.84918	0.31058	2950.2312	1	0.13501	0.13501	0.00137	0.84918	0.31058	2950.2312	
1636.6235			1356.4216	0.00029	0.84225	0.30779	2650.8064	1	0.13501	0.13501	0.00029	0.84225	0.30779	2650.8064	
1636.7759			1356.5568	0	0.85184	0.30185	2115.75635	1	0.13513	0.13513	0	0.85184	0.30185	2115.75635	
1636.9283			1356.6918	0.00579	0.88217	0.29267	1496.9624	1	0.13501	0.13501	0.00579	0.88217	0.29267	1496.9624	
1637.0807			1356.8269	0.00437	0.93941	0.28328	1093.04163	1	0.13513	0.13513	0.00437	0.93941	0.28328	1093.04163	
1637.2331			1356.9619	0	0.96668	0.27506	865.38885	1	0.13501	0.13501	0	0.96668	0.27506	865.38885	
1637.3855			1357.0971	0	0.96655	0.26764	709.19757	1	0.13514	0.13514	0	0.96655	0.26764	709.19757	
1637.5379			1357.2321	0	0.94196	0.27143	782.67865	1	0.13501	0.13501	0	0.94196	0.27143	782.67865	
1637.6903			1357.3672	0	0.94839	0.27412	842.84973	1	0.13513	0.13513	0	0.94839	0.27412	842.84973	
1637.8427			1357.5022	0	1.00773	0.2659	679.23346	1	0.13501	0.13501	0	1.00773	0.2659	679.23346	
1637.9951			1357.6373	0	1.06598	0.25467	532.19183	1	0.13513	0.13513	0	1.06598	0.25467	532.19183	
1638.1475			1357.7725	0	1.10504	0.24241	435.66251	1	0.13513	0.13513	0	1.10504	0.24241	435.66251	
1638.2999			1357.9076	0	1.17537	0.22964	377.30157	1	0.13513	0.13513	0	1.17537	0.22964	377.30157	
1638.4523			1358.0427	0	1.24064	0.20402	324.46762	1	0.13513	0.13513	0	1.24064	0.20402	324.46762	
1638.6047			1358.1777	0	1.19053	0.19835	318.82123	1	0.13501	0.13501	0	1.19053	0.19835	318.82123	
1638.7571			1358.313	0.04076	1.21056	0.21652	222.77736	1	0.13526	0.13526	0.04076	1.21056	0.21652	222.77736	
1638.9095			1358.448	0.13244	1.29574	0.19055	70.27053	1	0.13501	0.13501	0.13244	1.29574	0.19055	70.27053	
1639.0619	BaseB2	TopA	1358.5833	0.25549	1.03131	0.16196	15.9257	1	0.13525	0.13525	0.25549	1.03131	0.16196	15.9257	
1639.2143			1358.7184	0.39265	0.98299	0.13615	3.42635	1	0.13513	0.13513	0.39265	0.98299	0.13615	3.42635	
1639.3667			1358.8535	0.46674	1.10195	0.12269	1.56457	1	0.13514	0.13514	0.46674	1.10195	0.12269	1.56457	
1639.5191			1358.9887	0.49989	1.01174	0.13809	2.00232	1	0.13513	0.13513	0.49989	1.01174	0.13809	2.00232	
1639.6715			1359.1239	0.51321	0.98322	0.14744	2.65512	0	0.13525						
1639.8239			1359.259	0.55795	1.02576	0.14569	2.29831	0	0.13513						
1639.9763			1359.3943	0.59036	1.13521	0.12981	1.19375	0	0.13526						
1640.1287			1359.5294	0.56162	1.38729	0.11342	0.74684	0	0.13513						
1640.2811			1359.6646	0.47141	1.27425	0.11185	1.23573	1	0.13513	0.13513	0.47141	1.27425	0.11185	1.23573	
1640.4335			1359.7998	0.3992	1.13064	0.11587	2.47071	1	0.13525	0.13525	0.3992	1.13064	0.11587	2.47071	
1640.5859			1359.9349	0.37009	1.04348	0.12592	3.62868	1	0.13514	0.13514	0.37009	1.04348	0.12592	3.62868	
1640.7383			1360.0702	0.37959	0.91472	0.1271	3.36061	1	0.13525	0.13525	0.37959	0.91472	0.1271	3.36061	
1640.8907			1360.2053	0.4117	1.00006	0.12465	2.4506	1	0.13513	0.13513	0.4117	1.00006	0.12465	2.4506	
1641.0431			1360.3406	0.43482	1.00777	0.13561	2.53609	1	0.13526	0.13526	0.43482	1.00777	0.13561	2.53609	
1641.1955			1360.4758	0.45531	0.99834	0.14982	3.38456	1	0.13525	0.13525	0.45531	0.99834	0.14982	3.38456	
1641.3479			1360.6111	0.47944	1.02615	0.14804	2.95503	1	0.13525	0.13525	0.47944	1.02615	0.14804	2.95503	
1641.5003			1360.7463	0.50797	1.04995	0.13977	2.06121	0	0.13526						
1641.6527			1360.8816	0.54367	1.05113	0.13422	1.54759	0	0.13525						
1641.8051			1361.0169	0.58745	1.122	0.1307	1.24069	0	0.13526						
1641.9575			1361.1521	0.64035	1.28705	0.12926	1.08985	0	0.13525						
1642.1099			1361.2874	0.67821	1.31548	0.1348	1.3279	0	0.13525						
1642.2623			1361.4225	0.66327	1.23037	0.146	2.13735	0	0.13514						
1642.4147			1361.5579	0.49261	1.04975	0.16975	6.40046	1	0.13537	0.13537	0.49261	1.04975	0.16975	6.40046	
1642.5671			1361.6931	0.37751	1.28306	0.13876	4.02707	1	0.13526	0.13526	0.37751	1.28306	0.13876	4.02707	
1642.7195			1361.8285	0.23756	0.96708	0.14381	16.6664	1	0.13537	0.13537	0.23756	0.96708	0.14381	16.6664	
1642.8719			1361.9638	0.19123	0.67256	0.14041	28.19254	1	0.13526	0.13526	0.19123	0.67256	0.14041	28.19254	
1643.0243			1362.099	0.20227	0.74448	0.13955	24.66868	1	0.13525	0.13525	0.20227	0.74448	0.13955	24.66868	
1643.1767			1362.2343	0.27997	0.88531	0.15511	11.72148	1	0.13525	0.13525	0.27997	0.88531	0.15511	11.72148	
1643.3291			1362.3696	0.37691	1.27698	0.12382	3.32424	1	0.13538	0.13538	0.37691	1.27698	0.12382	3.32424	
1643.4815			1362.5049	0.44088	1.1866	0.14389	3.01692	1	0.13525	0.13525	0.44088	1.1866	0.14389	3.01692	
1643.6339			1362.6404	0.50034	1.14492	0.16313	4.89087	0	0.1355						
1643.7863			1362.7756	0.55316	1.05282	0.16948	6.01879	0	0.13525						
1643.9387			1362.911	0.58291	1.10613	0.15978	3.95599	0	0.13538						
1644.0911			1363.0463	0.55785	1.02651	0.16872	5.81579	0	0.13525						
1644.2435			1363.1815	0.52011	1.006	0.17232	6.91537	0	0.13526						
1644.3959			1363.317	0.49393	1.01752	0.17702	8.55329	1	0.1355	0.1355	0.49393	1.01752	0.17702	8.55329	
1644.5483			1363.4523	0.50294	1.18646	0.1635	4.94518	0	0.13525						
1644.7007			1363.5878	0.54989	1.36781	0.16624	5.27518	0	0.1355						
1644.8531			1363.723	0.553	1.17075	0.16176	4.37984	0	0.13525						
1645.0055			1363.8585	0.47935	1.14555	0.15291	3.48901	1	0.1355	0.1355	0.47935	1.14555	0.15291	3.48901	
1645.1579			1363.9938	0.43407	1.18688	0.13665	2.60877	1	0.13525	0.13525	0.43407	1.18688	0.13665	2.60877	
1645.3103			1364.1293	0.39676	1.20102	0.14089	3.63007	1	0.1355	0.1355	0.39676	1.20102	0.14089	3.63007	
1645.4627			1364.2647	0.41857	1.28749	0.1383	2.97768	1	0.13538	0.13538	0.41857	1.28749	0.1383	2.97768	

1645.6151			1364.4	0.43352	1.2285	0.15364	4.12434	1	0.13537	0.13537	0.43352	1.2285	0.15364	4.12434		
1645.7675			1364.5354	0.45809	1.09864	0.17755	9.07113	1	0.13538	0.13538	0.45809	1.09864	0.17755	9.07113		
1645.9199			1364.6709	0.48753	1.06314	0.18055	9.92353	1	0.1355	0.1355	0.48753	1.06314	0.18055	9.92353		
1646.0723			1364.8063	0.48046	0.96692	0.17598	8.30679	1	0.13537	0.13537	0.48046	0.96692	0.17598	8.30679		
1646.2247			1364.9417	0.45861	0.87251	0.17464	8.09318	1	0.13538	0.13538	0.45861	0.87251	0.17464	8.09318		
1646.3771			1365.0772	0.49005	0.91908	0.16372	5.07776	1	0.1355	0.1355	0.49005	0.91908	0.16372	5.07776		
1646.5295			1365.2125	0.52964	1.029	0.15375	3.26634	0	0.13537							
1646.6819			1365.348	0.54973	1.209	0.14316	2.11369	0	0.1355							
1646.8343			1365.4834	0.50196	1.09567	0.16245	4.75298	0	0.13538							
1646.9867			1365.6189	0.51568	1.06549	0.1683	5.89729	0	0.1355							
1647.1391			1365.7544	0.55592	1.08153	0.16359	4.7116	0	0.13549							
1647.2915			1365.8899	0.57848	1.15652	0.15159	2.83734	0	0.1355							
1647.4439			1366.0253	0.6471	1.28117	0.13624	1.43717	0	0.13538							
1647.5963			1366.1609	0.65919	1.3162	0.13219	1.20658	0	0.13562							
1647.7487			1366.2963	0.60193	1.23476	0.14363	2.01435	0	0.13537							
1647.9011			1366.4318	0.56374	1.18282	0.15601	3.43748	0	0.1355							
1648.0535			1366.5673	0.54104	1.19959	0.15895	3.95248	0	0.1355							
1648.2059			1366.7028	0.50949	1.22309	0.16045	4.35382	0	0.1355							
1648.3583			1366.8383	0.4865	1.21692	0.1561	3.8456	1	0.1355	0.1355	0.4865	1.21692	0.1561	3.8456		
1648.5107			1366.9738	0.4761	1.27603	0.13962	2.29087	1	0.13549	0.13549	0.4761	1.27603	0.13962	2.29087		
1648.6631			1367.1094	0.59017	1.41358	0.11109	0.62409	0	0.13563							
1648.8155			1367.2449	0.61928	1.39497	0.10987	0.54822	0	0.13549							
1648.9679			1367.3804	0.65267	1.30706	0.11913	0.72072	0	0.1355							
1649.1203			1367.5159	0.67315	1.26511	0.13128	1.15112	0	0.1355							
1649.2727			1367.6515	0.61094	1.19207	0.14699	2.29179	0	0.13562							
1649.4251			1367.787	0.64554	1.18903	0.14835	2.37707	0	0.1355							
1649.5775			1367.9226	0.57484	1.05311	0.16436	4.80607	0	0.13562							
1649.7299			1368.0581	0.57318	1.03138	0.16606	5.16401	0	0.1355							
1649.8823			1368.1937	0.53943	1.03926	0.16597	5.25785	0	0.13562							
1650.0347			1368.3292	0.49318	0.98168	0.17653	8.38862	1	0.13549	0.13549	0.49318	0.98168	0.17653	8.38862		
1650.1871			1368.4648	0.50641	0.97851	0.17687	8.41782	0	0.13562							
1650.3395			1368.6005	0.49565	0.9042	0.18862	13.7731	1	0.13562	0.13562	0.49565	0.9042	0.18862	13.7731		
1650.4919			1368.736	0.50626	0.91041	0.18664	12.61289	0	0.1355							
1650.6443			1368.8717	0.49814	0.91707	0.18647	12.57695	1	0.13574	0.13574	0.49814	0.91707	0.18647	12.57695		
1650.7967			1369.0072	0.5432	0.97624	0.17978	9.30189	0	0.1355							
1650.9491			1369.1429	0.60827	1.07631	0.16581	5.03386	0	0.13574							
1651.1015			1369.2784	0.60005	1.03217	0.17399	7.14292	0	0.1355							
1651.2539			1369.4142	0.63091	1.0582	0.16656	5.16353	0	0.13574							
1651.4063			1369.5497	0.68579	1.11547	0.1572	3.41877	0	0.1355							
1651.5587			1369.6854	0.73141	1.21884	0.14289	1.83623	0	0.13574							
1651.7111			1369.821	0.74238	1.27077	0.13847	1.51689	0	0.13562							
1651.8635			1369.9567	0.69771	1.15425	0.1529	2.83778	0	0.13563							
1652.0159			1370.0923	0.63949	1.03523	0.1711	6.25778	0	0.13562							
1652.1683			1370.2279	0.66353	1.06584	0.16527	4.85139	0	0.13562							
1652.3207			1370.3637	0.74631	1.17069	0.14897	2.37896	0	0.13574							
1652.4731			1370.4993	0.6535	1.09919	0.16101	4.05229	0	0.13562							
1652.6255			1370.635	0.52372	0.961	0.18573	12.04369	0	0.13574							
1652.7779	TopA	EUM	1370.7706	0.39015	0.91171	0.20251	26.30817	1	0.13562	0.13562	0.39015	0.91171	0.20251	26.30817		
1652.9303			1370.9064	0.29527	0.90809	0.21755	53.60169	1	0.13574	0.13574	0.29527	0.90809	0.21755	53.60169		
1653.0827			1371.042	0.28051	0.99133	0.21811	56.21478	1	0.13562	0.13562	0.28051	0.99133	0.21811	56.21478		
1653.2351			1371.1777	0.25385	0.97382	0.23276	102.09071	1	0.13574	0.13574	0.25385	0.97382	0.23276	102.09071		
1653.3875			1371.3135	0.23436	0.94614	0.2416	147.68494	1	0.13575	0.13575	0.23436	0.94614	0.2416	147.68494		
1653.5399			1371.4492	0.22317	0.9274	0.24779	190.89421	1	0.13574	0.13574	0.22317	0.9274	0.24779	190.89421		
1653.6923			1371.5848	0.22005	0.94441	0.24674	183.85257	1	0.13562	0.13562	0.22005	0.94441	0.24674	183.85257		
1653.8447			1371.7207	0.2221	0.98323	0.23731	127.73827	1	0.13586	0.13586	0.2221	0.98323	0.23731	127.73827		
1653.9971			1371.8563	0.23305	1.08615	0.21642	59.90104	1	0.13562	0.13562	0.23305	1.08615	0.21642	59.90104		
1654.1495			1371.9921	0.23845	1.344	0.18777	27.35044	1	0.13575	0.13575	0.23845	1.344	0.18777	27.35044		
1654.3019			1372.1278	0.24522	1.5679	0.15498	16.47808	1	0.13574	0.13574	0.24522	1.5679	0.15498	16.47808		
1654.4543			1372.2636	0.23499	1.63279	0.12786	16.21394	1	0.13574	0.13574	0.23499	1.63279	0.12786	16.21394		
1654.6067			1372.3993	0.20174	1.64185	0.11037	23.70208	1	0.13574	0.13574	0.20174	1.64185	0.11037	23.70208		
1654.7591			1372.535	0.18002	1.51223	0.1045	30.95867	1	0.13574	0.13574	0.18002	1.51223	0.1045	30.95867		
1654.9115			1372.6709	0.17235	1.33168	0.10884	34.14869	1	0.13587	0.13587	0.17235	1.33168	0.10884	34.14869		
1655.0639			1372.8066	0.16706	0.982	0.12476	36.89465	1	0.13574	0.13574	0.16706	0.982	0.12476	36.89465		
1655.2163			1372.9425	0.17857	0.84682	0.15487	34.23075	1	0.13586	0.13586	0.17857	0.84682	0.15487	34.23075		
1655.3687			1373.0783	0.20827	0.93048	0.19263	37.13805	1	0.13575	0.13575	0.20827	0.93048	0.19263	37.13805		
1655.5211			1373.214	0.21053	0.97765	0.23293	111.53127	1	0.13574	0.13574	0.21053	0.97765	0.23293	111.53127		
1655.6735			1373.3497	0.21664	1.05392	0.25252	231.98541	1	0.13574	0.13574	0.21664	1.05392	0.25252	231.98541		
1655.8259			1373.4856	0.23173	1.01349	0.25595	262.84384	1	0.13587	0.13587	0.23173	1.01349	0.25595	262.84384		
1655.9783			1373.6215	0.22574	1.01831	0.25364	240.48648	1	0.13586	0.13586	0.22574	1.01831	0.25364	240.48648		
1656.1307			1373.7572	0.21161	1.01794	0.25712	280.31332	1	0.13574	0.13574	0.21161	1.01794	0.25712	280.31332		
1656.2831			1373.8931	0.20499	1.01436	0.25903	304.60727	1	0.13587	0.13587	0.20499	1.01436	0.25903	304.60727		
1656.4355			1374.0288	0.20725	1.02283	0.2518	227.82233	1	0.13574	0.13574	0.20725	1.02283	0.2518	227.82233		
1656.5879			1374.1647	0.24163	1.07318	0.24678	179.73387	1	0.13586	0.13586	0.24163	1.07318	0.24678	179.73387		
1656.7403			1374.3005	0.24173	1.06909	0.2516	218.33211	1	0.13587	0.13587	0.24173	1.06909	0.2516	218.33211		
1656.8927			1374.4364	0.2694	1.01229	0.25244	221.86673	1	0.13586	0.13586	0.2694	1.01229	0.25244	221.86673		
1657.0451			1374.5723	0.28639	1.05455	0.24157	140.07269	1	0.13587	0.13587	0.28639	1.05455	0.24157	140.07269		
1657.1975			1374.7081	0.2787	1.07776	0.24367	153.51469	1	0.13586	0.13586	0.2787	1.07776	0.24367	153.51469		
1657.3499			1374.844	0.22246	1.03192	0.25194	225.28226	1	0.13586	0.13586	0.22246	1.03192	0.25194	225.28226		
1657.5023			1374.9799	0.18986	0.97406	0.2656	402.66681	1	0.13587	0.13587	0.18986	0.97406	0.2656	402.66681		
1657.6547			1375.1157	0.18444	0.95234	0.26999	483.56183	1	0.13586	0.13586	0.18444	0.95234	0.26999	483.56183		

1657.8071			1375.2516	0.18189	0.95364	0.27036	491.93558	1	0.13587	0.13587	0.18189	0.95364	0.27036	491.93558				
1657.9595			1375.3875	0.20797	0.98404	0.26213	344.57333	1	0.13586	0.13586	0.20797	0.98404	0.26213	344.57333				
1658.1119			1375.5233	0.20805	0.9861	0.26247	349.36526	1	0.13587	0.13587	0.20805	0.9861	0.26247	349.36526				
1658.2643			1375.6593	0.21377	0.98126	0.26352	363.15228	1	0.13598	0.13598	0.21377	0.98126	0.26352	363.15228				
1658.4167			1375.7952	0.21163	0.94484	0.26716	422.59851	1	0.13587	0.13587	0.21163	0.94484	0.26716	422.59851				
1658.5691			1375.931	0.19805	0.92371	0.26212	347.28787	1	0.13586	0.13586	0.19805	0.92371	0.26212	347.28787				
1658.7215			1376.0669	0.21405	0.93425	0.25529	259.77438	1	0.13586	0.13586	0.21405	0.93425	0.25529	259.77438				
1658.8739			1376.2029	0.20658	0.94917	0.25218	231.42982	1	0.13599	0.13599	0.20658	0.94917	0.25218	231.42982				
1659.0263			1376.3389	0.20802	0.95726	0.25334	241.93109	1	0.13599	0.13599	0.20802	0.95726	0.25334	241.93109				
1659.1787			1376.4749	0.21138	0.99039	0.25046	215.05045	1	0.13598	0.13598	0.21138	0.99039	0.25046	215.05045				
1659.3311			1376.6107	0.19324	1.02705	0.25198	233.69621	1	0.13587	0.13587	0.19324	1.02705	0.25198	233.69621				
1659.4835			1376.7467	0.15848	1.00613	0.26294	374.86697	1	0.13598	0.13598	0.15848	1.00613	0.26294	374.86697				
1659.6359			1376.8826	0.11508	0.92987	0.28344	885.5827	1	0.13587	0.13587	0.11508	0.92987	0.28344	885.5827				
1659.7883			1377.0184	0.0795	0.92253	0.28329	920.06342	1	0.13586	0.13586	0.0795	0.92253	0.28329	920.06342				
1659.9407			1377.1544	0.05829	0.89704	0.29683	1603.95496	1	0.13599	0.13599	0.05829	0.89704	0.29683	1603.95496				
1660.0931			1377.2903	0.04571	0.90509	0.30212	2005.94153	1	0.13586	0.13586	0.04571	0.90509	0.30212	2005.94153				
1660.2455			1377.4263	0.03986	0.92357	0.30213	2019.90942	1	0.13599	0.13599	0.03986	0.92357	0.30213	2019.90942				
1660.3979			1377.5623	0.03978	0.92237	0.30598	2355.56177	1	0.13599	0.13599	0.03978	0.92237	0.30598	2355.56177				
1660.5503			1377.6982	0.0358	0.92471	0.30427	2209.19434	1	0.13598	0.13598	0.0358	0.92471	0.30427	2209.19434				
1660.7027			1377.8341	0.03959	0.91291	0.3007	1909.88489	1	0.13587	0.13587	0.03959	0.91291	0.3007	1909.88489				
1660.8551			1377.9702	0.05002	0.92811	0.29729	1649.09424	1	0.1361	0.1361	0.05002	0.92811	0.29729	1649.09424				
1661.0075			1378.1061	0.05582	0.96231	0.30112	1908.22925	1	0.13587	0.13587	0.05582	0.96231	0.30112	1908.22925				
1661.1599			1378.2421	0.05812	0.96255	0.3064	2358.59546	1	0.13599	0.13599	0.05812	0.96255	0.3064	2358.59546				
1661.3123			1378.3781	0.06144	0.91848	0.30781	2492.56982	1	0.13598	0.13598	0.06144	0.91848	0.30781	2492.56982				
1661.4647			1378.514	0.06572	0.89781	0.30408	2134.72974	1	0.13599	0.13599	0.06572	0.89781	0.30408	2134.72974				
1661.6171			1378.65	0.08075	0.91842	0.29833	1667.19495	1	0.13598	0.13598	0.08075	0.91842	0.29833	1667.19495				
1661.7695			1378.786	0.10009	0.91657	0.29706	1559.68506	1	0.13599	0.13599	0.10009	0.91657	0.29706	1559.68506				
1661.9219			1378.9221	0.11339	0.89417	0.3005	1785.2146	1	0.13611	0.13611	0.11339	0.89417	0.3005	1785.2146				
1662.0743			1379.058	0.13114	0.89728	0.29917	1674.51721	1	0.13586	0.13586	0.13114	0.89728	0.29917	1674.51721				
1662.2267			1379.1941	0.12736	0.87645	0.30621	2256.69263	1	0.13611	0.13611	0.12736	0.87645	0.30621	2256.69263				
1662.3791			1379.3301	0.12445	0.83187	0.31529	3321.64038	1	0.13599	0.13599	0.12445	0.83187	0.31529	3321.64038				
1662.5315			1379.4662	0.12105	0.82147	0.30801	2440.18042	1	0.13611	0.13611	0.12105	0.82147	0.30801	2440.18042				
1662.6839			1379.6022	0.10709	0.79407	0.31269	2989.48828	1	0.13598	0.13598	0.10709	0.79407	0.31269	2989.48828				
1662.8363			1379.7383	0.08249	0.83088	0.3042	2118.38892	1	0.13611	0.13611	0.08249	0.83088	0.3042	2118.38892				
1662.9887			1379.8743	0.07433	0.93211	0.28078	843.41516	1	0.13599	0.13599	0.07433	0.93211	0.28078	843.41516				
1663.1411			1380.0104	0.0536	0.99373	0.27164	640.09814	1	0.13611	0.13611	0.0536	0.99373	0.27164	640.09814				
1663.2935			1380.1464	0.03223	1.02103	0.2661	582.64874	1	0.13598	0.13598	0.03223	1.02103	0.2661	582.64874				
1663.4459			1380.2825	0.0256	1.12175	0.24793	390.19003	1	0.13611	0.13611	0.0256	1.12175	0.24793	390.19003				
1663.5983			1380.4186	0.02943	1.1407	0.23768	317.34381	1	0.13611	0.13611	0.02943	1.1407	0.23768	317.34381				
1663.7507			1380.5546	0.02656	1.08954	0.23855	329.23972	1	0.13599	0.13599	0.02656	1.08954	0.23855	329.23972				
1663.9031			1380.6907	0.02085	0.95624	0.26187	548.82019	1	0.1361	0.1361	0.02085	0.95624	0.26187	548.82019				
1664.0555			1380.8268	0.01114	0.9544	0.26555	634.21014	1	0.13611	0.13611	0.01114	0.9544	0.26555	634.21014				
1664.2079			1380.9629	0.00571	1.00375	0.26533	649.03644	1	0.13611	0.13611	0.00571	1.00375	0.26533	649.03644				
1664.3603			1381.099	0.00583	1.0176	0.27122	757.12976	1	0.13611	0.13611	0.00583	1.0176	0.27122	757.12976				
1664.5127			1381.2351	0.00299	0.97817	0.28089	1017.88007	1	0.13611	0.13611	0.00299	0.97817	0.28089	1017.88007				
1664.6651			1381.3712	0.0011	0.97797	0.27896	966.13641	1	0.13611	0.13611	0.0011	0.97797	0.27896	966.13641				
1664.8175			1381.5073	0.00192	0.99481	0.26974	741.315	1	0.1361	0.1361	0.00192	0.99481	0.26974	741.315				
1664.9699			1381.6434	0.01677	1.00486	0.26241	568.50684	1	0.13611	0.13611	0.01677	1.00486	0.26241	568.50684				
1665.1223			1381.7797	0.01148	1.0157	0.24704	425.85577	1	0.13623	0.13623	0.01148	1.0157	0.24704	425.85577				
1665.2747			1381.9157	0.008	0.94666	0.26209	592.3576	1	0.13599	0.13599	0.008	0.94666	0.26209	592.3576				
1665.4271			1382.0519	0.00889	0.94605	0.27143	750.86725	1	0.13623	0.13623	0.00889	0.94605	0.27143	750.86725				
1665.5795			1382.188	0.02734	0.87801	0.29834	1771.67712	1	0.13611	0.13611	0.02734	0.87801	0.29834	1771.67712				
1665.7319			1382.3241	0.05891	0.78601	0.32176	4462.55029	1	0.13611	0.13611	0.05891	0.78601	0.32176	4462.55029				
1665.8843			1382.4603	0.0601	0.68792	0.34282	10932.9932	1	0.13623	0.13623	0.0601	0.68792	0.34282	10932.9932				
1666.0367			1382.5964	0.05269	0.54706	0.39828	120561.07	1	0.13611	0.13611	0.05269	0.54706	0.39828	120561.07				
1666.1891			1382.7327	0.04105	0.69944	0.33845	9103.17188	1	0.13623	0.13623	0.04105	0.69944	0.33845	9103.17188				
1666.3415			1382.8688	0.01717	0.85	0.3323	7071.38281	1	0.1361	0.1361	0.01717	0.85	0.3323	7071.38281				
1666.4939			1383.005	0	0.94222	0.31702	3813.79541	1	0.13623	0.13623	0	0.94222	0.31702	3813.79541				
1666.6463			1383.1412	0.00178	1.07393	0.28069	1016.17969	1	0.13624	0.13624	0.00178	1.07393	0.28069	1016.17969				
1666.7987			1383.2775	0.00787	1.10319	0.2676	680.19507	1	0.13623	0.13623	0.00787	1.10319	0.2676	680.19507				
1666.9511			1383.4136	0.01893	1.01359	0.25305	452.729	1	0.1361	0.1361	0.01893	1.01359	0.25305	452.729				
1667.1035			1383.5499	0.01504	1.05475	0.23228	335.07892	1	0.13636	0.13636	0.01504	1.05475	0.23228	335.07892				
1667.2559			1383.686	0.01551	1.05828	0.22945	323.42474	1	0.13611	0.13611	0.01551	1.05828	0.22945	323.42474				
1667.4083			1383.8223	0.01406	1.05495	0.21989	301.4693	1	0.13623	0.13623	0.01406	1.05495	0.21989	301.4693				
1667.5607			1383.9585	0.01968	0.96644	0.21854	281.36087	1	0.13623	0.13623	0.01968	0.96644	0.21854	281.36087				
1667.7131			1384.0947	0.02753	1.05198	0.2122	247.63846	1	0.13623	0.13623	0.02753	1.05198	0.2122	247.63846				
1667.8655			1384.231	0.02989	1.20615	0.21113	239.78708	1	0.13623	0.13623	0.02989	1.20615	0.21113	239.78708				
1668.0179			1384.3672	0.02784	1.2241	0.21855	258.54919	1	0.13623	0.13623	0.02784	1.2241	0.21855	258.54919				
1668.1703			1384.5034	0.02541	1.06385	0.24812	392.19055	1	0.13623	0.13623	0.02541	1.06385	0.24812	392.19055				
1668.3227			1384.6397	0.0251	1.04797	0.25017	409.46088	1	0.13623	0.13623	0.0251	1.04797	0.25017	409.46088				
1668.4751			1384.776	0.03057	0.99779	0.26191	522.8349	1	0.13635	0.13635	0.03057	0.99779	0.26191	522.8349				
1668.6275			1384.9122	0.03559	0.99799	0.25918	474.56955	1	0.13623	0.13623	0.03559	0.99799	0.25918	474.56955				
1668.7799			1385.0486	0.04212	1.02975	0.24184	308.97202	1	0.13635	0.13635	0.04212	1.02975	0.24184	308.97202				
1668.9323			1385.1848	0.04226	1.02619	0.2355	276.4151	1	0.13623	0.13623	0.04226	1.02619	0.2355	276.4151				
1669.0847			1385.3212	0.04444	1.02947	0.23119	254.32387	1	0.13636	0.13636	0.04444	1.02947	0.23119	254.32387				
1669.2371			1385.4574	0.04493	1.03985	0.22619	236.82634	1	0.13623	0.13623	0.04493	1.03985	0.22619	236.82634				
1669.3895			1385.5938	0.04152	1.05702	0.23565	278.72495	1	0.13635	0.13635	0.04152	1.05702	0.23565	278.72495				
1669.5419			1385.73	0.02922	1.04414	0.24471	357.80322	1	0.13623	0.13623	0.02922	1.04414	0.24471	357.80322				
1669.6943			1385.8662	0.03254	1.12031	0.24855	376.81418	1	0.13623	0.13623	0.03254	1.12031	0.24855	376.81418				
1669.8467			1386.0026	0.03821	1.14106	0.24673	349.50851	1	0.13635	0.13635	0.03821	1.14106	0.24673	349.50851				

1669.9991			**1386.1389**	0.05455	1.13641	0.25537	390.46997	1	0.13636	0.13636	0.05455	1.13641	0.25537	390.46997	
1670.1515			**1386.2753**	0.04225	1.06587	0.26961	622.19177	1	0.13635	0.13635	0.04225	1.06587	0.26961	622.19177	
1670.3039			**1386.4115**	0.04302	0.94854	0.27821	823.35925	1	0.13623	0.13623	0.04302	0.94854	0.27821	823.35925	
1670.4563			**1386.548**	0.02955	0.83453	0.28225	980.51508	1	0.13647	0.13647	0.02955	0.83453	0.28225	980.51508	
1670.6087			**1386.6842**	0.03205	0.71315	0.27794	841.52606	1	0.13623	0.13623	0.03205	0.71315	0.27794	841.52606	
1670.7611			**1386.8207**	0.02477	0.68707	0.25525	457.86081	1	0.13648	0.13648	0.02477	0.68707	0.25525	457.86081	
1670.9135			**1386.9569**	0.03276	0.74226	0.22677	266.72083	1	0.13623	0.13623	0.03276	0.74226	0.22677	266.72083	
1671.0659			**1387.0934**	0.04599	0.8189	0.21221	203.75102	1	0.13647	0.13647	0.04599	0.8189	0.21221	203.75102	
1671.2183			**1387.2296**	0.04592	0.85123	0.21775	213.9348	1	0.13623	0.13623	0.04592	0.85123	0.21775	213.9348	
1671.3707			**1387.3661**	0.03788	0.80911	0.22552	250.67715	1	0.13648	0.13648	0.03788	0.80911	0.22552	250.67715	
1671.5231			**1387.5024**	0.0335	0.79638	0.22645	263.91959	1	0.13635	0.13635	0.0335	0.79638	0.22645	263.91959	
1671.6755			**1387.6388**	0.04129	0.77446	0.22252	234.82214	1	0.13635	0.13635	0.04129	0.77446	0.22252	234.82214	
1671.8279			**1387.7753**	0.04541	0.7912	0.21954	218.83049	1	0.13648	0.13648	0.04541	0.7912	0.21954	218.83049	
1671.9803			**1387.9116**	0.0392	0.77925	0.22783	254.56717	1	0.13635	0.13635	0.0392	0.77925	0.22783	254.56717	
1672.1327			**1388.048**	0.03962	0.79523	0.22806	255.7159	1	0.13635	0.13635	0.03962	0.79523	0.22806	255.7159	
1672.2851			**1388.1843**	0.03925	0.80883	0.2304	263.02704	1	0.13636	0.13636	0.03925	0.80883	0.2304	263.02704	
1672.4375			**1388.3208**	0.04606	0.83748	0.22263	224.73688	1	0.13647	0.13647	0.04606	0.83748	0.22263	224.73688	
1672.5899			**1388.4573**	0.03996	0.84868	0.21723	225.97873	1	0.13648	0.13648	0.03996	0.84868	0.21723	225.97873	
1672.7423			**1388.5938**	0.04639	0.7699	0.21959	216.84595	1	0.13647	0.13647	0.04639	0.7699	0.21959	216.84595	
1672.8947			**1388.7301**	0.04732	0.72161	0.22937	241.82909	1	0.13635	0.13635	0.04732	0.72161	0.22937	241.82909	
1673.0471			**1388.8666**	0.05588	0.73338	0.23807	260.73413	1	0.13648	0.13648	0.05588	0.73338	0.23807	260.73413	
1673.1995			**1389.0029**	0.05524	0.80501	0.23342	241.15324	1	0.13635	0.13635	0.05524	0.80501	0.23342	241.15324	
1673.3519			**1389.1394**	0.056	0.95092	0.2246	210.20164	1	0.13647	0.13647	0.056	0.95092	0.2246	210.20164	
1673.5043			**1389.2759**	0.05254	1.03692	0.21713	199.27902	1	0.13648	0.13648	0.05254	1.03692	0.21713	199.27902	
1673.6567			**1389.4124**	0.05471	1.05424	0.20875	181.16945	1	0.13647	0.13647	0.05471	1.05424	0.20875	181.16945	
1673.8091			**1389.5488**	0.05245	1.00087	0.20121	176.63574	1	0.13648	0.13648	0.05245	1.00087	0.20121	176.63574	
1673.9615			**1389.6853**	0.05524	0.81181	0.19791	168.26236	1	0.13647	0.13647	0.05524	0.81181	0.19791	168.26236	
1674.1139			**1389.8218**	0.04884	0.68287	0.19438	177.95982	1	0.13648	0.13648	0.04884	0.68287	0.19438	177.95982	
1674.2663			**1389.9583**	0.04816	0.82911	0.1916	177.42372	1	0.13647	0.13647	0.04816	0.82911	0.1916	177.42372	
1674.4187			**1390.0947**	0.04442	1.02135	0.19386	186.83267	1	0.13648	0.13648	0.04442	1.02135	0.19386	186.83267	
1674.5711			**1390.2312**	0.04064	1.0954	0.19612	196.89566	1	0.13647	0.13647	0.04064	1.0954	0.19612	196.89566	
1674.7235			**1390.3678**	0.03776	1.02659	0.19775	204.87772	1	0.1366	0.1366	0.03776	1.02659	0.19775	204.87772	
1674.8759			**1390.5043**	0.03539	0.96862	0.19863	211.28236	1	0.13647	0.13647	0.03539	0.96862	0.19863	211.28236	

PE909052

This is an enclosure indicator page.
The enclosure PE909052 is enclosed within the container PE908089 at this location in this document.

The enclosure PE909052 has the following characteristics:

ITEM_BARCODE	PE909052
CONTAINER_BARCODE	PE908089
NAME	Enc.4 Wild Dog Road-1 Composite Well Log
BASIN	OTWAY
ONSHORE?	Y
DATA_TYPE	WELL
DATA_SUB_TYPE	COMPOSITE_LOG
DESCRIPTION	Encl.4 Wild Dog Road-1 Composite Well Log, Port Campbell Embayment, by Origin Energy Resources Ltd, W1298, PEP108. Enclosure 4 Contained within "Wild Dog Road-1 Well Completion" [PE908089]. COPY 2
REMARKS	
DATE_WRITTEN	
DATE_PROCESSED	
DATE_RECEIVED	25-OCT-2000
RECEIVED_FROM	Origin Energy Resources Limited
WELL_NAME	Wild Dog Road-1
CONTRACTOR	
AUTHOR	
ORIGINATOR	
TOP_DEPTH	
BOTTOM_DEPTH	
ROW_CREATED_BY	CD000_SW

(Inserted by DNRE - Vic Govt Mines Dept)

APPENDIX 3

BIT RECORD

OIL COMPANY OF AUSTRALIA

BIT RECORD

Well : **Wild Dog Road 1** Basin / Area : **Otway Basin (Onshore Victoria)** Permit : **PPL 1** Field : **Wildcat**

Location : Latitude : **38° 32' 57.13" S** G.L. **123.40** metres Spud Date: **8-Dec-99**

Longitude : **142° 58' 41.56" N** Well Site Supervisor: **Barry Beetson** K.B. **128.30** metres T.D. Date: **15-Dec-99**

Contractor : **O.D. & E.** Rig #: **30** Proposed TD: **1676** metres Rig Released Date: **18-Dec-99**

PUMPS				MUD TYPE			
No.	Type	Stroke (in)	Liner (in)	Output (gps)	Section	Dev	Interval	Type	Wt
1	Gardner Denver PZ-8	8.00	6.00	2.79	Surface:	1.00°	0m to 397m	Spud mud	1.09
2	Gardner Denver PZ-8	8.00	6.00	2.79	Main:	26.3;75	397m to 1678m	KCL/PHPA	1.12

Bit No.	Run No.	Size (in)	Make	Type	IADC Code	Serial No.	Nozzles			Motor Y / N	Shock-Sub Serial No.	Depth Out	Metres	Hours	ROP (m/hr)	Accum Hours	Bit Grading								WOB		RPM		Press (psi)	Pump (gpm)
																	I	O	D	L	B	G	O	R	Mn	Mx	Mn	Mx		
1	1	12.25	VAREL	ETR1G	116	146703	16	16	16	N	N	31	31	1.5	20.7	1.5	2	1	WT	A	E	1	NO	LC	2	5	60	80	200	256
2	2	12.25	VAREL	ETR1G	116	146703	18	18	18	N	N	397	366	11	33.3	12.5	2	2	WT	A	E	1	NO	TD	5	20	80	140	1300	600
3	3	8.5	HUGHES	GTP-03	417	T71CV	14	15	15	Y	N	1155	758	30.5	24.9	43	4	4	WT	A	E	1	ER	TF	5	25	50	70	2000	475
4	4	8.5	VAREL	ETD 437	437	145854	14	16	16	Y	N	1678	523	36.5	14.3	79.5	3	6	BT	G2	E	2	ER	TD	20	25	60+mm	60+mm	2000	425

Comments : ETD437 looks to be a better choice for secong bit run on theses wells. It seems to handle to harder streaks well and maintains penetration rate throughout the softer going. Unable to maintain prognosed pump rate due to pressure restrictions on liner size used.

IADC DULL BIT GRADING

CUTTING STRUCTURE				BEARINGS	GAGE	OTHER	REASON
INNER	OUTER	DULL CHAR.	LOCATION	/ SEALS		DULL CHAR.	PULLED
①	②	③	④	⑤	⑥	⑦	⑧

① INNER CUTTING STRUCTURE (All inner rows)

② OUTER CUTTING STRUCTURE (Gage row only)

In columns 1 and 2 a linear scale from 0 to 8 is used to describe the condition of the cutting structure according to the following:

STEEL TOOTH BITS	INSERT BITS	FIXED CUTTER BITS
A measure of lost tooth height due to abrasion and / or damage	A measure of total cutting structure reduction due to lost, worn and / or broken inserts	A measure of lost, worn and / or broken cutting structure
0 - NO LOSS OF TOOTH HEIGHT	0 - NO LOST, WORN AND/OR BROKEN INSERTS	0 - NO LOST, WORN AND/OR BROKEN CUTTING STRUCTURE
8 - TOTAL LOSS OF TOOTH HEIGHT	8 - ALL INSERTS LOST, WORN AND/OR BROKEN	8 - ALL OF CUTTING STRUCTURE LOST, WORN AND/OR BROKEN

③ DULL CHARACTERISTICS (Use only cutting structure related codes.)

BC *	BROKEN CONE	FC	FLAT CRESTED WEAR	RG	ROUNDED GAGE
BF	BOND FAILURE	HC	HEAT CHECKING	RO	RING OUT
BT	BROKEN TEETH / CUTTERS	JD	JUNK DAMAGE	SD	SHIRT-TAIL DAMAGE
BU	BALLED UP BIT	LC *	LOST CONE	SS	SELF-SHARPENING WEAR
CC *	CRACKED CONE	LN	LOST NOZZLE	TR	TRACKING
CD *	CONE DRAGGED	LT	LOST TEETH / CUTTERS	WO	WASHED OUT BIT
CI	CONE INTERFERENCE	OC	OFF-CENTRE WEAR	WT	WORN TEETH / CUTTERS
CR	CORED	PB	PINCHED BIT	NO	NO DULL CHARACTERISTICS
CT	CHIPPED TEETH / CUTTERS	PN	PLUGGED NOZZLE / FLOW PASSAGE	* Show Cone # or #'s under location ④	
ER	EROSION				

④ LOCATION

ROLLER CONE		
N	NOSE ROW	CONE #
M	MIDDLE ROW	1
G	GAGE ROW	2
A	ALL ROWS	3

FIXED CUTTER			
C	CONE	S	SHOULDER
N	NOSE	G	GAGE
T	TAPER	A	ALL AREAS

⑤ BEARINGS /SEALS

NON-SEALED BEARINGS	
A linear scale estimating bearing life used.	
0	No life used
8	All life used (No bearing life left.)

SEALED BEARINGS			
E	SEALS EFFECTIVE	X	FIXED CUTTER (BEARINGLESS)
F	SEALS FAILED		
N	NOT ABLE TO GRADE		

⑥ GAGE (Measure in sixteenths of an inch)

0	1	2	4
- IN GAGE	1/16" OUT OF GAGE	1/8" OUT OF GAGE	1/4" OUT OF GAGE

⑦ OTHER DULL CHARACTERIST (Refer to column ③ codes)

⑧ REASON PULLED OR RUN TERMINATED

BHA	CHANGE BOTTOM HOLE ASSEMBLY	LIH	LEFT IN HOLE	HR	HOURS ON BIT
		RIG	RIG REPAIR	PP	PUMP PRESSURE
DMF	DOWNHOLE MOTOR FAILURE	CM	CONDITION MUD	PR	PENETRATION RATE
DTF	DOWNHOLE TOOL FAILURE	CP	CORE POINT	TD	TOTAL DEPTH / CASING DEPTH
DSF	DRILL STRING FAILURE	DP	DRILL PLUG	TQ	TORQUE
DST	DRILL STEM TEST	FM	FORMATION CHANGE	TW	TWIST OFF
LOG	RUN LOGS	HP	HOLE PROBLEMS	WC	WEATHER CONDITIONS

APPENDIX 4

DRILLING FLUID SUMMARY

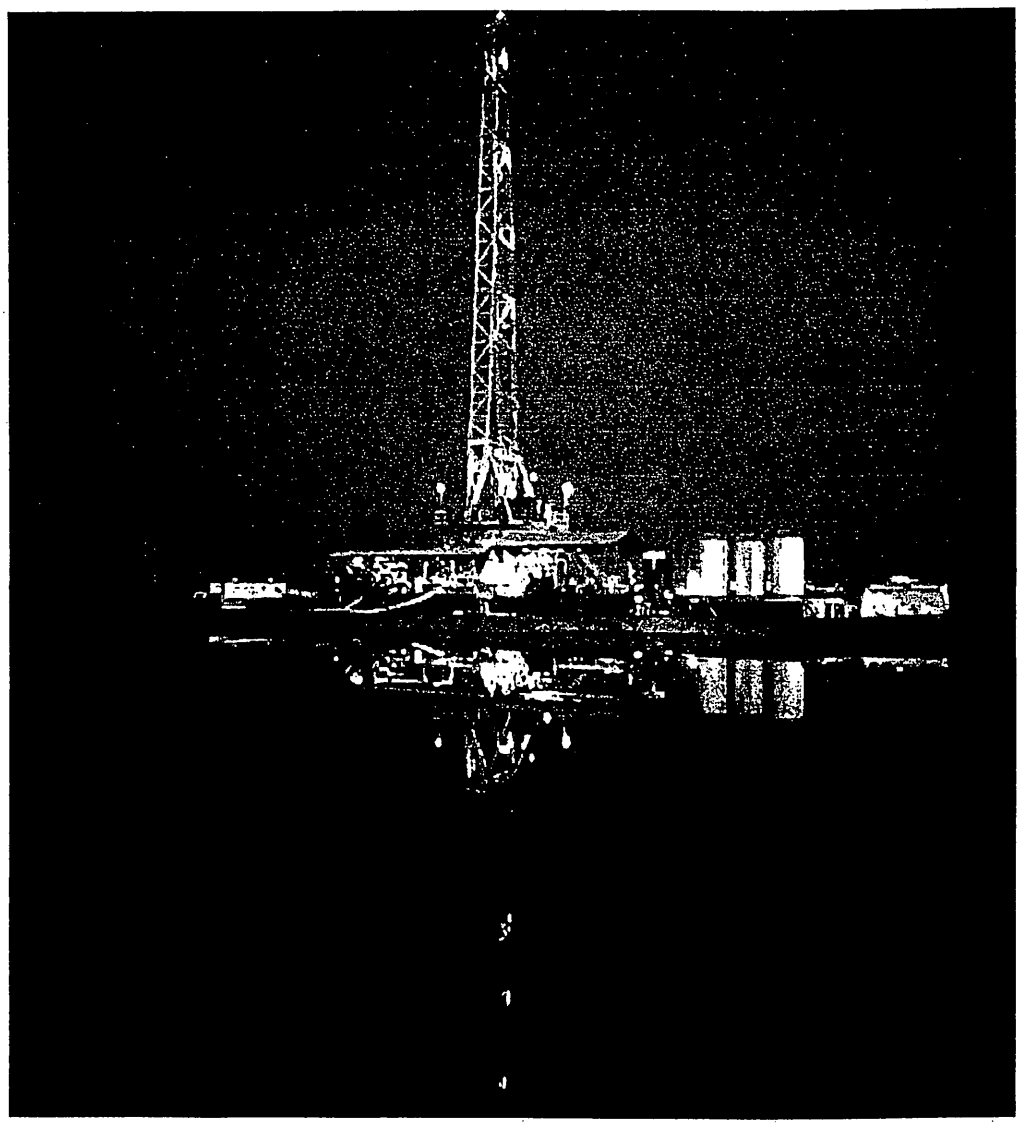
by

MI PTY. LTD.

DRILLING FLUIDS

M-I Drilling Fluids L.L.C.

BORAL ENERGY
WILD DOG ROAD #1
OTWAY BASIN
SW VICTORIA



M-I Drilling Fluids L.L.C.

FDC4

DRILLING FLUIDS DATA MANAGEMENT SYSTEM

Operator :	BORAL ENERGY	**Spud Date :**	8/12/99
Well Name :	WILD DOG ROAD #1	**TD Date :**	16/12/99
Field/Area :	OTWAY BASIN	**Loc Code :**	VICTORIA
Description :	EXPLORATION	**Dist Engr :**	TIM MONTEATH
Location :	SW VICTORIA	**Sales Engr :**	PETER DWYER
Warehouse :	GILLMAN	**Sales Engr :**	
Contractor :	ODE 30	**Well Number :**	W0001

Comments : COMPLETE LOST CIRCULATION WHILE DRILLING TOP HOLE.

Type	Size in	Depth m	TVD m	Hole in	MaxMW lb/gal	Mud 1	Mud 2	Drilling Problem	Days	Cost
Casing	9.625	397	397	12.250	9.1	FW SPUD MUD		LOST CIRCULATION	4	7395
Casing	7.000	1678	1521	8.500	9.3	KCL/PHPA/POLYMER		NO PROBLEMS	5	16381

Total Depth: 1678 m TVD : 1521 m Water Depth: m Drilling Days: 9 Total Mud Cost: 237754

BORAL ENERGY RESOURCES LIMITED	Drilling Fluids Recap Wild Dog Road 1	

The Boral Energy well Wild Dog Road 1 was spudded on the 8th December 1999 by the ODE rig 30. The well was located on Permit PPL1 in the Otway Basin, Victoria.

The surface location was Latitude 38°32'58.75"S and Longitude 142°58'41.61E. All measurements were taken from the kelly bushing, approximately 128.3 meters above sea level. The main objective was the Waare Formation Unit "C" sandstone. The total depth of 1678 meters was reached after 8 days from spudding.

The 12.25" hole was drilled to 397 meters with a KCl non-dispersed mud. There were major problems with lost circulation at 31 meters, which required running the 13.375" casing to 27 meters before drilling ahead. Mud cost for this interval was $7394.82

The 8.5" hole was drilled to TD at 1678 meters without problems with a KCl/PHPA/Polymer mud. The mud cost for this interval was $16,380.58. There were no problems while drilling this section.

The total mud cost for the well was $23775.40

The maximum BHT was 57°C.

The formation tops as supplied by the geologist were:

FORMATION	PROGNOSED (m MD)	ACTUAL (M)
Port Campbell Limestone	4.9	4.6
Gellibrand Marl	89.3	67
Clifton Form.	287.3	292
Narrawaturk Marl	304.3	299
Mepunga Form.	327.3	345
Dilwyn Form.	391.3	383
Pember Mudstone	618.6	637
Pebble Point Form	675.9	720
Paaratte Form.	792.2	786
Skull Creek Member	1189.9	1213
Nullawarre Greensand	1322.5	1364
Belfast Form.	1429.5	1486
Warre Form.	1574.9	1587
T.D.	**1675.7**	**1678**

BORAL ENERGY RESOURCES LIMITED	Drilling Fluids Recap Wild Dog Road 1	MI

Interval I	0- 397 m	12.25" Hole	9.625" Casing set @ 391 m

Mud Type: **KCl Brine**

Mud Problems: **No mud related problems.**

Hole Problems: **Major lost circulation**

Mud Properties:

		ACTUAL	PROGRAM
Mud Weight	ppg	8.6	Minimum
Funnel Viscosity	sec/qt	45 -55	45 - 55
Yield Point	lbs/100ft^2	15 - 25	
Plastic Vis	cp	6 - 15	
Fluid Loss	cc	NC	NC
pH		9.0 - 9.5	9.0 - 9.5
Drilled Solids	%	3 - 4.3	ALAP
MBT	ppb	10 - 20	
Calcium	mg/l	100 - 300	

DRILLING OPERATIONS:

The well was spudded at 0430 hours on the 8th December 1999 using a 12.25" Varel ETR16 bit with 3 x 16/32" jets using a KCl/brine. All circulation was lost while drilling at 13.8 meters. Cement pills with LCM pills were pumped to try and regain circulation. Drilling continued to 31 meters although complete circulation was never regained. Mud was coming up around the mouse hole and Barite was dropped around the hole annulus to try and regain circulation.

The decision was made to run a string of 13.375" as there was no improvement in reducing the rate of mud losses. After waiting for the cement to harden, drilling continued with no down-hole mud losses. There were no further problems while drilling to the casing point of 397 meters. The maximum deviation in this interval was one degree.

This bit drilled to the casing point in 15 drilling hours averaging 26 meters per hour. Annular velocities of 45 meters per minute around the drill pipe and 57 meters per minute around the drill collars ensured adequate hole cleaning. Pump output was maintained at 750 gpm.

A wiper trip was made without problems. The 9.675" casing was then run to 391 meters and cemented as per program. There were good cement returns to surface.

MUD:

A 2% KCl brine was initially made up to drill this section. However, due to the complete loss of circulation, no further KCl was added until after the loss circulation problems had been resolved.

The lost circulation was combated with a mixture of fine to coarse materials as well as high viscosity gel pills. Products used while attempting to regain circulation were:

BORAL ENERGY RESOURCES LIMITED	Drilling Fluids Recap Wild Dog Road 1	MI

Interval I	0- 397 m	12.25" Hole	9.625" Casing set @ 391 m

M-I Gel	197 sacks	$2,265.50	30.6% of TMC
Kwik Seal	43 sacks	$1,741.50	23.6% of TMC
Mica (F/M/C)	23 sacks	$310.50	4.2% of TMC

The plan was to drill the mouse hole and rat hole with a Gel spud mud using the pill tank, spud the well with the Gel spud mud then drill the rest of the section with a 2% KCl brine. The viscosity was to be obtained from the native clays and extra viscosity was to be obtained from pre-hydrated gel if required. The pH was to be maintained with Caustic Soda at 9 to 9.5. After the 13.375" casing had been set, there were no drilling or mud problems and the program went ahead as planned.

The mud cost for this section was expected to be about $1,000, however the actual cost was $7,394.85. The additional cost was entirely due to the problems associated with the lost circulation.

SOLIDS CONTROL EQUIPMENT:

The rig was equipped with the following solids control equipment:

Shakers : 2 high-speed shakers, 3 screens each.
Desander : None
Desilter: 0 x 4" cones
Centrifuge : None

The shakers were fitted with 110 mesh screens throughout this section. There were minor mud losses at the shakers due to the LCM in the mud system. No coarser screens were installed as it was important to maintain minimum mud weight. When the full mud system was used, the desilter was run whenever drilling and it worked very efficiently.

HOLE PROBLEMS:

The only hole problem was the lost circulation as mentioned above. The maximum deviation was one degree at casing point.

ACTUAL VERSUS PROGRAMMED:

There was 1.5 days allowed from spudding the well to cementing the 245mm casing. The actual time was 3.5 days due to the lost circulation problems. There were no programmed mud costs available. The mud bill of $7394.82 would have been closer to $1,000 if not for the problems with the losses.

CONCLUSIONS AND RECOMMENDATIONS:

In hindsight it would have been better if the conductor pipe had been set a little deeper as all returns were lost while drilling from 13.7 meters.

BORAL ENERGY RESOURCES LIMITED	Drilling Fluids Recap Wild Dog Road 1	MI

Interval II	397 – 1678 m	8.5" Hole	7" Casing

Mud Type: KCl/PHPA/Polymer

Hole Problems: Minor tight hole while tripping

Max Deviation: 34.5 degrees at 1402 meters (TVD = 1286m)

BHT: 57°C

Mud Properties:

		PROGRAM	ACTUAL
Mud weight	SG	1.06 - 1.10	1.06 - 1.12
Viscosity	sec/qt	35 - 50	43 - 48
Yield Point	lbs/100 sq. ft	12 - 15	12 - 19
Plastic Vis	cp		9 - 13
Fluid Loss	cc	High - 7	7.5 - 5
pH		9.0 - 9.5	9 - 9.5
Drilled Solids	%	<5	2.2 - 5.1
MBT	ppb		5 - 7.5
Calcium	mg/l	<300	140 - 160
PHPA XS	ppb	Min 1.5	1.9 - 2.1
KCL	%	3 - 4	3.5 - 4
SO3	mg/l	100 - 150	100 - 150
6 RPM	lbs/100 sq ft	4 - 8	4 - 6

DRILLING OPERATIONS:

An 8.5" Hughes GT-03 bit with jets of 14/15/15 was run in the hole and used to drill out the shoe track and rat hole to 400 meters using water from the pill tank. This was then displaced with KCl/PHPA mud before making a LOT. Drilling continued at 20 meters per hour while building angle. The pumps were run at 500 gpm, which gave annular velocities of 79 meters per minute around the drill pipe and 125 meters per minute around the drill collars.

This bit drilled to 1166 meters without problems. It averaged 24 meters per hour and was graded as 4 - 4 - I after inspection. During this run the hole angle was built to a maximum of 30.8 degrees.

A Varel ETD 437 with jets of 14/16/16 was then run to 1143 meters to wash and ream to 1166 meters. There was some self-healing mud losses while drilling at 1590 meters. No LCM was added as it could have caused problems with the MWD equipment. Drilling continued to TD at 1678 meters and a wiper trip was made to 1100 meters, which showed the hole to be in good condition.

BORAL ENERGY RESOURCES LIMITED	Drilling Fluids Recap Wild Dog Road 1	

Interval II	397 – 1678 m	8.5" Hole	7" Casing

This hole was deviated from 500 meters. The angle was gradually built from 1 degree at 480 meters to the maximum of 34.5 degrees at 1403 meters. The angle was allowed to drop off to 26.3 degrees at 1678 meters. The maximum dog leg was 5.89 at 509 meters.

Schlumberger was then rigged up and ran the following logs without problems: Pex-Sonic, FMI and MD.

The mud engineer was released as the rig was about to run 7-inch casing.

MUD:

Initially the cement and casing shoe was drilled out with water using the pill tank to a depth of 400 meters. This was then dumped as it was displaced with the new 4% KCl/PHPA/Polymer mud.

The formulation for the new mud system was:

River water
Soda Ash @ 0.25 ppb
Caustic Soda for pH 9.5
KCl @ 14 ppb
Polypac Reg @ 0.5 ppb
Polyplus PHPA @ 2 ppb
Duovis @ 0.25 ppb

The Duovis was added to increase the low-end rheology (6 rpm= 4 lbs/100 sq ft minimum) to ensure adequate hole cleaning while drilling the deviated hole. The Polypac R was added to reduce the fluid loss to below 7 cc. The fluid loss was maintained at closer to 5 cc due to help from the relatively high concentration of Polyplus that had been added to encapsulate the cuttings. The 3-4% KCl was sufficient to provide adequate inhibition while drilling reactive clays.

There was a shearing device available and the mud was sheared for 6 hours to ensure there would be no mud losses at the shakers.

OS-1 Sodium Sulphite was added as an oxygen scavenger to provide a degree of corrosion control. The raised pH also helped reduce corrosion. In the latter stage of the 8.5" hole Glute bactericide was added to prevent bacterial degradation of the mud.

Barite slugs were pumped prior to POOH for logs and casing

The mud cost for this section was $16,380.58. This was mainly:

A)	Polyplus Powder	$4560	28.1% of interval cost
B)	Potassium Chloride	$4554	28.1%
C)	Duovis	$3686	22.1%
D)	Polypac R	$2368	14.6%

This mud cost was in line with neighbouring wells. It was slightly higher than a straight hole well due to the improved mud specifications required to drill a directional well. The extra Duovis was required to increase the low end rheology for hole cleaning and the extra Polyplus was added to ensure the solids were efficiently removed at the shakers.

BORAL ENERGY RESOURCES LIMITED	Drilling Fluids Recap Wild Dog Road 1	MI

Interval II	397 – 1678 m	8.5" Hole	7" Casing

SOLIDS CONTROL EQUIPMENT:

The rig was equipped with the following solids control equipment:

High Speed Shakers: 2
Desander: None
Desilter: 1; Cones 10 x 4"
Centrifuge: None

The desilter was run whenever the mud was circulated. The unit was serviced prior to drilling this section and worked efficiently.

The shakers initially were fitted with 84 mesh screens to prevent mud losses while initially drilling with "green" mud. These were replaced with 110 mesh as soon as possible to ensure maximum removal of the drilled solids. It was not possible to run finer screens than 110 mesh without raising the level of the shaker beds to an un-acceptably high angle.

HOLE PROBLEMS:

There were no hole or drilling mud problems while drilling this section.

CONCLUSIONS AND RECOMMENDATIONS:

This section was drilled within the allotted time. There were no extra mud costs due to hole or mud problems. No recommendations for change are made.

M-I DRILLING FLUIDS DAILY DISCUSSION

Operator : BORAL ENERGY | Contractor : ODE 30 | Description : EXPLORATION | Page: 1
Well Name : WILD DOG ROAD #1 | Field/Area : OTWAY BASIN | Location : SW VICTORIA | Well: W0001

Date : 08/12/99 Depth : 31.0 Day : 1

Spud well at 0430 hours, lost circulation at 13.78 meters. Mix LCM pill, used Duovis (1) while waiting on gel stock. No returns. Pump cement pill, drill to 14 meters, no returns, drill to 22 meters, pump LCM pill, drill to 31 meters, pump cement pill, WOC.
Mixed new mud with fresh water and KCL at 2% for inhibition before losses. Pumping gel Kwikseal (M) sweeps as required till stocks depleted.

Date : 09/12/99 Depth : 31.0 Day : 2

Ream to 31.5 meters, attempt to regain circulation. Mix and pump LCM pills combining Mica (F, M and C), Kwikseal (Med) and gel slurry. Mud coming up around mouse hole, pack barite around rat hole to prevent mud losses. Unable to regain circulation. Run 13 3/8" casing to 27 meters and cement. WOC.

Date : 10/12/99 Depth : 397.0 Day : 3

Drill 12.25" hole to 397 meters. Survey at 397 meters = 1 degree. Circulate hole clean before making wiper trip.
Increased KCl concentration of active mud to 2% KCl w/w then maintained this concentration with all water additions. Dumping sand trap frequently to reduce solids build up. Desilter running continuously. Dumped high weight / high viscosity mud as required.

Date : 11/12/99 Depth : 397.0 Day : 4

Continue RIH to 384m, ream to 397m, circulate hole clean, POH and run 9 5/8" casing to 391 meters without problems. Circulate hole clean, cement as per program. Good cement returns to surface. Gel (14 sx) used for cementing.
Dump old mud, clean out tanks and prepare new KCl/PHPA mud.

Date : 12/12/99 Depth : 566.0 Day : 5

Make up BOP and test. Make up bit, 8.5" Hughes GT-03, jets 14/15/15/ and RIH. Drill out shoe track and rat hole to 400 meters. Displace water with 4%KCl/PHPA mud. Make LOT, drill ahead with surveys while building angle.
Drilled out cement and shoe with water using pill tank. Dumped cement contaminated water while displacing to new mud. Mixed KCl at 14.5 ppb, PHPA at 1.5 ppb. Adding Duovis to incease 6 rpm reading to 4 lbs/100 sq. ft. Adding Pac
R to reduce water loss to 7 cc. Adding OS-1 for SO3 150 mg/l. Unable to reduce shaker screen size today, presently running at 90% capacity.

M-I DRILLING FLUIDS DAILY DISCUSSION

Operator : BORAL ENERGY | Contractor : ODE 30 | Description : EXPLORATION | Page: 2
Well Name : WILD DOG ROAD #1 | Field/Area : OTWAY BASIN | Location : SW VICTORIA | Well: W0001

Date : 13/12/99 Depth : 1127.0 Day : 6

Continue drilling to 1127 meters with surveys while building angle.
Changed one shaker to 110 mesh screens, having to run shakers at maximimum levels to minimise mud losses. Re-claiming water from sump for all mud premixes. Dumping mud from sand trap as required to prevent excessive mud weight increase.
PHPA concentration = 2 ppb. 6 RPM reading = 5 lbs/100 sq.ft.

Date : 14/12/99 Depth : 1402.0 Day : 7

Continue drilling and building angle to 1166 meters (31 deg). Circulate bottom up, pump KCl pill and POH for new bit. RIH to 1143 meters, wash and ream to bottom, drill to 1402 meters at midnight.
Added biocide to mud before trip to prevent bacterial degradation. Mud salinity increase due to KCl slug. Running shakers at minimum elevation angle to reduce solids build-up, resulting in occasional surface mud losses.
Presently drilling in 100% sandstone.
Maintain PHPA concentration at 2 ppb. 6RPM reading = 5 lbs/100 sq. ft.

Date : 15/12/99 Depth : 1678.0 Day : 8

Continue drilling to 1678 meters with surveys. Self healing mud losses at 20 bbls per 1/2 hour while drilling at approx 1590 meters. Circulate and condition hole at 1678 meters, pump slug, make wiper trip to 1100 meters, RIH to circulate before logging. No hole problems while tripping.
Adding 2 ppb PHPA to premix for solids encapsulation.
6 RPM reading = 5 lbs 100 sq. ft.

Date : 16/12/99 Depth : 1678.0 Day : 9

RIH, circulate and condition mud. Add Glute biocide to mud while circulating to prevent bacterial degradation. Pump barite slug, POH. Rig up and run Schlumberger logs.

PRODUCT SUMMARY

Operator : BORAL ENERGY **Contractor :** ODE 30 **Description :** EXPLORATION

Well Name : WILD DOG ROAD #1 **Field/Area :** OTWAY BASIN **Location :** SW VICTORIA

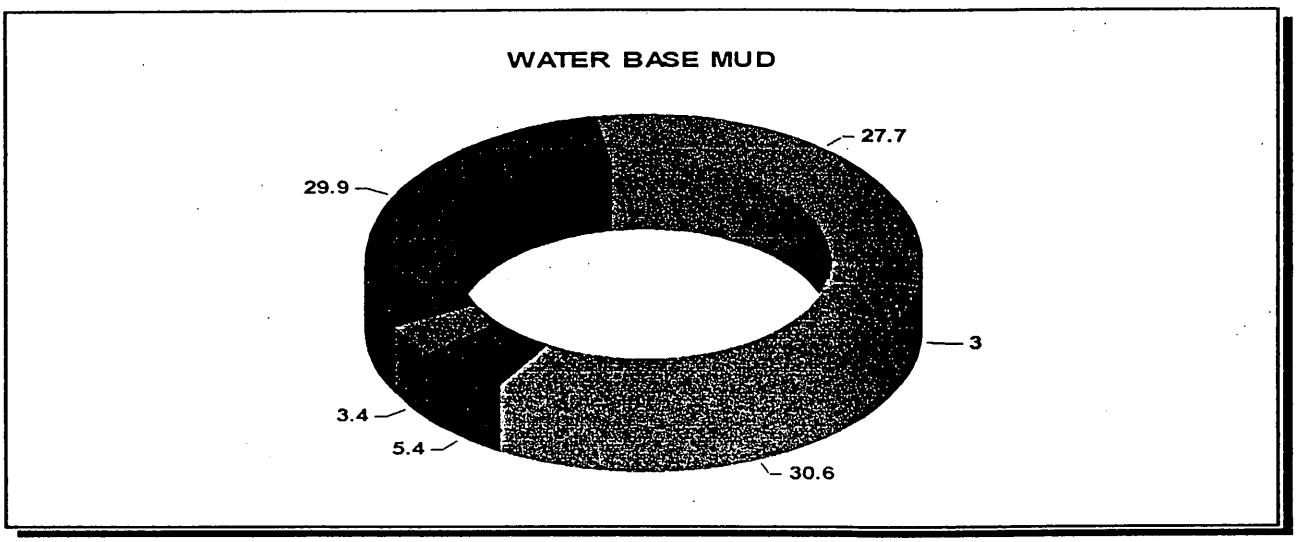
SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 08/12/99 - 11/12/99, 0 - 397 m

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
Caustic Soda	25 KG DM	6	32.30	193.80
Duovis	25 KG SX	1	398.50	398.50
Kwik Seal M	40 LB SX	43	40.50	1741.50
M-I Bar	25 KG SX	34	6.45	219.30
M-I Gel	25 KG SX	197	11.50	2265.50
Mica Coarse	25 KG SX	10	13.50	135.00
Mica Fine	25 KG SX	6	13.50	81.00
Mica Medium	25 KG SX	7	13.50	94.50
Potassm Chloride	25 KG SX	160	13.80	2208.00
Soda Ash	25 KG SX	4	14.43	57.72
*** INTERVAL WATER-BASE MUD COST TOTAL =				7,394.82

Operator :	BORAL ENERGY
Well Name :	WILD DOG ROAD #1
Field/Area :	OTWAY BASIN
Description :	EXPLORATION
Location :	SW VICTORIA

COST ANALYSIS

BREAKDOWN OF COST BY PRODUCT GROUP 08/12/99 - 11/12/99, 0 - 397 m



WATER BASE MUD PRODUCTS	Cost	% Total
1 - WEIGHT MATERIAL	219.30	3.0
2 - BENTONITE	2,265.50	30.6
3 - VISCOSIFIERS	398.50	5.4
4 - ALKALINITY CONTROL	251.52	3.4
5 - SALTS	2,208.00	29.9
6 - LCM	2,052.00	27.7
WATER BASE MUD TOTAL COST	7,394.82	100.0

PRODUCT SUMMARY

Operator : BORAL ENERGY | Contractor : ODE 30 | Description : EXPLORATION

Well Name : WILD DOG ROAD #1 | Field/Area : OTWAY BASIN | Location : SW VICTORIA

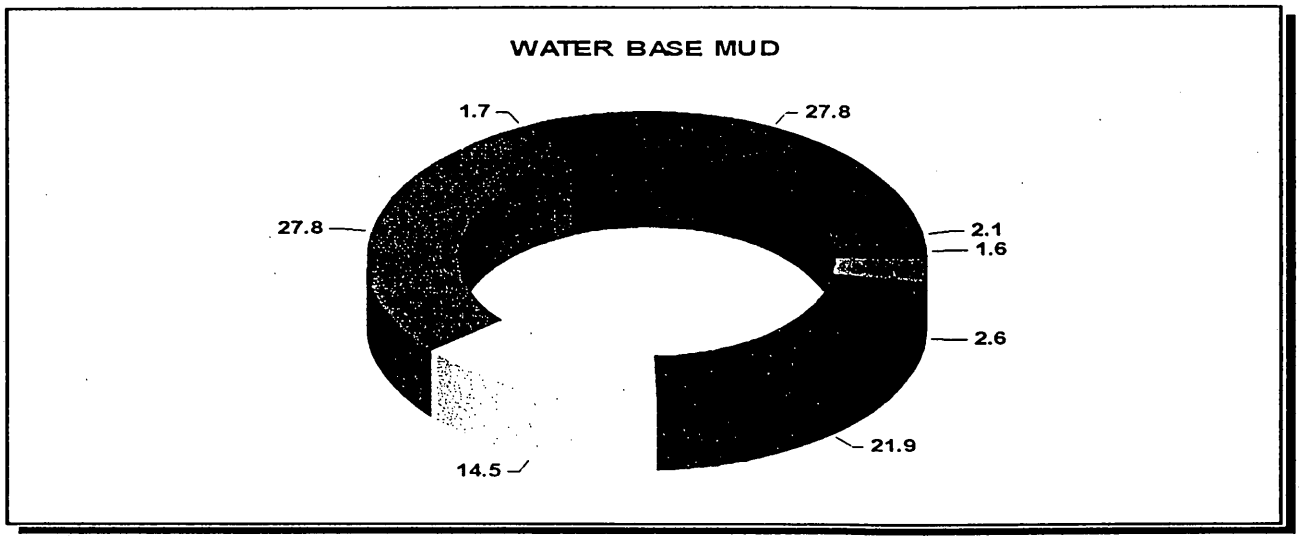
SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 12/12/99 - 16/12/99, 397 - 1678 m

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
Caustic Soda	25 KG DM	6	32.30	193.80
Duovis	25 KG SX	9	398.50	3586.50
Glute 25	25 LT DM	2	135.00	270.00
M-I Bar	25 KG SX	66	6.45	425.70
OS-1	25 KG SX	6	56.00	336.00
Polypac R	25 KG SX	16	148.00	2368.00
Polyplus	25 KG SX	38	120.00	4560.00
Potassm Chloride	25 KG SX	330	13.80	4554.00
Soda Ash	25 KG SX	6	14.43	86.58
*** INTERVAL WATER-BASE MUD COST TOTAL =				16,380.58

Operator :	BORAL ENERGY
Well Name :	WILD DOG ROAD #1
Field/Area :	OTWAY BASIN
Description :	EXPLORATION
Location :	SW VICTORIA

COST ANALYSIS

BREAKDOWN OF COST BY PRODUCT GROUP 12/12/99 - 16/12/99, 397 - 1678 m



WATER BASE MUD PRODUCTS	Cost	% Total
1 - WEIGHT MATERIAL	425.70	2.6
2 - VISCOSIFIERS	3,586.50	21.9
3 - FLUID LOSS REDUCERS	2,368.00	14.5
4 - ENCAPSULATORS	4,560.00	27.8
5 - ALKALINITY CONTROL	280.38	1.7
6 - SALTS	4,554.00	27.8
7 - CORROSION CONTROL	336.00	2.1
8 - MISC.	270.00	1.6
WATER BASE MUD TOTAL COST	16,380.58	100.0

BORAL ENERGY
WILD DOG ROAD 1

DRILLING FLUIDS
Performance Through Engineering

	Mud Volume Status					Mud Volume Built					Mud Volume Lost						
Date	Depth Meters	Hole	Surf Active	Res	Total Vol	Water Added	Mud Built	Increase from Bar	Daily Total	Cum Built	Solids Equip	Surf Losses	Mud Dumped	Downhole losses	Csg/ Plugs	Daily Total	Cum Lost
12.25" HOLE SECTION																	
8-Dec-99	31	14	386		400	330	470		800	800				400		400	400
9-Dec-99	31	14	336		350		300		300	1100				350		350	750
10-Dec-99	397	176	344		520		550		550	1650	100	50	230			380	1130
11-Dec-99	397	176	324		500	40			40	1690	20		40			60	1190
12-Dec-99					0				0	1690			500			500	1690
8.5" HOLE SECTION																	
12-Dec-99	566	118	280	62	460		520		520	520	50		10			60	60
13-Dec-99	1127	237	383		620		300		300	820	60	40	40			140	200
14-Dec-99	1402	296	310	52	658		200		200	1020	100		62			162	362
15-Dec-99	1678	354	320	36	710		180		180	1200	70		10	48		128	490
16-Dec-99	1678	354	296		650				0	1200	5		15	40		60	550
17-Dec-99	1678				0				0	1200			650			650	1200
18-Dec-99					0				0	1200						0	1200
19-Dec-99					0				0	1200						0	1200
20-Dec-99					0				0	1200						0	1200
21-Dec-99					0				0	1200						0	1200
22-Dec-99					0				0	1200						0	1200
23-Dec-99					0				0	1200						0	1200
24-Dec-99					0				0	1200						0	1200
25-Dec-99					0				0	1200						0	1200
26-Dec-99					0				0	1200						0	1200
27-Dec-99					0				0	1200						0	1200
28-Dec-99					0				0	1200						0	1200

PRODUCT SUMMARY

Operator : BORAL ENERGY **Contractor :** ODE 30 **Description :** EXPLORATION

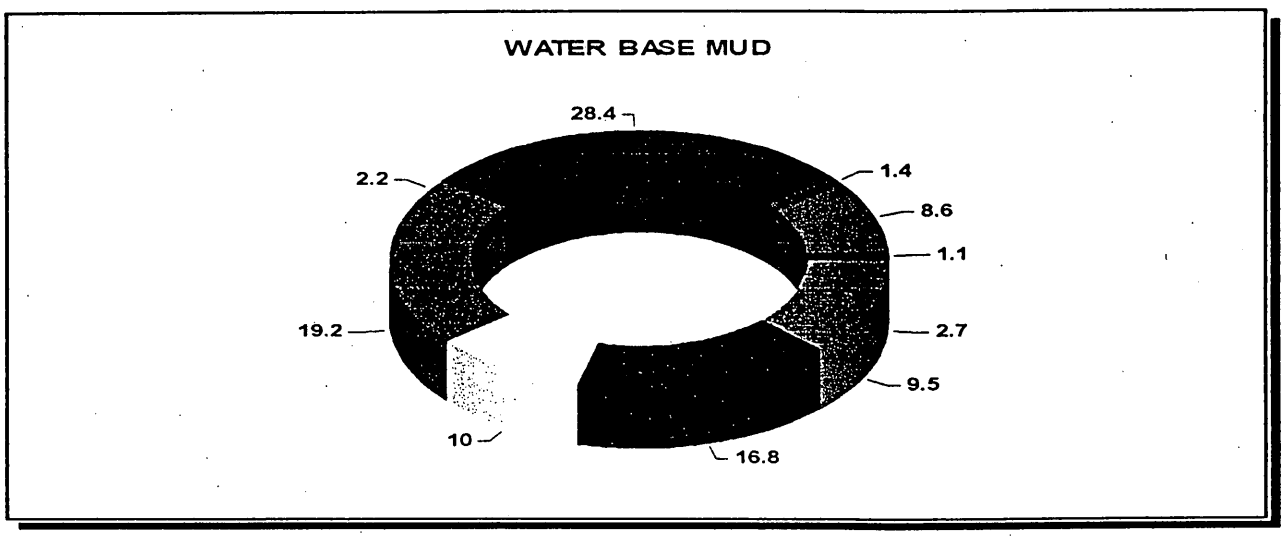
Well Name : WILD DOG ROAD #1 **Field/Area :** OTWAY BASIN **Location :** SW VICTORIA

SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 08/12/99 - 16/12/99, 0 - 1678 m

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
Caustic Soda	25 KG DM	12	32.30	387.60
Duovis	25 KG SX	10	398.50	3985.00
Glute 25	25 LT DM	2	135.00	270.00
Kwik Seal M	40 LB SX	43	40.50	1741.50
M-I Bar	25 KG SX	100	6.45	645.00
M-I Gel	25 KG SX	197	11.50	2265.50
Mica Coarse	25 KG SX	10	13.50	135.00
Mica Fine	25 KG SX	6	13.50	81.00
Mica Medium	25 KG SX	7	13.50	94.50
OS-1	25 KG SX	6	56.00	336.00
Polypac R	25 KG SX	16	148.00	2368.00
Polyplus	25 KG SX	38	120.00	4560.00
Potassm Chloride	25 KG SX	490	13.80	6762.00
Soda Ash	25 KG SX	10	14.43	144.30
*** INTERVAL WATER-BASE MUD COST TOTAL =				23,775.40

Operator : BORAL ENERGY Well Name : WILD DOG ROAD #1 Field/Area : OTWAY BASIN Description : EXPLORATION Location : SW VICTORIA		***COST ANALYSIS***

BREAKDOWN OF COST BY PRODUCT GROUP 08/12/99 - 16/12/99, 0 - 1678 m



WATER BASE MUD PRODUCTS	Cost	% Total
1 - WEIGHT MATERIAL	645.00	2.7
2 - BENTONITE	2,265.50	9.5
3 - VISCOSIFIERS	3,985.00	16.8
4 - FLUID LOSS REDUCERS	2,368.00	10.0
5 - ENCAPSULATORS	4,560.00	19.2
6 - ALKALINITY CONTROL	531.90	2.2
7 - SALTS	6,762.00	28.4
8 - CORROSION CONTROL	336.00	1.4
9 - LCM	2,052.00	8.6
10 - MISC.	270.00	1.1
WATER BASE MUD TOTAL COST	23,775.40	100.0

DRILLING FLUIDS SUMMARY

Operator : BORAL ENERGY **Contractor :** ODE 30 **Description :** EXPLORATION

Well Name : WILD DOG ROAD #1 **Field/Area :** OTWAY BASIN **Location :** SW VICTORIA

Date - Day	08/12/99- 1	09/12/99- 2	10/12/99- 3	11/12/99- 4	12/12/99- 5	13/12/99- 6	13/12/99- 6
Depth/TVD -m	31.0 | 31.0	31.0 | 31.0	397.0 | 397.0	397.0 | 397.0	566.0 | 564.8	1127.0 | 1052.0	842.0 | 840.5
Activity	DRILLING	WOC	TRIPPING	WOC	DRILLING	DRILLING	Supplement 1
Mud Type Code	20	20	20	20	259	259	
Hole Size -in	12.25	12.25	12.25	12.25	8.500	8.500	
Circ Volume -bbl	400	350	520	500	460	618	
Flow Rate -gal/min	293	293	750	750	501	502	
Circ Pressure -psi	200	200	1300	1300	1200	1700	
Avg ROP -m/hr	5.0		26.0		22.0	25.0	
Sample From	PIT 24:00	PIT 24:00	FL 20:00	FL 10:00	FL 24:00	FL 24:00	FL 12:00
Flow Line Temp -°F	85		100	100	105	125	120
Mud Wt -lb/gal	8.6	8.5	9.1	9.1	8.9	9.3	9.1
Funnel Vis -s/qt	28 @ 85 °F	28 @ 85 °F	43 @ 100°F	41 @ 100°F	43 @ 105°F	48 @ 125°F	47 @ 120°F
PV -cps	1 @ 120°F	1 @ 120°F	12 @ 120°F	10 @ 120°F	9 @ 120°F	13 @ 120°F	12 @ 120°F
YP/R3 -lb/100ft2	2 | 1	2 | 1	15 | 5	13 | 4	12 | 2	18 | 3	17 | 4
10s/10m Gel	1 | 2	1 | 2	8 | 15	6 | 15	3 | 10	4 | 12	4 | 13
API Filtrate -cm3			NC	NC	7.5	6.3	6.5
HTHP Filtrate -cm3							
Cake API/HT -1/32"	1 |	1 |	3 |	3 |	1 |	2 |	2 |
Solids -%vol	2	1	5.5	5.5	4	7.2	6.5
Oil/Water -%vol	0 | 98	0 | 99	0 | 94.5	0 | 94.5	0 | 96	0 | 92.8	0 | 93.5
Sand -%vol	0.1	0.1	0.1	0.1	0.2	0.2	0.2
MBT -lb/bbl	5.0	5.0	15	15	5.0	7.5	7.5
pH	9.5 @ 85 °F	9.5 @ 85 °F	9.3 @ 100°F	9.2 @ 100°F	9.5 @ 100°F	9.3 @ 120°F	9.5 @ 120°F
Alkal Mud (Pm)	0.5	0.5	0.3	0.3	0.5	0.4	0.5
Pf/Mf	0.3 | 0.6	0.3 | 0.6	0.2 | 0.5	0.15 | 0.4	0.3 | 0.7	0.2 | 0.6	0.3 | 0.8
Chlorides -mg/L	10000	3800	11000	11000	20000	18500	18000
Hardness (Ca)-mg/L	140	140	200	200	160	160	140
KCL % WW	2	0.75	2	2	3.5	3	3
				10500	18800	16000	16000
					150	150	150
					120000	120000	120000
Daily Mud Cost -	3455	2334	1445	161	5477	4205	
Cumml Mud Cost -	3455	5789	7234	7395	12872	17077	
Sales Engineer	PETER DWYER	PETER DWYER	PETER DWYER	PETER DWYER	PETER DWYER	PETER DWYER	
Products Used	KCL 60	SODA 2	KCL 100	GEL 14	KCL 120	KCL 60	
	SODA 2	CAUS 2	CAUS 2		SODA 2	SODA 2	
	CAUS 2	KWKM 13			CAUS 2	CAUS 2	
	KWKM 30	GEL 103			DVIS 3	DVIS 3	
	DVIS 1	BAR 34			OS-1 2	OS-1 1	
	GEL 80	MYCC 10			PACR 5	PACR 4	
		MYCF 6			POL+ 14	POL+ 12	
		MYCM 7					

Remarks

08/12 : Spud well, drill to 31m, lost circulation.

09/12 : Drill to 37m, run 13 3/8" casing.

10/12 : Drill to casing point at 397m.

11/12 : Cement 9 5/8" casing at 391 meters.

12/12 : Drill 8.5" hole to 566 meters.

13/12 : Continue drilling to 1127 meters.

13/12 :

DRILLING FLUIDS SUMMARY

Operator : BORAL ENERGY **Contractor :** ODE 30 **Description :** EXPLORATION

Well Name : WILD DOG ROAD #1 **Field/Area :** OTWAY BASIN **Location :** SW VICTORIA

Date - Day	14/12/99- 7	14/12/99- 7	15/12/99- 8	15/12/99- 8	16/12/99- 9		
Depth/TVD -m	1402.0 | 1286.0	1212.0 | 1119.4	1678.0 | 1521.0	1564.0 | 1421.0	1678.0 | 1521.0		
Activity	DRILLING	Supplement 1	RIH	Supplement 1	LOGGING		
Mud Type Code	259		259		259		
Hole Size -in	8.500		8.500		8.500		
Circ Volume -bbl	658		710		650		
Flow Rate -gal/min	446		430		430		
Circ Pressure -psi	2000		2000		2000		
Avg ROP -m/hr	16.0		13.0				
Sample From	FL 24:00	FL 12:00	FL 22:30	FL 12:00	FL 01:00		
Flow Line Temp -°F	130	130	130	130	130		
Mud Wt -lb/gal	9.3	9.3	9.3	9.3	9.3		
Funnel Vis -s/qt	44 @ 130°F	45 @ 130°F	45 @ 130°F	44 @ 130°F	45 @ 130°F		
PV -cps	12 @ 120°F	12 @ 120°F	12 @ 120°F	11 @ 120°F	12 @ 120°F		
YP/R3 -lb/100ft2	17 | 3	18 | 3	19 | 3	18 | 3	19 | 3		
10s/10m Gel	3 | 11	3 | 12	3 | 10	2 | 10	3 | 10		
API Filtrate -cm3	5	5.5	5.2	5.4	5.2		
HTHP Filtrate -cm3							
Cake API/HT -1/32"	1 |	1 |	1 |	1 |	1 |		
Solids -%vol	7.1	7.2	6.7	7.1	6.7		
Oil/Water -%vol	0 | 92.9	0 | 92.8	0 | 93.3	0 | 92.9	0 | 93.3		
Sand -%vol	0.2	0.1	0.1	0.1	0.1		
MBT -lb/bbl	7.5	7.5	7.5	7.5	7.5		
pH	9.5 @ 120°F	9.5 @ 120°F	9.5 @ 120°F	9.3 @ 120°F	9.5 @ 120°F		
Alkal Mud (Pm)	0.5	0.5	0.5	0.4	0.5		
Pf/Mf	0.3 | 0.9	0.3 | 0.9	0.3 | 0.9	0.2 | 0.8	0.3 | 0.9		
Chlorides -mg/L	20000	18500	20500	20000	20500		
Hardness (Ca)-mg/L	140	160	140	120	140		
KCL % WW	3.45	3	3.4	3.4	3.4		
K+ PPM	18500	16000	18100	18100	18100		
SO3	150	150	150	150	150		
ALC50	120000	120000	120000	120000	120000		
Daily Mud Cost -	3398		2888		412		
Cumml Mud Cost -	20475		23363		23775		
Sales Engineer	PETER DWYER	PETER DWYER	PETER DWYER	PETER DWYER	PETER DWYER		
Products Used	KCL 100		KCL 50		BAR 20		
	SODA 2		DVIS 1		PACR 1		
	CAUS 2		BAR 46		GLUT 1		
	DVIS 2		OS-1 1				
	OS-1 2		PACR 4				
	PACR 2		POL+ 6				
	POL+ 6		GLUT 1				

Remarks

14/12 : Continue drilling to 1402 meters.

14/12 :

15/12 : Continue drilling to casing point at 1678 meters.

15/12 :

16/12 : Run Schlumberger logs.

HYDRAULICS SUMMARY

Operator : BORAL ENERGY **Contractor :** ODE 30 **Description :** EXPLORATION

Well Name : WILD DOG ROAD #1 **Field/Area :** OTWAY BASIN **Location :** SW VICTORIA

*Date	8/12/99	9/12/99	10/12/99	11/12/99	12/12/99	13/12/99	14/12/99	15/12/99	16/12/99
*Depth	31.0	31.0	397.0	397.0	566.0	1127.0	1402.0	1678.0	1678.0
*Days Since Spud	1	2	3	4	5	6	7	8	9
*RHEOLOGICAL PROPERTIES									
Mud Wt -lb/gal	8.6	8.5	9.1	9.1	8.9	9.3	9.3	9.3	9.3
Plastic Visc -cps	1	1	12	10	9	13	12	12	12
Yield Point -lb/100ft2	2	2	15	13	12	18	17	19	19
3-rpm Rdg -Fann deg	1	1	5	4	2	3	3	3	3
np Value	0.415	0.415	0.530	0.521	0.514	0.505	0.499	0.472	0.472
Kp -lb-sec^n/100ft2	0.2409	0.2409	1.0559	0.9554	0.9070	1.4192	1.3753	1.7450	1.7450
na Value	0.239	0.239	0.366	0.380	0.511	0.507	0.493	0.507	0.507
Ka -lb-sec^n/100ft2	0.7230	0.7230	2.9358	2.2969	0.9279	1.3997	1.4332	1.3997	1.3997
*FLOW DATA									
Flow Rate -gal/min	293	293	750	750	501	502	446	430	430
Pump Pressure -psi	200	200	1300	1300	1200	1700	2000	2000	2000
Pump -hhp	34	34	569	569	351	498	520	502	502
*PRESSURE LOSSES									
Drill String -psi	4	4	320	301	289	492	464	489	489
Bit -psi	200	190	1360	1360	830	880	580	530	530
nulus -psi	0	0	9	42	24	66	73	89	89
otal System -psi	204	194	1689	1703	1143	1438	1117	1108	1108
*BIT HYDRAULICS									
Nozzles -1/32 inch	16/16/16	16/16/16	16/16/16	16/16/16	14/15/15	14/15/15	14/16/16	14/16/16	14/16/16
Nozzles -1/32 inch	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /
Bit Pressure -%	97	97	105	105	69	51	29	27	27
Bit -hhp	33	33	595	595	244	256	150	134	134
Bit HSI (Index)	0.30	0.30	5.00	5.00	4.30	4.50	2.70	2.40	2.40
Jet Velocity -m/sec	48.6	48.6	124.5	124.5	98.9	99.1	80.3	77.4	77.4
Impact Force -lbs	207	206	1443	1443	744	782	566	523	523
*DRILL COLLARS ANNULUS									
Velocity -m/min	26.7	26.7	65.1	65.1	124.8	125.1	111.1	107.1	107.1
Critical Vel -m/min	31.9	32.0	94.9	84.8	89.5	113.1	108.7	113.1	113.1
Reynolds Number	2298	2285	1604	1924	4543	3225	2888	2558	2558
Crit Re (Lam - Tran)	3143	3143	2968	2950	2770	2775	2795	2775	2775
*DRILL PIPE ANNULUS									
Velocity -m/min	11.6	11.6	41.1	94.5	63.1	63.2	56.2	54.2	54.2
Critical Vel -m/min	29.2	29.3	82.3	84.0	68.2	86.4	83.9	86.4	86.4
Reynolds Number	624	621	954	3569	2467	1743	1528	1382	1382
Crit Re (Lam - Tran)	3143	3143	2968	2950	2770	2775	2795	2775	2775
*HOLE CLEANING									
Slip Velocity -m/min	21.4	21.5	12.6	16.3	20.8	15.1	15.6	15.1	15.1
Rising Velocity -m/min	-9.8	-9.9	28.5	78.2	42.3	48.2	40.6	39.1	39.1
Lifting Capacity -%	***	***	69	83	67	76	72	72	72
ttings Conc -%	***	***	1.68	***	1.06	1.05	0.80	0.68	***
enetration Rate -m/hr	5.0	***	26.0	***	22.0	25.0	16.0	13.0	***
*CASING SHOE PRESSURES									
ECD -lb/gal	8.6	8.5	9.2	9.7	9.0	9.5	9.5	9.5	9.5
ECD+Cuttings -lb/gal	***	***	9.4	***	9.2	9.6	9.6	9.6	***
*TOTAL DEPTH PRESSURES									
ECD -lb/gal	8.6	8.5	9.2	9.7	9.1	9.6	9.6	9.6	9.6
ECD+Cuttings -lb/gal	***	***	9.4	***	9.2	9.7	9.7	9.7	***

DRILLING FLUIDS

WATER BASE MUD REPORT

Report No.:

API #: **Date:** 08/12/99 **Depth:** 31.0 m

Well No.: W0001 **Spud Date:** 08/12/99 **Activity:** DRILLING

Operator: BORAL ENERGY **Contractor:** ODE 30 **Description:** EXPLORATION

Well Name: WILD DOG ROAD #1 **Field/Area:** OTWAY BASIN **Location:** SW VICTORIA

Report For: BARRY BEETSON

Bit	12.250in		CASING				MUD VOLUME	(bbl)
Nozzles	16/16/16/ / / 1/32"		Casing OD	16.000 in	Liner OD		Hole Volume	14
Drill Pipe 1 OD	8.250 in	31 m	Casing ID	16.000in	Liner ID		Pits Volume	386
Drill Pipe 2 OD			Casing TD	13.0 m	Liner TD		Circulating volume	400
Drill Collar OD			Casing TVD	13.0 m	Liner TVD		Mud	FRESH WATER N-DISP

MUD PROPERTIES		Primary	# 1	# 2	# 3
Sample From		PIT 24:00			
Flow Line Temp		85 °F			
Depth/TVD	-m	31.0 /31.0			
Mud Wt	-lb/gal	8.6			
Funnel Visc	-s/qt	28 @ 85 °F			
Plastic Visc	-cps	1 @ 120 °F			
YP/R3	-lb/100ft2 /deg	2 /1			
10s/10m Gel	-lb/100ft2	1 /2			
API F Loss	-cc/30 min				
HTHP F Loss	-cc/30 min				
Cake API/HT	-1/32"	1 /			
Solids	-% Vol	2			
Oil/Water	-% Vol	0 /98			
Sand	-% Vol	0.1			
MBT	-lb/bbl	5.0			
pH		9.5 @ 85 °F			
Alkal Mud (Pm)		0.5			
Pf/Mf		0.3 / 0.6			
Chlorides	-mg/l	10000			
Hardness Ca		140			
KCL % WW		2			
p Value		0.415			
Kp	-lb-sec^n/100ft	0.24095			
na Value		0.239			
Ka	-lb-sec^n/100ft	0.72305			

CIRCULATION DATA		
Flow Rate	-gal/min	293
DP Annular Vel	-m/min	11.6
DC Annular Vel	-m/min	
DP Critical Vel	-m/min	29.2
DC Critical Vel	-m/min	
Circ. Pressure	-psi	200
Bottoms Up	-min	1.9
Total Circ Time	-min	57.3

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	0.0 / 0
KCl	0.7 / 7
Low Gravity Solids	1.2 / 11
Bentonite	0.5 / 4
Drill Solids	0.7 / 7
Weight Material	N/A / N/A
Chemical Conc	- / 0.0
Inert/React 1.20	Average SG 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 110	5
Shaker #2	3 X 110	5
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander		
Desilter	10 X 4"	0
Degasser		

Remarks:

Spud well, drill to 31m, lost circulation.

Spud well at 0430 hours, lost circulation at 13.78 meters. Mix LCM pill, used Duovis (1) while waiting on gel stock. No returns. Pump cement pill, drill to 14 meters, no returns, drill to 22 meters, pump LCM pill, drill to 31 meters, pump cement pill, WOC.
Mixed new mud with fresh water and KCL at 2% for inhibition before losses.
Pumping gel Kwikseal (M) sweeps as required till stocks depleted.

MUD VOLUME ACCOUNTING	(bbl)
Oil Added	
Water Added	330
Mud Built	470
Mud Received	
Mud Disposed	400
SOL CONT EQI	
SURFACE DUMP	
FORMAT. LOSS	400

M-I Sales Engineer	Warehouse	Daily Cost $	Cumul Cost $
PETER DWYER	GILLMAN	3455	3455

DRILLING FLUIDS

WELLSITE MUD INVENTORY

DAILY MUD INVENTORY REPORT

Operator : BORAL ENERGY
Well Name : WILD DOG ROAD 1
Location : OTWAY BASIN

M-I Well No. : W0001
Report No. :
Date : 08/12/99

COST SUMMARY

Total Daily Cost : 3454.96
Cumulative Cost : 3454.96

MUD INVENTORY

Product Name	Unit	Price	Begin Invent	Recvd Today	Return Today	Used Today	Final Invent	Used Total	Daily Cost
M-I Bar	25 KG S	6.45		400			400		0.00
Caustic Soda	25 KG D	32.30		20		2	18	2	64.60
Duovis	25 KG S	398.50		20		1	19	1	398.50
GLUT	25 LT D	135.00		5			5		0.00
Potassm Chloride	25 KG S	13.80		600		60	540	60	828.00
Swik Seal M	40 LB S	40.50		30		30		30	1215.00
Lime	25 KG S	7.20		10			10		0.00
M-I Gel	25 KG S	11.50		120		80	40	80	920.00
Polypac R	25 KG S	148.00		30			30		0.00
Polyplus	25 KG S	120.00		90			90		0.00
Pipelax	208 LT	630.69		2			2		0.00
Soda Ash	25 KG S	14.43		20		2	18	2	28.86
OS-1	25 KG S	56.00		20			20		0.00

908089 122

DRILLING FLUIDS

WATER BASE MUD REPORT

Report No.:

API #: **Date:** 09/12/99 **Depth:** 31.0 m

Well No.: W0001 **Spud Date:** 08/12/99 **Activity:** WOC

Operator: BORAL ENERGY **Contractor:** ODE 30 **Description:** EXPLORATION

Well Name: WILD DOG ROAD #1 **Field/Area:** OTWAY BASIN **Location:** SW VICTORIA

Report For: BARRY BEETSON

Bit	12.250in	CASING				MUD VOLUME	(bbl)
Nozzles	16/16/16/ / / 1/32"	Casing OD	16.000 in	Liner OD		Hole Volume	14
Drill Pipe 1 OD	8.250 in 31 m	Casing ID	16.000in	Liner ID		Pits Volume	336
Drill Pipe 2 OD		Casing TD	13.0 m	Liner TD		Circulating volume	350
Drill Collar OD		Casing TVD	13.0 m	Liner TVD		Mud	FRESH WATER N-DISP

MUD PROPERTIES		Primary	# 1	# 2	# 3
Sample From		PIT 24:00			
Flow Line Temp					
Depth/TVD	-m	31.0 /31.0			
Mud Wt	-lb/gal	8.5			
Funnel Visc	-s/qt	28 @ 85 °F			
Plastic Visc	-cps	1 @ 120 °F			
YP/R3	-lb/100ft2 /deg	2 /1			
10s/10m Gel	-lb/100ft2	1 /2			
API F Loss	-cc/30 min				
HTHP F Loss	-cc/30 min				
Cake API/HT	-1/32"	1 /			
Solids	-% Vol	1			
Oil/Water	-% Vol	0 /99			
Sand	-% Vol	0.1			
MBT	-lb/bbl	5.0			
pH		9.5 @ 85 °F			
Alkal Mud (Pm)		0.5			
Pf/Mf		0.3 / 0.6			
Chlorides	-mg/l	3800			
Hardness Ca		140			
KCL % WW		0.75			
n Value		0.415			
Kp	-lb-sec^n/100ft	0.24095			
na Value		0.239			
Ka	-lb-sec^n/100ft	0.72305			

CIRCULATION DATA		
Flow Rate	-gal/min	293
DP Annular Vel	-m/min	11.6
DC Annular Vel	-m/min	
DP Critical Vel	-m/min	29.3
DC Critical Vel	-m/min	
Circ. Pressure	-psi	200
Bottoms Up	-min	1.9
Total Circ Time	-min	50.2

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	0.0 / 0
KCl	0.3 / 3
Low Gravity Solids	1.0 / 9
Bentonite	0.5 / 5
Drill Solids	0.5 / 4
Weight Material	N/A / N/A
Chemical Conc	- / 0.0
Inert/React 0.73	Average SG 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 110	3
Shaker #2	3 X 110	3
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander		
Desilter	10 X 4"	0
Degasser		

Remarks:

Drill to 37m, run 13 3/8" casing.

Ream to 31.5 meters, attempt to regain circulation. Mix and pump LCM pills combining Mica (F, M and C), Kwikseal (Med) and gel slurry. Mud coming up around mouse hole, pack barite around rat hole to prevent mud losses. Unable to regain circulation. Run 13 3/8" casing to 27 meters and cement. WOC.

MUD VOLUME ACCOUNTING	(bbl)
Oil Added	
Water Added	300
Mud Built	
Mud Received	
Mud Disposed	350
SOL CONT EQI	
SURFACE DUMP	
FORMAT. LOSS	350

M-I Sales Engineer	Warehouse	Daily Cost $	Cumul Cost $
PETER DWYER	GILLMAN	2334	5789

DRILLING FLUIDS

WELLSITE MUD INVENTORY

DAILY MUD INVENTORY REPORT

Operator : BORAL ENERGY
Well Name : WILD DOG ROAD 1
Location : OTWAY BASIN

M-I Well No. : W0001
Report No. :
Date : 09/12/99

COST SUMMARY

Total Daily Cost : 2334.26
Cumulative Cost : 5789.22

MUD INVENTORY

Product Name	Unit	Price	Begin Invent	Recvd Today	Return Today	Used Today	Final Invent	Used Total	Daily Cost
M-I Bar	25 KG S	6.45	400			34	366	34	219.30
Caustic Soda	25 KG D	32.30	18			2	16	4	64.60
Duovis	25 KG S	398.50	19				19	1	0.00
GLUT	25 LT D	135.00	5				5		0.00
Potassm Chloride	25 KG S	13.80	540				540	60	0.00
Kwik Seal M	40 LB S	40.50		17		13	4	43	526.50
Lime	25 KG S	7.20	10				10		0.00
M-I Gel	25 KG S	11.50	40	680		103	617	183	1184.50
Polypac R	25 KG S	148.00	30				30		0.00
Polyplus	25 KG S	120.00	90				90		0.00
Pipelax	208 LT	630.69	2				2		0.00
Soda Ash	25 KG S	14.43	18			2	16	4	28.86
OS-1	25 KG S	56.00	20				20		0.00
Mica Coarse	25 KG S	13.50		20		10	10	10	135.00
Mica Medium	25 KG S	13.50		20		7	13	7	94.50
Mica Fine	25 KG S	13.50		20		6	14	6	81.00

DRILLING FLUIDS

WATER BASE MUD REPORT

Report No.:

API #: | Date: 10/12/99 | Depth: 397.0 m

Well No.: W0001 | Spud Date: 08/12/99 | Activity: TRIPPING

Operator: BORAL ENERGY | Contractor: ODE 30 | Description: EXPLORATION

Well Name: WILD DOG ROAD #1 | Field/Area: OTWAY BASIN | Location: SW VICTORIA

Report For: BARRY BEETSON

Bit	12.250in		CASING				MUD VOLUME	(bbl)
Nozzles	16/16/16/ / / 1/32"		Casing OD	13.375 in	Liner OD		Hole Volume	176
Drill Pipe 1 OD	4.500 in	324 m	Casing ID	12.515in	Liner ID		Pits Volume	344
Drill Pipe 2 OD	6.500 in	55.4 m	Casing TD	27.0 m	Liner TD		Circulating volume	520
Drill Collar OD	8.000 in	17.8 m	Casing TVD	27.0 m	Liner TVD		Mud	FRESH WATER N-DISP

MUD PROPERTIES		Primary	# 1	# 2	# 3
Sample From		FL 20:00			
Flow Line Temp		100 °F			
Depth/TVD	-m	397.0/397.0			
Mud Wt	-lb/gal	9.1			
Funnel Visc	-s/qt	43 @ 100 °F			
Plastic Visc	-cps	12 @ 120 °F			
YP/R3	-lb/100ft2/deg	15 /5			
10s/10m Gel	-lb/100ft2	8 /15			
API F Loss	-cc/30 min	NC			
HTHP F Loss	-cc/30 min				
Cake API/HT	-1/32"	3 /			
Solids	-% Vol	5.5			
Oil/Water	-% Vol	0 /94.5			
Sand	-% Vol	0.1			
MBT	-lb/bbl	15.0			
pH		9.3 @ 100 °F			
Alkal Mud (Pm)		0.3			
Pf/Mf		0.2 / 0.5			
Chlorides	-mg/l	11000			
Hardness Ca		200			
KCL % WW		2			
n Value		0.530			
Kp	-lb-sec^n/100ft	1.05586			
na Value		0.366			
Ka	-lb-sec^n/100ft	2.93575			

CIRCULATION DATA		
Flow Rate	-gal/min	750
DP Annular Vel	-m/min	52.0
DC Annular Vel	-m/min	65.1
DP Critical Vel	-m/min	88.7
DC Critical Vel	-m/min	94.9
Circ. Pressure	-psi	1300
Bottoms Up	-min	8.9
Total Circ Time	-min	29.1

SOLIDS ANALYSIS	(% / lb/bbl)		
NaCl	0.1 / 1		
KCl	0.7 / 7		
Low Gravity Solids	4.9 / 45		
Bentonite	1.2 / 11		
Drill Solids	3.7 / 34		
Weight Material	N/A / N/A		
Chemical Conc	- / 0.0		
Inert/React	1.99	Average SG	2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 110	15
Shaker #2	3 X 110	15
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander		
Desilter	10 X 4"	15
Degasser		

Remarks:

Drill to casing point at 397m.

Drill 12.25" hole to 397 meters. Survey at 397 meters = 1 degree. Circulate hole clean before making wiper trip.
Increased KCl concentration of active mud to 2% KCl w/w then maintained this concentration with all water additions. Dumping sand trap frequently to reduce solids build up. Desilter running continuously. Dumped high weight / high viscosity mud as required.

MUD VOLUME ACCOUNTING	(bbl)
Oil Added	
Water Added	550
Mud Built	
Mud Received	
Mud Disposed	380
SOL CONT EQI	100
SURFACE DUMP	280
FORMAT. LOSS	

M-I Sales Engineer	Warehouse	Daily Cost $	Cumul Cost $
PETER DWYER	GILLMAN	1445	7234

DRILLING FLUIDS

WELLSITE MUD INVENTORY

DAILY MUD INVENTORY REPORT

Operator : BORAL ENERGY
Well Name : WILD DOG ROAD 1
Location : OTWAY BASIN

M-I Well No. : W0001
Report No. :
Date : 10/12/99

COST SUMMARY

Total Daily Cost : 1444.60
Cumulative Cost : 7233.82

MUD INVENTORY

Product Name	Unit	Price	Begin Invent	Recvd Today	Return Today	Used Today	Final Invent	Used Total	Daily Cost
M-I Bar	25 KG S	6.45	366				366	34	0.00
Caustic Soda	25 KG D	32.30	16			2	14	6	64.60
Duovis	25 KG S	398.50	19				19	1	0.00
GLUT	25 LT D	135.00	5				5		0.00
Potassm Chloride	25 KG S	13.80	540			100	440	160	1380.00
Wik Seal M	40 LB S	40.50	4				4	43	0.00
Lime	25 KG S	7.20	10				10		0.00
M-I Gel	25 KG S	11.50	617				617	183	0.00
Polypac R	25 KG S	148.00	30				30		0.00
Polyplus	25 KG S	120.00	90				90		0.00
Pipelax	208 LT	630.69	2				2		0.00
Soda Ash	25 KG S	14.43	16				16	4	0.00
OS-1	25 KG S	56.00	20				20		0.00
Mica Coarse	25 KG S	13.50	10				10	10	0.00
Mica Medium	25 KG S	13.50	13				13	7	0.00
Mica Fine	25 KG S	13.50	14				14	6	0.00

DRILLING FLUIDS

WATER BASE MUD REPORT

Report No.:

API #: | Date: 11/12/99 | Depth: 397.0 m

Well No.: W0001 | Spud Date: 08/12/99 | Activity: WOC

Operator: BORAL ENERGY | Contractor: ODE 30 | Description: EXPLORATION

Well Name: WILD DOG ROAD #1 | Field/Area: OTWAY BASIN | Location: SW VICTORIA

Report For: BARRY BEETSON

Bit	12.250in		CASING			MUD VOLUME	(bbl)
Nozzles	16/16/16/ / / 1/32"		Casing OD	9.625 in	Liner OD	Hole Volume	88
Drill Pipe 1 OD	4.500 in	324 m	Casing ID	8.920 in	Liner ID	Pits Volume	412
Drill Pipe 2 OD	6.500 in	55.4 m	Casing TD	391.0 m	Liner TD	Circulating volume	500
Drill Collar OD	8.000 in	17.8 m	Casing TVD	391.0 m	Liner TVD	Mud	FRESH WATER N-DISP

MUD PROPERTIES		Primary	# 1	# 2	# 3
Sample From		FL 10:00			
Flow Line Temp		100 °F			
Depth/TVD	-m	397.0/397.0			
Mud Wt	-lb/gal	9.1			
Funnel Visc	-s/qt	41 @ 100 °F			
Plastic Visc	-cps	10 @ 120 °F			
YP/R3	-lb/100ft2/deg	13 /4			
10s/10m Gel	-lb/100ft2	6 /15			
API F Loss	-cc/30 min	NC			
HTHP F Loss	-cc/30 min				
Cake API/HT	-1/32"	3 /			
Solids	-% Vol	5.5			
Oil/Water	-% Vol	0 /94.5			
Sand	-% Vol	0.1			
MBT	-lb/bbl	15.0			
pH		9.2 @ 100 °F			
Alkal Mud (Pm)		0.3			
Pf/Mf		0.15 / 0.4			
Chlorides	-mg/l	11000			
Hardness Ca		200			
KCL % WW		2			
K+ PPM		10500			
p Value		0.521			
Kp	-lb-sec^n/100ft	0.95539			
na Value		0.380			
Ka	-lb-sec^n/100ft	2.29694			

CIRCULATION DATA		
Flow Rate	-gal/min	750
DP Annular Vel	-m/min	150.1
DC Annular Vel	-m/min	65.1
DP Critical Vel	-m/min	96.7
DC Critical Vel	-m/min	84.8
Circ. Pressure	-psi	1300
Bottoms Up	-min	4.0
Total Circ Time	-min	28.0

SOLIDS ANALYSIS	(% / lb/bbl)		
NaCl	0.1 / 1		
KCl	0.7 / 7		
Low Gravity Solids	4.9 / 45		
Bentonite	1.2 / 11		
Drill Solids	3.7 / 34		
Weight Material	N/A / N/A		
Chemical Conc	- / 0.0		
Inert/React	1.99	Average SG	2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 110	2
Shaker #2	3 X 110	2
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander		
Desilter	10 X 4"	2
Degasser		

Remarks:

Cement 9 5/8" casing at 391 meters.

Continue RIH to 384m, ream to 397m, circulate hole clean, POH and run 9 5/8" casing to 391 meters without problems. Circulate hole clean, cement as per program. Good cement returns to surface. Gel (14 sx) used for cementing. Dump old mud, clean out tanks and prepare new KCl/PHPA mud.

MUD VOLUME ACCOUNTING	(bbl)
Oil Added	
Water Added	40
Mud Built	
Mud Received	
Mud Disposed	60
SOL CONT EQI	20
SURFACE DUMP	40
FORMAT. LOSS	

M-I Sales Engineer	Warehouse	Daily Cost $	Cumul Cost $
PETER DWYER	GILLMAN	161	7395

DRILLING FLUIDS

WELLSITE MUD INVENTORY

DAILY MUD INVENTORY REPORT

Operator : BORAL ENERGY
Well Name : WILD DOG ROAD 1
Location : OTWAY BASIN

M-I Well No. : W0001
Report No. :
Date : 11/12/99

COST SUMMARY

Total Daily Cost : 161.00
Cumulative Cost : 7394.82

MUD INVENTORY

Product Name	Unit	Price	Begin Invent	Recvd Today	Return Today	Used Today	Final Invent	Used Total	Daily Cost
M-I Bar	25 KG S	6.45	366				366	34	0.00
Caustic Soda	25 KG D	32.30	14				14	6	0.00
Duovis	25 KG S	398.50	19				19	1	0.00
GLUT	25 LT D	135.00	5				5		0.00
Potassm Chloride	25 KG S	13.80	440				440	160	0.00
Kwik Seal M	40 LB S	40.50	4				4	43	0.00
Lime	25 KG S	7.20	10				10		0.00
M-I Gel	25 KG S	11.50	617			14	603	197	161.00
Polypac R	25 KG S	148.00	30				30		0.00
Polyplus	25 KG S	120.00	90				90		0.00
Pipelax	208 LT	630.69	2				2		0.00
Soda Ash	25 KG S	14.43	16				16	4	0.00
OS-1	25 KG S	56.00	20				20		0.00
Mica Coarse	25 KG S	13.50	10				10	10	0.00
Mica Medium	25 KG S	13.50	13				13	7	0.00
Mica Fine	25 KG S	13.50	14				14	6	0.00

DRILLING FLUIDS

WATER BASE MUD REPORT

Report No.:

API #:		**Date:**	12/12/99	**Depth:**	566.0 m
Well No.:	W0001	**Spud Date:**	08/12/99	**Activity:**	DRILLING
Operator:	BORAL ENERGY	**Contractor:**	ODE 30	**Description:**	EXPLORATION
Well Name:	WILD DOG ROAD #1	**Field/Area:**	OTWAY BASIN	**Location:**	SW VICTORIA
Report For:	BARRY BEETSON				

Bit	8.500 in		CASING			MUD VOLUME	(bbl)
Nozzles	14/15/15/ / / 1/32"		Casing OD	9.625 in	Liner OD	Hole Volume	118
Drill Pipe 1 OD	4.500 in	257 m	Casing ID	8.920 in	Liner ID	Pits Volume	342
Drill Pipe 2 OD	5.000 in	278.9m	Casing TD	391.0 m	Liner TD	Circulating Volume	460
Drill Collar OD	6.500 in	29.7 m	Casing TVD	391.0 m	Liner TVD	Mud	KCL/PHPA/POLYMER

MUD PROPERTIES		Primary	# 1	# 2	# 3
Sample From		FL 24:00			
Flow Line Temp		105 °F			
Depth/TVD	-m	566.0/564.8			
Mud Wt	-lb/gal	8.9			
Funnel Visc	-s/qt	43 @ 105 °F			
Plastic Visc	-cps	9 @ 120 °F			
YP/R3	-lb/100ft2/deg	12 /2			
10s/10m Gel	-lb/100ft2	3 /10			
API F Loss	-cc/30 min	7.5			
HTHP F Loss	-cc/30 min				
Cake API/HT	-1/32"	1 /			
Solids	-% Vol	4			
Oil/Water	-% Vol	0 /96			
Sand	-% Vol	0.2			
MBT	-lb/bbl	5.0			
pH		9.5 @ 100 °F			
Alkal Mud (Pm)		0.5			
Pf/Mf		0.3 /0.7			
Chlorides	-mg/l	20000			
Hardness Ca		160			
KCL % WW		3.5			
K+ PPM		18800			
SO3		150			
ALC50		120000			
p Value		0.514			
Kp	-lb-sec^n/100ft	0.90701			
na Value		0.511			
Ka	-lb-sec^n/100ft	0.92787			

CIRCULATION DATA		
Flow Rate	-gal/min	501
DP Annular Vel	-m/min	79.2
DC Annular Vel	-m/min	124.8
DP Critical Vel	-m/min	73.9
DC Critical Vel	-m/min	89.5
Circ. Pressure	-psi	1200
Bottoms Up	-min	8.1
Total Circ Time	-min	38.6

SOLIDS ANALYSIS		(% / lb/bbl)	
NaCl		0.1 / 2	
KCl		1.3 / 12	
Low Gravity Solids		2.7 / 25	
Bentonite		0.3 / 3	
Drill Solids		2.2 / 20	
Weight Material		N/A / N/A	
Chemical Conc		- / 2.0	
Inert/React	3.53	Average SG	2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 84	9
Shaker #2	3 X 84	9
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander		
Desilter	10 X 4"	6
Degasser		

Remarks:

Drill 8.5" hole to 566 meters.

Make up BOP and test. Make up bit, 8.5" Hughes GT-03, jets 14/15/15/ and RIH. Drill out shoe track and rat hole to 400 meters. Displace water with 4%KCl/PHPA mud. Make LOT, drill ahead with surveys while building angle. Drilled out cement and shoe with water using pill tank. Dumped cement contaminated water while displacing to new mud. Mixed KCl at 14.5 ppb, PHPA at 1.5 ppb. Adding Duovis to incease 6 rpm reading to 4 lbs/100 sq. ft. Adding Pac
R to reduce water loss to 7 cc. Adding OS-1 for SO3 150 mg/l. Unable to reduce shaker screen size today, presently running at 90% capacity.

MUD VOLUME ACCOUNTING	(bbl)
Oil Added	
Water Added	
Mud Built	520
Mud Received	
Mud Disposed	60
SOL CONT EQI	50
SURFACE DUMP	10
FORMAT. LOSS	

M-I Sales Engineer	Warehouse	Daily Cost $	Cumul Cost $
PETER DWYER	GILLMAN	5477	12872

DRILLING FLUIDS

WELLSITE MUD INVENTORY

DAILY MUD INVENTORY REPORT

Operator : BORAL ENERGY
Well Name : WILD DOG ROAD 1
Location : OTWAY BASIN

M-I Well No. : W0001
Report No. :
Date : 12/12/99

COST SUMMARY

Total Daily Cost : 5476.96
Cumulative Cost : 12871.78

MUD INVENTORY

Product Name	Unit	Price	Begin Invent	Recvd Today	Return Today	Used Today	Final Invent	Used Total	Daily Cost
M-I Bar	25 KG S	6.45	366				366	34	0.00
Caustic Soda	25 KG D	32.30	14			2	12	8	64.60
Duovis	25 KG S	398.50	19			3	16	4	1195.50
GLDT	25 LT D	135.00	5				5		0.00
Potassm Chloride	25 KG S	13.80	440			120	320	280	1656.00
Swik Seal M	40 LB S	40.50	4				4	43	0.00
Lime	25 KG S	7.20	10				10		0.00
M-I Gel	25 KG S	11.50	603				603	197	0.00
Polypac R	25 KG S	148.00	30			5	25	5	740.00
Polyplus	25 KG S	120.00	90			14	76	14	1680.00
Pipelax	208 LT	630.69	2				2		0.00
Soda Ash	25 KG S	14.43	16			2	14	6	28.86
OS-1	25 KG S	56.00	20			2	18	2	112.00
Mica Coarse	25 KG S	13.50	10				10	10	0.00
Mica Medium	25 KG S	13.50	13				13	7	0.00
Mica Fine	25 KG S	13.50	14				14	6	0.00

DRILLING FLUIDS

WATER BASE MUD REPORT

Report No.:

API #: **Date:** 13/12/99 **Depth:** 1127.0m

Well No.: W0001 **Spud Date:** 08/12/99 **Activity:** DRILLING

Operator: BORAL ENERGY **Contractor:** ODE 30 **Description:** EXPLORATION

Well Name: WILD DOG ROAD #1 **Field/Area:** OTWAY BASIN **Location:** SW VICTORIA

Report For: BARRY BEETSON

Bit	8.500 in		CASING			MUD VOLUME	(bbl)
Nozzles	14/15/15/ / / 1/32"		Casing OD	9.625 in	Liner OD	Hole Volume	237
Drill Pipe 1 OD	4.500 in	818 m	Casing ID	8.920 in	Liner ID	Pits Volume	381
Drill Pipe 2 OD	5.000 in	278.9m	Casing TD	391.0 m	Liner TD	Circulating volume	618
Drill Collar OD	6.500 in	29.7 m	Casing TVD	391.0 m	Liner TVD	Mud	KCL/PHPA/POLYMER

MUD PROPERTIES		Primary	# 1	# 2	# 3
Sample From		FL 24:00	FL 12:00		
Flow Line Temp		125 °F	120 °F		
Depth/TVD	-m	1127.0/1052.0	842.0/840.5		
Mud Wt	-lb/gal	9.3	9.1		
Funnel Visc	-s/qt	48 @ 125 °F	47 @ 120 °F		
Plastic Visc	-cps	13 @ 120 °F	12 @ 120 °		
YP/R3	-lb/100ft2/deg	18 /3	17 /4		
10s/10m Gel	-lb/100ft2	4 /12	4 /13		
API F Loss	-cc/30 min	6.3	6.5		
HTHP F Loss	-cc/30 min				
Cake API/HT	-1/32"	2/	2/		
Solids	-% Vol	7.2	6.5		
Oil/Water	-% Vol	0 /92.8	0 /93.5		
Sand	-% Vol	0.2	0.2		
MBT	-lb/bbl	7.5	7.5		
pH		9.3 @ 120 °F	9.5 @ 120 °		
Alkal Mud (Pm)		0.4	0.5		
Pf/Mf		0.2 /0.6	0.3 /0.8		
Chlorides	-mg/l	18500	18000		
Hardness Ca		160	140		
KCL % WW		3	3		
K+ PPM		16000	16000		
SO3		150	150		
ALC50		120000	120000		
np Value		0.505	0.499		
Kp	-lb-sec^n/100ft	1.41915	1.37530		
na Value		0.507	0.430		
Ka	-lb-sec^n/100ft	1.39972	2.11588		

CIRCULATION DATA		
Flow Rate	-gal/min	502
DP Annular Vel	-m/min	79.4
DC Annular Vel	-m/min	125.1
DP Critical Vel	-m/min	93.5
DC Critical Vel	-m/min	113.1
Circ. Pressure	-psi	1700
Bottoms Up	-min	15.9
Total Circ Time	-min	51.7

SOLIDS ANALYSIS	(% / lb/bbl)		
NaCl	0.1 / 1		
KCl	1.2 / 11		
Low Gravity Solids	5.9 / 53		
Bentonite	0.3 / 2		
Drill Solids	5.1 / 46		
Weight Material	N/A / N/A		
Chemical Conc	- / 5.0		
Inert/React	5.46	Average SG	2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 84	22
Shaker #2	3 X 110	22
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander		
Desilter	10 X 4"	22
Degasser		

Remarks:

Continue drilling to 1127 meters.

Continue drilling to 1127 meters with surveys while building angle.
Changed one shaker to 110 mesh screens, having to run shakers at maximimum levels to minimise mud losses. Re-claiming water from sump for all mud premixes. Dumping mud from sand trap as required to prevent excessive mud weight increase.
PHPA concentration = 2 ppb. 6 RPM reading = 5 lbs/100 sq.ft.

MUD VOLUME ACCOUNTING	(bbl)
Oil Added	
Water Added	
Mud Built	300
Mud Received	
Mud Disposed	140
SOL CONT EQI	100
SURFACE DUMP	40
FORMAT. LOSS	

M-I Sales Engineer	Warehouse	Daily Cost $	Cumul Cost $
PETER DWYER	GILLMAN	4205	17077

DRILLING FLUIDS

WELLSITE MUD INVENTORY

DAILY MUD INVENTORY REPORT

Operator : BORAL ENERGY
Well Name : WILD DOG ROAD 1
Location : OTWAY BASIN

M-I Well No. : W0001
Report No. : . .
Date : 13/12/99

COST SUMMARY

Total Daily Cost : 4204.96
Cumulative Cost : 17076.74

MUD INVENTORY

Product Name	Unit	Price	Begin Invent	Recvd Today	Return Today	Used Today	Final Invent	Used Total	Daily Cost
M-I Bar	25 KG S	6.45	366				366	34	0.00
Caustic Soda	25 KG D	32.30	12			2	10	10	64.60
Duovis	25 KG S	398.50	16			3	13	7	1195.50
GLDT	25 LT D	135.00	5				5		0.00
Potassm Chloride	25 KG S	13.80	320			60	260	340	828.00
Swik Seal M	40 LB S	40.50	4				4	43	0.00
Lime	25 KG S	7.20	10				10		0.00
M-I Gel	25 KG S	11.50	603				603	197	0.00
Polypac R	25 KG S	148.00	25			4	21	9	592.00
Polyplus	25 KG S	120.00	76			12	64	26	1440.00
Pipelax	208 LT	630.69	2				2		0.00
Soda Ash	25 KG S	14.43	14			2	12	8	28.86
OS-1	25 KG S	56.00	18			1	17	3	56.00
Mica Coarse	25 KG S	13.50	10				10	10	0.00
Mica Medium	25 KG S	13.50	13				13	7	0.00
Mica Fine	25 KG S	13.50	14				14	6	0.00

DRILLING FLUIDS

WATER BASE MUD REPORT

Report No.:

API #: | Date: 14/12/99 | Depth: 1402.0m

Well No.: W0001 | Spud Date: 08/12/99 | Activity: DRILLING

Operator: BORAL ENERGY | Contractor: ODE 30 | Description: EXPLORATION

Well Name: WILD DOG ROAD #1 | Field/Area: OTWAY BASIN | Location: SW VICTORIA

Report For: BARRY BEETSON

Bit	8.500 in		CASING			MUD VOLUME	(bbl)
Nozzles	14/16/16/ / / 1/32"		Casing OD	9.625 in	Liner OD	Hole Volume	296
Drill Pipe 1 OD	4.500 in	1093 m	Casing ID	8.920 in	Liner ID	Pits Volume	362
Drill Pipe 2 OD	5.000 in	278.9m	Casing TD	391.0 m	Liner TD	Circulating volume	658
Drill Collar OD	6.500 in	29.7 m	Casing TVD	391.0 m	Liner TVD	Mud	KCL/PHPA/POLYMER

MUD PROPERTIES		Primary	# 1	# 2	# 3
Sample From		FL 24:00	FL 12:00		
Flow Line Temp		130 °F	130 °F		
Depth/TVD	-m	1402.0/1286.0	212.0/1119.		
Mud Wt	-lb/gal	9.3	9.3		
Funnel Visc	-s/qt	44 @ 130 °F	45 @ 130 °F		
Plastic Visc	-cps	12 @ 120 °F	12 @ 120 °		
YP/R3	-lb/100ft2 /deg	17 /3	18 /3		
10s/10m Gel	-lb/100ft2	3 /11	3 /12		
API F Loss	-cc/30 min	5	5.5		
HTHP F Loss	-cc/30 min				
Cake API/HT	-1/32"	1 /	1 /		
Solids	-% Vol	7.1	7.2		
Oil/Water	-% Vol	0 /92.9	0 /92.8		
Sand	-% Vol	0.2	0.1		
MBT	-lb/bbl	7.5	7.5		
pH		9.5 @ 120 °F	9.5 @ 120 °		
Alkal Mud (Pm)		0.5	0.5		
Pf/Mf		0.3 / 0.9	0.3 / 0.9		
Chlorides	-mg/l	20000	18500		
Hardness Ca		140	160		
KCL % WW		3.45	3		
K+ PPM		18500	16000		
SO3		150	150		
ALC50		120000	120000		
np Value		0.499	0.485		
Kp	-lb-sec^n/100ft	1.37530	1.55383		
na Value		0.493	0.500		
Ka	-lb-sec^n/100ft	1.43317	1.41607		

CIRCULATION DATA		
Flow Rate	-gal/min	446
DP Annular Vel	-m/min	70.5
DC Annular Vel	-m/min	111.1
DP Critical Vel	-m/min	90.5
DC Critical Vel	-m/min	108.7
Circ. Pressure	-psi	2000
Bottoms Up	-min	22.2
Total Circ Time	-min	62.0

SOLIDS ANALYSIS	(% / lb/bbl)		
NaCl	0.1 / 2		
KCl	1.2 / 12		
Low Gravity Solids	5.8 / 52		
Bentonite	0.3 / 2		
Drill Solids	5.1 / 46		
Weight Material	N/A / N/A		
Chemical Conc	- / 4.0		
Inert/React	5.46	Average SG	2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 84	18
Shaker #2	3 X 110	18
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander		
Desilter	10 X 4"	18
Degasser		

Remarks:

Continue drilling to 1402 meters.

Continue drilling and building angle to 1166 meters (31 deg). Circulate bottom up, pump KCl pill and POH for new bit. RIH to 1143 meters, wash and ream to bottom, drill to 1402 meters at midnight.
Added biocide to mud before trip to prevent bacterial degradation. Mud salinity increase due to KCl slug. Running shakers at minimum elevation angle to reduce solids build-up, resulting in occasional surface mud losses.
Presently drilling in 100% sandstone.
Maintain PHPA concentration at 2 ppb. 6RPM reading = 5 lbs/100 sq. ft.

MUD VOLUME ACCOUNTING	(bbl)
Oil Added	
Water Added	
Mud Built	200
Mud Received	
Mud Disposed	160
SOL CONT EQI	100
SURFACE DUMP	60
FORMAT. LOSS	

M-I Sales Engineer	Warehouse	Daily Cost $	Cumul Cost $
PETER DWYER	GILLMAN	3398	20475

DRILLING FLUIDS

WELLSITE MUD INVENTORY

DAILY MUD INVENTORY REPORT

Operator : BORAL ENERGY
Well Name : WILD DOG ROAD 1
Location : OTWAY BASIN

M-I Well No. : W0001
Report No. :
Date : 14/12/99

COST SUMMARY

Total Daily Cost : 3398.46
Cumulative Cost : 20475.20

MUD INVENTORY

Product Name	Unit	Price	Begin Invent	Recvd Today	Return Today	Used Today	Final Invent	Used Total	Daily Cost
M-I Bar	25 KG S	6.45	366				366	34	0.00
Caustic Soda	25 KG D	32.30	10			2	8	12	64.60
Duovis	25 KG S	398.50	13			2	11	9	797.00
GLUT	25 LT D	135.00	5				5		0.00
Potassm Chloride	25 KG S	13.80	260			100	160	440	1380.00
Wik Seal M	40 LB S	40.50	4				4	43	0.00
Lime	25 KG S	7.20	10				10		0.00
M-I Gel	25 KG S	11.50	603				603	197	0.00
Polypac R	25 KG S	148.00	21			2	19	11	296.00
Polyplus	25 KG S	120.00	64			6	58	32	720.00
Pipelax	208 LT	630.69	2				2		0.00
Soda Ash	25 KG S	14.43	12			2	10	10	28.86
OS-1	25 KG S	56.00	17			2	15	5	112.00
Mica Coarse	25 KG S	13.50	10				10	10	0.00
Mica Medium	25 KG S	13.50	13				13	7	0.00
Mica Fine	25 KG S	13.50	14				14	6	0.00

908089 134

DRILLING FLUIDS

WATER BASE MUD REPORT

Report No.:

API #: | Date: 15/12/99 | Depth: 1678.0m

Well No.: W0001 | Spud Date: 08/12/99 | Activity: RIH

Operator: BORAL ENERGY | Contractor: ODE 30 | Description: EXPLORATION

Well Name: WILD DOG ROAD #1 | Field/Area: OTWAY BASIN | Location: SW VICTORIA

Report For: BARRY BEETSON

Bit	8.500 in		CASING			MUD VOLUME	(bbl)	
Nozzles	14/16/16/ / / 1/32"		Casing OD	9.625 in	Liner OD	Hole Volume	354	
Drill Pipe 1 OD	4.500 in	1369 m	Casing ID	8.920 in	Liner ID	Pits Volume	356	
Drill Pipe 2 OD	5.000 in	278.9m	Casing TD	391.0 m	Liner TD	Circulating volume	710	
Drill Collar OD	6.500 in	29.7 m	Casing TVD	391.0 m	Liner TVD	Mud	KCL/PHPA/POLYMER	

MUD PROPERTIES		Primary	# 1	# 2	# 3
Sample From		FL 22:30	FL 12:00		
Flow Line Temp		130 °F	130 °F		
Depth/TVD	-m	1678.0/1521.0	564.0/1421.		
Mud Wt	-lb/gal	9.3	9.3		
Funnel Visc	-s/qt	45 @ 130 °F	44 @ 130 °F		
Plastic Visc	-cps	12 @ 120 °F	11 @ 120 °		
YP/R3	-lb/100ft2 /deg	19 /3	18 /3		
10s/10m Gel	-lb/100ft2	3 /10	2 /10		
API F Loss	-cc/30 min	5.2	5.4		
HTHP F Loss	-cc/30 min				
Cake API/HT	-1/32"	1 /	1 /		
Solids	-% Vol	6.7	7.1		
Oil/Water	-% Vol	0 /93.3	0 /92.9		
Sand	-% Vol	0.1	0.1		
MBT	-lb/bbl	7.5	7.5		
pH		9.5 @ 120 °F	9.3 @ 120 °		
Alkal Mud (Pm)		0.5	0.4		
Pf/Mf		0.3 /0.9	0.2 /0.8		
Chlorides	-mg/l	20500	20000		
Hardness Ca		140	120		
KCL % WW		3.4	3.4		
K+ PPM		18100	18100		
SO3		150	150		
ALC50		120000	120000		
Kp Value		0.472	0.464		
Kp	-lb-sec^n/100ft	1.74502	1.71719		
na Value		0.507	0.493		
Ka	-lb-sec^n/100ft	1.39972	1.43317		

CIRCULATION DATA		
Flow Rate	-gal/min	430
DP Annular Vel	-m/min	68.0
DC Annular Vel	-m/min	107.1
DP Critical Vel	-m/min	93.5
DC Critical Vel	-m/min	113.1
Circ. Pressure	-psi	2000
Bottoms Up	-min	27.4
Total Circ Time	-min	69.3

SOLIDS ANALYSIS	(% / lb/bbl)		
NaCl	0.2 / 2		
KCl	1.2 / 11		
Low Gravity Solids	4.9 / 44		
Bentonite	0.4 / 3		
Drill Solids	4.1 / 37		
Weight Material	0 / 6		
Chemical Conc	- / 4.0		
Inert/React	4.37	Average SG	2.73

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 84	22
Shaker #2	3 X 110	22
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander		
Desilter	10 X 4"	22
Degasser		

Remarks:

Continue drilling to casing point at 1678 meters.

Continue drilling to 1678 meters with surveys. Self healing mud losses at 20 bbls per 1/2 hour while drilling at approx 1590 meters. Circulate and condition hole at 1678 meters, pump slug, make wiper trip to 1100 meters, RIH to circulate before logging. No hole problems while tripping.
Adding 2 ppb PHPA to premix for solids encapsulation.
6 RPM reading = 5 lbs 100 sq. ft.

MUD VOLUME ACCOUNTING	(bbl)
Oil Added	
Water Added	
Mud Built	180
Mud Received	
Mud Disposed	128
SOL CONT EQI	70
SURFACE DUMP	10
FORMAT. LOSS	48

M-I Sales Engineer	Warehouse	Daily Cost $	Cumul Cost $
PETER DWYER	GILLMAN	2888	23363

DRILLING FLUIDS

WELLSITE MUD INVENTORY

DAILY MUD INVENTORY REPORT

Operator : BORAL ENERGY
Well Name : WILD DOG ROAD 1
Location : OTWAY BASIN

M-I Well No. : W0001
Report No. :
Date : 15/12/99

COST SUMMARY

Total Daily Cost : 2888.20
Cumulative Cost : 23363.40

MUD INVENTORY

Product Name	Unit	Price	Begin Invent	Recvd Today	Return Today	Used Today	Final Invent	Used Total	Daily Cost
M-I Bar	25 KG S	6.45	366			46	320	80	296.70
Caustic Soda	25 KG D	32.30	8				8	12	0.00
Duovis	25 KG S	398.50	11			1	10	10	398.50
GLUT	25 LT D	135.00	5			1	4	1	135.00
Potassm Chloride	25 KG S	13.80	160			50	110	490	690.00
Wik Seal M	40 LB S	40.50	4				4	43	0.00
Lime	25 KG S	7.20	10				10		0.00
M-I Gel	25 KG S	11.50	603				603	197	0.00
Polypac R	25 KG S	148.00	19			4	15	15	592.00
Polyplus	25 KG S	120.00	58			6	52	38	720.00
Pipelax	208 LT	630.69	2				2		0.00
Soda Ash	25 KG S	14.43	10				10	10	0.00
OS-1	25 KG S	56.00	15			1	14	6	56.00
Mica Coarse	25 KG S	13.50	10				10	10	0.00
Mica Medium	25 KG S	13.50	13				13	7	0.00
Mica Fine	25 KG S	13.50	14				14	6	0.00

DRILLING FLUIDS

WATER BASE MUD REPORT

Report No.:

API #: | Date: 16/12/99 | Depth: 1678.0m

Well No.: W0001 | Spud Date: 08/12/99 | Activity: LOGGING

Operator: BORAL ENERGY | Contractor: ODE 30 | Description: EXPLORATION

Well Name: WILD DOG ROAD #1 | Field/Area: OTWAY BASIN | Location: SW VICTORIA

Report For: BARRY BEETSON

			CASING				MUD VOLUME	(bbl)
Bit	8.500 in							
Nozzles	14/16/16/ / / 1/32"		Casing OD	9.625 in	Liner OD		Hole Volume	354
Drill Pipe 1 OD	4.500 in	1369 m	Casing ID	8.920 in	Liner ID		Pits Volume	296
Drill Pipe 2 OD	5.000 in	278.9m	Casing TD	391.0 m	Liner TD		Circulating volume	650
Drill Collar OD	6.500 in	29.7 m	Casing TVD	391.0 m	Liner TVD		Mud	KCL/PHPA/POLYMER

MUD PROPERTIES		Primary	# 1	# 2	# 3
Sample From		FL 01:00			
Flow Line Temp		130 °F			
Depth/TVD	-m	1678.0/1521.0			
Mud Wt	-lb/gal	9.3			
Funnel Visc	-s/qt	45 @ 130 °F			
Plastic Visc	-cps	12 @ 120 °F			
YP/R3	-lb/100ft2 /deg	19 /3			
10s/10m Gel	-lb/100ft2	3 /10			
API F Loss	-cc/30 min	5.2			
HTHP F Loss	-cc/30 min				
Cake API/HT	-1/32"	1 /			
Solids	-% Vol	6.7			
Oil/Water	-% Vol	0 /93.3			
Sand	-% Vol	0.1			
MBT	-lb/bbl	7.5			
pH		9.5 @ 120 °F			
Alkal Mud (Pm)		0.5			
Pf/Mf		0.3 / 0.9			
Chlorides	-mg/l	20500			
Hardness Ca		140			
KCL % WW		3.4			
K+ PPM		18100			
SO3		150			
ALC50		120000			
Kp Value		0.472			
Kp	-lb-sec^n/100ft	1.74502			
na Value		0.507			
Ka	-lb-sec^n/100ft	1.39972			

CIRCULATION DATA		
Flow Rate	-gal/min	430
DP Annular Vel	-m/min	68.0
DC Annular Vel	-m/min	107.1
DP Critical Vel	-m/min	93.5
DC Critical Vel	-m/min	113.1
Circ. Pressure	-psi	2000
Bottoms Up	-min	27.4
Total Circ Time	-min	63.5

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	0.2 / 2
KCl	1.2 / 11
Low Gravity Solids	4.9 / 44
Bentonite	0.4 / 3
Drill Solids	4.1 / 37
Weight Material	0 / 6
Chemical Conc	- / 4.0
Inert/React 4.37	Average SG 2.73

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 84	1
Shaker #2	3 X 110	1
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander		
Desilter	10 X 4"	1
Degasser	1	

Remarks:

Run Schlumberger logs.

RIH, circulate and condition mud. Add Glute biocide to mud while circulating to prevent bacterial degradation. Pump barite slug, POH. Rig up and run Schlumberger logs.

MUD VOLUME ACCOUNTING	(bbl)
Oil Added	
Water Added	
Mud Built	
Mud Received	
Mud Disposed	60
SOL CONT EQI	5
SURFACE DUMP	15
FORMAT. LOSS	40

M-I Sales Engineer	Warehouse	Daily Cost $	Cumul Cost $
PETER DWYER	GILLMAN	412	23775

DRILLING FLUIDS

WELLSITE MUD INVENTORY

DAILY MUD INVENTORY REPORT

Operator : BORAL ENERGY
Well Name : WILD DOG ROAD 1
Location : OTWAY BASIN

M-I Well No. : W0001
Report No. :
Date : 16/12/99

COST SUMMARY

Total Daily Cost : 412.00
Cumulative Cost : 23775.40

MUD INVENTORY

Product Name	Unit	Price	Begin Invent	Recvd Today	Return Today	Used Today	Final Invent	Used Total	Daily Cost
M-I Bar	25 KG S	6.45	320			20	300	100	129.00
Caustic Soda	25 KG D	32.30	8				8	12	0.00
Duovis	25 KG S	398.50	10				10	10	0.00
GLUT	25 LT D	135.00	4			1	3	2	135.00
Potassm Chloride	25 KG S	13.80	110				110	490	0.00
Wik Seal M	40 LB S	40.50	4				4	43	0.00
Lime	25 KG S	7.20	10				10		0.00
M-I Gel	25 KG S	11.50	603				603	197	0.00
Polypac R	25 KG S	148.00	15			1	14	16	148.00
Polyplus	25 KG S	120.00	52				52	38	0.00
Pipelax	208 LT	630.69	2				2		0.00
Soda Ash	25 KG S	14.43	10				10	10	0.00
OS-1	25 KG S	56.00	14				14	6	0.00
Mica Coarse	25 KG S	13.50	10				10	10	0.00
Mica Medium	25 KG S	13.50	13				13	7	0.00
Mica Fine	25 KG S	13.50	14				14	6	0.00

APPENDIX 5

WELL LOCATION SURVEY PLAN

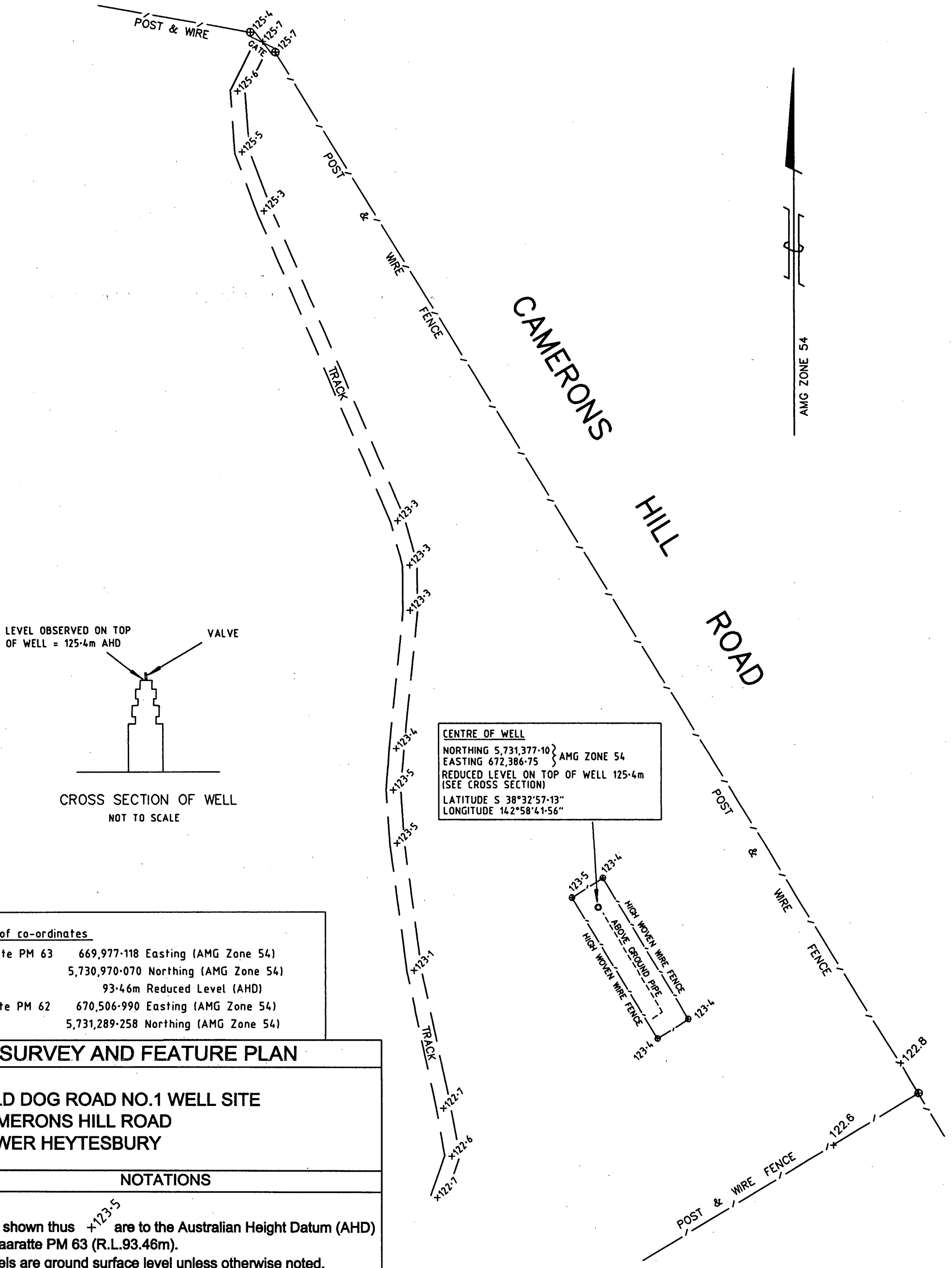
This is Page Number **908089_140X**

This is an enclosure indicator page.

The page that follows this page is an uncatalogued fold-out with page number:

908089_140Y

and is enclosed within the document PE908089 at this page.



LEVEL OBSERVED ON TOP OF WELL = 125·4m AHD

VALVE

CROSS SECTION OF WELL

NOT TO SCALE

Datum of co-ordinates

Paaratte PM 63	669,977·118 Easting (AMG Zone 54)
	5,730,970·070 Northing (AMG Zone 54)
	93·46m Reduced Level (AHD)
Paaratte PM 62	670,506·990 Easting (AMG Zone 54)
	5,731,289·258 Northing (AMG Zone 54)

SURVEY AND FEATURE PLAN

WILD DOG ROAD NO.1 WELL SITE
CAMERONS HILL ROAD
LOWER HEYTESBURY

NOTATIONS

Levels shown thus $+^{123·5}$ are to the Australian Height Datum (AHD) vide Paaratte PM 63 (R.L.93.46m).

All levels are ground surface level unless otherwise noted.

Accuracy : Horizontal 0.05m
Vertical 0.10m

Date of Survey : 23/3/2000

ALAN H. SIMPSON
• LAND SURVEYOR •
A.C.N. 082 912 510
P.O.BOX 421, WARRNAMBOOL 3280
PHONE (03) 55611846 FAX (03) 55621775

SURVEYORS REF.	ORIGINAL SCALE	ORIGINAL SHEET SIZE
868B	1:1000	A3
DWG 868BSITE		

9008089 140Y

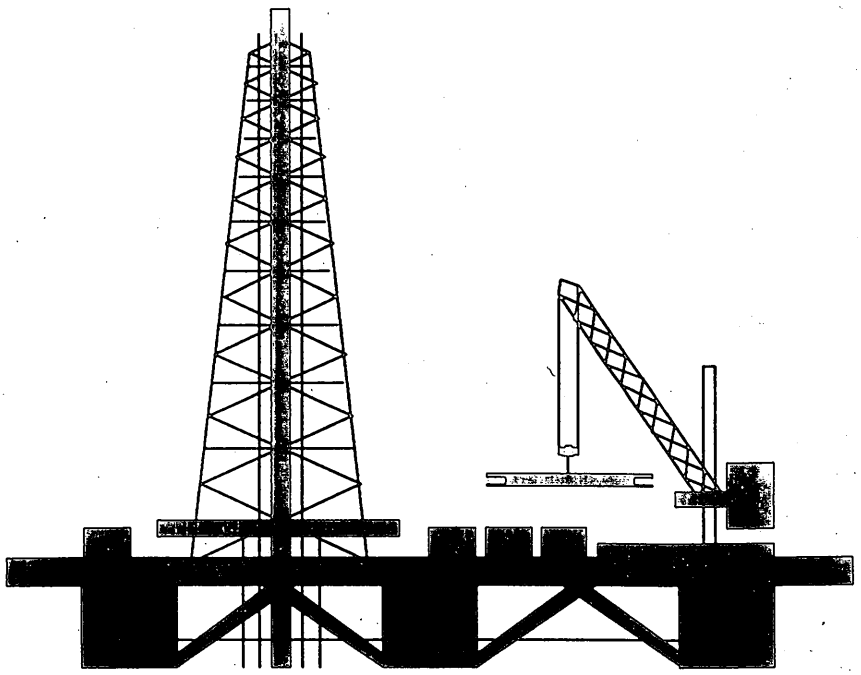
APPENDIX 6

MWD SURVEY DATA

By

SPERRY-SUN

OIL COMPANY OF AUSTRALIA



DIRECTIONAL DRILLING END OF WELL REPORT

[redacted]

sperry-sun
DRILLING SERVICES

OIL COMPANY OF AUSTRALIA

WELL : WILD DOG ROAD #1

TABLE OF CONTENTS

Customer : **Oil Company of Australia**

Well Name : **Wild Dog Road #1**

Job Objectives:

Wild Dog Road #1 is proposed as an exploration well in PPL-1 onshore Otway Basin, Victoria. The primary objective is the Waarre Sandstone at a TVD of 1441m. The slant well is to be drilled directionally with a kick off point at 500m building at 5°/30m to a hold angle of 31.8° in a direction of 61.87°.

Summary of Results:

The 8½" hole section was designed to be drilled with three BHA's but was actually drilled with two assemblies. The vertical rotary assembly to drill to kick off point was replaced by the Steerable Motor Assembly, which drilled to kick off point then drilled the build section, reaching the hold angle of 31° without any problems attaining build rates and achieved the required direction. Then the hold section was continued to 1155m using short slides to correct for the dropping trend (-0.4°/30m) and left hand walking trend (-0.8°/30m).

At 1155m the MWD failed. After pulling out of hole, the last Steerable Motor Assembly with a reduced motor bend angle and a new MWD and bit then drilled the final hold section, initially sliding to regain lost inclination due to drilling blind at the end of the previous run. Again several corrections had to be made to the wellpath particularly to correct for hard right hand walking trends encountered in the two siltstones (Skull Creek Member, Belfast Formation) and a slight dropping trend (0.2°/30m) for almost the entire run. The target was intersected at approximately 10m from the centre and the Warre Sandstone payzone was drilled at 1586m MD (1440m TVD) and then drilling continued to TD at 1678m.

Discussion:

BHA Summary:

BHA #1 14" Hole Opener BHA 0m - 31m
Spudded well after unsussessful spudding attempt with 12¼" BHA due to lost circulation problems.

BHA #2 12¼" Rotary BHA 31m - 397m
Drilled 12-1/4" hole to 9-5/8" casing point.

BHA #3 8½" Steerable Motor BHA 397m - 1155m
Drilled 8½" deviated hole build section and hold section.

BHA #4 8½" Steerable Motor BHA 1155m - 1678m
Drilled 8½" deviated hole hold section.

BHA #	Bit #	Motor Run #	Hole Size (in)	MD In (m)	MD Out (m)	TVD In (m)	TVD Out (m)	Inc In (deg)	Inc Out (deg)	Azi In (deg)	Azi Out (deg)	Drlg hrs	Circ hrs
1	1		12.250	31	397	31	397	0.1	0.8	229	229	14	2
2	2	1	8.500	397	1155	397	1077	0.8	30.2	229	64	31	3
3	3	2	8.500	1155	1678	1077	1521	30.2	26.3	64	75	37	2

Table 1 - BHA Summary

Motor Run Summary:

Run #1 6¾" SperryDrill 7/8 lobe 3.0 stg Motor 397m - 1155m
Drilled 8½" deviated hole build and hold without any problem providing excellent torque and differential pressure of up to

250psi when required. No sliding difficulties were encountered with this motor and the 1.5° bend provided excellent doglegs of approximately 5°/30m for slides of 5m per single.

Run #1 6¾" SperryDrill 7/8 lobe 3.0 stg Motor 1155m - 1678m
Drilled 8½" deviated hole tangent section without any problem providing excellent torque and differential pressure of up to 200psi when required. No sliding difficulties were encountered until sliding in the Nullawarre Greensand which was soft and necessitated very fine weight control to be able to hold the toolface steady. The 1.15° bend provided doglegs of approximately 3.5°/30m for slides of 7m per single.

Motor Run #	Manufacturer	Type	Lobe	OD (in)	Gauge (in)	Bend (deg)	Adj	DLS (Ori) (°/30m)	ROP (Ori) (m/hr)	ROP (Rot) (m/hr)
1	SSDS	SperryDrill	7/8	6.750	8.125	1.15	N	4.50	15	27
2	SSDS	SperryDrill	7/8	6.750	8.125	1.15	N	3.20	15	14

Table 2 - Motor Run Summary

Bit Run Summary:

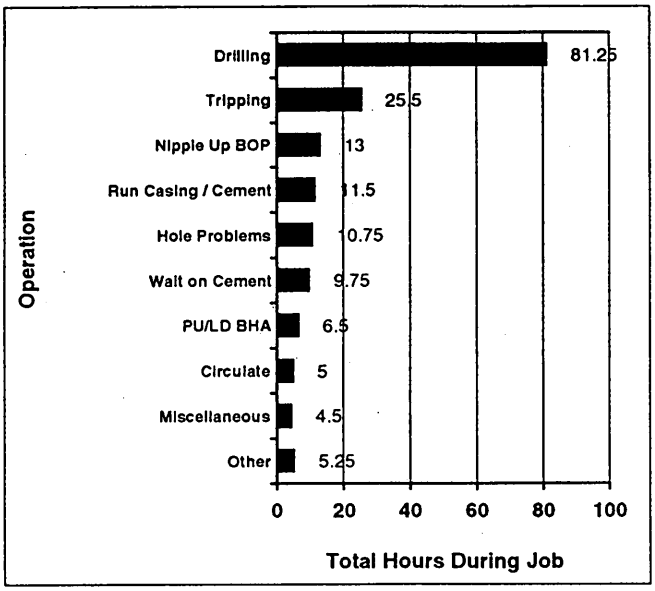
Bit Run #2 BHA #2 397m - 1155m
This new Hughes GT03 insert bit drilled the 8½" deviated hole without any problem and was excellent to steer. The bit drilled through several different and abrasive formations at fast ROP's and came out of the hole in good condition and was graded 2-2-WT-A-E-I-ER-TF.

Bit Run #3 BHA #3 1155m - 1678m
This new Varel ETD437 insert bit drilled the 8½" deviated hole tangent without any problem and was excellent to steer. The bit drilled through several different and very abrasive and hard formations at reasonably fast ROP's, and came out of the hole in poor condition and was graded 7-8-LT-A-E-I-CT-TD.

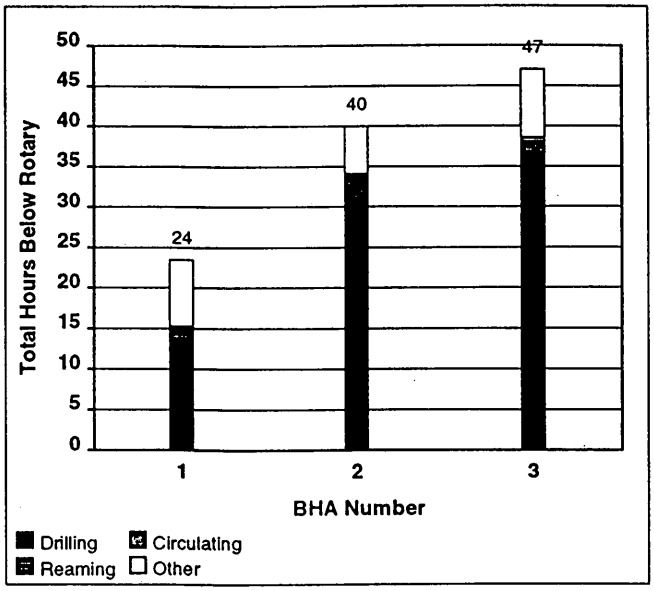
Bit #	Manufacturer	Style	OD (in)	Gge Len (in)	Nozzles (/32's)	TFA (in²)	Dull Grades I O D L B G O R	Ftge (m)	Drlg hrs	ROP (m/hr)
1	Varel	ETR-1G	12.250		3x18	0.746	2- - - -2-I- -TD	366	13.75	27
2	Hughes	GT03	8.500	3.000	2x15, 1x14	0.495	3-3-WT-AL-E-I-ER-TF	758	31.00	24
3	Varel	ETD437	8.500	3.000	2x16, 1x14	0.543	7-8-LC-AL-E-I-CT-TD	523	36.50	14

Table 3 - Bit Run Summary

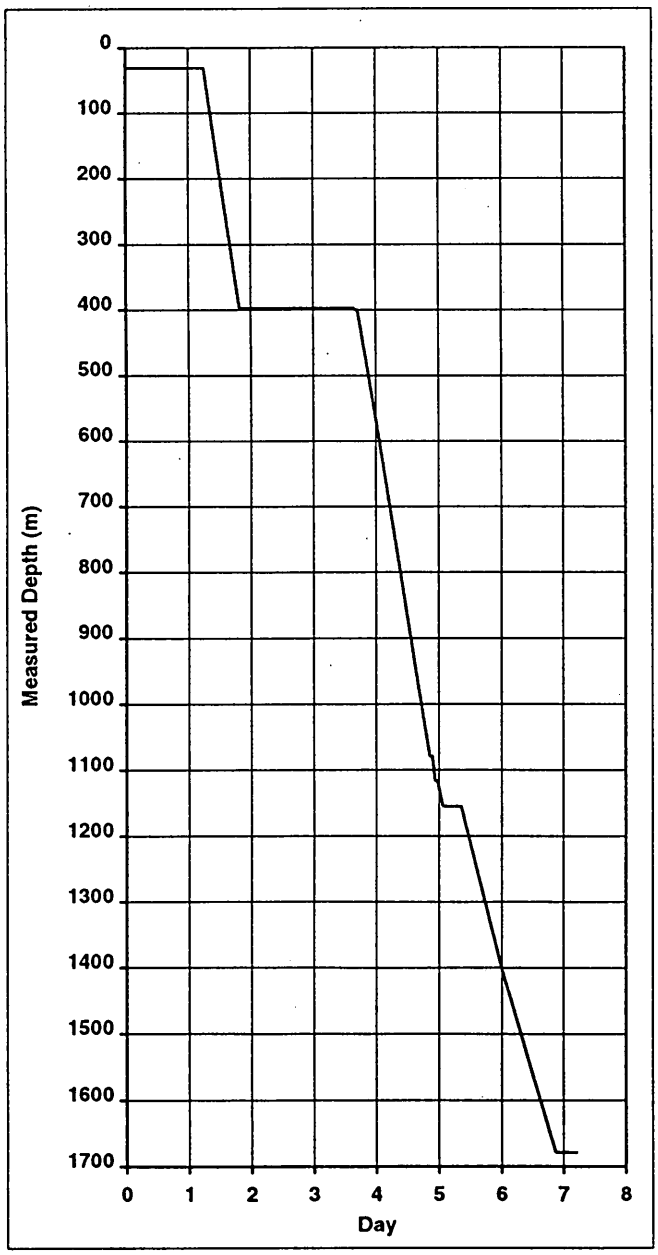
Hours by Operation Summary



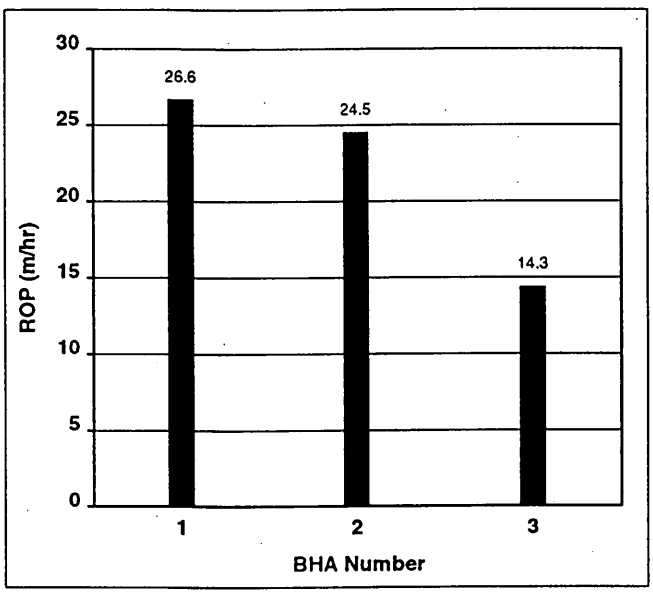
Hours per BHA Breakdown



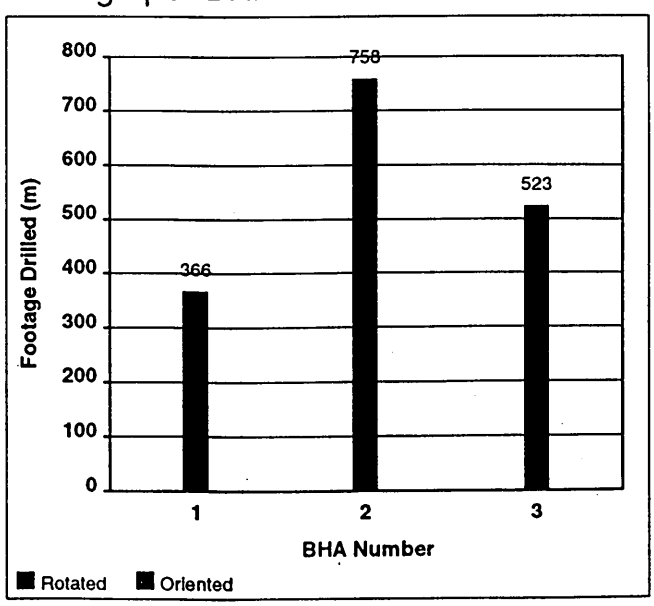
Days vs. Depth



Average Rate of Penetration per BHA



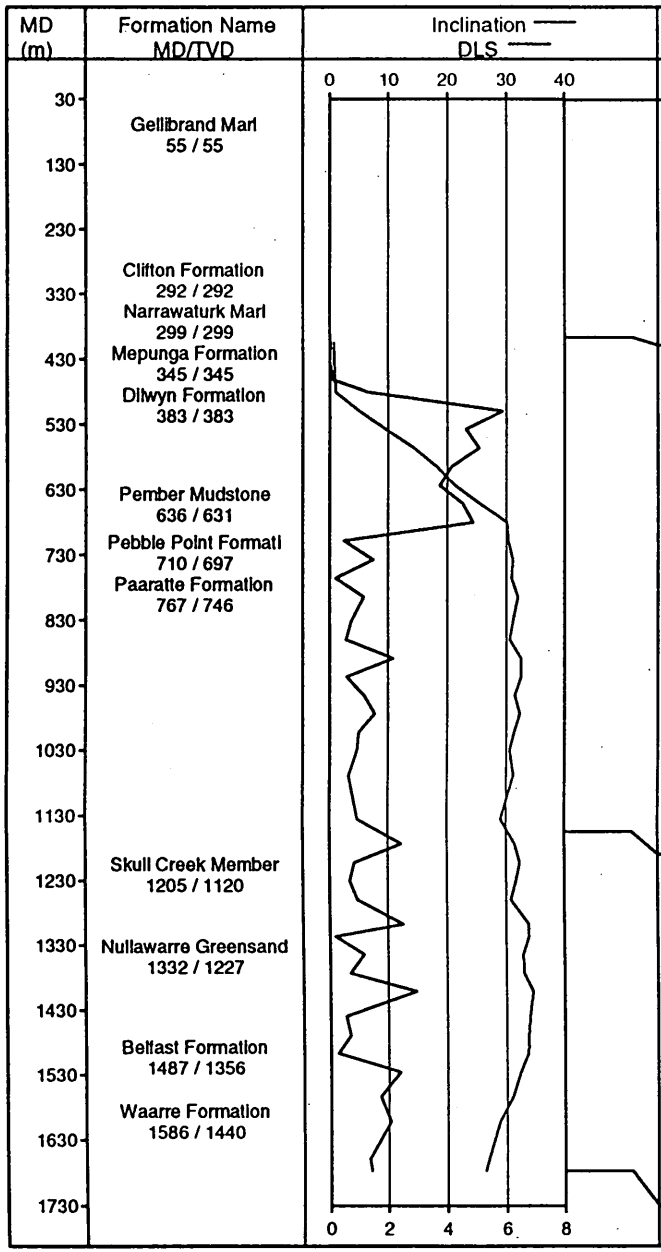
Footage per BHA



Sperry-Sun Drilling Services

Oil Company of Australia
Wild Dog Road #1
ODE Rig 30

Otway Basin
PPL-1
AU-DD-90099



Bit Data	Drilling Parameters	Motor	BHA Stabilizers	Comments	BHA ID
ETR-1G 3x18 /32's 26.6 m/hr 13.75 hrs	WOB 15 klbs RPM 140 FLO 600 gpm SPP 1000 psi		12.250 in @ 20.05 m	Assembly to drill 12¼" hole to 9-5/8" casing point in Dilwyn formation.	#1 @ 31
GT03 2x15, 1x14 /32's 24.5 m/hr 31.00 hrs	WOB 17 klbs RPM 53 FLO 489 gpm SPP 1761 psi	6¾" SperryDrill 7/8 L 1.15° BH	8.125 in @ 1.09 m 7.750 in @ 8.12 m	8½" Steerable Motor Assembly to kick off well at 500m and build to hold angle of 31° at an azimuth of 61.87° and hold to target at 1441.3m TVD. Motor bend set at 1.5°.	#2 @ 397
ETD437 2x16, 1x14 /32's 14.3 m/hr 36.50 hrs	WOB 26 klbs RPM 70 FLO 459 gpm SPP 1980 psi	6¾" SperryDrill 7/8 L 1.15° BH	8.125 in @ 1.09 m 7.750 in @ 8.12 m	8½" Steerable Motor Assembly to complete the hold section and TD the well. Change the Motor bend to 1.15° and change out MWD probe.	#3 @ 1155

Sperry-Sun Drilling Services

Survey Report for Wild Dog Road #1 : 8½" Hole Survey

OIL COMPANY OF AUSTRALIA
Otway Basin

Wild Dog Road
Wild Dog Road

Measured Depth (m)	Incl.	Azim.	Sub-Sea Depth (m)	Vertical Depth (m)	Local Coordinates Northings (m)	Local Coordinates Eastings (m)	Global Coordinates Northings (m)	Global Coordinates Eastings (m)	Dogleg Rate (°/30m)	Vertical Section (m)	Comment
0.00	0.000	0.000	-128.30	0.00	0.00 N	0.00 E	5731327.00 N	672387.00 E		0.00	
4.60	0.009	229.200	-123.70	4.60	0.00 N	0.00 E	5731327.00 N	672387.00 E	0.059	0.00	Port Campbell Limestone
27.00	0.053	229.200	-101.30	27.00	0.01 S	0.01 W	5731326.99 N	672386.99 E	0.059	-0.01	13 3/8" Casing
55.00	0.109	229.200	-73.30	55.00	0.03 S	0.04 W	5731326.97 N	672386.96 E	0.059	-0.05	Gellibrand Marl
292.00	0.578	229.200	163.70	292.00	0.96 S	1.12 W	5731326.04 N	672385.88 E	0.059	-1.44	Clifton
299.00	0.592	229.200	170.69	298.99	1.01 S	1.17 W	5731325.99 N	672385.83 E	0.059	-1.51	Narrawaturk Marl
345.00	0.683	229.200	216.69	344.99	1.34 S	1.56 W	5731325.66 N	672385.44 E	0.059	-2.01	Mepunga
383.00	0.758	229.200	254.69	382.99	1.66 S	1.92 W	5731325.34 N	672385.08 E	0.059	-2.47	Dilwyn
397.00	0.786	229.200	268.69	396.99	1.78 S	2.06 W	5731325.22 N	672384.94 E	0.059	-2.66	9 5/8" Casing
404.00	0.800	229.200	275.69	403.99	1.84 S	2.14 W	5731325.16 N	672384.86 E	0.059	-2.75	
433.37	0.800	227.400	305.05	433.35	2.12 S	2.44 W	5731324.88 N	672384.56 E	0.026	-3.15	
461.89	0.900	224.100	333.57	461.87	2.41 S	2.74 W	5731324.59 N	672384.26 E	0.117	-3.56	
480.92	1.000	171.900	352.60	480.90	2.68 S	2.82 W	5731324.32 N	672384.18 E	1.325	-3.76	
509.45	5.100	56.500	381.09	509.39	2.23 S	1.73 W	5731324.77 N	672385.27 E	5.891	-2.58	
537.99	9.500	57.000	409.39	537.69	0.25 S	1.30 E	5731326.75 N	672388.30 E	4.626	1.03	
566.54	14.300	59.400	437.32	565.62	2.83 N	6.32 E	5731329.83 N	672393.32 E	5.069	6.91	
595.07	18.100	63.300	464.72	593.02	6.62 N	13.31 E	5731333.62 N	672400.31 E	4.154	14.86	
623.61	21.300	58.700	491.58	619.88	11.31 N	21.70 E	5731338.31 N	672408.70 E	3.735	24.47	
636.00	23.124	59.750	503.05	631.35	13.70 N	25.73 E	5731340.70 N	672412.73 E	4.520	29.15	Pember Mudstone
652.08	25.500	60.900	517.71	646.01	16.98 N	31.48 E	5731343.98 N	672418.48 E	4.520	35.77	
680.54	30.100	59.900	542.88	671.18	23.54 N	43.02 E	5731350.54 N	672430.02 E	4.874	49.03	
709.03	30.400	59.200	567.49	695.79	30.81 N	55.39 E	5731357.81 N	672442.39 E	0.488	63.37	
710.00	30.423	59.283	568.32	696.62	31.06 N	55.81 E	5731358.06 N	672442.81 E	1.485	63.86	Pebble Point
737.56	31.100	61.600	592.01	720.31	38.01 N	68.07 E	5731365.01 N	672455.07 E	1.485	77.95	
766.06	30.900	61.700	616.43	744.73	44.98 N	80.99 E	5731371.98 N	672467.99 E	0.217	92.63	

Continued...

Sperry-Sun Drilling Services

Survey Report for Wild Dog Road #1 : 8½" Hole Survey

OIL COMPANY OF AUSTRALIA
Otway Basin

Wild Dog Road
Wild Dog Road

Measured Depth (m)	Incl.	Azim.	Sub-Sea Depth (m)	Vertical Depth (m)	Local Coordinates Northings (m)	Local Coordinates Eastings (m)	Global Coordinates Northings (m)	Global Coordinates Eastings (m)	Dogleg Rate (°/30m)	Vertical Section (m)	Comment
767.00	30.936	61.697	617.24	745.54	45.21 N	81.41 E	5731372.21 N	672468.41 E	1.162	93.11	Paaratte
794.49	32.000	61.600	640.69	768.99	52.03 N	94.04 E	5731379.03 N	672481.04 E	1.162	107.46	
832.52	31.100	62.100	673.10	801.40	61.42 N	111.59 E	5731388.42 N	672498.59 E	0.739	127.36	
861.02	30.600	62.400	697.56	825.86	68.22 N	124.52 E	5731395.22 N	672511.52 E	0.551	141.98	
889.52	32.500	60.900	721.85	850.15	75.31 N	137.64 E	5731402.31 N	672524.64 E	2.164	156.89	
918.01	32.600	59.900	745.87	874.17	82.88 N	150.97 E	5731409.88 N	672537.97 E	0.576	172.21	
946.48	31.500	59.500	770.00	898.30	90.50 N	164.01 E	5731417.50 N	672551.01 E	1.180	187.31	
975.01	32.300	61.800	794.22	922.52	97.88 N	177.15 E	5731424.88 N	672564.15 E	1.530	202.38	
1003.53	31.400	62.300	818.44	946.74	104.94 N	190.45 E	5731431.94 N	672577.45 E	0.987	217.43	
1032.04	30.600	61.600	842.88	971.18	111.84 N	203.41 E	5731438.84 N	672590.41 E	0.923	232.11	
1070.07	31.200	62.700	875.51	1003.81	120.96 N	220.67 E	5731447.96 N	672607.67 E	0.650	251.64	
1136.63	29.100	62.300	933.07	1061.37	136.40 N	250.33 E	5731463.40 N	672637.33 E	0.951	285.07	
1174.68	31.500	66.200	965.92	1094.22	144.71 N	267.62 E	5731471.71 N	672654.62 E	2.446	304.24	
1203.19	32.300	66.200	990.12	1118.42	150.79 N	281.40 E	5731477.79 N	672668.40 E	0.842	319.26	
1205.00	32.262	66.169	991.65	1119.95	151.18 N	282.29 E	5731478.18 N	672669.29 E	0.690	320.22	Skull Creek Member
1231.69	31.700	65.700	1014.29	1142.59	156.95 N	295.20 E	5731483.95 N	672682.20 E	0.690	334.32	
1260.21	30.800	65.500	1038.67	1166.97	163.06 N	308.67 E	5731490.06 N	672695.67 E	0.953	349.09	
1298.24	33.900	66.900	1070.80	1199.10	171.26 N	327.29 E	5731498.26 N	672714.29 E	2.516	369.37	
1317.23	33.900	66.700	1086.56	1214.86	175.43 N	337.02 E	5731502.43 N	672724.02 E	0.176	379.93	
1332.00	33.382	67.159	1098.86	1227.16	178.64 N	344.55 E	5731505.64 N	672731.55 E	1.172	388.08	Nullawarre Greensand
1345.79	32.900	67.600	1110.40	1238.70	181.54 N	351.51 E	5731508.54 N	672738.51 E	1.172	395.58	
1374.30	33.000	66.400	1134.33	1262.63	187.60 N	365.78 E	5731514.60 N	672752.78 E	0.695	411.02	
1402.86	34.500	62.100	1158.08	1286.38	194.50 N	380.06 E	5731521.50 N	672767.06 E	2.962	426.87	
1440.84	34.000	61.300	1189.47	1317.77	204.63 N	398.88 E	5731531.63 N	672785.88 E	0.531	448.24	
1469.35	33.800	60.200	1213.13	1341.43	212.40 N	412.76 E	5731539.40 N	672799.76 E	0.679	464.14	

Continued...

Sperry-Sun Drilling Services

Survey Report for Wild Dog Road #1 : 8½" Hole Survey

OIL COMPANY OF AUSTRALIA
Otway Basin

Wild Dog Road
Wild Dog Road

Measured Depth (m)	Incl.	Azim.	Sub-Sea Depth (m)	Vertical Depth (m)	Local Coordinates Northings (m)	Local Coordinates Eastings (m)	Global Coordinates Northings (m)	Global Coordinates Eastings (m)	Dogleg Rate (°/30m)	Vertical Section (m)	Comment
1487.00	33.738	60.447	1227.81	1356.11	217.25 N	421.28 E	5731544.25 N	672808.28 E	0.256	473.95	Belfast
1497.86	33.700	60.600	1236.84	1365.14	220.22 N	426.53 E	5731547.22 N	672813.53 E	0.256	479.98	
1526.38	32.300	63.900	1260.76	1389.06	227.46 N	440.27 E	5731554.46 N	672827.27 E	2.396	495.50	
1564.39	31.000	67.200	1293.12	1421.42	235.72 N	458.41 E	5731562.72 N	672845.41 E	1.709	515.40	
1586.00	29.686	68.579	1311.77	1440.07	239.83 N	468.52 E	5731566.83 N	672855.52 E	2.065	526.26	Waarre
1602.38	28.700	69.700	1326.07	1454.37	242.68 N	475.99 E	5731569.68 N	672862.99 E	2.065	534.18	
1659.39	26.900	73.600	1376.50	1504.80	251.07 N	501.20 E	5731578.07 N	672888.20 E	1.346	560.37	
1678.00	26.300	75.000	1393.14	1521.44	253.32 N	509.22 E	5731580.32 N	672896.22 E	1.399	568.51	Extrapolation to TD.

All data is in metres unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to RT. Northings and Eastings are relative to Final Rig Location.

Coordinate System is UTM Zone 54S on Australian Datum 1984, Meters.
Grid Convergence at Surface is -1.233°. Magnetic Convergence at Surface is -12.218° (30-Dec-99)

The Dogleg Severity is in Degrees per 30m.
Vertical Section is from Final Rig Location and calculated along an Azimuth of 61.870° (Grid).

Based upon Minimum Curvature type calculations, at a Measured Depth of 1678.00m.,
The Bottom Hole Displacement is 568.76m., in the Direction of 63.551° (Grid).

Formation depths are provisional, and should only be used as a guide.

Continued...

OIL COMPANY OF AUSTRALIA
Otway Basin

Wild Dog Road
Wild Dog Road

OIL COMPANY OF AUSTRALIA
Otway Basin

Wild Dog Road
Wild Dog Road

Comments

Measured Depth (m)	Station Coordinates TVD (m)	Northings (m)	Eastings (m)	Comment
1678.00	1521.44	253.32 N	509.22 E	Extrapolation to TD.

Formation Tops

Measured Depth (m)	Vertical Depth (m)	Sub-Sea Depth (m)	Northings (m)	Eastings (m)	Formation Name
4.60	4.60	-123.70	0.00 N	0.00 E	Port Campbell Limestone
55.00	55.00	-73.30	0.03 S	0.04 W	Gellibrand Marl
292.00	292.00	163.70	0.96 S	1.12 W	Clifton
299.00	298.99	170.69	1.01 S	1.17 W	Narrawaturk Marl
345.00	344.99	216.69	1.34 S	1.56 W	Mepunga
383.00	382.99	254.69	1.66 S	1.92 W	Dilwyn
636.00	631.35	503.05	13.70 N	25.73 E	Pember Mudstone
710.00	696.62	568.32	31.06 N	55.81 E	Pebble Point
767.00	745.54	617.24	45.21 N	81.41 E	Paaratte
1205.00	1119.95	991.65	151.18 N	282.29 E	Skull Creek Member
1332.00	1227.16	1098.86	178.64 N	344.55 E	Nullawarre Greensand
1487.00	1356.11	1227.81	217.25 N	421.28 E	Belfast
1586.00	1440.07	1311.77	239.83 N	468.52 E	Waarre

Continued...

OIL COMPANY OF AUSTRALIA
Otway Basin

Wild Dog Road
Wild Dog Road

Casing details

From Measured Depth (m)	From Vertical Depth (m)	To Measured Depth (m)	To Vertical Depth (m)	Casing Detail
<Surface>	<Surface>	27.00	27.00	13 3/8" Casing
<Surface>	<Surface>	397.00	396.99	9 5/8" Casing

Targets associated with this wellpath

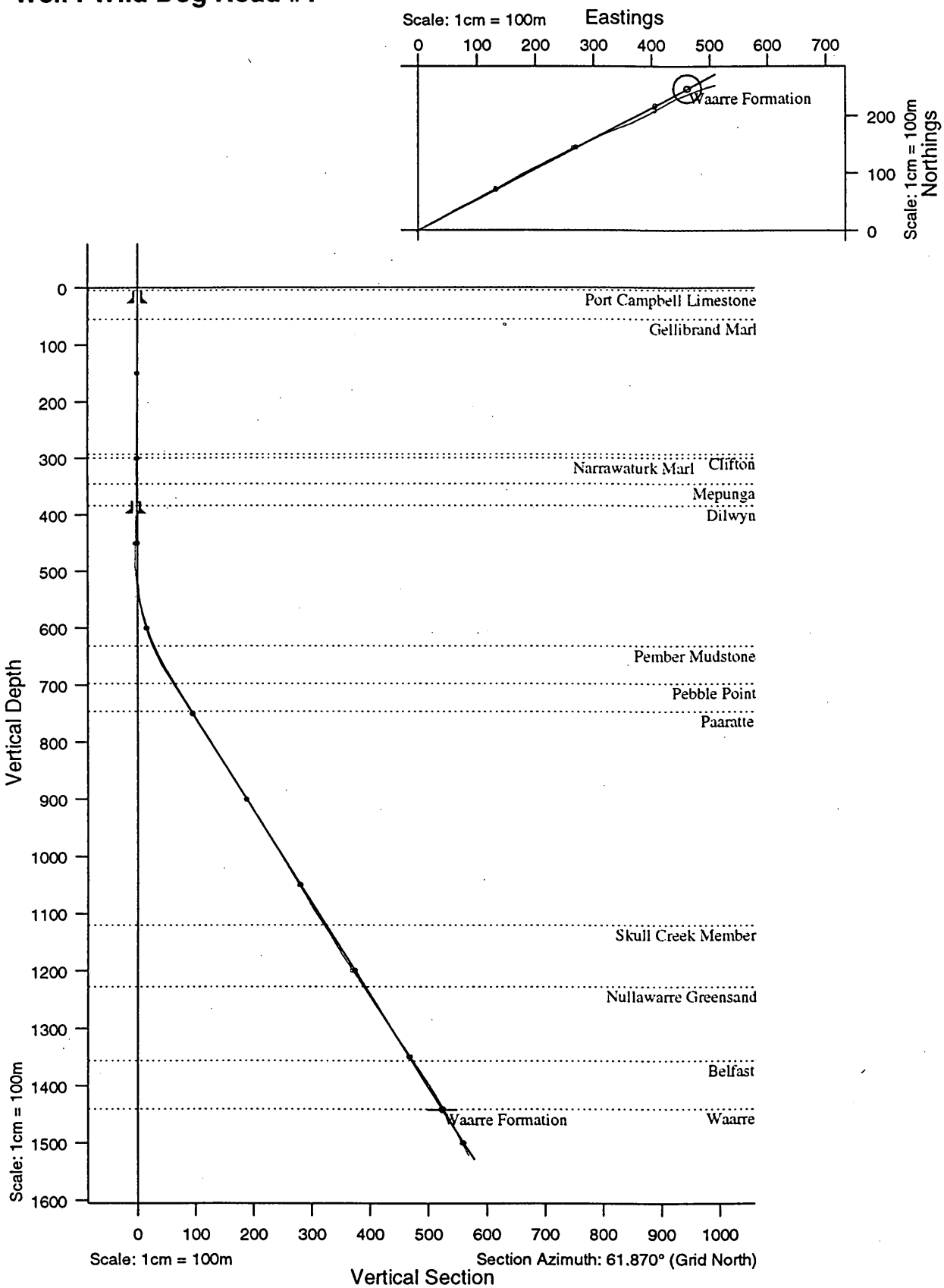
Target Name		Target Entry Coordinates TVD (m)	Northings (m)	Eastings (m)	Target Shape	Target Type
Waarre Formation		1441.30	247.00 N	462.00 E	Circle	Current Target
	Mean Sea Level/Global Coordinates:	1313.00	5731574.00 N	672849.00 E		
	Geographical Coordinates:		38° 32' 50.4234" S	142° 59' 00.4703" E		

sperry-sun DRILLING SERVICES
A HALLIBURTON COMPANY

OIL COMPANY OF AUSTRALIA

DrillQuest

Well : Wild Dog Road #1



sperry-sun
DRILLING SERVICES

Survey and Drilling Parameters

Customer : Oil Company of Australia
Well Name : Wild Dog Road #1
Rig : ODE Rig 30

Field : Otway Basin
Lease : PPL-1
Job # : AU-DD-90099

North Ref : Grid Declination : ° VS Dir : 61.87° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS									
Measured Depth (m)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (m)	Vertical Section (m)	Coordinates N/S (m)	Coordinates E/W (m)	DLS (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)	WOB (klbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (m)	Orientation To (m)	Tool Face (deg)	ROP (m/hr)	BHA No. (#)	Comment
0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	15	140	600	1000				30		Tieon
404.84	0.80	229.20	404.8	-2.8	-1.8	-2.1	0.06	0.06	0.00	20	60	500	1600				60	2	
433.37	0.80	227.40	433.4	-3.1	-2.1	-2.4	0.00	0.00	0.00	20	60	500	1600				60	2	
461.89	0.90	224.10	461.9	-3.6	-2.4	-2.7	0.12	0.11	0.00	20	60	500	1600				60	2	
480.92	1.00	171.90	480.9	-3.7	-2.7	-2.8	1.33	0.16	0.00	5		500	1600	480	481	144R	40	2	
509.45	5.10	56.50	509.4	-2.6	-2.2	-1.7	5.89	4.31	0.00	5		500	1400	481	487	144R	40	2	
														490	500	100R		2	
														500	508	35R		2	
														509	509	65R		2	
537.99	9.50	57.00	537.7	1.0	-0.2	1.3	4.63	4.63	0.53	10		500	1600	509	514	65R	40	2	
														518	523	75R		2	
														528	533	15L		2	
														537	538	40R		2	
566.54	14.30	59.40	565.6	6.9	2.8	6.3	5.07	5.04	2.52	10		500	1600	538	542	40R	40	2	
														547	552	40R		2	
														557	562	10R		2	
														566	567	10R		2	
595.07	18.10	63.30	593.0	14.9	6.6	13.3	4.15	4.00	4.10	7		500	1700	567	571	10R	30	2	
														576	581	HS		2	
														585	590	52R		2	
														595	595	40R		2	
623.61	21.30	58.70	619.9	24.5	11.3	21.7	3.74	3.36	-4.84	12		500	1700	595	599	40R	50	2	
														604	609	HS		2	
														614	619	40L		2	
														623	624	35L		2	
652.08	25.50	60.90	646.0	35.8	17.0	31.5	4.52	4.43	2.32	25		500	1700	624	628	35L	50	2	
														633	639	15R		2	
														642	647	15R		2	
														652	652	35R		2	

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DRILLING SERVICES
Survey and Drilling Parameters

Customer : Oil Company of Australia
Well Name : Wild Dog Road #1
Rig : ODE Rig 30

Field : Otway Basin
Lease : PPL-1
Job # : AU-DD-90099

North Ref : Grid Declination : ° VS Dir : 61.87° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS									
Measured Depth (m)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (m)	Vertical Section (m)	Coordinates N/S (m)	Coordinates E/W (m)	DLS (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)	WOB (klbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (m)	Orientation To (m)	Tool Face (deg)	ROP (m/hr)	BHA No. (#)	Comment
680.54	30.10	59.90	671.2	49.0	23.5	43.0	4.87	4.85	-1.05	15	50	500	1700	652	657	35R	35	2	
														661	666	20R		2	
														671	676	25R		2	
709.03	30.40	59.20	695.8	63.4	30.8	55.4	0.49	0.32	-0.74	20	50	500	1700	681	685	30R	90	2	
737.56	31.10	61.60	720.3	78.0	38.0	68.1	1.49	0.74	2.52	20	50	500	1700	728	733	50R	90	2	
766.06	30.90	61.70	744.7	92.6	45.0	81.0	0.22	-0.21	0.11	20	50	500	1700				90	2	
794.49	32.00	61.60	769.0	107.5	52.0	94.0	1.16	1.16	-0.11	20	50	500	1900	785	791	35R	80	2	
832.52	31.10	62.10	801.4	127.4	61.4	111.6	0.74	-0.71	0.39	20	50	500	1900				80	2	
861.02	30.60	62.40	825.9	142.0	68.2	124.5	0.55	-0.53	0.32	20	50	500	1900				80	2	
889.52	32.50	60.90	850.2	156.9	75.3	137.6	2.16	2.00	-1.58	15		500	1800	880	886	HS	30	2	
														889	890	HS		2	
918.01	32.60	59.90	874.2	172.2	82.9	151.0	0.58	0.11	-1.05	20	50	470	1900	890	894	HS	60	2	
946.48	31.50	59.50	898.3	187.3	90.5	164.0	1.18	-1.16	-0.42	20	50	470	1900				60	2	
975.01	32.30	61.80	922.5	202.4	97.9	177.2	1.53	0.84	2.42	20	50	470	1900	965	971	60R	60	2	
1003.53	31.40	62.30	946.7	217.4	104.9	190.5	0.99	-0.95	0.53	20	50	470	1900				60	2	
1032.04	30.60	61.60	971.2	232.1	111.8	203.4	0.92	-0.84	-0.74	20	50	470	1900				60	2	
1070.07	31.20	62.70	1003.8	251.6	121.0	220.7	0.65	0.47	0.87	20	50	470	1900				60	2	
1136.63	29.10	62.30	1061.4	285.1	136.4	250.3	0.95	-0.95	-0.18	20	50	470	1900				60	2	
1174.68	31.50	66.20	1094.2	304.2	144.7	267.6	2.45	1.89	3.07	20		500	2000	1155	1162	HS	40	3	
														1165	1172	30R		3	
														1174	1175	20R		3	
1203.19	32.30	66.20	1118.4	319.3	150.8	281.4	0.84	0.84	0.00	20	70	500	2000	1175	1179	20R	60	3	
														1184	1190	30R		3	
1231.69	31.70	65.70	1142.6	334.3	156.9	295.2	0.69	-0.63	-0.53	20	70	400	1500				20	3	
1260.21	30.80	65.50	1167.0	349.1	163.1	308.7	0.95	-0.95	-0.21	20	70	400	1500				20	3	
1298.24	33.90	66.90	1199.1	369.4	171.3	327.3	2.52	2.45	1.10	35		500	2100	1279	1287	HS	12	3	
														1288	1295	20L		3	
														1298	1298	70L		3	
1317.23	33.90	66.70	1214.9	379.9	175.4	337.0	0.18	0.00	-0.32	27	70	500	2100	1298	1302	70L	25	3	

sperry-sun
DRILLING SERVICES
Survey and Drilling Parameters

Customer : Oil Company of Australia
Well Name : Wild Dog Road #1
Rig : ODE Rig 30

Field : Otway Basin
Lease : PPL-1
Job # : AU-DD-90099

North Ref : Grid Declination : ° VS Dir : 61.87° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS									
Measured Depth (m)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (m)	Vertical Section (m)	Coordinates N/S (m)	Coordinates E/W (m)	DLS (°/30m)	Build Rate (°/30m)	Turn Rate (°/30m)	WOB (klbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (m)	Orientation To (m)	Tool Face (deg)	ROP (m/hr)	BHA No. (#)	Comment
1345.79	32.90	67.60	1238.7	395.6	181.5	351.5	1.17	-1.05	0.95	27	70	500	2100				25	3	
1374.30	33.00	66.40	1262.6	411.0	187.6	365.8	0.69	0.11	-1.26	30		450	2000	1365	1372	80L	50	3	
														1374	1374	45L		3	
1402.86	34.50	62.10	1286.4	426.9	194.5	380.1	2.96	1.58	-4.52	25	70	450	2000	1374	1381	45L	60	3	
														1384	1389	50L		3	
														1393	1398	60L		3	
1440.84	34.00	61.30	1317.8	448.2	204.6	398.9	0.53	-0.39	-0.63	25	70	450	2000				60	3	
1469.35	33.80	60.20	1341.4	464.1	212.4	412.8	0.68	-0.21	-1.16	25	70	450	2000				60	3	
1497.86	33.70	60.60	1365.1	480.0	220.2	426.5	0.26	-0.11	0.42	30	70	450	2100				15	3	
1526.38	32.30	63.90	1389.1	495.5	227.5	440.3	2.40	-1.47	3.47	30	70	450	2100				15	3	
1564.39	31.00	67.20	1421.4	515.4	235.7	458.4	1.71	-1.03	2.60	30	70	450	2100				15	3	
1602.38	28.70	69.70	1454.4	534.2	242.7	476.0	2.06	-1.82	1.97	30	70	450	2000				25	3	
1659.39	26.90	73.60	1504.8	560.4	251.1	501.2	1.35	-0.95	2.05	30	70	450	2000				25	3	
1678.00	26.30	75.00	1521.4	568.5	253.3	509.2	1.40	-0.97	2.26									3	

sperry-sun DRILLING SERVICES

BHA Report

Customer : Oil Company of Australia
Well Name : Wild Dog Road #1
Field : Otway Basin
Lease : PPL-1
Rig : ODE Rig 30
Job # : AU-DD-90099

BHA# 1

BHA# 1 : Date In :12/10/99 MD In (m) : 31 TVD In (m) : 31 Date Out 12/11/99 MD Out (m): 397 TVD Out (m): 397

BIT DATA

Bit #	OD (in)	MFR	Style	Serial#	Nozzles (/32's)	TFA (in²)	Dull Condition
1	12.250	Varel	ETR-1G	116703	3x18	0.746	2- - - -2-I- -TD

MOTOR DATA

Run #	OD (in)	MFR	Model	Serial#	Bend	Nzl (/32's)	Avg Dif (psi)	Cum Circ Hrs

COMPONENT DATA

Item #	Description	Serial #	OD (in)	ID (in)	Gauge (in)	Weight (lbs/ft)	Top Con	Length (m)	Bit - Center Blade (m)
1	Tricone	116703	12.250	2.000	12.250	390.96	P 6-5/8" Reg	0.31	
2	Bit Sub		8.000	2.875		149.18	B 6-5/8" Reg	0.97	
3	2x Drill collar		8.000	2.810		150.00	B 6-5/8" Reg	17.81	
4	Integral Blade Stabiliser		8.000	2.813	12.250	150.12	B 6-5/8" Reg	1.92	20.05
5	Cross Over Sub		8.000	2.813		150.12	B 4" IF	0.73	
6	6x Drill collar		8.000	2.810		150.00	B 4" IF	55.42	
7	Cross Over Sub		8.000	2.813		150.12	B 4-1/2" IF	0.33	
8	30x HWDP		5.000	3.000		49.30	B 4-1/2" IF	268.72	
9	Cross Over Sub		6.500	2.813		91.91	B 4-1/2" IF	0.50	
								346.71	

Parameter		Min	Max	Ave
WOB (klbs)	:	15	15	15
RPM (rpm)	:	140	140	140
Flow (gpm)	:	600	600	600
SPP (psi)	:	1000	1000	1000

Activity	Hrs
Drilling :	13.75
Reaming :	1.00
Circ-Other :	0.50
Total :	15.25

BHA Weight		(lb)
in Air (Total)	:	81994
in Mud (Total)	:	
in Air (Bel Jars)	:	0
in Mud (Bel Jars)	:	

Drill String	OD(in)	Len(m)

PERFORMANCE

	In	Out
Inclination (deg)	0.06	0.78
Azimuth (deg)	229.20	229.20

	Distance(m)	ROP (m/hr)	Build (°/30m)	Turn (°/30m)	DLS (°/30m)
Oriented :	0.00	0			
Rotated :	366.00	27			
Total :	366.00	27	0.06	0.00	0.06

COMMENTS

Assembly to drill 12¼" hole to 9-5/8" casing point in Dilwyn formation.

sperry-sun DRILLING SERVICES BHA Report page 2	Customer : Oil Company of Australia Well Name : Wild Dog Road #1 Field : Otway Basin Lease : PPL-1 Rig : ODE Rig 30 Job # : AU-DD-90099 BHA# 1

OBJECTIVES:

This BHA was designed to drill 12¼" vertical hole to 9 5/8" casing point.

RESULTS:

The BHA successfully drilled to 9 5/8" casing point at 397m in the Dilwyn formation.

sperry-sun
DRILLING SERVICES

BHA Report

Customer : Oil Company of Australia
Well Name : Wild Dog Road #1
Field : Otway Basin
Lease : PPL-1
Rig : ODE Rig 30
Job # : AU-DD-90099

BHA# 2

BHA# 2 : Date In :12/12/99 MD In (m) : 397 TVD In (m) : 397 Date Out 12/14/99 MD Out (m): 1155 TVD Out (m): 1077

BIT DATA

Bit #	OD (in)	MFR	Style	Serial#	Nozzles (/32's)	TFA (in²)	Dull Condition
2	8.500	Hughes	GT03	A84035	2x15, 1x14	0.495	3-3-WT-AL-E-I-ER-TF

MOTOR DATA

Run #	OD (in)	MFR	Model	Serial#	Bend	Nzl (/32's)	Avg Dif (psi)	Cum Circ Hrs
1	6.750	SSDS	SperryDrill	675-007	1.15°		170	34.00

COMPONENT DATA

Item #	Description	Serial #	OD (in)	ID (in)	Gauge (in)	Weight (lbs/ft)	Top Con	Length (m)	Bit - Center Blade (m)
1	Tricone	A84035	8.500	2.000	8.500	182.68	P 4-1/2" Reg	0.24	
2	6¾" SperryDrill Lobe 7/8 - 3.0 stg	675-007	6.750	4.469	8.125	68.49	B 4-1/2" IF	7.10	1.09
3	7¾" String Stabilizer	47691	6.500	2.813	7.750	91.91	B 4-1/2" IF	1.97	8.12
4	6½" Float Sub	DA-6006	6.625	2.813		96.30	B 4-1/2" IF	1.00	
5	1x 30 Ft Non-Mag Drill collar	49072	6.563	2.813		94.11	B 4-1/2" IF	8.79	
6	Non-Mag MWD Hang Off Sub	95989	6.563	2.875		93.17	B 4-1/2" IF	1.84	
7	1x 30 Ft Non-Mag Drill collar	64466	6.563	2.813		94.11	B 4-1/2" IF	8.75	
8	24x HWDP		5.000	3.000		49.30	B 4-1/2" IF	215.16	
9	Drilling Jar	DAH01121	6.500	2.750		92.85	B 4-1/2" IF	9.71	
10	6x HWDP		5.000	3.000		49.30	B 4-1/2" IF	53.56	
11	Cross Over Sub		6.500	2.813		91.91	B 4" IF	0.50	
12	4x HWDP		4.500	2.750		41.00	B 4" IF	36.19	
								344.81	

Parameter		Min	Max	Ave
WOB (klbs)	:	5	25	17
RPM (rpm)	:	50	60	53
Flow (gpm)	:	400	500	489
SPP (psi)	:	1200	1900	1761

Activity	Hrs
Drilling :	31.00
Reaming :	0.00
Circ-Other :	3.00
Total :	34.00

BHA Weight		(lb)
in Air (Total)	:	60068
in Mud (Total)	:	51554
in Air (Bel Jars)	:	43428
in Mud (Bel Jars)	:	37272

Drill String	OD(in)	Len(m)
DP(E)-NC50(IF)-16.60#	4.500	810

PERFORMANCE

	In	Out
Inclination (deg)	0.78	30.24
Azimuth (deg)	229.20	64.25

	Distance(m)	ROP (m/hr)	Build (°/30m)	Turn (°/30m)	DLS (°/30m)
Oriented :	147.00	15			4.50
Rotated :	611.00	27	-0.40	-0.50	
Total :	758.00	24	1.17	0.00	1.23

COMMENTS

8½" Steerable Motor Assembly to kick off well at 500m and build to hold angle of 31° at an azimuth of 61.87° and hold to target at 1441.3m TVD. Motor bend set at 1.5°.

sperry-sun DRILLING SERVICES BHA Report page 2	Customer : Oil Company of Australia Well Name : Wild Dog Road #1 Field : Otway Basin Lease : PPL-1 Rig : ODE Rig 30 Job # : AU-DD-90099 BHA# 2

OBJECTIVES:

The objectives of this run were to drill the 8½" hole to kick off point and build the well up to the hold angle of 31.8° along the azimuth of 61.87°. Then the assembly was to be used to maintain the wellbore on line to the target through several different trending formations. This BHA was to drill as far as possible until the bit hours were up.

RESULTS:

Drilled the float and shoe and drilled vertically to 480m where sliding was started because the well had begun to walk in the opposite direction to the planned well direction. The kickoff was started at approximately 500m. The build section was completed by 685m where the well was lined out on the target.
In the tangent section from 685m to 1155m where several different formations were drilled the well tended to drop at an average of 0.4°/30m and walk left at an average of 0.6°/30m, which necessitated several short slides to correct the well to target.
The average ROP for the run was 54m/hr.
Rotary drilling parameters were kept constant starting with 500gpm and finishing the run at 450gpm, the SPP was 1600psi to 1900psi and 50rpm, WOB was 5klb to 25klb.
The MWD failed to send surveys at 1100m and it was decided to drill ahead blind for two stands. The BHA was pulled out of the hole at 1155m when the MWD again failed to send surveys.

RECOMMENDATIONS:

The bit TFA of 0.495 square inches should have been larger to allow the use of higher flow rates for the entire run, instead of having to drop the flow rate towards the latter part of the run.
A larger motor sleeve of 8¼" may have been preferable to the 8 1/8" sleeve that was run to enable the assembly to hold up better in rotary mode.

sperry-sun
DRILLING SERVICES

BHA Report

Customer : Oil Company of Australia
Well Name : Wild Dog Road #1
Field : Otway Basin
Lease : PPL-1
Rig : ODE Rig 30
Job # : AU-DD-90099

BHA# 3

BHA# 3 : Date In :12/14/99 MD In (m) : 1155 TVD In (m) : 1077 Date Cur 12/16/99 MD Cur (m): 1678 TVD Cur (m): 1521

BIT DATA

Bit #	OD (in)	MFR	Style	Serial#	Nozzles (/32's)	TFA (in²)	Dull Condition
3	8.500	Varel	ETD437	145854	2x16, 1x14	0.543	7-8-LC-AL-E-I-CT-TD

MOTOR DATA

Run #	OD (in)	MFR	Model	Serial#	Bend	Nzl (/32's)	Avg Dif (psi)	Cum Circ Hrs
2	6.750	SSDS	SperryDrill	675-007	1.15°		189	72.50

COMPONENT DATA

Item #	Description	Serial #	OD (in)	ID (in)	Gauge (in)	Weight (lbs/ft)	Top Con	Length (m)	Bit - Center Blade (m)
1	Tricone	145854	8.500	2.000	8.500	182.68	P 4-1/2" Reg	0.24	
2	6¾" SperryDrill Lobe 7/8 - 3.0 stg	675-007	6.750	4.469	8.125	68.49	B 4-1/2" IF	7.10	1.09
3	7¾" String Stabilizer	47691	6.500	2.813	7.750	91.91	B 4-1/2" IF	1.97	8.12
4	6½" Float Sub	DA-6006	6.625	2.813		96.30	B 4-1/2" IF	1.00	
5	1x 30 Ft Non-Mag Drill collar	49072	6.563	2.813		94.11	B 4-1/2" IF	8.79	
6	Non-Mag MWD Hang Off Sub	95989	6.563	2.875		93.17	B 4-1/2" IF	1.84	
7	1x 30 Ft Non-Mag Drill collar	64466	6.563	2.813		94.11	B 4-1/2" IF	8.75	
8	24x HWDP		5.000	3.000		49.30	B 4-1/2" IF	215.16	
9	Drilling Jar	DAH01121	6.500	2.750		92.85	B 4-1/2" IF	9.71	
10	6x HWDP		5.000	3.000		49.30	B 4-1/2" IF	53.56	
11	Cross Over Sub		6.500	2.813		91.91	B 4" IF	0.50	
12	4x HWDP		4.500	2.750		41.00	B 4" IF	36.19	
								344.81	

Parameter		Min	Max	Ave
WOB (klbs)	:	15	35	26
RPM (rpm)	:	70	70	70
Flow (gpm)	:	400	500	459
SPP (psi)	:	1500	2100	1980

Activity	Hrs
Drilling :	36.50
Reaming :	0.50
Circ-Other :	1.50
Total :	38.50

BHA Weight		(lb)
in Air (Total)	:	60068
in Mud (Total)	:	51554
in Air (Bel Jars)	:	43428
in Mud (Bel Jars)	:	37272

Drill String	OD(in)	Len(m)
DP(E)-NC50(IF)-16.60#	4.500	1333

PERFORMANCE

	In	Out
Inclination (deg)	30.24	26.30
Azimuth (deg)	64.25	75.00

	Distance(m)	ROP (m/hr)	Build (°/30m)	Turn (°/30m)	DLS (°/30m)
Oriented :	68.00	15			3.20
Rotated :	455.00	14	-0.30	0.50	
Total :	523.00	14	-0.23	0.62	0.37

COMMENTS

8½" Steerable Motor Assembly to complete the hold section and TD the well. Change the Motor bend to 1.15° and change out MWD probe.

sperry-sun
DRILLING SERVICES

BHA Report page 2

Customer : Oil Company of Australia
Well Name : Wild Dog Road #1
Field : Otway Basin
Lease : PPL-1
Rig : ODE Rig 30
Job # : AU-DD-90099 BHA# 3

OBJECTIVES:

8½" Steerable Motor Assembly to complete the hold section maintaining the wellbore on target and TD the well, intersecting the target in the Warre formation at 1441m TVD.

RESULTS:

This BHA was used to correct the wellpath back onto target after the MWD failure and blind drilling in the previous BHA caused the well to drop below the front edge of the target. The initial slide drilling was completed at 1190m and rotary drilling continued to 1279m where the well developed a dropping trend and hard right hand walking trend in the Skull Creek Member siltstone. Slide drilling to correct this trend was completed by 1302m and rotary drilling continued to 1365m.

Slide drilling had to be used again at 1365m to correct for the hard right hand walk developed in the Skull Creek Member. The right hand walk was up to 2°/30m in places. Once sliding was completed in the soft Nullawarre Greensand at 1398m rotary drilling continued to TD through the Nullawarre Greensand which was fairly neutral directionally. The Belfast siltstone again tended to push the well right and drop slightly. The target was intersected approximately 10m from the centre.

Rotary drilling parameters were kept constant staring with 500gpm and finishing the run at 450gpm, the SPP was 1900psi to 2100psi and 70rpm, WOB was 5klb to 30klb.
The average ROP for the run was 20m/hr.
The BHA was pulled out of the hole at TD of 1678m.

RECOMMENDATIONS:

On this run there were some very strong trending formations that could be identified to watch in future wells in this area.

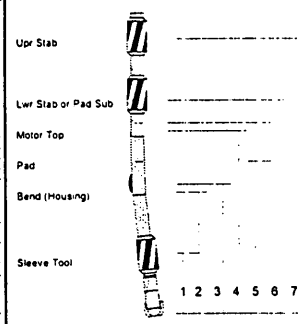
sperry-sun DRILLING SERVICES

MOTOR PERFORMANCE REPORT

M-AU-DD-90099-2

Motor Serial # :	675-007	Job # :	AU-DD-90099		
Directional Driller(s) :	W. Edwards	Customer :	Oil Company of Australia		
Location :	PPL-1	Rig :	ODE Rig 30		
Well Name :	Wild Dog Road #1	Bit Run # :	2	BHA # : 2	Motor Run # : 1
Depth In/Out :	397 / 1155 *m*	Date In/Out :	12/12/99 / 12/14/99		Hole Size : 8.500 *in*
Application Details :	Steerable Drilling				

MOTOR CONFIGURATION



	From Bit *(m)*	Component		Type	Diam In/Out *(in)*
1	1.09	Sleeve Stab/Pad	Yes	Stab: 3 I 0°	8.125 8.125
2	2.78	Bent Housing	Yes	Non-Adjustable: 1.15° bend	
3		Housing Tool Used	No		
4	7.34	Stator Elastomer			
5		Bent Sub / 2nd Bent Hsg	No		
6	8.12	Lower String Stab	Yes	Stab: 3 270°	7.750 7.750
7		Upper String Stab	No		

Additional Features :

Flex Collar : No Short Brg Pack : No Rtr Noz / Size : /32's

Brg Cfg (Off/On) : Lobe Cfg : 7/8 BHA OD/ID : 6.500 / 2.813 *in*

	Arr	Ret
Pick Up Sub :	Yes	No
Bit Box Protr :	Yes	No

MOTOR RUN DATA

Max Dogleg While Rotating :	6.00 °/30m	RPM :	60	Motor Stalled :	No
Max Dogleg Overpulled In :	2.00 °/30m	Force :	10000 *lbf*	Float Valve :	Yes
Max Dogleg Pushed Through :	2.00 °/30m	Force :	10000 *lbf*	DP Filter :	No

Hole Azimuth Start / End :	229.20° / 64.25°	Inc Start / End :	0.78° / 30.24°
Interval Oriented / Rot. :	147 / 611 *m*	Directional Perf Ori / Rot :	4.50 / 0.42 °/30m
Jarring Occured :	No		

Prev Job/Well Hrs :	0.00
Drilling Hrs :	31.00
Circ Hrs :	3.00
Reaming Hrs :	0.00
Total Hrs This Run :	34.00
New Cumulative Hrs :	34.00

	Diff Press *(psi)*	Str RPM	Rotn Torque *(ft-lbs)*	Drag Up/Dn *(lbf)*	WOB *(klbs)*	ROP Oriented *(m/hr)*	ROP Rotated *(m/hr)*
Avg :	170	53	3833	5000 / 5000	17	15	27
Max :	200	60	4000	10000 / 10000	25	60	100

PRE-RUN TESTS

Motor Tested Pre-Run : Yes with : 1 Collar, MWD

Dump Sub Operating : Yes Brg Play : 2.0 *mm*

Flow 1 : *gpm* Pressure 1 : *psi*

Flow 2 : *gpm* Pressure 2 : *psi*

Driveshaft Rotation Observed : Yes

Bearing Leakage Observed : Yes

POST-RUN TESTS

Motor Tested Post-Run : Yes with : 1 Collar, MWD

Dump Sub Operating : Yes Brg Play : 3.0 *mm*

Flow 1 : *gpm* Pressure 1 : *psi*

Flow 2 : *gpm* Pressure 2 : *psi*

Driveshaft Rotation Observed : Yes

Bearing Leakage Observed : Yes

Driveshaft Rotated to Drain Mud : No

Fluid Flushed : No Fluid Used :

MUD DATA

Base : Water Additives : PHPA Mud Wt : 9.3 *ppg* SPP Start/End : 1600 / 1900 *psi*

% Oil/Water : / % Solids : 7.20 % Sand : 0.20 PV : 13 *cp* YP : 18.0 *lbf/100ft²* pH : 9.3

DH Temp Avg/Max : 45.0 / 45.0 FlowRate Avg/Max : 489 / 500 *gpm* Chloride Content : 18500 *ppm*

Principle Formation Name(s) : Dilwyn Formation, Pember Mudstone, Pebble Point Formati... Lithology : Sand, Mudstone, Sand/Clay, Sand

BIT DATA

Make : Hughes Type : GT03 Serial # : A84035

Prev Drilling Hrs : 0.00 Prev Reaming Hrs : 0.00 No of Runs This Bit : 1

Jet Sizes *(/32's)* : 2x15, 1x14 TFA : 0.495 *in²* Gage Length : 3.000 *in*

Dull Grade	1	2	3	4	5	6	7	8
In								NEW
Out	3	3	WT	AL	E	I	ER	TF

PERFORMANCE COMMENTS

Problem Perceived : No Problem Date : Service Interrupt : No Service Interrupt Hrs :

Performance Motor : No Tandem Motor : No LIH : No PPR Ref # :

The motor performed to expectations providing good torque and a differential up to 250psi.

Customer Representative's Signature (optional) : ..... Date: .....

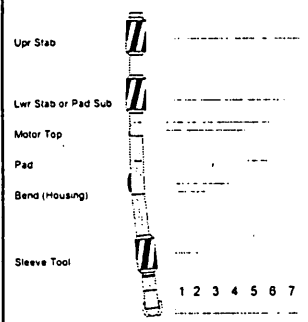
sperry-sun DRILLING SERVICES

MOTOR PERFORMANCE REPORT

M-AU-DD-90099-3

Motor Serial # :	675-007	Job # :	AU-DD-90099		
Directional Driller(s) :	W. Edwards	Customer :	Oil Company of Australia		
Location :	PPL-1	Rig :	ODE Rig 30		
Well Name :	Wild Dog Road #1	Bit Run # :	3	BHA # : 3	Motor Run # : 2
Depth In/Out :	1155 / 1678 *m*	Date In/Out :	12/14/99 / 12/16/99		Hole Size : 8.500 *in*
Application Details :	Steerable Drilling				

MOTOR CONFIGURATION



	From Bit *(m)*	Component		Type	Diam In/Out *(in)*
1	1.09	Sleeve Stab/Pad	Yes	Stab: 3 I 0°	8.125 8.125
2	2.78	Bent Housing	Yes	Non-Adjustable: 1.15° bend	
3		Housing Tool Used	No		
4	7.34	Stator Elastomer			
5		Bent Sub / 2nd Bent Hsg	No		
6	8.12	Lower String Stab	Yes	Stab: 3 270°	7.750 7.750
7		Upper String Stab	No		

Additional Features :

Flex Collar : No Short Brg Pack : No Rtr Noz / Size : */32's*

Brg Cfg (Off/On) : Lobe Cfg : 7/8 BHA OD/ID : 6.500 / 2.813 *in*

	Arr	Ret
Pick Up Sub :	Yes	No
Bit Box Protr :	Yes	No

MOTOR RUN DATA

Max Dogleg While Rotating :	3.50 *°/30m*	RPM :	70	Motor Stalled :	No
Max Dogleg Overpulled In :	3.50 *°/30m*	Force :	25000 *lbf*	Float Valve :	Yes
Max Dogleg Pushed Through :	3.50 *°/30m*	Force :	15000 *lbf*	DP Filter :	No

Hole Azimuth Start / End :	64.25° / 75.00°	Inc Start / End :	30.24° / 26.30°
Interval Oriented / Rot. :	68 / 455 *m*	Directional Perf Ori / Rot :	3.20 / 0.38 *°/30m*
Jarring Occured :	No		

Prev Job/Well Hrs :	34.00
Drilling Hrs :	36.50
Circ Hrs :	1.50
Reaming Hrs :	0.50
Total Hrs This Run :	38.50
New Cumulative Hrs :	72.50

	Diff Press *(psi)*	Str RPM	Rotn Torque *(ft-lbs)*	Drag Up/Dn *(lbf)*	WOB *(klbs)*	ROP Oriented *(m/hr)*	ROP Rotated *(m/hr)*
Avg :	189	70	4667	10000 / 10000	26	15	14
Max :	200	70	5000	25000 / 15000	35	50	80

PRE-RUN TESTS

Motor Tested Pre-Run : Yes with : 1 Collar, MWD

Dump Sub Operating : Yes Brg Play : 3.0 *mm*

Flow 1 : *gpm* Pressure 1 : *psi*

Flow 2 : *gpm* Pressure 2 : *psi*

Driveshaft Rotation Observed : Yes

Bearing Leakage Observed : Yes

POST-RUN TESTS

Motor Tested Post-Run : No with :

Dump Sub Operating : Yes Brg Play : 4.0 *mm*

Flow 1 : *gpm* Pressure 1 : *psi*

Flow 2 : *gpm* Pressure 2 : *psi*

Driveshaft Rotation Observed : Yes

Bearing Leakage Observed : Yes

Driveshaft Rotated to Drain Mud : Yes

Fluid Flushed : Yes Fluid Used : Water

MUD DATA

Base : Water Additives : PHPA Mud Wt : 9.3 *ppg* SPP Start/End : 2000 / 2000 *psi*

% Oil/Water : / % Solids : 7.10 % Sand : 0.20 PV : 12 *cp* YP : 17.0 *lbf/100ft²* pH : 9 5

DH Temp Avg/Max : 49.0 / 52.0 FlowRate Avg/Max : 459 / 500 *gpm* Chloride Content : 20000 *ppm*

Principle Formation Name(s) : Paaratte Formation, Skull Creek Member, Nullawarre Greensand Lithology : Sand, Siltstone, Sand, Siltstone, Sandstone

BIT DATA

Make : Varel Type : ETD437 Serial # : 145854

Prev Drilling Hrs : 0.00 Prev Reaming Hrs : 0.00 No of Runs This Bit : 1

Jet Sizes */32's)* : 2x16, 1x14 TFA : 0.543 *in²* Gage Length : 3.000 *in*

Dull Grade	1	2	3	4	5	6	7	8
In								NEW
Out	7	8	LC	AL	E	I	CT	TD

PERFORMANCE COMMENTS

Problem Perceived : No Problem Date : Service Interrupt : No Service Interrupt Hrs :

Performance Motor : No Tandem Motor : No LIH : No PPR Ref # :

The motor provided up to 200psi differential and gave good ROP.

Customer Representative's Signature (optional) : ..... Date: .....

sperry-sun
DRILLING SERVICES

Daily Drilling Report

Customer :	Oil Company of Australia
Well Name :	Wild Dog Road #1
Field :	Otway Basin
Lease :	PPL-1
Rig :	ODE Rig 30
Job # :	AU-DD-90099

CURRENT STATUS Report # 1 12/09/99

Total Depth	(m)	: 31	Casing Depth	(m)	: 27.00	Operator Reps	: B. Beetson
Drilled last 24 hrs	(m)	: 0	Casing Diameter	(in)	: 13.375	SSDS Reps	: W. Edwards (1)
Hole Size	(in)	:	Casing ID	(in)	: 12.347		

LAST SURVEY

Depth (m)	Inclination	Azimuth	TVD (m)	Displ (m)	Direction
0.00	0.00	0.00	0.00	0.00	N00.00E

LAST FORMATION TOP

Formation Name	MD Top (m)	TVD Top (m)
Port Campbell Limest	4.60	4.60

BHA SUMMARY

MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lbf/100ft²)	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
KCl/Polymer	8.9	43	9	12.0	/	8	9.5	4.00	0.20	

TIME BREAKDOWN

From	To	Hours	TMD (m)	BHA #	Activity
00:00	01:00	1.00	31.00		Trip In. Wash and ream to 31m. Lost circ. POOH.
01:00	01:15	0.25	31.00		Trip Out (at Surface)
01:15	12:00	10.75	31.00		Pump cmnt. WOC and chemicals. Pump 14bbl brine. Attempt to fill annulus.
12:00	14:30	2.50	31.00		Mix and pump LCM while drilling out cmnt to 31m. No returns.
14:30	15:00	0.50	31.00		Trip Out (at Surface). Change bit to 14".
15:00	16:00	1.00	31.00		Open hole to 14" to 31m.
16:00	16:15	0.25	31.00		Trip Out (at Surface)
16:15	20:45	4.50	31.00		Rig down conductor. Run 13 3/8" Casing to 27m. Cement
20:45	00:00	3.25	31.00		Wait on Cement. M/u drilling assy.

COMMENTS

sperry-sun
DRILLING SERVICES

Daily Drilling Report

Customer :	Oil Company of Australia
Well Name :	Wild Dog Road #1
Field :	Otway Basin
Lease :	PPL-1
Rig :	ODE Rig 30
Job # :	AU-DD-90099

CURRENT STATUS Report # 2 12/10/99

Total Depth	(m)	:	397	Casing Depth	(m)	:	397.00	Operator Reps : B. Beetson
Drilled last 24 hrs	(m)	:	366	Casing Diameter	(in)	:	9.625	SSDS Reps : W. Edwards (2)
Hole Size	(in)	:	12.250	Casing ID	(in)	:	8.835	

LAST SURVEY

Depth (m)	Inclination	Azimuth	TVD (m)	Displ (m)	Direction
0.00	0.00	0.00	0.00	0.00	N00.00E

LAST FORMATION TOP

Formation Name	MD Top (m)	TVD Top (m)
Dilwyn Formation	383.00	382.99

BHA SUMMARY

BHA 1: 346.71 m; Bit #1 (13.75 hrs), Sub, 2x DC, Stab, Sub, 6x DC, Sub, 30x HWDP, Sub

MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lbf/100ft²)	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
	0.0		0	0.0	0.0 / 0.0					

TIME BREAKDOWN

From	To	Hours	TMD (m)	BHA #	Activity
00:00	01:00	1.00	31.00		Wait on Cement
01:00	05:00	4.00	31.00		Weld on fitting for flo line connection.
05:00	05:30	0.50	31.00		Establish annulus returns with trip tank.
05:30	06:00	0.50	31.00	1	Trip In
06:00	19:45	13.75	397.00	1	Drilling 12¼" hole 31 - 397m.
19:45	20:15	0.50	397.00	1	Circulate hole clean.
20:15	20:30	0.25	397.00	1	Deviation Survey 2°.
20:30	00:00	3.50	397.00	1	Trip Out to 34m.

COMMENTS

sperry-sun
DRILLING SERVICES

Daily Drilling Report

Customer :	Oil Company of Australia
Well Name :	Wild Dog Road #1
Field :	Otway Basin
Lease :	PPL-1
Rig :	ODE Rig 30
Job # :	AU-DD-90099

CURRENT STATUS Report # 3 12/11/99

Total Depth	(m)	:	397	Casing Depth	(m) :	397.00	Operator Reps : B. Beetson
Drilled last 24 hrs	(m)	:	0	Casing Diameter	(in) :	9.625	SSDS Reps : W. Edwards (3)
Hole Size	(in)	:	12.250	Casing ID	(in) :	8.835	

LAST SURVEY

Depth (m)	Inclination	Azimuth	TVD (m)	Displ (m)	Direction
0.00	0.00	0.00	0.00	0.00	N00.00E

LAST FORMATION TOP

Formation Name	MD Top (m)	TVD Top (m)
Dilwyn Formation	383.00	382.99

BHA SUMMARY

BHA 1: 346.71 m; Bit #1 (14.75 hrs), Sub, 2x DC, Stab, Sub, 6x DC, Sub, 30x HWDP, Sub

MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lbf/100ft²)	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
	0.0		0	0.0	0.0 / 0.0					

TIME BREAKDOWN

From	To	Hours	TMD (m)	BHA #	Activity
00:00	01:00	1.00	397.00	1	Trip In to 384m.
01:00	02:00	1.00	397.00	1	Reaming / Washing to 397m. Circulate clean.
02:00	05:00	3.00	397.00	1	Trip Out (at Surface)
05:00	12:00	7.00	397.00		Run 9 5/8" Casing / Cement
12:00	17:30	5.50	397.00		Wait on Cement
17:30	00:00	6.50	397.00		Back out landing joint, install A sect. Nipple Up BOP

COMMENTS

sperry-sun
DRILLING SERVICES

Daily Drilling Report

Customer :	Oil Company of Australia
Well Name :	Wild Dog Road #1
Field :	Otway Basin
Lease :	PPL-1
Rig :	ODE Rig 30
Job # :	AU-DD-90099

CURRENT STATUS Report # 4 12/12/99

Total Depth	(m)	:	566	Casing Depth	(m) :	397.00	Operator Reps : B. Beetson
Drilled last 24 hrs	(m)	:	169	Casing Diameter	(in) :	9.625	SSDS Reps : W. Edwards (4)
Hole Size	(in)	:	8.500	Casing ID	(in) :	8.835	

LAST SURVEY

Depth (m)	Inclination	Azimuth	TVD (m)	Displ (m)	Direction
537.99	9.50	57.00	537.69	1.33	S79.54E

LAST FORMATION TOP

Formation Name	MD Top (m)	TVD Top (m)
Dilwyn Formation	383.00	382.99

BHA SUMMARY

BHA 2: 344.81 m; Bit #2 (7.5 hrs), PDM #1 (8. hrs), Stab, Sub, 1x DC, Sub, 1x DC, 24x HWDP, Jar, 6x HWDP, Sub, 4x HWDP

MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lbf/100ft²)	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
KCl/Polymer	8.9	43	9	12.0	/	8	9.5	4.00	0.20	

TIME BREAKDOWN

From	To	Hours	TMD (m)	BHA #	Activity
00:00	06:30	6.50	397.00		Nipple Up BOP and function test.
06:30	07:30	1.00	397.00		Test BOP
07:30	08:30	1.00	397.00		Laydown 6½" drill collars.
08:30	11:00	2.50	397.00	2	M/U 8½" steerable motor BHA
11:00	12:00	1.00	397.00	2	Test Motor and MWD.
12:00	13:30	1.50	397.00	2	Trip In picking up rest of BHA.
13:30	15:30	2.00	397.00	2	Test BOP
15:30	16:00	0.50	400.00	2	Drilling shoe track and rathole to 400m.
16:00	16:30	0.50	400.00	2	Displace well to mud.
16:30	17:00	0.50	400.00	2	FIT
17:00	00:00	7.00	566.00	2	Drilling 8½" hole 400 - 566m.

COMMENTS

sperry-sun
DRILLING SERVICES

Daily Drilling Report

Customer :	Oil Company of Australia
Well Name :	Wild Dog Road #1
Field :	Otway Basin
Lease :	PPL-1
Rig :	ODE Rig 30
Job # :	AU-DD-90099

CURRENT STATUS Report # 5 12/13/99

Total Depth	(m)	:	1127	Casing Depth	(m)	:	397.00	Operator Reps : B. Beetson
Drilled last 24 hrs	(m)	:	561	Casing Diameter	(in)	:	9.625	SSDS Reps : W. Edwards (5)
Hole Size	(in)	:	8.500	Casing ID	(in)	:	8.835	

LAST SURVEY

Depth (m)	Inclination	Azimuth	TVD (m)	Displ (m)	Direction
1070.07	31.20	62.70	1003.81	251.66	N61.27E

LAST FORMATION TOP

Formation Name	MD Top (m)	TVD Top (m)
Paaratte Formation	767.00	745.54

BHA SUMMARY

BHA 2: 344.81 m; Bit #2 (29.5 hrs), PDM #1 (32. hrs), Stab, Sub, 1x DC, Sub, 1x DC, 24x HWDP, Jar, 6x HWDP, Sub, 4x HWDP

MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lbf/100ft²)	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
KCl/Polymer	9.3	48	13	18.0	/	6	9.3	7.20	0.20	

TIME BREAKDOWN

From	To	Hours	TMD (m)	BHA #	Activity
00:00	20:30	20.50	1079.00	2	Drilling 8½" hole 566 - 1079m.
20:30	21:30	1.00	1079.00	2	Circulate while troubleshoot MWD.
21:30	22:30	1.00	1117.00	2	Drilling 8½" hole 1079 - 1117m.
22:30	23:30	1.00	1117.00	2	Circulate while troubleshoot MWD.
23:30	00:00	0.50	1127.00	2	Drilling 8½" hole 1117 - 1127m.

COMMENTS

sperry-sun
DRILLING SERVICES

Daily Drilling Report

Customer :	Oil Company of Australia
Well Name :	Wild Dog Road #1
Field :	Otway Basin
Lease :	PPL-1
Rig :	ODE Rig 30
Job # :	AU-DD-90099

CURRENT STATUS Report # 6 12/14/99

Total Depth	(m)	:	1402	Casing Depth	(m)	:	397.00	Operator Reps : B. Beetson
Drilled last 24 hrs	(m)	:	275	Casing Diameter	(in)	:	9.625	SSDS Reps : W. Edwards (6)
Hole Size	(in)	:	8.500	Casing ID	(in)	:	8.835	

LAST SURVEY

Depth (m)	Inclination	Azimuth	TVD (m)	Displ (m)	Direction
1374.30	33.00	66.40	1262.63	411.09	N62.85E

LAST FORMATION TOP

Formation Name	MD Top (m)	TVD Top (m)
Nullawarre Greensand	1332.00	1227.16

BHA SUMMARY

BHA 2: 344.81 m; Bit #2 (31. hrs), PDM #1 (34. hrs), Stab, Sub, 1x DC, Sub, 1x DC, 24x HWDP, Jar, 6x HWDP, Sub, 4x HWDP

BHA 3: 344.81 m; Bit #3 (16. hrs), PDM #2 (50. hrs), Stab, Sub, 1x DC, Sub, 1x DC, 24x HWDP, Jar, 6x HWDP, Sub, 4x HWDP

MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lbf/100ft²)	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
KCl/Polymer	9.3	44	12	17.0	/	5	9.5	7.10	0.20	

TIME BREAKDOWN

From	To	Hours	TMD (m)	BHA #	Activity
00:00	01:30	1.50	1155.00	2	Drilling 8½" hole 1127 - 1155m.
01:30	02:00	0.50	1155.00	2	Circulate b/u.
02:00	04:00	2.00	1155.00	2	Trip Out (at Surface)
04:00	05:00	1.00	1155.00	2	Change out MWD, set motor bend at 1.15°, change bit.
05:00	06:30	1.50	1155.00	3	Trip In. Slip and cut.
06:30	08:00	1.50	1155.00	3	Trip In to 1143m.
08:00	08:30	0.50	1155.00	3	Reaming / Washing to 1153m.
08:30	00:00	15.50	1402.00	3	Drilling 8½" hole 1155 - 1402m.

COMMENTS

sperry-sun
DRILLING SERVICES

Daily Drilling Report

Customer :	Oil Company of Australia
Well Name :	Wild Dog Road #1
Field :	Otway Basin
Lease :	PPL-1
Rig :	ODE Rig 30
Job # :	AU-DD-90099

CURRENT STATUS Report # 7 12/15/99

Total Depth	(m)	:	1678	Casing Depth	(m)	:	397.00	Operator Reps : B. Beetson
Drilled last 24 hrs	(m)	:	276	Casing Diameter	(in)	:	9.625	SSDS Reps : W. Edwards (7)
Hole Size	(in)	:	8.500	Casing ID	(in)	:	8.835	

LAST SURVEY

Depth (m)	Inclination	Azimuth	TVD (m)	Displ (m)	Direction
1678.00	26.30	75.00	1521.44	568.76	N63.55E

LAST FORMATION TOP

Formation Name	MD Top (m)	TVD Top (m)
Waarre Formation	1586.00	1440.07

BHA SUMMARY

BHA 3: 344.81 m; Bit #3 (37. hrs), PDM #2 (71.5 hrs), Stab, Sub, 1x DC, Sub, 1x DC, 24x HWDP, Jar, 6x HWDP, Sub, 4x HWDP

MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lbf/100ft²)	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
KCl/Polymer	9.3	44	12	17.0	/	5	9.5	7.10	0.20	

TIME BREAKDOWN

From	To	Hours	TMD (m)	BHA #	Activity
00:00	21:00	21.00	1678.00	3	Drilling 8½" hole 1402m - 1678m. TD.
21:00	21:30	0.50	1678.00	3	Circulate b/u.
21:30	00:00	2.50	1678.00	3	Wiper trip to 1100m.

COMMENTS

sperry-sun
DRILLING SERVICES

Daily Drilling Report

Customer :	Oil Company of Australia
Well Name :	Wild Dog Road #1
Field :	Otway Basin
Lease :	PPL-1
Rig :	ODE Rig 30
Job # :	AU-DD-90099

CURRENT STATUS Report # 8 12/16/99

Total Depth	(m)	:	1678	Casing Depth	(m)	:	397.00	Operator Reps : B. Beetson
Drilled last 24 hrs	(m)	:	0	Casing Diameter	(in)	:	9.625	SSDS Reps : W. Edwards (8)
Hole Size	(in)	:	8.500	Casing ID	(in)	:	8.835	

LAST SURVEY

Depth (m)	Inclination	Azimuth	TVD (m)	Displ (m)	Direction
1678.00	26.30	75.00	1521.44	568.76	N63.55E

LAST FORMATION TOP

Formation Name	MD Top (m)	TVD Top (m)
Waarre Formation	1586.00	1440.07

BHA SUMMARY

BHA 3: 344.81 m; Bit #3 (37. hrs), PDM #2 (72.5 hrs), Stab, Sub, 1x DC, Sub, 1x DC, 24x HWDP, Jar, 6x HWDP, Sub, 4x HWDP

MUD DATA

Type	Weight (ppg)	FV (sec)	PV (cp)	YP (lbf/100ft²)	Gels	Fluid Loss	pH	Solids (%)	Sand (%)	Oil (%)
KCl/Polymer	9.3	44	12	17.0	/	5	9.5	7.10	0.20	

TIME BREAKDOWN

From	To	Hours	TMD (m)	BHA #	Activity
00:00	01:00	1.00	1678.00	3	Circulate hole clean.
01:00	04:00	3.00	1678.00	3	Trip Out (at Surface)
04:00	05:00	1.00	1678.00	3	L/D BHA #3

COMMENTS

APPENDIX 7

MDT PRESSURE SURVEY DATA

By

SCHLUMBERGER

OIL COMPANY OF AUSTRALIA LIMITED
PRESSURE SURVEY

WELL : WILD DOG ROAD 1 | R.T. (m): 128.00 | TOOL & GAUGE TYPE : | PAGE : 1

WITNESS : DOUG SHORT | TIME SINCE LAST CIRC : 16 HOURS | PROBE / PACKER TYPE : STANDARD | DATE : 16-Dec-99

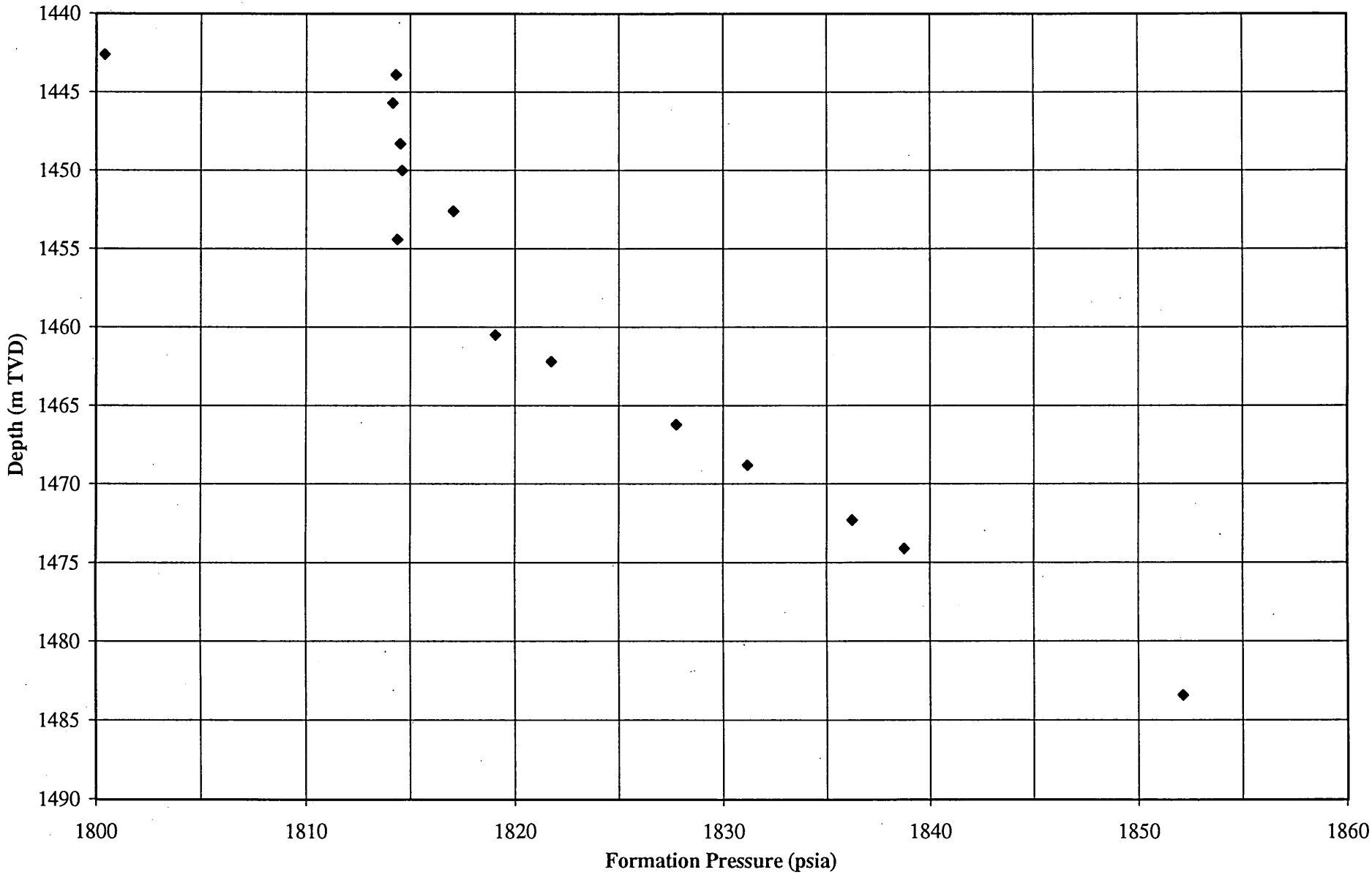
ANTICIPATED GEOTHERMAL GRADIENT : 23.8 oC / 1000 m | ANTICIPATED WATER GRADIENT : 0.433 PSI.FT | MUD WEIGHT GRADIENT : 0.476 psi/ft

TEST No.	FORMATION UNIT SANDS	DEPTH R.T.	DEPTH S.S.	EXPECTED FORMATION PRESSURE	EXPECTED TEMPATURE	FILE No.	TEST RESULTS								COMMENTS (FLUID TYPE)
							HYDROSTATIC BEFORE	FORMATION PRESSURE	HYDROSTATIC AFTER	TEMPATURE	DRAW DN MOBILITY	TYPE DRAW DN	TYPE BUILDUP	DEPLN S / C	
		(m)	(m)	(psi)	(°C)		(psia)	(psia)	(psia)	(°C)	MD / CP				
1	Waarre 'C' Sand	1589.00	-1314.60	2049.00	54.00		274.58	1800.40	2373.75	51.55	115.70	N	G		Good 20 cc
2	Waarre 'C' Sand	1590.50	-1315.90	2051.00	54.00		276.90	1814.32	2373.05	52.54	48.90	N	G		Good 20 cc
3	Waarre 'C' Sand	1592.50	-1317.70	2054.00	54.00		279.67	1814.15	2378.75	53.64	617.90	N	G		Good 20 cc
4	Waarre 'C' Sand	1595.50	-1320.30	2057.00	54.00		2384.40	1814.52	2383.09	54.07	65.50	N	G		Good 20 cc
5	Waarre 'C' Sand	1597.50	-1322.00	2060.00	54.00		2387.15	1814.61	2383.27	54.81	353.60	N	G		Good 20 cc
6	Waarre 'C' Sand	1600.50	-1324.60	2064.00	54.00		2391.89	1817.05	2391.83	55.20	2.50	N	S		Good 20 cc
7	Waarre 'C' Sand	1602.50	-1326.40	2066.00	54.00		2394.96	1814.39	2394.82	55.61	36.60	N	G		Good 20 cc
8	Waarre 'C' Sand	1609.50	-1332.50	2075.00	54.00		2405.38	1819.07	2405.04	55.89	113.30	N	G		Good 20 cc
9	Waarre 'C' Sand	1611.50	-1334.20	2077.00	54.00		2408.40	1821.73	2408.30	56.20	1032.90	N	G		Good 20 cc
10	Waarre 'C' Sand	1616.00	-1338.20	2083.00	55.00		2415.04	1827.75	2415.07	56.30	2948.20	N	G		Good 20 cc
11	Waarre 'C' Sand	1619.00	-1340.80	2087.00	55.00		2419.41	1831.18	2419.21	56.50	3045.90	N	G		Good 20 cc
12	Waarre 'C' Sand	1623.00	-1344.30	2092.00	55.00		2425.77	1836.20	2425.90	56.70	1829.80	N	G		Good 20 cc
13	Waarre 'C' Sand	1625.00	-1346.10	2094.00	55.00		2428.85	1838.76	2428.95	57.07	672.00	N	G		Good 20 cc
14	Waarre 'C' Sand	1635.50	-1355.40	2107.00	55.00		2445.04	1852.12	2444.69	57.17	1009.40	N	G		Good 20 cc
15															
16															
17															
18															
19															
20															

NOTES : *DRAWDOWN* NORMAL : PRESSURE DOES NOT DROP TO ZERO LIMITED : PRESSURE DROPS TO ZERO *BUILDUP* TYPES : IMMEDIATE - RAPID - GOOD - SLOW

REMARKS :

Wild Dog Road 1
MDT Pressure Survey



APPENDIX 8

DAILY DRILLING REPORTS

OIL COMPANY OF AUSTRALIA

DAILY DRILLING REPORT

08/12/99

REPORT # 1

WELL	Wild Dog Road 1	24:00 DEPTH	31m	24 HR PROG	31m	CUM. COSTS	$158,324
RIG	O.D.&E. # 30	FORMATION	Port Campbell Limestone	PTD	1676m	DAILY COSTS	$158,323.62

OP's TO 06:00: WOC while plugging lost circulation.

REMARKS: Awaiting lost circulation material to arrive on location.

LAST CASING		SET AT		LOT		MAASP		BOP TEST	NIL	TEST DUE	

AFD's: 295

SAFETY: 1. Pre-spud, Operations and general safety issues.
2. Tubular handling.

WEATHER AM: Overcast / drizzle
PM: Raining

BIT INFORMATION

WOB(kLb)	4	JET V(fps)	152
RPM	80	H S I	0.03
BIT NUMBER		1	
Size (in)		12.25	
Make		VAREL	
Type		ETR1G	
IADC Code		116	
Serial Number		146703	
Nozzles		16,16,16	
Depth In (m)			
Depth Out (m)		IN	
Total Metres		31	
Hours		1.5	
ROP		20.7	
Condition Out			

FLOW DATA

CIRC. RATE (gpm)	279
AV - DP (fpm)	53
AV - DC (fpm)	79
SPP (psi)	200
SPP (calculated)	

PUMP #1		PUMP #2	
Gardner Denver PZ-8		Gardner Denver PZ-8	
RATE	100	RATE	
LINER	6.0"	LINER	6.0"
STROKE	8.0"	STROKE	8.0"

SURVEYS

BHA # 1

TOOL	LENGTH
Bit	0.30
Bit Sub	0.97
2x 8" Drill Collars	17.43
x-over	0.66
BHA LENGTH (m)	19.36
BHA WEIGHT(kLb)	9.3
STRING WT (kLb)	9.9
HOOK LOAD (kLb)	5.0
WT BELOW JARS (kLb)	9.0
DRAG UP (kLb)	
DRAG DOWN (kLb)	
TORQUE ON (Amps/Rel.)	50
TORQUE OFF (Amps/Rel.)	45

ENVIRONMENTAL DATA

FUEL ON SITE	43500 Litres
DAILY USAGE	1222 Litres
CUM. FUEL USED	1222 Litres
CUM. GEL	
CUM. BARITES	
CUM. MUD LOSSE	400 bbls

MUD PROPERTIES

Time	0001
Depth (m)	31
Temp (° C)	85f
Mud Type	Spud mud
Density (ppg)	1.03
ECD (ppg)	1.06
Viscosity (sec)	28
PV / YP (cp/lb)	1 / 2
Gells (s/m)	1 / 2
API Filt. (cc)	
Cake (/32")	
Solids (% Vol)	2
Sand (% Vol)	0.1
MBT	5
pH (strip)	9.5
Chlorides (mg/l)	10000
KCL (%)	2
PHPA (ppb)	
ALC - 50 (K)	
Circ. Vol. (Bbl)	400

CHEMICAL USAGE

Caustic Sx	2
Kwikseal	30
M-I Gel	80
KCL	60
Soda Ash	2
XCD	1

OPERATION

OPERATION	HRS	CUM
1. Air Rig up		
2. Casing		
3. Cementing	6.5	6.5
4. Circ & Condition	0.5	0.5
5. Coring		
6. Drill Out	1.5	1.5
7. Drilling	1.5	1.5
8. Handle BHA	1.5	1.5
9. LOT / FIT		
10. Nipple up BOP's		
11. P & A		
12. Repairs		
13. Rig Service		
14. Safety		
15. Survey		
16. Test BOP		
17. Tight hole / Fishing		
18. Tripping		
19. Wait on Cement	7.5	7.5
20. Wash / Ream		
21. Well Control		
22. Well Test		
23. Wiper Trip		
24. Wireline		
25. Other	5.0	5.0
TOTALS	24.0	24.0

DAILY MUD COSTS	$3,455.00
CUM. MUD COSTS	$3,455.00
EST. COST - C&S	
EST. COST - P&A	$1,287,110
EST. COST - C&C	

HOURLY OPERATIONS SUMMARY 0000 to 2400

From	To	Description
	4:30	Spud well. Tag bottom at 13 metres (bottom of conductor).
4:30	5:30	Drill 12.25 inch hole to 14 metres. Lost circulation.
5:30	6:00	Attempt to regain circulation with chemicals - failed.
6:00	10:30	Cement with HOWCO using approx. 10 bbls of cement.
10:30	12:00	Attempt to fill hole(hole taking fluid), 6sxs LCM down hole and recement with 50sk plug
12:00	14:00	Wait on cement to harden.
14:00	15:30	Make up bit and drill out cement plugs from surface to 14 metres. Failed circulation.
15:30	16:00	Failed circulation. Drop 6 sacks of quick seal and drill ahead to 31 metres. Still have no returns.
16:00	16:30	Drill 311mm hole from 14 mtrs to 31mtrs
16:30	17:00	Pull back and break bit.
17:00	17:30	Rig to mix and pump cement.
17:30	23:00	Wait on cement to harden.
23:00	0:00	Make up bit and drilling assembly. Set crown saver.

SUPERVISOR:	Barry Beetson	GEOLOGIST:	Doug Short	MUD CO:	M-I

OIL COMPANY OF AUSTRALIA

DAILY DRILLING REPORT

09/12/99

REPORT # 2

WELL	Wild Dog Road 1	24:00 DEPTH	31m	24 HR PROG		CUM. COSTS	$432,483
RIG	O.D.&E. # 30	FORMATION	Port Campbell Limestone	PTD	1676m	DAILY COSTS	$65,134.26
OP's TO 06:00	Drillout cement to31m						
REMARKS:	Drilling ahead at 07:30 at 34m						
LAST CASING	9 5/8"	SET AT	404.5m	LOT	11.4ppg	MAASP	716psi
		BOP TEST	NIL	TEST DUE			
AFD's: 296	SAFETY	1. cementation				WEATHER AM	Raining
		2. weekly safety meeting				PM	Raining

BIT INFORMATION

WOB(kLb)	4	JET V(fps)	152
RPM	80	H S I	
BIT NUMBER			
Size (in)			
Make			
Type			
IADC Code			
Serial Number			
Nozzles			
Depth In (m)			
Depth Out (m)			
Total Metres			
Hours			
ROP			
Condition Out			

FLOW DATA

CIRC. RATE (gpm)	279
AV - DP (fpm)	53
AV - DC (fpm)	79
SPP (psi)	200
SPP (calculated)	

PUMP #1		PUMP #2	
Gardner Denver PZ-8		Gardner Denver PZ-8	
RATE	100	RATE	
LINER	6.0"	LINER	6.0"
STROKE	8.0"	STROKE	8.0"

SURVEYS

BHA # 1

TOOL	LENGTH
Bit	0.30
Bit Sub	0.97
2x 8" Drill Collars	17.43
x-over	0.66
BHA LENGTH (m)	19.36
BHA WEIGHT(kLb)	9.3
STRING WT (kLb)	9.9
HOOK LOAD (kLb)	5.0
WT BELOW JARS (kLb)	9.0
DRAG UP (kLb)	
DRAG DOWN (kLb)	
TORQUE ON (Amps/Rel.)	50
TORQUE OFF (Amps/Rel.)	45

ENVIRONMENTAL DATA

FUEL ON SITE	41500 Litres
DAILY USAGE	2000 Litres
CUM. FUEL USED	3222 Litres
CUM. GEL	
CUM. BARITES	
CUM. MUD LOSSE	750 Bbls

MUD PROPERTIES

Time	0001
Depth (m)	31
Temp (° C)	85f
Mud Type	Spud mud
Density (ppg)	1.02
ECD (ppg)	1.05
Viscosity (sec)	28
PV / YP (cp/lb)	1 / 2
Gells (s/m)	1 / 2
API Filt. (cc)	
Cake (/32")	
Solids (% Vol)	1
Sand (% Vol)	
MBT	5
pH (strip)	9.5
Chlorides (mg/l)	3800
KCL (%)	.75
PHPA (ppb)	
ALC - 50 (K)	
Circ. Vol. (Bbl)	350

CHEMICAL USAGE

Caustic Dr	2
Kwikseal	13
M-I Bar	34
Mica M	23
Soda Ash	2
M-I Gel API Imported	103

OPERATION

	HRS	CUM
1. Air Rig up		
2. Casing	4.0	4.0
3. Cementing	0.5	7.0
4. Circ & Condition	1.5	2.0
5. Coring		
6. Drill Out		1.5
7. Drilling		1.5
8. Handle BHA		1.5
9. LOT / FIT		
10. Nipple up BOP's		
11. P & A		
12. Repairs		
13. Rig Service		
14. Safety		
15. Survey		
16. Test BOP		
17. Tight hole / Fishing		
18. Tripping	0.5	0.5
19. Wait on Cement	14.5	22.0
20. Wash / Ream	2.0	2.0
21. Well Control		
22. Well Test		
23. Wiper Trip		
24. Wireline		
25. Other	1.0	6.0
TOTALS	24.0	48.0

DAILY MUD COSTS	$2,334.26
CUM. MUD COSTS	$5,789.22
EST. COST - C&S	
EST. COST - P&A	$1,287,110
EST. COST - C&C	

HOURLY OPERATIONS SUMMARY 0000 to 2400

From	To	Description
0:00	1:00	Wash and ream to 31 metres. Failed to re-establish circulation. POH. Rig up HOWCO.
1:00	1:30	Mix and pump 100 sx of cement with HOWCO.
1:30	10:00	Wait on cement to harden.
10:00	12:00	Pump 14 bbls of brine. Attempt to fill annulus (failed). Annulus filled to 12.7 metres RT - WOC.
12:00	13:00	Mix LCM.
13:00	14:30	Drill out with LCM hivis gel, established partial returns thru rathole,plug rathole, unable to regain returns
14:30	15:00	Pull back and change bit.Modify bit to 14.25"
15:00	16:00	Open hole to 14.25 inches with bit to 31 metres. Pull back and break bit.
16:00	17:00	Rig down conductor.
17:00	18:30	Rig up 13 3/8 inch handling gear and prepare new conductor.
18:30	20:00	Run 13 3/8 inch conductor to 26 metres (2 joints).
20:00	21:00	Cement conductor
21:00	0:00	Wait on cement to harden. Make up drilling assembly and rig service.

SUPERVISOR:	Barry Beetson	GEOLOGIST:	Doug Short	MUD CO:	M-I

OIL COMPANY OF AUSTRALIA

DAILY DRILLING REPORT

10/12/99

REPORT # 3

WELL	Wild Dog Road 1	24:00 DEPTH	397m	24 HR PROG	366m	CUM. COSTS	$458,132
RIG	O.D.&E. # 30	FORMATION	Dilwyn	PTD	1676m	DAILY COSTS	$32,988.60
OP's TO 06:00	Rig to run 245mm casing						
REMARKS:							
LAST CASING	13 3/8"	SET AT	26.0m	LOT	53.6ppg	MAASP	233psi
BOP TEST	NIL	TEST DUE					
AFD's: 297	SAFETY	1. Tripping 2. general housekeeping				WEATHER AM	Fine
						PM	Fine

BIT INFORMATION

WOB(kLb)	20	JET V(fps)	276
RPM	125	H S I	0.24

BIT NUMBER	2	
Size (in)	12.25	
Make	VAREL	
Type	ETR1G	
IADC Code	116	
Serial Number	146703	
Nozzles	18,18,18	
Depth In (m)	31	
Depth Out (m)	397	
Total Metres	366	
Hours	11	
ROP	33.3	
Condition Out	2,2,WT,A,E,1,NO,td	

FLOW DATA

CIRC. RATE (gpm)	642
AV - DP (fpm)	121
AV - DC (fpm)	183
SPP (psi)	1300
SPP (calculated)	200

PUMP #1		PUMP #2	
Gardner Denver PZ-8		Gardner Denver PZ-8	
RATE	115	RATE	115
LINER	6.0"	LINER	6.0"
STROKE	8.0"	STROKE	8.0"

SURVEYS

mr° at 30m	0.25° at 202m
1° at 58m	0.25° at 300m
0.25° at 95m	1° at 394m

BHA # 1

TOOL	LENGTH
Bit	0.30
Bit Sub	0.97
2x 8" Drill Collars	17.81
Stabilizer	1.92
x-over	0.73
6 x 6.5" Drill Collars	55.42
x-over	0.33
30 x HWDP	268.72
x-over	0.50

BHA LENGTH (m)	346.70
BHA WEIGHT(kLb)	63.9
STRING WT (kLb)	66.6
HOOK LOAD (kLb)	65.0
WT BELOW JARS (kLb)	
DRAG UP (kLb)	2.0
DRAG DOWN (kLb)	2.0
TORQUE ON (Amps/Rel.)	70
TORQUE OFF (Amps/Rel.)	85

ENVIRONMENTAL DATA

FUEL ON SITE	38750 Litres
DAILY USAGE	2750 Litres
CUM. FUEL USED	5972 Litres
CUM. GEL	
CUM. BARITES	
CUM. MUD LOSSE	750 Bbls

MUD PROPERTIES

Time	0001
Depth (m)	397
Temp (° C)	100f
Mud Type	Spud mud
Density (ppg)	1.09
ECD (ppg)	1.26
Viscosity (sec)	43
PV / YP (cp/lb)	12 / 15
Gells (s/m)	8 / 15
API Filt. (cc)	nc
Cake (/32")	3
Solids (% Vol)	5.5
Sand (% Vol)	0.1
MBT	15
pH (strip)	9.3
Chlorides (mg/l)	11000
KCL (%)	2
PHPA (ppb)	
ALC - 50 (K)	
Circ. Vol. (Bbl)	520

CHEMICAL USAGE

Caustic Dr	2
KCL	100

OPERATION

OPERATION	HRS	CUM
1. Air Rig up		
2. Casing		4.0
3. Cementing		7.0
4. Circ & Condition	0.5	2.5
5. Coring		
6. Drill Out	0.5	2.0
7. Drilling	11.0	12.5
8. Handle BHA		1.5
9. LOT / FIT		
10. Nipple up BOP's		
11. P & A		
12. Repairs		
13. Rig Service		
14. Safety		
15. Survey	3.0	3.0
16. Test BOP		
17. Tight hole / Fishing		
18. Tripping	3.5	4.0
19. Wait on Cement	1.0	23.0
20. Wash / Ream		2.0
21. Well Control		
22. Well Test		
23. Wiper Trip		
24. Wireline		
25. Other	4.5	10.5
TOTALS	24.0	72.0

DAILY MUD COSTS	$1,444.60
CUM. MUD COSTS	$7,233.82
EST. COST - C&S	
EST. COST - P&A	$1,287,110
EST. COST - C&C	

HOURLY OPERATIONS SUMMARY 0000 to 2400

From	To	Description
0:00	1:00	Wait on cement
1:00	5:00	Weld on flow nipple to 13 3/8" casing, connect flow line
5:00	5:30	Fill hole, fluid level static
5:30	6:00	Clean out cement from 21mtrs-31mtrs
6:00	6:30	Drill 311mm hole from 31 mtrs to 43mtrs
6:30	7:00	Circ. & Survey at 31m
7:00	8:30	Drill 311mm hole to 70mtr
8:30	9:00	Circ. & Survey at 58m
9:00	10:00	Drill 311mm hole to 107mtr
10:00	10:30	Circ. & Survey at 95m
10:30	13:00	Drill 311mm hole to 214m
13:00	13:30	Circ. & Survey at 202m
13:30	16:00	Drill 311mm hole to 312m
16:00	16:30	Circ. & Survey at 300m
16:30	19:30	Drill 311mm hole to 397m
19:30	20:00	Circulate hole clean prior to wiper trip
20:00	20:30	Survey at 394m
20:30	0:00	POH to 34m. (Strap out)

SUPERVISOR:	Barry Beetson	GEOLOGIST:	Doug Short	MUD CO:	M-I

OIL COMPANY OF AUSTRALIA

DAILY DRILLING REPORT

11/12/99

REPORT # 4

WELL	Wild Dog Road 1	24:00 DEPTH	397m	24 HR PROG		CUM. COSTS	$514,599
RIG	O.D.&E. # 30	FORMATION	Dilwyn	PTD	1676m	DAILY COSTS	$56,467.00
OP's TO 06:00	Nipple up BOP's.						
REMARKS:	Still to make up BHA and test BOP's.						
LAST CASING	9 5/8"	SET AT	392.5m	LOT		MAASP		BOP TEST	NIL	TEST DUE	
AFD's: 298	SAFETY	1. Cementing.				WEATHER AM	Overcast / drizzle
		2. Nippling up BOP's				PM	Fine

BIT INFORMATION

WOB(kLb)		JET V(fps)	156
RPM		H S I	

BIT NUMBER		
Size (in)		
Make		
Type		
IADC Code		
Serial Number		
Nozzles		
Depth In (m)		
Depth Out (m)		
Total Metres		
Hours		
ROP		
Condition Out		

FLOW DATA	
CIRC. RATE (gpm)	363
AV - DP (fpm)	59
AV - DC (fpm)	59
SPP (psi)	
SPP (calculated)	

PUMP #1		PUMP #2	
Gardner Denver PZ-8		Gardner Denver PZ-8	
RATE	130	RATE	
LINER	6.0"	LINER	6.0"
STROKE	8.0"	STROKE	8.0"

SURVEYS	

TOOL	LENGTH

BHA LENGTH (m)	
BHA WEIGHT(kLb)	
STRING WT (kLb)	
HOOK LOAD (kLb)	
WT BELOW JARS (kLb)	
DRAG UP (kLb)	
DRAG DOWN (kLb)	
TORQUE ON (Amps/Rel.)	
TORQUE OFF (Amps/Rel.)	

ENVIRONMENTAL DATA	
FUEL ON SITE	35500 Litres
DAILY USAGE	3250 Litres
CUM. FUEL USED	9222 Litres
CUM. GEL	
CUM. BARITES	
CUM. MUD LOSSE	750 Bbls

MUD PROPERTIES

Time	0001
Depth (m)	397
Temp (° C)	100 Deg F
Mud Type	Spud mud
Density (ppg)	1.09
ECD (ppg)	
Viscosity (sec)	41
PV / YP (cp/lb)	10 / 13
Gells (s/m)	6 / 15
API Filt. (cc)	nc
Cake (/32")	3
Solids (% Vol)	5.5
Sand (% Vol)	0.1
MBT	15
pH (strip)	9.2
Chlorides (mg/l)	11000
KCL (%)	2
PHPA (ppb)	
ALC - 50 (K)	
Circ. Vol. (Bbl)	500

CHEMICAL USAGE	
M-I Gel API Imported	14

OPERATION	HRS	CUM
1. Air Rig up		
2. Casing	4.5	8.5
3. Cementing	2.0	9.0
4. Circ & Condition	1.5	4.0
5. Coring		
6. Drill Out		2.0
7. Drilling		12.5
8. Handle BHA		1.5
9. LOT / FIT		
10. Nipple up BOP's	6.0	6.0
11. P & A		
12. Repairs		
13. Rig Service		
14. Safety		
15. Survey		3.0
16. Test BOP		
17. Tight hole / Fishing		
18. Tripping	3.0	7.0
19. Wait on Cement	6.0	29.0
20. Wash / Ream	1.0	3.0
21. Well Control		
22. Well Test		
23. Wiper Trip		
24. Wireline		
25. Other		10.5
TOTALS	24.0	96.0

DAILY MUD COSTS	$161.00
CUM. MUD COSTS	$7,394.82
EST. COST - C&S	
EST. COST - P&A	$1,287,110
EST. COST - C&C	

HOURLY OPERATIONS SUMMARY 0000 to 2400

From	To	Description
0:00	1:00	RIH to 385 metres. Pick up kelly. Wash and ream to 397 metres.
1:00	2:00	Circulate and clean hole.
2:00	5:00	POH. Break and lay down 8inch drill collars & bit.
5:00	7:00	Rig up 244mm surface casing handling equipment.
7:00	9:30	RIH with 244mm surface casing (32 joints of 36ppf, K-55 casing). Shoe set at 392.5 metres.
9:30	10:00	Make up244mm casing landing joint. Circulate and reciprocate casing.
10:00	12:00	Hold pre job safety meeting. Rig up HOWCO and cement 244mm surface casing.
12:00	17:50	Wait on cement to harden.
17:50	18:30	Slack off on 244mm casing and back out landing joint.
18:30	19:00	Install "A" Section.
19:00	0:00	Nipple up BOP's.

SUPERVISOR:	Barry Beetson	GEOLOGIST:	Doug Short	MUD CO:	M-I

OIL COMPANY OF AUSTRALIA

DAILY DRILLING REPORT

12/12/99

REPORT # 5

WELL	Wild Dog Road 1	24:00 DEPTH	566m	24 HR PROG	169m	CUM. COSTS	$590,279
RIG	O.D.&E. # 30	FORMATION	Dilwyn	PTD	1676m	DAILY COSTS	$75,679.76
OP's TO 06:00	Directionally Drill ahead 216mm hole at 680mtr						
REMARKS:	On target.						
LAST CASING	9 5/8"	SET AT	392.5m	LOT	13.2ppg	MAASP	813psi
BOP TEST	12/12/99	TEST DUE	26/12/99				
AFD's: 299	SAFETY	1. Pressure testing.				WEATHER AM	Overcast / drizzle
		2. Pressure testing.				PM	Overcast / drizzle

BIT INFORMATION

WOB(kLb)	mm	JET V(fps)	325
RPM	60+mm	H S I	0.52
BIT NUMBER		3	
Size (in)		8.5	
Make		HUGHES	
Type		GTP-03	
IADC Code		417	
Serial Number		771CB	
Nozzles		14,15,15	
Depth In (m)		397	
Depth Out (m)		IN	
Total Metres		169	
Hours		7	
ROP		24.1	
Condition Out			

FLOW DATA

CIRC. RATE (gpm)	502
AV - DP (fpm)	237
AV - DC (fpm)	410
SPP (psi)	1500
SPP (calculated)	200

PUMP #1		PUMP #2	
Gardner Denver PZ-8		Gardner Denver PZ-8	
RATE	90	RATE	90
LINER	6.0"	LINER	6.0"
STROKE	8.0"	STROKE	8.0"

SURVEYS

.8;229.2° at 404.84m	18.1;63.3° at 595.07m
1;171.9° at 480.92m	25.5;60.9° at 652.08m
9.5;57° at 537.99m	30.1;59.9° at 680.54m

BHA # 2

TOOL	LENGTH
Bit	0.24
Sperry Mud Motor	7.10
7 3/4" Stabilizer	1.97
6.5" Float Sub	1.00
Non Mag Drill Collar	8.79
Non Mag Hangoff Sub	1.84
Non Mag Drill Collar	8.75
24 x 5" HWDP	215.16
Drilling Jar	9.71
6 x 5" HWDP	53.56
x-over	0.50
4 x 4.5" HWDP	36.19
BHA LENGTH (m)	344.81
BHA WEIGHT(kLb)	52.4
STRING WT (kLb)	64.3
HOOK LOAD (kLb)	70.0
WT BELOW JARS (kLb)	
DRAG UP (kLb)	5.0
DRAG DOWN (kLb)	5.0
TORQUE ON (Amps/Rel.)	60
TORQUE OFF (Amps/Rel.)	40

ENVIRONMENTAL DATA

FUEL ON SITE	33500 Litres
DAILY USAGE	2000 Litres
CUM. FUEL USED	11222 Litres
CUM. GEL	
CUM. BARITES	
CUM. MUD LOSSE	750 Bbls

MUD PROPERTIES

Time	0100
Depth (m)	566
Temp (° C)	105 Deg F
Mud Type	KCL / PHPA
Density (ppg)	1.07
ECD (ppg)	1.37
Viscosity (sec)	43
PV / YP (cp/lb)	9 / 12
Gells (s/m)	3 / 10
API Filt. (cc)	7.5
Cake (/32")	1
Solids (% Vol)	4
Sand (% Vol)	0.2
MBT	5
pH (strip)	9.5
Chlorides (mg/l)	20000
KCL (%)	3.5
PHPA (ppb)	1.5
ALC - 50 (K)	120000
Circ. Vol. (Bbl)	460

CHEMICAL USAGE

Caustic Dr	2
OS-1	2
Polypac R	5
Polyplus Dry Local	14
KCL	120
Soda Ash	2
XCD-Polymer (Duovis)	3

OPERATION

	HRS	CUM
1. Air Rig up		
2. Casing		8.5
3. Cementing		9.0
4. Circ & Condition	0.5	4.5
5. Coring		
6. Drill Out	0.5	2.5
7. Drilling	7.0	19.5
8. Handle BHA	6.0	7.5
9. LOT / FIT	0.5	0.5
10. Nipple up BOP's	6.5	12.5
11. P & A		
12. Repairs		
13. Rig Service		
14. Safety		
15. Survey		3.0
16. Test BOP	3.0	3.0
17. Tight hole / Fishing		
18. Tripping		7.0
19. Wait on Cement		29.0
20. Wash / Ream		3.0
21. Well Control		
22. Well Test		
23. Wiper Trip		
24. Wireline		
25. Other		10.5
TOTALS	24.0	120.0

DAILY MUD COSTS	$5,419.76
CUM. MUD COSTS	$12,814.58
EST. COST - C&S	
EST. COST - P&A	$1,287,110
EST. COST - C&C	

HOURLY OPERATIONS SUMMARY 0000 to 2400

From	To	Description
0:00	6:00	Nipple up BOP's.
6:00	6:30	Function test BOP's - all okay.
6:30	7:30	Presssure test BOP's - all okay.
7:30	8:30	Layout 165mm steel drill collars
8:30	11:00	Makeup directional assy,test same OK
11:00	13:30	RIH with directional BHA, taking surveys at approximately every 100 metres.
13:30	15:30	Pressure test BOP's - all okay.
15:30	16:00	Drill out shoe track and 3 metres of new formation to 400 metres.
16:00	16:30	Displace well to mud (KCL/PHPA/POLYMER).
16:30	17:00	Perform LOT - Reached EMW of 13.2 ppg (1.59 sg).
17:00	0:00	Drill ahead 216mm hole with Directional BHA, from 400 to 566 metres.

SUPERVISOR:	Barry Beetson	GEOLOGIST:	Doug Short	MUD CO:	M-I

OIL COMPANY OF AUSTRALIA

DAILY DRILLING REPORT

13/12/99

REPORT # 6

WELL	Wild Dog Road 1	24:00 DEPTH	1127m	24 HR PROG	561m	CUM. COSTS	$625,988
RIG	O.D.&E. # 30	FORMATION	Paaratte Formation.	PTD	1676m	DAILY COSTS	$35,709.36

OP's TO 06:00: POH due to MWD failure. Change out same. RIH with Directional BHA to Drill ahead 216mm hole from 1155M

REMARKS: Changed bit. Well bore is on target.

LAST CASING	SET AT	LOT	MAASP	BOP TEST	TEST DUE
9 5/8"	392.5m	13.2ppg	809psi	12/12/99	26/12/99

AFD's: 300

SAFETY: 1. Drillers Line of Vision; 2. Connection Practices.

WEATHER AM: Fine

PM: Fine

BIT INFORMATION

WOB(kLb)	mm	JET V(fps)	307
RPM	60+mm	H S I	0.46
BIT NUMBER		3	
Size (in)		8.5	
Make		HUGHES	
Type		GTP-03	
IADC Code		417	
Serial Number		771CB	
Nozzles		14,15,15	
Depth In (m)		397	
Depth Out (m)		IN	
Total Metres		730	
Hours		29	
ROP		25.2	
Condition Out			

FLOW DATA

CIRC. RATE (gpm)	474
AV - DP (fpm)	224
AV - DC (fpm)	388
SPP (psi)	1700
SPP (calculated)	300

PUMP #1		PUMP #2	
Gardner Denver PZ-8		Gardner Denver PZ-8	
RATE	85	RATE	85
LINER	6.0"	LINER	6.0"
STROKE	8.0"	STROKE	8.0"

SURVEYS

30.9;61.70° at 766.06m	31.5;59.50° at 946.48m
31.10;62.10° at 832.52m	30.60;61.60° at 1032.04m
32.5;60.90° at 889.52m	31.2;62.70° at 1070.07m

BHA # 2

TOOL	LENGTH
Bit	0.24
Sperry Mud Motor	7.10
7 3/4" Stabilizer	1.97
6.5" Float Sub	1.00
Non Mag Drill Collar	8.79
Non Mag Hangoff Sub	1.84
Non Mag Drill Collar	8.75
24 x 5" HWDP	215.16
Drilling Jar	9.71
6 x 5" HWDP	53.56
x-over	0.50
4 x 4.5" HWDP	36.19
BHA LENGTH (m)	344.81
BHA WEIGHT(kLb)	52.4
STRING WT (kLb)	94.3
HOOK LOAD (kLb)	80.0
WT BELOW JARS (kLb)	
DRAG UP (kLb)	12.0
DRAG DOWN (kLb)	12.0
TORQUE ON (Amps/Rel.)	80
TORQUE OFF (Amps/Rel.)	50

ENVIRONMENTAL DATA

FUEL ON SITE	22110 Litres
DAILY USAGE	11390 Litres
CUM. FUEL USED	22612 Litres
CUM. GEL	
CUM. BARITES	
CUM. MUD LOSSE	750 Bbls

MUD PROPERTIES

Time	0100
Depth (m)	1127
Temp (° C)	125 Deg F
Mud Type	KCL / PHPA
Density (ppg)	1.12
ECD (ppg)	1.51
Viscosity (sec)	48
PV / YP (cp/lb)	13 / 18
Gells (s/m)	4 / 12
API Filt. (cc)	6.3
Cake (/32")	2
Solids (% Vol)	7.2
Sand (% Vol)	0.2
MBT	7.5
pH (strip)	9.3
Chlorides (mg/l)	18500
KCL (%)	3
PHPA (ppb)	2
ALC - 50 (K)	120000
Circ. Vol. (Bbl)	618

CHEMICAL USAGE

Caustic Dr	2
OS-1	1
Polypac R	4
Polyplus Dry Local	12
KCL	60
Soda Ash	2
XCD-Polymer (Duovis)	3

OPERATION

	HRS	CUM
1. Air Rig up		
2. Casing		8.5
3. Cementing		9.0
4. Circ & Condition	2.0	6.5
5. Coring		
6. Drill Out		2.5
7. Drilling	22.0	41.5
8. Handle BHA		7.5
9. LOT / FIT		0.5
10. Nipple up BOP's		12.5
11. P & A		
12. Repairs		
13. Rig Service		
14. Safety		
15. Survey		3.0
16. Test BOP		3.0
17. Tight hole / Fishing		
18. Tripping		7.0
19. Wait on Cement		29.0
20. Wash / Ream		3.0
21. Well Control		
22. Well Test		
23. Wiper Trip		
24. Wireline		
25. Other		10.5
TOTALS	24.0	144.0

DAILY MUD COSTS	$4,176.36
CUM. MUD COSTS	$16,990.94
EST. COST - C&S	
EST. COST - P&A	$1,287,110
EST. COST - C&C	

HOURLY OPERATIONS SUMMARY 0000 to 2400

From	To	Description
0:00	20:30	Drill ahead 216mm hole with Directional BHA, from 566 to 1079 metres. (Build section was 480 to 680 metres.)
20:30	21:30	MWD failure, pumped 15bbls water to flush tool, responded OK.
21:30	22:30	Drill ahead 216mm hole with Directional BHA, from 1079 to 1117 metres.Pulse erratic while drilling
22:30	23:30	MWD failure, unable to survey or ressurrect
23:30	0:00	Drill ahead 216mm hole with Directional BHA, from 1117 to 1127 metres. (MWD not working.)

SUPERVISOR:	Barry Beetson	GEOLOGIST:	Doug Short	MUD CO:	M-I

OIL COMPANY OF AUSTRALIA

DAILY DRILLING REPORT

14/12/99

REPORT # 7

WELL	Wild Dog Road 1	24:00 DEPTH	1402m	24 HR PROG	275m	CUM. COSTS	$681,850
RIG	O.D. & E. # 30	FORMATION	Nullawarre Greensand	PTD	1676m	DAILY COSTS	$55,864.26
OP's TO 06:00	Drill ahead 216mm hole at 1511m.						
REMARKS:	On target.						
LAST CASING	9 5/8"	SET AT	392.5m	LOT	13.2ppg	MAASP	809psi
BOP TEST	12/12/99	TEST DUE	26/12/99				
AFD's: 301	SAFETY	1. BOP Drill.				WEATHER AM	Fine and Sunny.
		2. Using hand tools.				PM	Fine and Sunny.

BIT INFORMATION

WOB(kLb)	mm	JET V(fps)	264
RPM	60+mm	H S I	0.32

BIT NUMBER	4	3
Size (in)	8.5	8.5
Make	VAREL	HUGHES
Type	ETD 437	GTP-03
IADC Code	437	417
Serial Number	145854	771CB
Nozzles	14,16,16	14,15,15
Depth In (m)	1155	397
Depth Out (m)	IN	1155
Total Metres	247	758
Hours	15.5	30.5
ROP	15.9	24.9
Condition Out	4,4,WT,A,E,1,ER,TF	

FLOW DATA

CIRC. RATE (gpm)	447
AV - DP (fpm)	210
AV - DC (fpm)	365
SPP (psi)	2000
SPP (calculated)	300

PUMP #1		PUMP #2	
Gardner Denver PZ-8		Gardner Denver PZ-8	
RATE	80	RATE	80
LINER	6.0"	LINER	6.0"
STROKE	8.0"	STROKE	8.0"
SCR: 380 @ 70		SCR: 400 @ 70	

SURVEYS

31.5;66.20° at 1174.68m	33;66.40° at 1374.3m
30.8;65.5° at 1260.21m	34.00;61.3° at 1440.84m
33.9;66.7° at 1317.23m	33.80;60.2° at 1469.35m

BHA # 3

TOOL	LENGTH
Bit	0.24
Sperry Mud Motor	7.10
7 3/4" Stabilizer	1.97
6.5" Float Sub	1.00
Non Mag Drill Collar	8.79
Non Mag Hangoff Sub	1.84
Non Mag Drill Collar	8.75
24 x 5" HWDP	215.16
Drilling Jar	9.71
6 x 5" HWDP	53.56
x-over	0.50
4 x 4.5" HWDP	36.19

BHA LENGTH (m)	344.81
BHA WEIGHT(kLb)	52.4
STRING WT (kLb)	109.0
HOOK LOAD (kLb)	95.0
WT BELOW JARS (kLb)	
DRAG UP (kLb)	15.0
DRAG DOWN (kLb)	15.0
TORQUE ON (Amps/Rel.)	85
TORQUE OFF (Amps/Rel.)	55

ENVIRONMENTAL DATA

FUEL ON SITE	17610 Litres
DAILY USAGE	4500 Litres
CUM. FUEL USED	27112 Litres
CUM. GEL	
CUM. BARITES	
CUM. MUD LOSSE	750 Bbls

MUD PROPERTIES

Time	0100
Depth (m)	1402
Temp (° C)	Deg F
Mud Type	KCL / PHPA
Density (ppg)	1.12
ECD (ppg)	1.44
Viscosity (sec)	44
PV / YP (cp/lb)	12 / 17
Gells (s/m)	3 / 11
API Filt. (cc)	5
Cake (/32")	1
Solids (% Vol)	7.1
Sand (% Vol)	0.2
MBT	7.5
pH (strip)	9.5
Chlorides (mg/l)	20000
KCL (%)	3.45
PHPA (ppb)	2
ALC - 50 (K)	120000
Circ. Vol. (Bbl)	658

CHEMICAL USAGE

Caustic Dr	2
OS-1	2
Polypac R	2
Polyplus Dry Local	6
KCL	100
Soda Ash	2
XCD-Polymer (Duovis)	2

OPERATION

	HRS	CUM
1. Air Rig up		
2. Casing		8.5
3. Cementing		9.0
4. Circ & Condition		6.5
5. Coring		
6. Drill Out		2.5
7. Drilling	17.0	58.5
8. Handle BHA	1.0	8.5
9. LOT / FIT		0.5
10. Nipple up BOP's		12.5
11. P & A		
12. Repairs		
13. Rig Service		
14. Safety		
15. Survey		3.0
16. Test BOP		3.0
17. Tight hole / Fishing		
18. Tripping	5.0	12.0
19. Wait on Cement		29.0
20. Wash / Ream	0.5	3.5
21. Well Control		
22. Well Test		
23. Wiper Trip		
24. Wireline		
25. Other	0.5	11.0
TOTALS	24.0	168.0

DAILY MUD COSTS	$3,341.26
CUM. MUD COSTS	$20,332.20
EST. COST - C&S	
EST. COST - P&A	$1,287,110
EST. COST - C&C	

HOURLY OPERATIONS SUMMARY 0000 to 2400

From	To	Description
0:00	1:30	Drill ahead 216mm hole with Directional BHA, from 1127 to 1155 metres. (MWD not working.)
1:30	2:00	Circulate bottoms up.
2:00	4:00	POH. Perform Flow check - all ok.
4:00	5:00	Change out MWD. Function test MWD - all okay. Fine tune directional assembly.
5:00	6:00	RIH to 373 metres.
6:00	6:30	Slip 20 metres of drilling line and fill drill pipe with drilling fluid.
6:30	8:00	Continue to RIH with BHA to 1143 metres.
8:00	8:30	Pickup kelly and precautionary wash to bottom
8:30	0:00	Drill ahead 216mm hole with Directional BHA, from 1155 to 1402 metres.

SUPERVISOR:	Barry Beetson	GEOLOGIST:	Doug Short	MUD CO:	M-I

OIL COMPANY OF AUSTRALIA

DAILY DRILLING REPORT

15/12/99

REPORT # 8

WELL	Wild Dog Road 1	24:00 DEPTH	1678m	24 HR PROG	276m	CUM. COSTS	$720,679
RIG	O.D. & E. # 30	FORMATION	Waarre"C" Sandstone	PTD	1676m	DAILY COSTS	$38,828.60
OP's TO 06:00	Logging with Schlumberger,						
REMARKS:	TD at 21:00hrs 15-12-99						
LAST CASING	9 5/8"	SET AT	392.5m	LOT	13.2ppg	MAASP	809psi
BOP TEST	12/12/99	TEST DUE	26/12/99				
AFD's: 302	SAFETY	1. Housekeeping 2. BOP's;evils of liqour				WEATHER AM	Fine and sunny
						PM	Fine and sunny

BIT INFORMATION

WOB(kLb)	mm	JET V(fps)	251
RPM	60+mm	H S I	0.27
BIT NUMBER		4	
Size (in)		8.5	
Make		VAREL	
Type		ETD 437	
IADC Code		437	
Serial Number		145854	
Nozzles		14,16,16	
Depth In (m)		1155	
Depth Out (m)		IN	
Total Metres		523	
Hours		36.5	
ROP		14.3	
Condition Out			

FLOW DATA

CIRC. RATE (gpm)	424
AV - DP (fpm)	200
AV - DC (fpm)	347
SPP (psi)	2000
SPP (calculated)	350

PUMP #1		PUMP #2	
Gardner Denver PZ-8		Gardner Denver PZ-8	
RATE	76	RATE	76
LINER	6.0"	LINER	6.0"
STROKE	8.0"	STROKE	8.0"
SCR: 460 @ 70		SCR: 460 @ 70	

SURVEYS

32.3;63.9° at 1526.38m	26.9;73.6° at 1659.39m
31;67.2° at 1564.39m	26.3;75° at 1678extrm
28.7;69.7° at 1602.38m	

BHA # 2

TOOL	LENGTH
Bit	0.24
Sperry Mud Motor	7.10
7 3/4" Stabilizer	1.97
6.5" Float Sub	1.00
Non Mag Drill Collar	8.79
Non Mag Hangoff Sub	1.84
Non Mag Drill Collar	8.75
24 x 5" HWDP	215.16
Drilling Jar	9.71
6 x 5" HWDP	53.56
x-over	0.50
4 x 4.5" HWDP	36.19
BHA LENGTH (m)	344.81
BHA WEIGHT(kLb)	52.4
STRING WT (kLb)	123.8
HOOK LOAD (kLb)	113.0
WT BELOW JARS (kLb)	
DRAG UP (kLb)	15.0
DRAG DOWN (kLb)	15.0
TORQUE ON (Amps/Rel.)	160
TORQUE OFF (Amps/Rel.)	220

ENVIRONMENTAL DATA

FUEL ON SITE	16680 Litres
DAILY USAGE	930 Litres
CUM. FUEL USED	28042 Litres
CUM. GEL	
CUM. BARITES	
CUM. MUD LOSSE	750 Bbls

MUD PROPERTIES

Time	0001
Depth (m)	1678
Temp (° C)	130f
Mud Type	KCL/PHPA
Density (ppg)	1.12
ECD (ppg)	1.44
Viscosity (sec)	45
PV / YP (cp/lb)	12 / 19
Gells (s/m)	3 / 10
API Filt. (cc)	5.2
Cake (/32")	1
Solids (% Vol)	6.7
Sand (% Vol)	0.1
MBT	7.5
pH (strip)	9.5
Chlorides (mg/l)	18100
KCL (%)	3.4
PHPA (ppb)	2
ALC - 50 (K)	120000
Circ. Vol. (Bbl)	710

CHEMICAL USAGE

M-I Bar	46
OS-1	1
Polypac R	4
Polyplus Dry Local	6
KCL	50
XCD-Polymer (Duovis)	1
Glute	1

OPERATION

	HRS	CUM
1. Air Rig up		
2. Casing		8.5
3. Cementing		9.0
4. Circ & Condition	0.5	7.0
5. Coring		
6. Drill Out		2.5
7. Drilling	21.0	79.5
8. Handle BHA		8.5
9. LOT / FIT		0.5
10. Nipple up BOP's		12.5
11. P & A		
12. Repairs		
13. Rig Service		
14. Safety		
15. Survey		3.0
16. Test BOP		3.0
17. Tight hole / Fishing		
18. Tripping	2.5	14.5
19. Wait on Cement		29.0
20. Wash / Ream		3.5
21. Well Control		
22. Well Test		
23. Wiper Trip		
24. Wireline		
25. Other		11.0
TOTALS	24.0	192.0

DAILY MUD COSTS	$2,859.60
CUM. MUD COSTS	$23,191.80
EST. COST - C&S	
EST. COST - P&A	$1,287,110
EST. COST - C&C	

HOURLY OPERATIONS SUMMARY 0000 to 2400

From	To	Description
0:00	21:00	Drill 216mm hole from 1402m to 1678m
21:00	21:30	Circulate BU
21:30	0:00	POH to 1100m wiper trip- RIH

SUPERVISOR:	Barry Beetson	GEOLOGIST:	Doug Short	MUD CO:	M-I

OIL COMPANY OF AUSTRALIA

DAILY DRILLING REPORT

16/12/99

REPORT # 9

WELL	Wild Dog Road 1	24:00 DEPTH	1678m	24 HR PROG		CUM. COSTS	$720,679
RIG	O.D. & E. # 30	FORMATION	Waarre"C" Sandstone	PTD	1676m	DAILY COSTS	
OP's TO 06:00	Layout drill string						
REMARKS:	First load of casing at 11:30hrs last night						
LAST CASING	9 5/8"	SET AT	392.5m	LOT	13.2ppg	MAASP	809psi
BOP TEST	12/12/99	TEST DUE	26/12/99				
AFD's: 303	SAFETY	1. Logging 2. Layout drill string				WEATHER AM	Raining
						PM	Raining

BIT INFORMATION

WOB(kLb)		JET V(fps)	
RPM		H S I	
BIT NUMBER			
Size (in)			
Make			
Type			
IADC Code			
Serial Number			
Nozzles			
Depth In (m)			
Depth Out (m)			
Total Metres			
Hours			
ROP			
Condition Out			

FLOW DATA

CIRC. RATE (gpm)	
AV - DP (fpm)	
AV - DC (fpm)	
SPP (psi)	
SPP (calculated)	

PUMP #1		PUMP #2	
Gardner Denver PZ-8		Gardner Denver PZ-8	
RATE		RATE	
LINER	6.0"	LINER	6.0"
STROKE	8.0"	STROKE	8.0"

SURVEYS

BHA # 3

TOOL	LENGTH
Bit	0.24
Bit Sub	0.90
x_over	0.32
24 x 5" HWDP	215.16
Drilling Jar	9.71
6 x 5" HWDP	53.56
x-over	0.50
4 x 4.5" HWDP	36.19
BHA LENGTH (m)	316.58
BHA WEIGHT(kLb)	44.5
STRING WT (kLb)	117.4
HOOK LOAD (kLb)	50.0
WT BELOW JARS (kLb)	0.4
DRAG UP (kLb)	15.0
DRAG DOWN (kLb)	15.0
TORQUE ON (Amps/Rel.)	
TORQUE OFF (Amps/Rel.)	

ENVIRONMENTAL DATA	
FUEL ON SITE	26680 Litres
DAILY USAGE	
CUM. FUEL USED	28042 Litres
CUM. GEL	
CUM. BARITES	
CUM. MUD LOSSE	798 Bbls

MUD PROPERTIES

Time	0001
Depth (m)	1678
Temp (° C)	57C
Mud Type	KCL/PHPA
Density (ppg)	1.12
ECD (ppg)	
Viscosity (sec)	44
PV / YP (cp/lb)	11 / 18
Gells (s/m)	2 / 10
API Filt. (cc)	5.4
Cake (/32")	1
Solids (% Vol)	7.1
Sand (% Vol)	0.1
MBT	7.5
pH (strip)	9.3
Chlorides (mg/l)	20000
KCL (%)	3.4
PHPA (ppb)	2
ALC - 50 (K)	120000
Circ. Vol. (Bbl)	710

CHEMICAL USAGE	

OPERATION

	HRS	CUM
1. Air Rig up		
2. Casing		8.5
3. Cementing		9.0
4. Circ & Condition	1.0	8.0
5. Coring		
6. Drill Out		2.5
7. Drilling		79.5
8. Handle BHA	1.0	9.5
9. LOT / FIT		0.5
10. Nipple up BOP's		12.5
11. P & A		
12. Repairs		
13. Rig Service		
14. Safety		
15. Survey		3.0
16. Test BOP		3.0
17. Tight hole / Fishing		
18. Tripping	4.5	19.0
19. Wait on Cement		29.0
20. Wash / Ream		3.5
21. Well Control		
22. Well Test		
23. Wiper Trip		
24. Wireline	17.5	17.5
25. Other		11.0
TOTALS	24.0	216.0

DAILY MUD COSTS	
CUM. MUD COSTS	$23,191.80
EST. COST - C&S	
EST. COST - P&A	$1,287,110
EST. COST - C&C	

HOURLY OPERATIONS SUMMARY 0000 to 2400

From	To	Description
0:00	1:00	Circulate & condition hole for Logging
1:00	4:00	POH to log SLM (no change)
4:00	5:00	Service and layout mud motor
5:00	22:30	Rig up loggers and run PEX-SONIC, FMI LOG and MDT
22:30	0:00	Makeup bit and bitsub, RIH to 326m

SUPERVISOR:	Barry Beetson	GEOLOGIST:	Doug Short	MUD CO:	M-I

OIL COMPANY OF AUSTRALIA

DAILY DRILLING REPORT

17/12/99

REPORT # 10

WELL	Wild Dog Road 1	24:00 DEPTH	1678m	24 HR PROG		CUM. COSTS	$860,589
RIG	O.D. & E. # 30	FORMATION	Waarre"C" Sandstone	PTD	1676m	DAILY COSTS	$114,729.00
OP's TO 06:00	Install "B" section of wellhead						
REMARKS:	cement job all went OK						
LAST CASING	9 5/8"	SET AT	392.5m	LOT	13.2ppg	MAASP	809psi
BOP TEST	12/12/99	TEST DUE	26/12/99				
AFD's: 304	SAFETY	1. Casing 2. Cementing		WEATHER AM	Fine	PM	Fine

BIT INFORMATION

WOB(kLb)		JET V(fps)	
RPM		H S I	
BIT NUMBER			
Size (in)			
Make			
Type			
IADC Code			
Serial Number			
Nozzles			
Depth In (m)			
Depth Out (m)			
Total Metres			
Hours			
ROP			
Condition Out			

FLOW DATA

CIRC. RATE (gpm)	
AV - DP (fpm)	
AV - DC (fpm)	
SPP (psi)	700
SPP (calculated)	

PUMP #1		PUMP #2	
Gardner Denver PZ-8		Gardner Denver PZ-8	
RATE		RATE	
LINER	6.0"	LINER	6.0"
STROKE	8.0"	STROKE	8.0"

SURVEYS

TOOL	LENGTH
BHA LENGTH (m)	
BHA WEIGHT(kLb)	
STRING WT (kLb)	
HOOK LOAD (kLb)	100.0
WT BELOW JARS (kLb)	
DRAG UP (kLb)	
DRAG DOWN (kLb)	
TORQUE ON (Amps/Rel.)	
TORQUE OFF (Amps/Rel.)	

ENVIRONMENTAL DATA	
FUEL ON SITE	21500 Litres
DAILY USAGE	5180 Litres
CUM. FUEL USED	33222 Litres
CUM. GEL	
CUM. BARITES	
CUM. MUD LOSSE	798 Bbls

MUD PROPERTIES

Time	0001
Depth (m)	1678
Temp (° C)	57c
Mud Type	KCL\PHPA
Density (ppg)	1.12
ECD (ppg)	
Viscosity (sec)	44
PV / YP (cp/lb)	11 / 18
Gells (s/m)	2 / 10
API Filt. (cc)	5.4
Cake (/32")	1
Solids (% Vol)	7.1
Sand (% Vol)	0.1
MBT	7.5
pH (strip)	9.3
Chlorides (mg/l)	2000o
KCL (%)	3.4
PHPA (ppb)	2
ALC - 50 (K)	12000
Circ. Vol. (Bbl)	650

CHEMICAL USAGE	
M-I Bar	20
Polypac R	1
Glute	1

OPERATION	HRS	CUM
1. Air Rig up		
2. Casing	9.5	18.0
3. Cementing	1.0	10.0
4. Circ & Condition	2.5	10.5
5. Coring		
6. Drill Out		2.5
7. Drilling		79.5
8. Handle BHA		9.5
9. LOT / FIT		0.5
10. Nipple up BOP's		12.5
11. P & A		
12. Repairs		
13. Rig Service		
14. Safety		
15. Survey		3.0
16. Test BOP		3.0
17. Tight hole / Fishing		
18. Tripping	11.0	30.0
19. Wait on Cement		29.0
20. Wash / Ream		3.5
21. Well Control		
22. Well Test		
23. Wiper Trip		
24. Wireline		17.5
25. Other		11.0
TOTALS	24.0	240.0

DAILY MUD COSTS	$412.00
CUM. MUD COSTS	$23,603.80
EST. COST - C&S	
EST. COST - P&A	$1,287,110
EST. COST - C&C	

HOURLY OPERATIONS SUMMARY 0000 to 2400

From	To	Description
0:00	2:00	Continue to RIH to 1637mtrs
2:00	3:30	Wash to bottom picking up singles, circulate and condition hole for casing
3:30	12:30	Layout drill string, service break kelly
12:30	22:00	Safety meeting, rig to and run 178mm casing
22:00	23:00	Circulate and reciprocate casing
23:00	0:00	Safety meeting, cement casing with 480 sx"G" with 1.2% Halad 323

SUPERVISOR:	Barry Beetson	GEOLOGIST:	Doug Short	MUD CO:	M-I

OIL COMPANY OF AUSTRALIA

DAILY DRILLING REPORT

18/12/99

REPORT # 11

WELL	Wild Dog Road 1	24:00 DEPTH	1678m	24 HR PROG		CUM. COSTS	$1,012,556
RIG	O.D. & E. # 30	FORMATION	Waarre"C" Sandstone	PTD	1676m	DAILY COSTS	$151,967.62
OP's TO 06:00	Rig on completion status as from 0:100Hrs						
REMARKS:							
LAST CASING	7 "	SET AT	1675.9m	LOT		MAASP	BOP TEST 12/12/99 TEST DUE 26/12/99
AFD's: 305	SAFETY	1. Handling tubing				WEATHER AM	Raining
		2. Handling tubing				PM	Raining

BIT INFORMATION			
WOB(kLb)		JET V(fps)	
RPM		H S I	
BIT NUMBER			
Size (in)			
Make			
Type			
IADC Code			
Serial Number			
Nozzles			
Depth In (m)			
Depth Out (m)			
Total Metres			
Hours			
ROP			
Condition Out			

FLOW DATA	
CIRC. RATE (gpm)	
AV - DP (fpm)	
AV - DC (fpm)	
SPP (psi)	
SPP (calculated)	

PUMP #1		PUMP #2	
Gardner Denver PZ-8		Gardner Denver PZ-8	
RATE		RATE	
LINER	6.0"	LINER	6.0"
STROKE	8.0"	STROKE	8.0"

SURVEYS	

TOOL	LENGTH

BHA LENGTH (m)	
BHA WEIGHT(kLb)	
STRING WT (kLb)	
HOOK LOAD (kLb)	
WT BELOW JARS (kLb)	
DRAG UP (kLb)	
DRAG DOWN (kLb)	
TORQUE ON (Amps/Rel.)	
TORQUE OFF (Amps/Rel.)	

ENVIRONMENTAL DATA	
FUEL ON SITE	18250 Litres
DAILY USAGE	3250 Litres
CUM. FUEL USED	36472 Litres
CUM. GEL	
CUM. BARITES	
CUM. MUD LOSSE	798 Bbls

MUD PROPERTIES	
Time	
Depth (m)	
Temp (° C)	
Mud Type	
Density (ppg)	
ECD (ppg)	
Viscosity (sec)	
PV / YP (cp/lb)	
Gells (s/m)	
API Filt. (cc)	
Cake (/32")	
Solids (% Vol)	
Sand (% Vol)	
MBT	
pH (strip)	
Chlorides (mg/l)	
KCL (%)	
PHPA (ppb)	
ALC - 50 (K)	
Circ. Vol. (Bbl)	

CHEMICAL USAGE	
SAPP	8
Polysal	6

OPERATION	HRS	CUM
1. Air Rig up		
2. Casing		18.0
3. Cementing	1.0	11.0
4. Circ & Condition		10.5
5. Coring		
6. Drill Out		2.5
7. Drilling		79.5
8. Handle BHA		9.5
9. LOT / FIT		0.5
10. Nipple up BOP's		12.5
11. P & A		
12. Repairs		
13. Rig Service		
14. Safety		
15. Survey		3.0
16. Test BOP		3.0
17. Tight hole / Fishing		
18. Tripping		30.0
19. Wait on Cement		29.0
20. Wash / Ream		3.5
21. Well Control		
22. Well Test		
23. Wiper Trip		
24. Wireline		17.5
25. Other		11.0
TOTALS	1.0	241.0

DAILY MUD COSTS	$710.62
CUM. MUD COSTS	$24,314.42
EST. COST - C&S	
EST. COST - P&A	$1,287,110
EST. COST - C&C	

HOURLY OPERATIONS SUMMARY 0000 to 2400

From	To	Description
0:00	1:00	Cement casing with 480sx"G" with 1.2% Halad 322, set slips with 100k, Rig to completion status

SUPERVISOR:	Barry Beetson	GEOLOGIST:	Doug Short	MUD CO:	M-I

APPENDIX 9

GAS ANALYSES

By

PETROLAB

PETROLAB

Company : Boral Energy Resources Limited
Well : Wild Dog # 1

COMPOSITIONAL ANALYSIS OF
MDT Bottom Hole Gas Sample # 3
Transferred into Cylinder # : L-043

Component		Mol %	GPM
Hydrogen Sulphide	H2S	0.00	
Carbon Dioxide	CO2	0.73	
Nitrogen	N2	2.82	
Methane	C1	94.96	
Ethane	C2	0.92	0.246
Propane	C3	0.04	0.011
Iso-Butane	iC4	0.05	0.016
N-Butane	nC4	0.02	0.006
Iso-Pentane	iC5	0.02	0.007
N-Pentane	nC5	0.04	0.014
Hexanes	C6	0.32	0.124
Heptanes	C7	0.05	0.021
Octanes	C8	0.02	0.009
Nonanes	C9	0.01	0.005
Decanes	C10	0.00	0.000
Undecanes	C11	0.00	0.000
Dodecanes Plus	C12+	0.00	0.000
TOTAL		100.00	0.459

Pressure Base	:	14.696
Zsc	:	0.998
Mol Weight	:	17.07
Gas Gravity	:	0.591
Pc	:	663.7
Tc	:	346.5
Mol Weight C6+	:	87.6
Density C6+	:	0.6716
Mol Weight C7+	:	101.9
Density C7+	:	0.6916
Mol Weight C10+	:	—
Density C10+	:	—
Mol Weight C11+	:	—
Density C11+	:	—
Mol Weight C12+	:	—
Density C12+	:	—
Heating Value (BTU/ft3)		
Gross	:	1005
Nett	:	906
Wobbe Index	:	1308
Zpt *	:	0.989

Date Received : December 22, 1999

Laboratory Opening Pressure : 4060 psig @ 75 °F

PETROLAB

Company : Boral Energy Resources Limited
Well : Wild Dog # 1

COMPOSITIONAL ANALYSIS OF
MDT Bottom Hole Gas Sample # 5
Transferred into Cylinder # : L-324

Component		Mol %	GPM
Hydrogen Sulphide	H2S	0.00	
Carbon Dioxide	CO2	0.72	
Nitrogen	N2	2.66	
Methane	C1	95.05	
Ethane	C2	0.94	0.252
Propane	C3	0.04	0.011
Iso-Butane	iC4	0.04	0.013
N-Butane	nC4	0.02	0.006
Iso-Pentane	iC5	0.02	0.007
N-Pentane	nC5	0.04	0.014
Hexanes	C6	0.38	0.148
Heptanes	C7	0.06	0.025
Octanes	C8	0.02	0.009
Nonanes	C9	0.01	0.005
Decanes	C10	0.00	0.000
Undecanes	C11	0.00	0.000
Dodecanes Plus	C12+	0.00	0.000
TOTAL		100.00	0.490

Pressure Base	:	14.696
Zsc	:	0.998
Mol Weight	:	17.10
Gas Gravity	:	0.592
Pc	:	663.8
Tc	:	347.1
Mol Weight C6+	:	87.3
Density C6+	:	0.6711
Mol Weight C7+	:	101.2
Density C7+	:	0.6907
Mol Weight C10+	:	–
Density C10+	:	–
Mol Weight C11+	:	–
Density C11+	:	–
Mol Weight C12+	:	–
Density C12+	:	–
Heating Value (BTU/ft3)		
Gross	:	1010
Nett	:	910
Wobbe Index	:	1313
Zpt *	:	0.979

Date Received : December 22, 1999

Laboratory Opening Pressure : 4080 psig @ 75 °F

PE908090

This is an enclosure indicator page.
The enclosure PE908090 is enclosed within the container PE908089 at this location in this document.

The enclosure PE908090 has the following characteristics:

ITEM_BARCODE	PE908090
CONTAINER_BARCODE	PE908089
NAME	Wild Dog Road-1 Composite Well Log
BASIN	OTWAY
ONSHORE?	Y
DATA_TYPE	WELL
DATA_SUB_TYPE	COMPOSITE_LOG
DESCRIPTION	Encl.1 Wild Dog Road-1 Composite Well Log, Scale 1:500, for Origin Energy Resources Ltd, W1298, PEP108. Enclosure.1 contained in "Wild Dog Road-1 Well Completion Report" [PE908089]. COPY 2
REMARKS	
DATE_WRITTEN	
DATE_PROCESSED	
DATE_RECEIVED	25-OCT-2000
RECEIVED_FROM	Origin Energy Petroleum Pty Limited
WELL_NAME	Wild Dog Road-1
CONTRACTOR	
AUTHOR	
ORIGINATOR	
TOP_DEPTH	
BOTTOM_DEPTH	
ROW_CREATED_BY	DM35_TW

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PE908091

This is an enclosure indicator page.
The enclosure PE908091 is enclosed within the container PE908089 at this location in this document.

The enclosure PE908091 has the following characteristics:

ITEM_BARCODE	PE908091
CONTAINER_BARCODE	PE908089
NAME	Enc.2 Wild Dog Road-1 Composite Well Log
BASIN	OTWAY
ONSHORE?	Y
DATA_TYPE	WELL
DATA_SUB_TYPE	COMPOSITE_LOG
DESCRIPTION	Encl.2 Wild Dog Road-1 Composite Well Log, Scale 1:200, for Origin Energy Resourses Ltd, W1298, PEP108. Enclosure 2 contained within "Wild Dog Road-1 Well Completion Report" [PE908089]. COPY 2
REMARKS	
DATE_WRITTEN	
DATE_PROCESSED	
DATE_RECEIVED	25-OCT-2000
RECEIVED_FROM	Origin Energy Petroleum Pty Limited
WELL_NAME	Wild Dog Road-1
CONTRACTOR	
AUTHOR	
ORIGINATOR	
TOP_DEPTH	
BOTTOM_DEPTH	
ROW_CREATED_BY	DM35_TW

(Inserted by DNRE - Vic Govt Mines Dept)

PE908092

This is an enclosure indicator page.
The enclosure PE908092 is enclosed within the container PE908089 at this location in this document.

The enclosure PE908092 has the following characteristics:

ITEM_BARCODE	PE908092
CONTAINER_BARCODE	PE908089
NAME	Encl. 3 Formation Evaluation Log
BASIN	OTWAY
ONSHORE?	Y
DATA_TYPE	WELL
DATA_SUB_TYPE	MUD_LOG
DESCRIPTION	Encl. 3 Formation Evaluation Log [Mudlog], Scale 1:200, by Oil Company of Australia Ltd, W1298, PEP108. Enclosure 3 contained within "Wild Dog Road-1 Well Completion Report" [PE908089]. COPY 2
REMARKS	
DATE_WRITTEN	
DATE_PROCESSED	
DATE_RECEIVED	25-OCT-2000
RECEIVED_FROM	Origin Energy Petroleum Pty Limited
WELL_NAME	Wild Dog Road-1
CONTRACTOR	Oil Company of Australia Ltd
AUTHOR	
ORIGINATOR	BORAL
TOP_DEPTH	0
BOTTOM_DEPTH	1678
ROW_CREATED_BY	DM35_TW

(Inserted by DNRE - Vic Govt Mines Dept)