Essential Petroleum Resources Limited

PEP 152

ONSHORE OTWAY BASIN, VICTORIA

WELL COMPLETION REPORT

Koroit West 1

June 2006

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1 SUMMARY

Koroit West 1 was drilled as a shallow vertical oil exploration well (TD 859 mRT) in the northeastern portion of PEP 152. It is located approximately 10 km southeast of the Taralea 1 well, 7 km northwest of Yangery 1 and 3.5 km south of Warrong 5 on the northern flank of the Koroit Trough. The prospect was mapped from the 2000 Spring Creek Seismic Survey and earlier seismic data. The well was located on seismic line OC95-111 at shot point 745.

The prospect is a northwest - southeast oriented tilted fault block, with closure at top Waarre Formation/Belfast Mudstone level provided by a fault downthrown to the northeast. The prospect falls within the Tyrrendara Embayment, an area of thickened lower Sherbrooke Group, including Waarre Formation, in the onshore Otway Basin.

The anticipated reservoir was a sandstone layer within the Late Cretaceous Sherbrook Group sealed by overlying Belfast Formation. The sandstone unit had been identified and correlated in the neighbouring Yangery 1 and Warrong 5 governement boreholes and is referred to as the Intra Belfast Sandstone by Origin Energy and as the Flaxman Formation sandstone by Essential Petroleum. At Koroit West this unit was expected to be 6 to 10 metres thick. The prospect was expected to be charged via migration through faults from the mature basal coals of the Eumeralla Formation in the Koroit Trough towards the south.

Secondary objectives were the Nullawarre Greensand sealed by the Skull Creek Mudstone, the Paaratte Formation sealed by the basal Pebble Point Formation and the Pebble Point Formation sealed by the Pember Mudstone.

The main risks of the prospect were considered to be the overall structural definition of the trap and the uncertainties related to thickness variations or the total absence of the reservoir or the Belfast Mudstone seal at this location. The overall chance for finding hydrocarbons was estimated at approximately 13%. The mean recoverable reserves for the Koroit West prospect were estimated by the operator at 3.6 MMSTB for the oil case and 3.4 PJ for the gas case (+ 34.0 MSTB of condensate).

Koroit West 1 was drilled in January 2003 with a Side Engineering Pty Ltd truck-mounted Bourne 2000 drilling rig.

Surface hole at 8 ½" diameter was drilled to 258m and cased with 178 mm (7") casing. The remainder of the hole to total depth to 850 m was drilled at 156 mm (6 1/8"). Drilling operations continued with no hole-related problems, however due to crew availability drilling of the 8 ½" section was done only during daylight hours, with commensurate loss of operating efficiency.

Formation tops were intersected somewhat shallower than prognosed. The target interval was intersected shallow to prognosis. Sandstone within the target interval was less than 4 m thick. No fluorescence or gas shows were observed.

An anomalous very high gas reading was observed while drilling in the Paaratte Formation. The total gas detector (hotwire) baseline went off-scale and appeared to became saturated, and had to be reset. These readings were not reproduced on the gas chromatograph. This incident remains unexplained. MDT sampling and pressure gradients showed the zone to be water saturated.

The well was plugged and abandoned on 25th January 2003.

Figure 1: Koroit West 1 Location Map

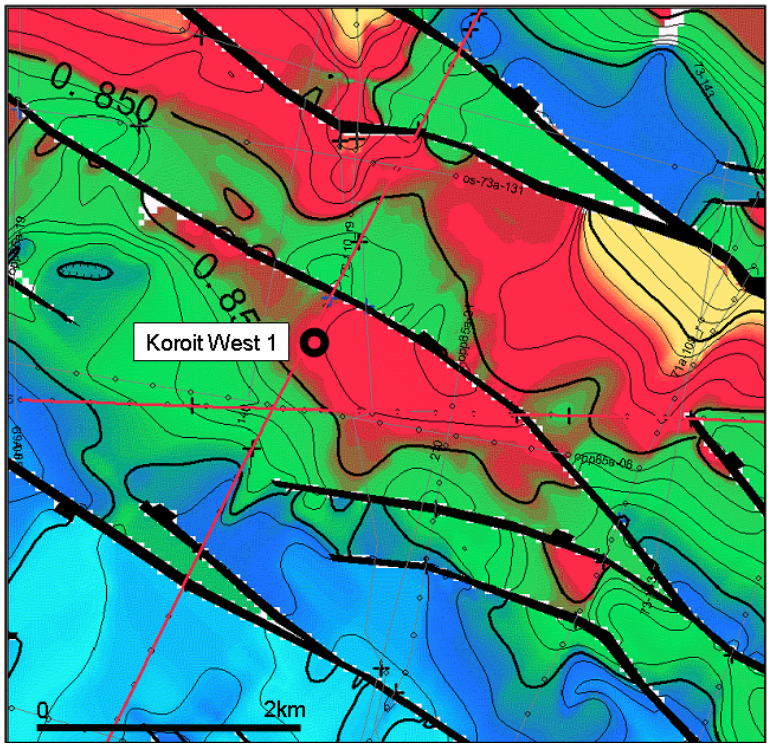


Figure 1: Koroit West 1 Near Top Flaxman Formation Two Way Time

2 WELL HISTORY

2.1 GENERAL DATA

General well data are given in Table 1, and the location shown in Figures 1 & 2. The surveyor's report is shown in Appendix 1.

Table 1: General Well Data

Well name:	Koroit West 1
Classification:	Exploration
Permit operator:	Origin Energy Resources Ltd
Well operator:	**Essential Petroleum Resources Limited** Level 2, 226 Albert Road SOUTH MELBOURNE VIC 3205, acting as agents for **Origin Energy Resources Ltd**
Participants:	Origin Energy Resources Ltd 50.51% South Tower 339 Coronation Drive MILTON QLD 4064 Essential Petroleum Resources Limited 33.9% Level 2, 226 Albert Road SOUTH MELBOURNE VIC 3205

Participants: (cont.):	Lakes Oil NL 15.59% Level 11, 500 Collins St MELBOURNE VIC 3000
Basin:	Otway Basin, onshore western Victoria
Lease:	PEP 152
Seismic location:	Line OC95-111, SP 745
Coordinates: Datum GDA94	Latitude 38° 16' 41.762"S, Longitude 142 17'53.63"E Easting 613,551.45m, Northing 5,762,512.90m MGA94 Zone 54
Datum:	GDA94
Elevation:	Ground Level (GL): 40.67 metres AHD Rotary Table (RT): 42.67 metres AHD (The rig rotary table is 2 m above GL)
Property owner:	Mr. and Mrs. G. Sheen, Koroit
Nearest town:	The township of Koroit, approximately 6.5 km east of the well.
Measured depth	Driller: 859 m (NB initial TD measurement was 850m due to a pipe tally error)
	Logger: 857 m
Spud date:	08:30 hours January 16, 2003.
TD reached:	13:30 hours January 21, 2003.
Days to Drill:	5.2 days
Drill rig released:	18:30 hours January 25, 2003.
Total Project days	9.5 Days
Well status:	Plugged and abandoned.

2.2 CONTRACTORS

Table 2: List of Contractors

Service	Contractor
Project Managers	Essential Petroleum Resources Limited
Drilling	Sides Engineering
Location Survey	Paul Crowe, Licensed Surveyor
Site Construction	Walter Mellis
Water Supply	Trucked in by Walter Mellis
Fuel Supply	Sides Engineering
Cementing	Sides Engineering
Mud System Drilling Fluids Solids Control	 RMN Drilling Fluids Via Drilling Contractor
Mud Logging	Colin Higgins & Associates

Electric Logging	Schlumberger
Drilling Tools	Tasman Oil Tools
Casing Services	Sides Engineering
Casing & Tubing	Itochu
Wellheads And Equipment	Cameron Iron Works
Environmental Waste Disposal	 Transwest Environmental
Accommodation	Town accommodation. (Koroit)
Trucking	Dehne Transport
Communications Landlines E Mail/Internet	 Telstra Via EPRL server

3 ENGINEERING DATA

3.1 WELL STATUS

The well is cased and suspended. Abandonment plugs were set across permeable zones as required. The wellhead was removed and the casing stub covered with soil.

3.2 OPERATIONAL SUMMARY

3.2.1 Logistics and Planning

Essential Petroleum Resources (EPRL) managed drilling on behalf of the PEP152 Joint Venture. Materials and logistics were managed out of the EPRL offices and from the wellsite. Supply and service contractors are listed in table 2.

3.2.2 Site Preparation

Fencing and lockable gates were installed. Pits were dug and the site was sheeted with gravel. Mud pits were dug with earth battens to manage mud flow. The size of the location was kept relatively compact, as the rig required a small footprint and no rig camp. A 14" diameter conductor pipe was installed to a depth of 5 m by the site preparation contractor.

3.2.3 Mobilisation and Pre Spud

Mobilisation from Melbourne commenced at 0600 on January 13 2003. Rig-up was completed in 2.5 days and a pre-spud meeting was held at the rig site at 19:00 on January 15, 2003.

3.2.4 244 mm (8 ½") Hole section

Drilling commenced at 5 m inside the 14" conductor pipe. The 8 ½" hole section was drilled from 5 m to 258 m in 8 hours with water/gel mud. A rerun PDC bit was used, and achieved an average ROP of 31 metres per hour. No drilling problems were experienced.

3.2.5 178 mm (7") Surface String

A string of 7" K55 23 ppf BTC casing was run to a shoe depth of 254 m. The string was cemented to surface with 136 sacks (156 cubic feet, 150% annular volume) of class G cement at 15.8 ppg, and displaced with 32.3 bbl drilling mud. Good cement returns to surface were noted. Plugs were bumped with 500 psi and held for 10 minutes. The floats held satisfactorily.

3.2.6 156 mm (6 1/8") Hole Section

The BOPs were nippled up and tested successfully at 250 and 1500psi without incident. The float and shoe were drilled out and formation drilled to 261 m. A formation integrity test was carried out to 200 psi, equivalent to mud weight of 13.2 ppg. A deviation survey of ¼ degrees was recorded. Operations were suspended for 12 hours while waiting for the arrival of the second drill crew to enable 24 hour operations to commence.

The hole was displaced to 4% KCl and polymer drilling mud. The hole was drilled ahead at 6 1/8" to 858 m total depth with a rotary bit (IADC code 437). Solids control was facilitated by frequent dumping of the possum belly. With limited solids control available the mud weight climbed from 8.8 ppg to 9.3 ppg over the duration of the hole. No drilling problems were encountered. Overall rate of penetration was approximately 20 metres per hour.

Flow check and sample circulation were carried out to evaluate drilling breaks and target formations. The hole was evaluated with wireline logging.

A 8.8m drill collar was not accounted for when drilling the 6 1/8" section below casing at 258m. Data and reported depths below 258m have been migrated downwards in the mudlog.

3.2.7 Plug and Abandon

Koroit West 1 was plugged and abandoned on 25 January 2003. The drill string was run in open-ended and plugs were set:

- Plug #1 from 790m to 690m with 56 sx class G cement.
- Plug #2 from 565m to 535m with 18 sx class A cement.
- Plug #3 from 520m to 470m with 29 sx class A cement
- Plug #4 from 287m to 227m with 35 sx class A cement. The plug was tagged at 280m, indicating slippage, so a further plug was set
- Plug #5 from 280m to 210m with 35 sx class A cement

After waiting on cement Plug #5 was tagged at 217m. The drill string was pulled out, BOP nippled down and the surface cement plug was set. The rig was released at 16:30 25/01/2003.

3.3 DAILY OPERATIONS

3.3.1 Daily Drilling Reports

The details of the daily activities during rig up and drilling operations for the Koroit West 1 well are presented in the Daily Drilling reports in Appendix 2.

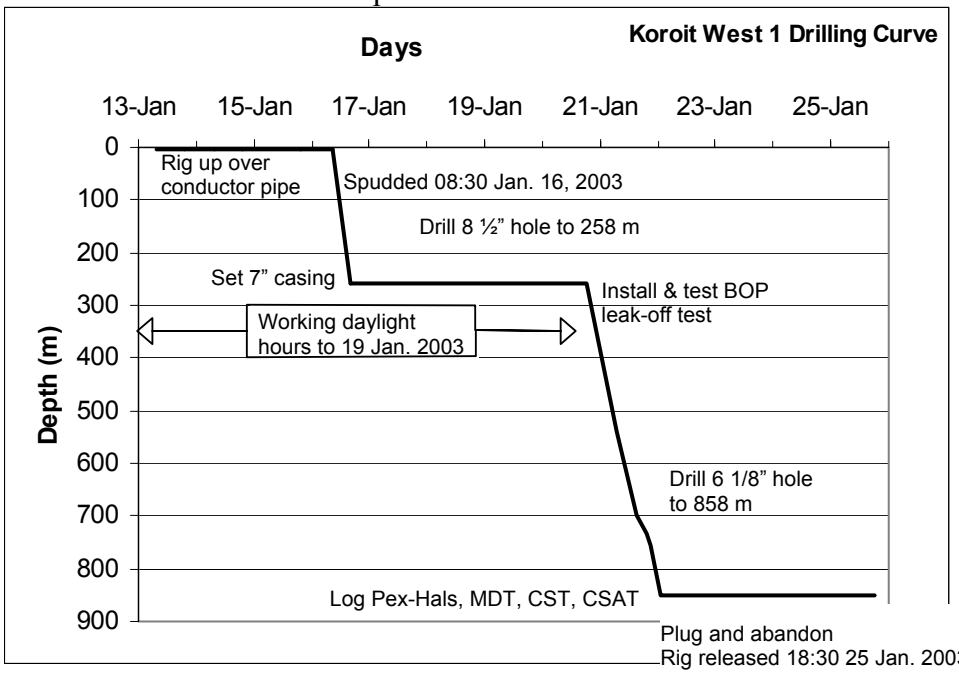
3.3.2 Time Performance

A time breakdown presented in Table 3 and Figure 4 and the drilling curve for Koroit West 1 is presented in Figure 5. No significant hole problems or rig breakdowns were encountered. Restricted operating hours during the early part of the well were the largest source of non-productive time.

Table 3: Time Breakdown – drilling phase

OPERATION	Hours	%
Safety operations (briefings and JSA)	2.5	1%
Drilling operations	47.25	25%
Evaluation operations	25	13%
Casing operations	9	5%
Hole conditioning (routine)	29.75	15%
Rig up/down	26	14%
Wellhead & BOP operations	18.5	10%
Abandonment operations	19.5	10%
Hole problems	1.25	1%
Non-productive time	13.75	7%
Total Hours	192.5	100%

Figure 3: Koroit West 1 Time - Depth Curve



3.3.3 Surveys

One survey was conducted in Koroit West 1. Deviation surveys could not be carried out in the 6 1/8" hole section due to equipment failure. No hole problems related to hole deviation occurred.

Table 4: Deviation Survey

Depth	Deviation
247	¼°

3.4 BHA AND BIT SUMMARIES

Bit and BHA details are provided in Table 5. No problems related to bit selection or bit performance were experienced. Overall penetration rate in the main hole section was slightly better than 20 m per hour.

Table 5: Bit and BHA Record

Bit No	in	mm	Jets	Make	Type	IADC code	In	Out	Made	Hrs	Cond	Reason Pulled
1	8 ½	216	5 x 14	DBS	FS2565		9	258	249	8	Good	End of section
	BHA		Bit / Bit sub c/w float / 1 x 6¼" Dc / Stab / 7 x 6¼" Dc									
2	6 1/8"	156	3-3-3	Varel	ETD14	437	258	858	600	29	1.1.WT.E.I.TD	TD
	BHA		Bit / Bit sub c/w float / 1 x 4¾" Dc / Stab / 8 x 4¾" Dc / 3½" Dp / 2-7/8 Dp.									

3.5 CASING AND CEMENTING REPORT

The casing and cementing program is summarised in Table 6, and the casing running list and plugging program are presented in Appendix 3.

Table 6: Casing and Cementing Details

Hole Size (in)	Hole Depth (mRT)	Casing Size (in)	Shoe Depth (mRT)	Casing type	Casing Eqpt	Cementing	Comment
17"	5 m	14"	5 m	Non API	nil		Conductor installed by lease contractor
8 ½"	258 m	7"	257 m	23 ppf J55 BTC	Float shoe, 2 centralisers.	136sx, 156 ft^3 Class G @ 15.8 ppg, (50% excess). Disp w/ 32.3bbl drilling mud	Bump plugs w/ 500 psi, held for 10 min float held OK.

3.6 DRILLING FLUIDS

The hole was drilled to casing at 258 m with gel mud, and then to total depth with a KCl-polymer mud system. Drilling fluid details are summarised in the Operational summaries (Section 3.2). The drilling fluid contractor's mud reports are provided in Appendix 4. Although operating from earth pits was not ideal the mud program was effective. Solids control was limited to the single shale shaker, gravity settling and dilution and hence mud consumables were used at a greater rate than would have been the case with steel tanks. No mud-related hole problems were encountered.

4 FORMATION SAMPLING AND TESTING

4.1 CUTTINGS

Cuttings were collected at 10metre intervals in the 8 1/2" hole section and then at nominal 3m intervals to TD. In practice high ROPs necessitated catching 6 m routine samples and spot samples at critical depths. Detailed cuttings descriptions are presented in Appendix 5.

4.2 CORES

No conventional cores were cut.

4.3 TESTING

Formation testing was carried out by wireline using the MDT and the results are presented in Appendix 6 and summarised in Fig. 4. The pressure gradients derived from the MDT indicated a water gradient in Koroit West # 1. A water sample was recovered from 561 m. The sample chamber was opened in the field and was found to be water with no trace of oil or gas.

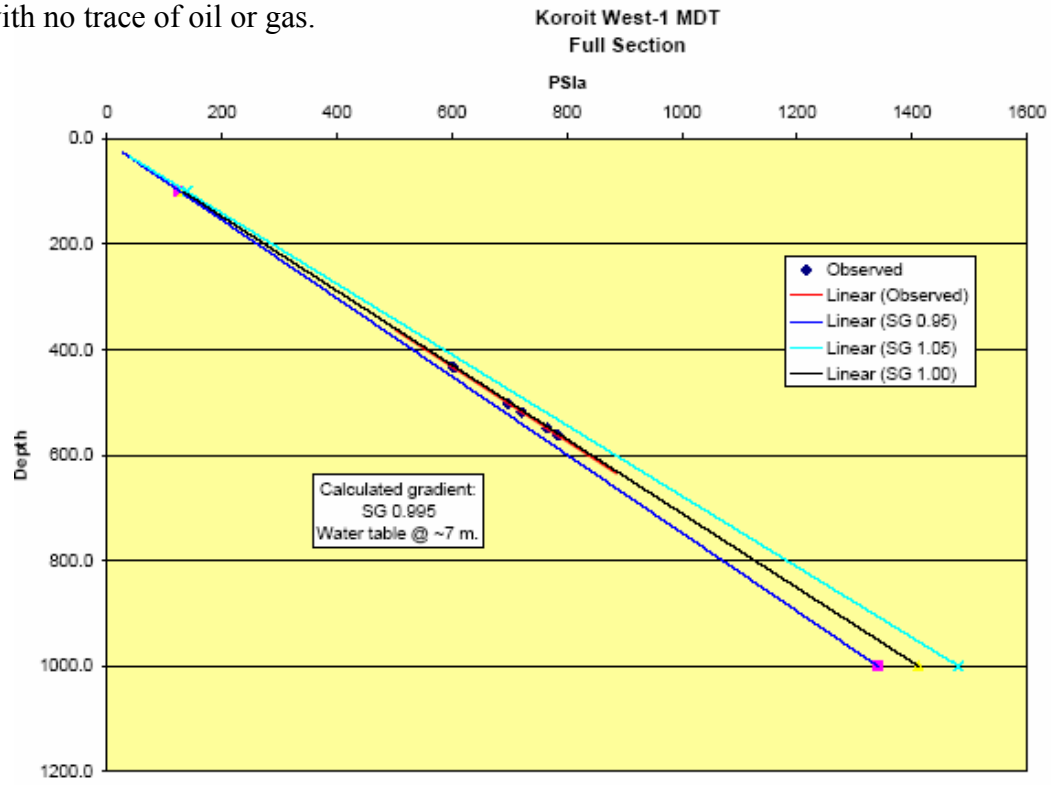


Figure 4 MDT summary for Koroit West 1.

4.4 SAMPLE ANALYSES

Twenty-five sidewall cores were attempted between 432-785 m, and 17 were recovered. Sidewall core descriptions are presented in Appendix 7.

Nine sidewall core samples were submitted for palynological analysis. The results of the palynological analysis are presented in Appendix 8. The palynology indicated that zone immediately above the top of the Eumeralla Formation contained an age equivalent of the lower part of the Waarre Formation (Waarre 'B'). No material of age equivalent to the upper Waarre 'C' horizon, where good quality reservoir sands can be expected, was intersected in the well.

Two sidewall cores (nos. 15, 16) were submitted for extraction and measurement of petroleum hydrocarbons and the results are presented in Appendix 9. Trace levels of hydrocarbon were detected in the sidewall core from a Pember Mudstone sand at 560.5 m. This sample was observed in the field to exhibit an extremely faint dull green solvent fluorescence with no ring residue. The analysis did not provide any hydrocarbon characterisation as the yields were too small (<50 mg/kg). Fluid analysis was also carried out on a fresh water sample collected during the MDT, and is also presented in Appendix 9.

A petrological study was carried out on two sidewall core samples from 432.0mKB (#25, Clifton Formation) and 566.9mKB (#15, Pember Mudstone sand) to determine lithology, mineralogy, diagenetic effects and porosity characteristics, and the results are presented in Appendix 10. The Pember Mudstone sand unit is described as an argillaceous subarkose. Intergranular effective porosity is low. No bitumen or other visible hydrocarbon residue was observed. The Clifton Formation sample is a calcarenite.

4.5 MUD LOGGING

Colin Higgins & Associates provided a portable mudlogging unit. Depth, penetration rate, mud gas, pump rate, and mud volume data as well as mud chromatographic analysis was recorded from surface to total depth. Rate of penetration, weight on bit, total gas and chromatography were recorded and plotted on a Mud Log and are presented in Enclosure 1.

An anomalous very high gas reading was observed between 420-575 m in the Nirranda and Wangerrip Groups. The total gas detector (hotwire) baseline went off-scale and

appeared to became saturated, and had to be reset. These readings were not reproduced on the gas chromatograph.

4.6 WIRELINE LOGGING

Wireline logging was carried out by Schlumberger using a truck mounted MAXIS unit. The logging suite consisted of four logging runs. A composite log is provided in Enclosure 2, and the logs are presented in Enclosure 3. Details of the log depth intervals for each log run are presented in Table 7.

Run	Depth (mRT)	Log	Top Log Interval	Bottom Log Interval	BHT Deg. C
1	858	NGT	256.8	855	46.0
		SP	245	830	
		RHOZ	255	847	
		TNPH	250	842	
		HRLS, HRLD	256.8	855	
		RXOZ	256.8	845	
		PEFZ	265.8	847	
2	858	MDT	428	563	36.5@ 432.0m 39.5 @ 561.0m
3	858	CSAT (Velocity)	136	850	NR
4	858	CST (Sidewall cores)	428	785	NR

Table 7 Wireline logging.

4.7 VELOCITY SURVEY

A velocity check shot survey was carried out using explosives. The results are shown in Table 8 and the logs are presented in Enclosure 3.

Table 8 Checkshot survey data

Measured Depth mRT	Vertical depth from SRD m	Two-way time corrected from SRD m/sec
136.0	89.0	88.82
262.9	215.9	222.93
346.9	299.9	309.4
428	381.0	390.64
436.9	389.9	396.96
460.5	413.5	418.61
495.5	448.5	447.46
542.9	495.9	487.8
570	523	512.17
612.5	565.5	550.98
625	578.0	560.05
642.4	595.4	571.74
671.4	624.4	595.33
697.4	650.4	621.37
705.4	658.4	626.67
748.4	701.4	657.79
761.5	714.5	670.32
820.0	773.0	716.27
850.0	803.0	740.54

5 GEOLOGY

5.1 REGIONAL GEOLOGY

PEP 152 is located within the coastal strip extending about 10 to 20 kilometres inland between Portland in the west and Warnambool in the east in the Victorian part of the onshore Otway Basin. The Permit contains a thick Early Cretaceous section of Eumeralla Group within the Koroit Trough and is bounded to the north by the east – west trending Tyrendarra Fault. The permit contains prospective Crayfish Group sandstone at depths of 3000 to 4000m and prospective Late Cretaceous Sherbrook Group and Early Tertiary Wangerrip Group sediments. Areally extensive seals are provided by the Pember Mudstone and the Belfast Formations. Oil migration, probably from the Killara Coal within the Crayfish Group, is demonstrated by historical oil shows encountered in both the Crayfish and Sherbrooke Groups.

The Koroit prospect is located on an antithetic fault trending sub-parallel with the Tyrendarra Fault. The structure is a simple northwest - southeast oriented tilted horst block with just over 4 square kilometres of mapped closure. Closure northeast of the structure and fault seal against the Belfast Mudstone is provided by downthrow to the northern fault. The structure is also bounded to the southwest by downthrow to the south fault. Other minor faults occur on the horst block. The structure gently plunges and forms saddles to the northwest and southeast.

The Koroit structure formed in response to Late Cretaceous to Early Tertiary east-west wrenching along the Tyrendarra Fault. The growth and minor folding of the structure is primarily Late Cretaceous in age.

Primary reservoir potential is anticipated in the Flaxman Formation, within which a 10 m sand is present in the neighbouring Yangery 1 and Warrong 5 wells. The Nullawarre Greensand and the upper parts of the Paaratte Formation (Timboon Sand Member) have potential regionally and were considered secondary targets in Koroit West 1.

Connection between source and reservoir is provided by vertical migration along the bounding normal faults. These faults extend from below the Crayfish Group through the Sherbrook Group and die out in the overlying Pember Mudstone of the Wangerrip Group (Fig. 5). Maturity of the Killara Coal ranges from early oil mature in the vicinity of the prospect to mature for gas in the deeper areas to the south.

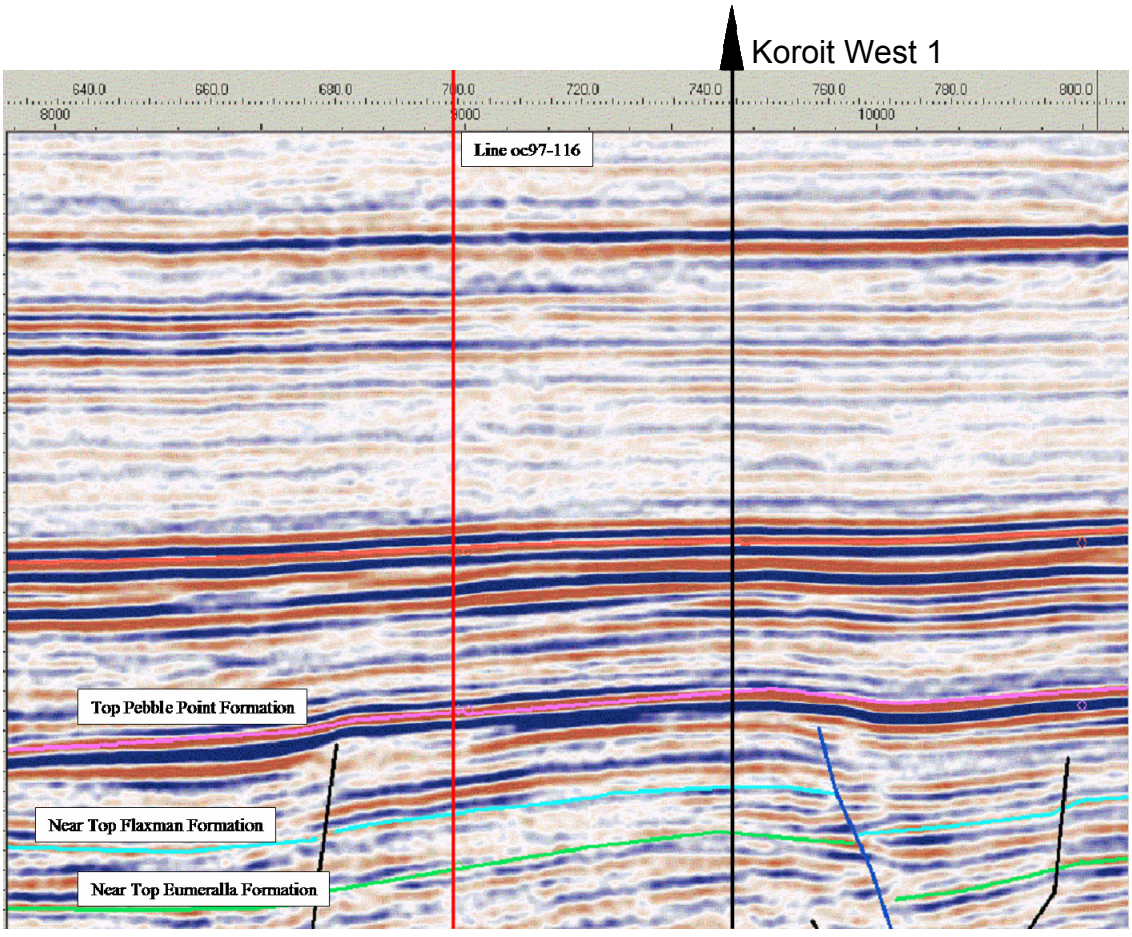


Figure 5 Line OBE00a-01 with Port Fairy #1

5.2 STRATIGRAPHY

The stratigraphic section penetrated in Koroit West 1 is shown in Table 9 below.

Stratigraphic Unit		Depth RT (m)	Thickness (m)	Elevation AHD (m)
Pt Campbell Lst	Heytesbury	2	132	40.7
Gellibrand Marl		134	293.5	-91.3
Clifton Fm		427.5	7.5	-384.8
Narrawaturk Marl	Nirranda	435	13	-392.3
Mepunga Fm		448	25	-405.3
Dilwyn Fm	Wangerrip	473	68	-430.3
Pember Mudstone		541	69	-498.3
Pebble Pt Formation		610	18	-567.3
Massacre Shale		628	12	-585.3
Paaratte Fm	Sherbrook	640	29	-597.3
Skull Ck Mudstone		669	26.5	-626.3
Nullawarre Greensand		695.5	8.5	-652.8
Belfast Mudstone		704	35.5	-661.3
Flaxman Fm		739.5	11	-696.8
Waarre Fm		750.5	19.5	-707.8
Eumeralla Fm		770	88	-727.3
TD (driller)		859.0m	-	-815.3

Table 9 Stratigraphic Table

5.3 LITHOLOGY

The full cutting descriptions are provided in Appendix 5 and summarised by interval on the Composite Well Log (Enclosure 2). Formations encountered in Koroit West 1 are described below.

5.3.1 Heytesbury Group, Late Eocene to Pliocene

Port Campbell Limestone (2.0 – 134.0 m)

The Port Campbell Limestone consisted of calcarenite, greyish yellow and pale olive to greenish grey, occasionally white, predominantly fine to occasionally medium grained with common to abundant coarse fossil fragments trace grey argillaceous matrix and occasional sparry cement, poorly consolidated, friable, occasionally hard. Trace light to dark green glauconite grains. On logs the base of the Port Campbell Limestone is picked on a slight change in log character to slightly thicker bedding and an increase in clays.

Gellibrand Marl (134.0 – 427.5 m)

The Gellibrand Marl predominantly consisted of limestone (micrite), medium grey to light olive grey, occasionally microcrystalline, soft, amorphous, with trace to minor fossil fragments very argillaceous, grading in part to marl: very light grey, occasionally greenish and bluish grey, silty and becoming slightly quartz sandy in part, softy, blocky. Below 400 m the clay content decreases and the lithology becomes interbedded with calcarenite: white to light yellowish grey, with fine to very coarse grained fossil fragments including echinoid, bryozoan, mollusc, foram, and crinoids, with traces of terriginous material.

Clifton Formation (427.5 – 435.0m)

Calcarenite: white to mottled orange and reddish brown/ oxidised, medium to coarse grained fossiliferous, moderately sorted, firmly cemented with Fe stained calcite, trace dark grains. Grading to calcisiltite, light grey, mottled, occasionally light greenish grey, fossiliferous. The Clifton Formation is thin and relatively poorly developed. On logs the interval appears as cleaner and more interbedded than the overlying basal Gellibrand Marl. The lower contact is sharp and the upper contact is gradational.

5.3.2 Nirranda Group, Middle Eocene to Early Oligocene

Narrawaturk Marl (435.0 – 448.0 m)

The Narrawaturk Marl is represented by a relatively thin interval of marl and claystone. MARL: medium grey, speckled with up to 10% white fossil fragments interbedded with minor CLAYSTONE: dark brown, soft, dispersive. The upper boundary is sharply defined, the lower boundary is more uncertain due to the presence in the lower part of the formation of very thin interfingering stringers of quartz sandstone similar in lithology to the underlying Mepunga Fm. The lower boundary is picked at a break toward a cleaner gamma ray and the appearance of significant volumes of quartz sandstone.

Mepunga Formation (450.0 – 473.0 m)

The Mepunga Formation is a clastic unit comprising a predominantly coarse-grained unit overlying a finer unit composed of siltstone with thin interbeds of sandstone. The upper sandstone is described as clear to brown, fine to very coarse, poorly sorted, subrounded, quartzose aggregates with a silty matrix and calcareous cement and loose iron-stained grains and common carbonaceous fragments. The siltstone in the lower part of the formation is carbonaceous in part, medium to dark brownish grey, micromicaceous, soft to dispersive. Sandstone is the dominant lithology. On logs the formation the upper zone is coarsening upward and the lower is contains 1-2m thick sandstone beds within the siltstone.

5.3.3 Wangerrip Group, Palaeocene to Middle Eocene

Dilwyn Formation (473.0 – 541.0m)

The Dilwyn Formation consists of numerous 5 – 10 m thick coarsening upward sandstone bodies with subordinate interbedded siltstones. In contrast to the generally iron-stained Mepunga sands the Dilwyn sands are clear or white to pale yellow, medium to very coarse grained, polished, predominantly loose with a slight calcite cement adhering to the grains. There are occasional well cemented pyrite aggregates. The inferred porosity is fair to good. The interbedded siltstone is brown and sandy with medium and coarse quartz grains. The top 11 m of the Dilwyn Formation is shaley and may be a thin lateral aquivalent of the Burrungle Member, recognised in the Portland Trough.

Pember Mudstone (541.0 – 610.0 m)

The Pember Mudstone consisted predominantly of claystone grading to siltstone although in the upper part of the formation two significant sand units occur. Fine grained lithologies are described as claystone, dark brown, very soft, grading to siltstone, grey to greyish brown, occasionally greenish grey and sandy. The sandstones in the upper section of the formation are clear to light grey and light yellowish brown, fine to coarse but predominantly medium grained, and moderately sorted. The sand is predominantly loose, with calcareous cement adhering to the grains. Porosity is interpreted as being fair to good. No shows were observed. The sand is similar in character to those of the overlying Dilwyn Formation and an interfingering relationship is possible.

The lower contact of the Pember Mudstone is picked on the sharp change in sonic, density and PEF log curves associates with a lithological change from mudstone to glauconitic sandstone. The sharp sonic break is expressed in seismic as a hard event.

Pebble Point Formation (610.5 – 628.0m)

The Pebble Point Formation is dominated by glauconite occurring as matrix supported grains within mudstone and as framework grains in glauconitic sandstones. Quartzose sandstones are interbedded with the glauconite rocks, Glauconite sandstones are black, medium grained, with well sorted black glauconite grains in a hard black matrix. Minor quartzose sandstone is fine to coarse grained, with greenish cherty lithic grains. The formation fines downward, with decreasing glauconite content, to interbedded siltstone, medium to dark grey to greyish brown, and predominantly loose quartzose sandstone.

Porosity throughout the unit is low due to the abundance of the glauconitic clay matrix in both the glauconite-grained and quartz-grained sands.

On the wireline logs the formation has distinctive character of higher resistivity, higher PEF and faster sonic travel time.

Massacre Shale (628.0 – 640.0m)

Lithologically, the Massacre Shale is similar to the Pebble Point Formation, but it is differentiated from the Pebble Point Formation by a characteristic high gamma spike. The age of this unit is late Maastrichtian.

5.3.4 Sherbrook Group, Late Cretaceous

Paaratte Formation (640.0 – 669.5 m)

The top of the Paaratte Formation is a sharp change to clean porous sandstone. The sandstone is white, fine to medium grained, grading to coarse grained toward the base of the interval. The sand is predominantly well sorted and loose with a slight calcareous cement. Black glauconite grains are common toward base of formation. In the lower part of the formation sandstones are interbedded with 1 to 3 metre thick medium to dark greyish brown siltstones.

Skull Creek Mudstone (669.5 – 695.5 m)

The Skull Creek Mudstone is a soft brown to greyish brown siltstone with traces of carbonaceous material and green glauconite. The siltstone grades to brown claystone. The relative proportions of silt and clay is hard to gauge as the clay is dispersive in the drilling fluid.

Nullawarre Greensand (695.5 – 704.0 m)

The Nullawarre Greensand contains greyish brown quartz sandstone, well sorted, fine to medium and occasionally coarse grained. The grains are predominantly loose, some with calcite cement adhering, and there are traces of glauconite. The unit also contains some grey to brown fissile claystone, grading to blocky siltstone. The top is picked on a gamma break from the Skull Creek Mudstone silts to glauconitic sandstone. There is a distinct change in log character with the uppermost 5 metres of the Nullawarre Formation showing high densities and high PEF associated with strongly silica cemented sands and glauconite.

Belfast Mudstone (704.0 – 739.5 m)

The Belfast Mudstone is a relatively homogenous siltstone, blocky and finely micromicaceous, grading to silty claystone. The top of the Belfast Formation is picked at an increase in clay content observed in the lithology and on the gamma ray and nuclear log characteristics. There are rare interbeds of sandstone in the upper section.

Flaxman Formation (739.5 – 750.5 m)

The target Flaxman Formation was thin and very poorly developed. On the basis of the neutron and density logs approximately 4m of the formation is sandstone, and as none exhibits neutron-density crossover none is of reservoir quality. The sandstone was described from cuttings as clear to very light brown and yellowish brown, fine to

occasionally coarse grained, moderately sorted, and predominantly loose with calcite cement adhering to grains. Porosity was inferred to be good however considerable sand cavings from the sandstones above was present in cuttings throughout the lower part of the well.

The sand is present in two thin coarsening upward cycles at the top of the gross interval. The remainder of the formation appears to be a sandy and clayey grey siltstone, glauconitic in part and carbonaceous in part. Sidewall coring in the Flaxman Formation was unsuccessful.

Waarre Formation (748.5 – 782.0m)

Two units of the Waarre Formation are recognised at Koroit West 1. An upper silty claystone, correlated with the Waarre "B" unit overlies a sandstone unit correlated with the Waarre "A". The boundary between the Flaxman and Waarre Formation "B" is not well defined but is placed at a log character change to more consistent shaly lithology and a decrease in glauconite. The presence of Waarre "B" aged rock was confirmed by palynology. The Waarre B unit contains relatively homogenous siltstone and claystone, with claystone predominating towards the base. The change to sandstone in the underlying Waarre A unit is sharply defined on the gamma ray and the nuclear logs. At the top of the Waarre A thin (<0.5m) sandstone stringers of relatively clean quartzose sandstone are interbedded with and grade downwards to finer grained mottled white sandstones containing glauconite, lithic fragments, dense calcite cements and clay matrix. Pyritised wood fragments were recorded near the top of the Waarre A. Stringers of glauconite/chamosite sandstone and sandstone with a high lithic component increase toward the base of the Waarre A.

No sandstone of acceptable reservoir quality was intersected.

5.3.5 Eumeralla Formation (782.0 – 859.0 mTD)

The Eumeralla Formation consists of thinly interbedded distinctive volcaniclastic sandstone and siltstone. The top is picked at an increase in sonic velocity consistent with the regional unconformity into the early Cretaceous Crayfish Group. The sandstone is white, pale green, or bluish grey, with occasional red or orange grains. It contains abundant siliceous aphanitic lithic grains, and has a dense ?diagenetic clay matrix. It lacks porosity and decreases towards the base of the interval. The siltstone is brown, white, or pale greenish grey, and speckled or thinly laminated in part. It contains very fine sandy lithic grains, grades to off white soft claystone, and becomes massive towards the base of the interval.

5.4 RESERVOIR QUALITY AND HYDROCARBON INDICATIONS

Good to very good visible porosity was observed in parts of the Mepunga Formation, parts of the Dilwyn Formation, some sands of the Pember Mudstone, parts of the Paaratte Formation, and the tops of the Nullawarre and Flaxman Formations. Density/porosity crossover was observed in sands of the Dilwyn Formation, sands within the Pember Mudstone, and the upper Paaratte Formation. Petrophysics indicates effective porosities of 27% in the Dilwyn Formation and the Pember Mudstone, and 19% in the Flaxman Formation.

Petrological analysis of a fine-grained argillaceous subarkosic sandstone from the Pember Mudstone showed that minor primary intergranular porosity is preserved in

localised areas but, with intervening areas being almost totally filled by clays, micas, and organic fragments, the overall permeability is low.

An episode of high gas readings (420-575 m) was not supported by the chromatograph and does not appear to indicate hydrocarbons. Traces of gas were detected in the Waarre, Flaxman and top Eumeralla Formations (740-810 mRT). Very faint solvent fluorescence was observed in sidewall core samples from the Narrawaturk Marl, the Dilwyn Formation, sands of the Pember Formation, the Pebble Point Formation, and the Flaxman Formation.

Analysis of the MDT fluid recovery from 561.0m mRT in the Mepunga Formation yielded a fresher formation water than expected. The fluid recovered is interpreted as fresh formation water (5,200ppm NaCleq), and is significantly different from the chemistry of the mud filtrate sample (43,000 ppm NaCleq).

An initial petrophysical report was prepared at the time of the logging run. The petrophysical plot was revised when the water chemistry was received. The petrophysical plot and report are presented in Appendix 11. This log analysis does not provide any agreement or concurrence with the high gas readings that were detected by the hot-wire gas detector in the Mepunga Formation.

5.5 CONTRIBUTION TO GEOLOGICAL KNOWLEDGE

1) In this part of the Tyrrendara Embayment, the marine sediments of the Belfast Mudstone, the Flaxman Formation, and the Waarre Formation are thin and only poorly represented.

2) The sandstone of the Pebble Point Formation is also very poorly developed in this area.

3) The Paaratte Formation sandstone is of reasonable thickness and constitutes a prospective reservoir. The Pember Mudstone lying above the Paaratte is substantial enough to constitute a seal. The lack of hydrocarbons in this well may be therefore result from failure of hydrocarbons to migrate into the structure.

Appendix 1: Location Survey

VICTORIA

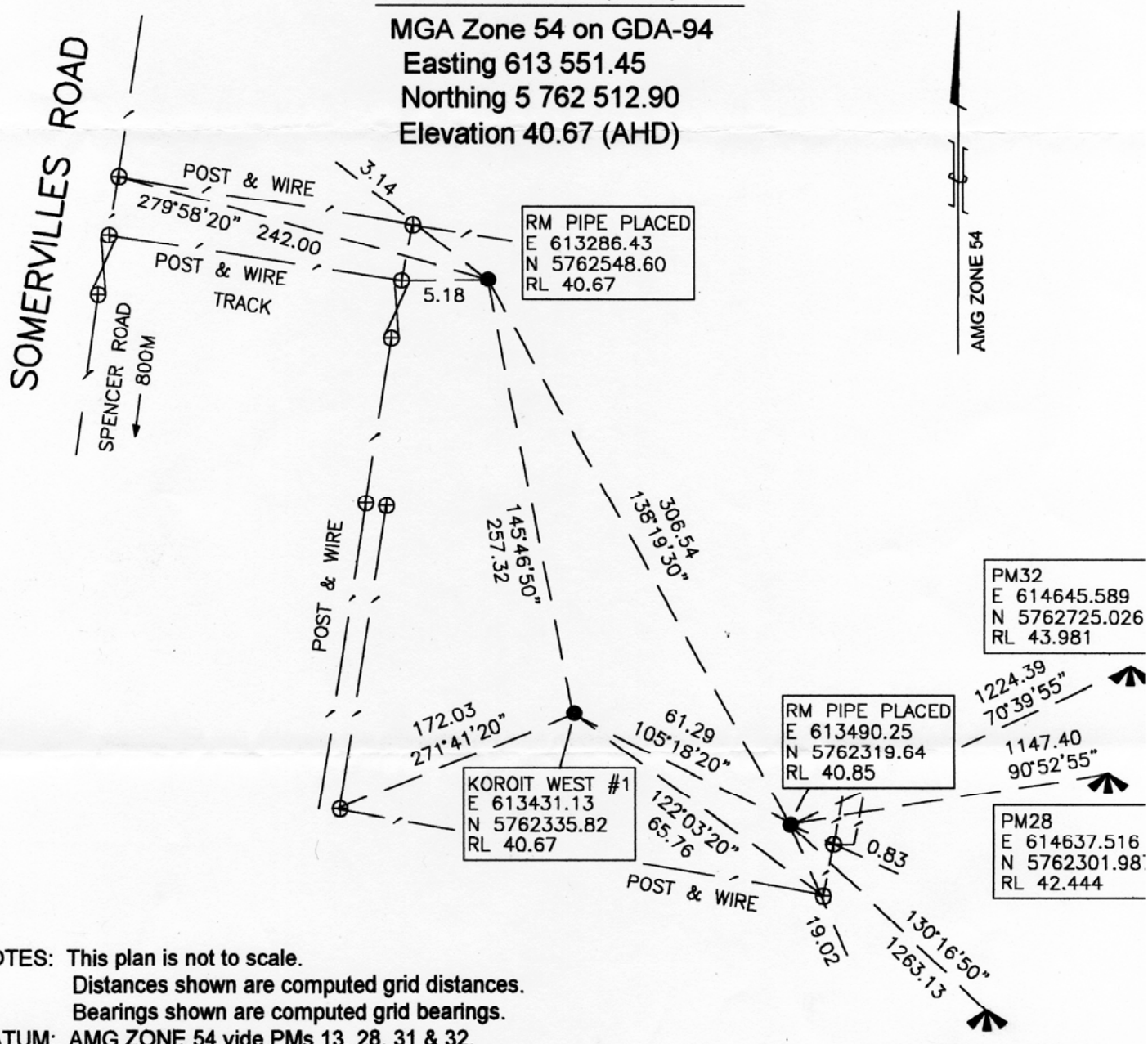
GAS WELL LOCATION

REFERENCE MARKS SKETCH PLAN

Well Name : Koroit West #1

AMG Zone 54 on AGD-66
Easting 613 431.13
Northing 5 762 335.82
Elevation 40.67 (AHD)

MGA Zone 54 on GDA-94
Easting 613 551.45
Northing 5 762 512.90
Elevation 40.67 (AHD)



NOTES: This plan is not to scale.
Distances shown are computed grid distances.
Bearings shown are computed grid bearings.
DATUM: AMG ZONE 54 vide PMs 13, 28, 31 & 32.
Height datum is to AHD vide PM 13.
Estimated Horizontal error is less than +/-0.20 metre.
Estimated vertical error is less than +/-0.10 metre.
Date of Survey : 14 April 2004

Date 22 April 2004

Gary Vincent
Licensed Surveyor

VINCENT LAND SURVEYING
482 RAGLAN PARADE, WARRNAMBOOL 3280
PHONE (03) 55 629211

SURVEYORS REF.
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Appendix 2: Daily Drilling Reports

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850		Date	13-Jan-03
Report Number	1		Contractor / Rig	Sides / Bourne 2000		DFS	0.00
Last Casing String		Set at		LOP		MAASP	
Last BOP Test			Next BOP Test Due			AFD's	1
Daily Well Costs	$121,094			Cumulative Well Cost		$121,094	

06:00 Operation	Mobilize rig to location.
Operations Forecast	Rig up.
Safety Meetings:	
06:00 Depth (ft)	24hr Progress (ft) / Formation

Bit Information

Bit No.		
Size (in)		
Make		
Type		
IADC		
S/N		
Jets (/32")		
In (ft)		
Out (ft)		
Footage		
Hours		
ROP (ft/hr)		
WOB (Klb)		
RPM		
JV (ft/sec)		
HSI		
Condition		

Mud Information

Dens (ppg)	
ECD (ppg)	
Visc (sec)	
PV(cp)/YP(lb)	
Temp (^{o}F)	
Gels (s/m)	
API Filt (cc)	
Cake (/32")	
pH	
Solids (%)	
Sands (%)	
KCL (%)	
Cl (ppm)	
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	
Cum. Cost	

Operations Analysis

Operation	HRS	Cum. HRS
Drilling		
Tripping		
Reaming		
Survey		
Circ&Cond		
Handle BOP's		
Test BOP's		
Handle Tools		
Slip&Cut		
Safety Meet		
Fishing		
Rig Repair		
Rig Service		
Logging		
Coring		
DST		
Casing		
Cementing		
WOC		
Well Control		
Other		
Totals	0.0	0.0

Fuel Usage	Rig	Camp
24hr Use		
On Hand		

Pump Information

	Pump #1	Pump #2
Make/Type		
BorexStk		
SPM		
SPR (spm)		
SPP (psi)		

Flow Information

GPM	
SPP (psi)	
AV-DC (fpm)	
AV-DP (fpm)	

Survey Information

MD (ft)	TVD (ft)	Incln. (^{o})	Azimuth		MD (ft)	TVD (ft)	Incln. (^{o})	Azimuth

BHA Information

BHA					
BHA Length (ft)		Buoyed BHA Wt (klb)		String Wt (klb)	
Hook Load (klb)		Wt below Jars (klb)		Cum. Jar Hours	
Drag Up (klb)		Drag Down (klb)		Motor Hours	

24hr Operations Summary (08:00 - 08:00)

From	To	Hrs	Description
		24.00	Load Rig. P/u OEL supervisor shack from Santos location.
		0.00	Mud Loggers and mud engineer on site checking equipment.
		0.00	Turkeys nest and mud pits full.
	Total	24.00	

Company Representative WJ Westman.

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850		Date	14-Jan-03
Report Number	2		Contractor / Rig	Sides / Bourne 2000		DFS	0.00
Last Casing String		Set at		LOP		MAASP	
Last BOP Test			Next BOP Test Due			AFD's	2
Daily Well Costs	$8,140			Cumulative Well Cost		$129,234	

06:00 Operation	Rig up.
Operations Forecast	Rig up. Spud
Safety Meetings:	

06:00 Depth (ft)		24hr Progress (ft)		Formation	

Bit Information		
Bit No.		
Size (in)		
Make		
Type		
IADC		
S/N		
Jets (/32")		
In (ft)		
Out (ft)		
Footage		
Hours		
ROP (ft/hr)		
WOB (Klb)		
RPM		
JV (ft/sec)		
HSI		
Condition		

Mud Information	
Dens (ppg)	
ECD (ppg)	
Visc (sec)	
PV(cp)/YP(lb)	
Temp (^{o}F)	
Gels (s/m)	
API Filt (cc)	
Cake (/32")	
pH	
Solids (%)	
Sands (%)	
KCL (%)	
Cl (ppm)	
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	
Cum. Cost	

Operations Analysis	HRS	Cum. HRS
Drilling		
Tripping		
Reaming		
Survey		
Circ&Cond		
Handle BOP's		
Test BOP's		
Handle Tools		
Slip&Cut		
Safety Meet		
Fishing		
Rig Repair		
Rig Service		
Logging		
Coring		
DST		
Casing		
Cementing		
WOC		
Well Control		
Other		
Totals	0.0	0.0

Pump Information	Pump #1	Pump #2
Make/Type		
BorexStk		
SPM		
SPR (spm)		
SPP (psi)		

Flow Information	
GPM	
SPP (psi)	
AV-DC (fpm)	
AV-DP (fpm)	

Fuel Usage	Rig	Camp
24hr Use		
On Hand		

Survey Information

MD (ft)	TVD (ft)	Incln. (^{o})	Azimuth		MD (ft)	TVD (ft)	Incln. (^{o})	Azimuth

BHA Information

BHA					
BHA Length (ft)		Buoyed BHA Wt (klb)		String Wt (klb)	
Hook Load (klb)		Wt below Jars (klb)		Cum. Jar Hours	
Drag Up (klb)		Drag Down (klb)		Motor Hours	

24hr Operations Summary (08:00 - 08:00)

From	To	Hrs	Description
7:30	19:30	12.00	Position mud pump, stores container, smoko shack, mudlogging shack.
		0.00	Dress derrick w/ hoses & depth monitoring equipment.
		0.00	Rig up muddlogging shack.
		0.00	Unload trucks w/ mud, drill pipe, and casing.
		0.00	Rig up 70% complete.
	Total	12.00	

Drilling Supervisor WJ Westman.

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850		Date	15-Jan-03
Report Number	3		Contractor / Rig	Sides / Bourne 2000		DFS	0.00
Last Casing String		Set at		LOP		MAASP	
Last BOP Test			Next BOP Test Due			AFD's	3
Daily Well Costs	$4,310			Cumulative Well Cost		$134,494	
06:00 Operation	Prepare to spud.						
Operations Forecast	Drill ahead to casing point.						
Safety Meetings:							
06:00 Depth (m)	258		24hr Progress (ft)		Formation		

Bit Information

Bit No.	1	
Size (in)	8½"	
Make	DBS	
Type	FS2565	
IADC	PDC	
S/N	5996742	
Jets (/32")	5 x 14	
In (ft)		
Out (ft)		
Footage		
Hours		
ROP (ft/hr)		
WOB (Klb)		
RPM		
JV (ft/sec)		
HSI		
Condition		

Mud Information

Dens (ppg)	
ECD (ppg)	
Visc (sec)	
PV(cp)/YP(lb)	
Temp (^{o}F)	
Gels (s/m)	
API Filt (cc)	
Cake (/32")	
pH	
Solids (%)	
Sands (%)	
KCL (%)	
Cl (ppm)	
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	
Cum. Cost	

Operations Analysis

Operation	HRS	Cum. HRS
Drilling		
Tripping		
Reaming		
Survey		
Circ&Cond		
Handle BOP's		
Test BOP's		
Handle Tools		
Slip&Cut		
Safety Meet		
Fishing		
Rig Repair		
Rig Service		
Logging		
Coring		
DST		
Casing		
Cementing		
WOC		
Well Control		
Other		
Totals	0.0	0.0

Fuel Usage	Rig	Camp
24hr Use		
On Hand	3960	

Pump Information

	Pump #1	Pump #2
Make/Type		
BorexStk		
SPM		
SPR (spm)		
SPP (psi)		

Flow Information

GPM	
SPP (psi)	
AV-DC (fpm)	
AV-DP (fpm)	

Survey Information

MD (ft)	TVD (ft)	Incln. (^{o})	Azimuth		MD (ft)	TVD (ft)	Incln. (^{o})	Azimuth

BHA Information

BHA					
BHA Length (ft)		Buoyed BHA Wt (klb)		String Wt (klb)	
Hook Load (klb)		Wt below Jars (klb)		Cum. Jar Hours	
Drag Up (klb)		Drag Down (klb)		Motor Hours	

24hr Operations Summary (08:00 - 08:00)

From	To	Hrs	Description
7:30	19:30	12.00	Prime pumps. Prepare spud mud. R/u mudlogging shack.
		0.00	Spot shale shaker. Hook up flowline. Dress shakers.
		0.00	Unload drill collars and assorted equipment.
		0.00	Rig up standpipe and shock hoses.
		0.00	P/u BHA. Conduct pre-spud inspection.
	Total	12.00	

Company Representative: WJ Westman.

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850		Date	16-Jan-03
Report Number	4		Contractor / Rig	Sides / Bourne 2000		DFS	0.00
Last Casing String		Set at		LOP		MAASP	
Last BOP Test			Next BOP Test Due			AFD's	4
Daily Well Costs	$10,135			Cumulative Well Cost		$142,579	

06:00 Operation	RIH. Wiper trip.
Operations Forecast	POOH. Run casing.
Safety Meetings:	Pre-spud meeting.
06:00 Depth (m)	258

24hr Progress (ft)	258	Formation	Gellibrand marl.		

Bit Information

Bit No.	1	
Size (in)	8½"	
Make	DBS	
Type	FS2565	
IADC	PDC	
S/N	5996742	
Jets (/32")	5 x 14	
In (m)	9	
Out (m)	258	
Metres	249	
Hours	8	
ROP (m/hr)	31	
WOB (Klb)	5	
RPM	90	
JV (ft/sec)	156	
HSI	0.76	
Condition	Rng	

Mud Information

Dens (ppg)	8.9
ECD (ppg)	9.5
Visc (sec)	34
PV(cp)/YP(lb)	7/10
Temp (^{o}F)	
Gels (s/m)	7/9
API Filt (cc)	NC
Cake (/32")	
pH	
Solids (%)	
Sands (%)	
KCL (%)	
Cl (ppm)	
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	$450.00
Cum. Cost	$450.00

Operations Analysis

Operation	HRS	Cum. HRS
Drilling	8	8
Tripping	¾	¾
Reaming		
Survey		
Circ&Cond	½	½
Handle BOP's		
Test BOP's		
Handle Tools		
Slip&Cut		
Safety Meet		
Fishing		
Rig Repair		
Rig Service		
Logging		
Coring		
DST		
Casing		
Cementing		
WOC		
Well Control		
Other	¼	¼
Totals	9.5	9.5

Pump Information

	Pump #1	Pump #2
Make/Type	Clarke	
BorexStk	5.5 x 10	
SPM	55	
SPR (spm)		
SPP (psi)	500	

Flow Information

GPM	340
SPP (psi)	500
AV-DC (fpm)	251
AV-DP (fpm)	124

Fuel Usage	Rig	Camp
24hr Use	960	
On Hand	3000	

Survey Information

MD (ft)	TVD (ft)	Incln. (^{o})	Azimuth		MD (ft)	TVD (ft)	Incln. (^{o})	Azimuth

BHA Information

BHA	Bit / Bit sub c/w float / 1 x 6¼" Dc / Stab / 7 x 6¼" Dc						
	BHA Length (m)	70	Buoyed BHA Wt (klb)	18200		String Wt (klb)	25280
	Hook Load (klb)	29330	Wt below Jars (klb)			Cum. Jar Hours	
	Drag Up (klb)	0	Drag Down (klb)	0		Motor Hours	

24hr Operations Summary (08:00 - 08:00)

From	To	Hrs	Description
7:30	8:30	1.00	Prime pump.
8:30	16:30	8.00	Drill ahead 8½" hole to 258m.
16:30	17:00	0.50	Circulate clean.
17:00	17:45	0.75	POOH to drill collars.
17:45	18:00	0.25	Fill hole and observe. Shut down for night.
	Total	10.50	

Company Representative: WJ Westman.

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850m		Date	17-Jan-03
Report Number	5		Contractor / Rig	Sides / Bourne 2000		DFS	1.00
Last Casing String		Set at		LOP		MAASP	
Last BOP Test			Next BOP Test Due			AFD's	5
Daily Well Costs	$37,673				Cumulative Well Cost	$183,252	
06:00 Operation	R/d landing jt.						
Operations Forecast	Nipple up BOP. Pressure test. RIH.						
Safety Meetings:							
06:00 Depth (m)	258		24hr Progress (m)	0	Formation	Gellibrand marl.	

Bit Information

Bit No.	1	
Size (in)	8½"	
Make	DBS	
Type	FS2565	
IADC	PDC	
S/N	5996742	
Jets (/32")	5 x 14	
In (m)	9	
Out (m)	258	
Metres	249	
Hours	8	
ROP (m/hr)	31	
WOB (Klb)	5	
RPM	90	
JV (ft/sec)	156	
HSI	0.76	
Condition	0.0.wt.e.l.cp	

Mud Information

Dens (ppg)	8.9
ECD (ppg)	9.5
Visc (sec)	34
PV(cp)/YP(lb)	7/10
Temp (^{o}F)	
Gels (s/m)	7/9
API Filt (cc)	NC
Cake (/32")	
pH	
Solids (%)	
Sands (%)	
KCL (%)	
Cl (ppm)	
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	
Cum. Cost	

Operations Analysis

Operation	HRS	Cum. HRS
Drilling		8
Tripping	3	3¾
Reaming		
Survey		
Circ&Cond	1½	2
Handle BOP's		
Test BOP's		
Handle Tools		
Slip&Cut		
Safety Meet		
Fishing		
Rig Repair		
Rig Service		
Logging		
Coring		
DST		
Casing	7	7
Cementing	1½	1½
WOC		
Well Control		
Other		¼
Totals	13.0	22½

Pump Information

	Pump #1	Pump #2
Make/Type	Clarke	
BorexStk	5.5 x 10	
SPM		
SPR (spm)		
SPP (psi)		

Flow Information

GPM	
SPP (psi)	
AV-DC (fpm)	
AV-DP (fpm)	

Fuel Usage	Rig	Camp
24hr Use	1000	
On Hand	3000	

Survey Information

MD (ft)	TVD (ft)	Incln. (^{o})	Azimuth		MD (ft)	TVD (ft)	Incln. (^{o})	Azimuth

BHA Information

BHA

BHA Length (m)		Buoyed BHA Wt (klb)		String Wt (klb)	
Hook Load (klb)		Wt below Jars (klb)		Cum. Jar Hours	
Drag Up (klb)		Drag Down (klb)		Motor Hours	

24hr Operations Summary (06:00 - 06:00)

From	To	Hrs	Description
7:00	8:30	1.50	RIH. No drag.
8:30	9:30	1.00	Circulate clean.
9:30	11:00	1.50	POOH. No drag.
11:00	12:00	1.00	R/u to run casing. Remove conductor barrel.
12:00	18:00	6.00	Run 7" casing.
18:00	18:30	0.50	Circulate casing capacity.
18:30	19:30	1.00	Cement and displace casing. Bump plug w/ 500psi. Hold 10 mins.
19:30	20:00	0.50	Bleed off. Float OK.
	Total	13.00	

Company Representative: WJ Westman.

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850m		Date	18-Jan-03
Report Number	6		Contractor / Rig	Sides / Bourne 2000		DFS	2.00
Last Casing String	7"	Set at	257	LOP		MAASP	
Last BOP Test			Next BOP Test Due			AFD's	6
Daily Well Costs	$10,139			Cumulative Well Cost		$194,293	

06:00 Operation	Test Blind rams, casing and choke manifold.
Operations Forecast	RIH. Test pipe rams and annular. LOT. Drill ahead.
Safety Meetings:	Discuss nipple up procedures.

06:00 Depth (m)	258	24hr Progress (m)	0	Formation	Gellibrand marl.

Bit Information

Bit No.	2	
Size (in)	6 1/8	
Make	Varel	
Type	ETD14	
IADC	4.3.7	
S/N	146728	
Jets (/32")	12 x 3	
In (m)	258	
Out (m)		
Metres		
Hours		
ROP (m/hr)		
WOB (Klb)		
RPM		
JV (ft/sec)		
HSI		
Condition		

Mud Information

Dens (ppg)	
ECD (ppg)	
Visc (sec)	
PV(cp)/YP(lb)	
Temp (^oF)	
Gels (s/m)	
API Filt (cc)	
Cake (/32")	
pH	
Solids (%)	
Sands (%)	
KCL (%)	
Cl (ppm)	
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	$674.00
Cum. Cost	$1,234.50

Operations Analysis

Operation	HRS	Cum. HRS
Drilling		8
Tripping		3¾
Reaming		
Survey		
Circ&Cond		2
Handle BOP's	12½	12
Test BOP's		
Handle Tools		
Slip&Cut		
Safety Meet		
Fishing		
Rig Repair		
Rig Service		
Logging		
Coring		
DST		
Casing		7
Cementing		1½
WOC		
Well Control		
Other		¼
Totals	12½	35.0

Fuel Usage	Rig	Camp
24hr Use	500	
On Hand	2500	

Pump Information

	Pump #1	Pump #2
Make/Type	Clarke	
BorexStk	5.5 x 10	
SPM		
SPR (spm)		
SPP (psi)		

Flow Information

GPM	
SPP (psi)	
AV-DC (fpm)	
AV-DP (fpm)	

MD (ft)	TVD (ft)	Incln. (^{o})	Azimuth	MD (ft)	TVD (ft)	Incln. (^{o})	Azimuth

BHA Information

BHA

BHA Length (m)		Buoyed BHA Wt (klb)		String Wt (klb)	
Hook Load (klb)		Wt below Jars (klb)		Cum. Jar Hours	
Drag Up (klb)		Drag Down (klb)		Motor Hours	

24hr Operations Summary (06:00 - 06:00)

From	To	Hrs	Description
7:00	8:30	1.50	L/d lnd jt. Screw on Bradenhead. Tighten w/ potato masher.
8:30	19:30	11.00	N/u BOP, choke, and kill lines.
	Total	12.50	

Company Representative: WJ Westman.

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850m		Date	19-Jan-03
Report Number	7		Contractor / Rig	Sides / Bourne 2000		DFS	3.00
Last Casing String	7"	Set at	257	LOP	200psi	MAASP	200psi
Last BOP Test	19-Jan-03		Next BOP Test Due	26-Jan-30		AFD's	7
Daily Well Costs	$11,288			Cumulative Well Cost		$205,701	
06:00 Operation	Drill ahead.						
Operations Forecast	Drill ahead.						
Safety Meetings:	Discuss kick recognition and well control procedures drilling and tripping.						
06:00 Depth (m)	261		24hr Progress (m)	3	Formation	Gellibrand marl.	

Bit Information

Bit No.	2	
Size (in)	6 1/8	
Make	Varel	
Type	ETD14	
IADC	4.3.7	
S/N	146728	
Jets (/32")	12 x 3	
In (m)	258	
Out (m)	Rng	
Metres	3	
Hours	1/4	
ROP (m/hr)	60	
WOB (Klb)	5	
RPM	60	
JV (ft/sec)	185	
HSI	1.36	
Condition	Rng	

Mud Information

Dens (ppg)	8.5
ECD (ppg)	
Visc (sec)	44
PV(cp)/YP(lb)	(12) (22)
Temp (°F)	
Gels (s/m)	(4) (5)
API Filt (cc)	15
Cake (/32")	2
pH	
Solids (%)	1.8
Sands (%)	
KCL (%)	4.80%
Cl (ppm)	18,500
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	$902.00
Cum. Cost	$2,137.00

Operations Analysis

Operation	HRS	Cum. HRS
Drilling	½	8
Tripping	2	3¾
Reaming	1	1
Survey	½	½
Circ&Cond	1	3
Handle BOP's		12
Test BOP's	2	2
Handle Tools		
Slip&Cut		
Safety Meet	1	1
Fishing		
Rig Repair		
Rig Service		
Logging		
Coring		
DST		
Casing		7
Cementing		1½
WOC		
Well Control		
Other	1½	3¼
Totals	9½	44½

Pump Information

	Pump #1	Pump #2
Make/Type	Clarke	
BorexStk	5.5 x 10	
SPM		
SPR (spm)		
SPP (psi)		

Flow Information

GPM	260
SPP (psi)	430
AV-DC (fpm)	354
AV-DP (fpm)	197

Fuel Usage	Rig	Camp
24hr Use	500	
On Hand	2000	

Survey Information

MD (m)	TVD (m)	Incln. (°)	Azimuth	MD (ft)	TVD (ft)	Incln. (°)	Azimuth
247m	247m	¼°	NA				

BHA Information

BHA	Bit / Bit sub c/w float / 1 x 4¾" Dc / Stab / 8 x 4¾" Dc / 3½" DP.				
BHA Length (m)	88	Buoyed BHA Wt (klb)	13409	String Wt (klb)	19880
Hook Load (klb)	19880	Wt below Jars (klb)		Cum. Jar Hours	
Drag Up (klb)	0	Drag Down (klb)	0	Motor Hours	

24hr Operations Summary (06:00 - 06:00)

From	To	Hrs	Description
7:00	10:00	3.00	R/u Choke line and choke manifold. Lay flare line and stake down.
10:00	11:00	1.00	Function test BOP. Pressure test blind rams - csg inner choke 1500psi.
11:00	13:00	2.00	P/u BHA and RIH.
13:00	13:30	0.50	Run survey on wireline.
13:30	14:30	1.00	Safety meeting. Discuss kick recognition and shut-in procedures.
14:30	15:30	1.00	Press test pipe rams, annular, choke/ kill lines, choke manifold 1500 psi.
15:00	16:00	1.00	Ream out plug and shoe.
16:00	16:30	0.50	Drill 3m new hole.
16:30	17:30	1.00	Circ clean. FIT to 13.2ppg.
17:30	18:00	0.50	Secure rig for night. Night shift crew arriving Monday.
	Total	9.50	

Company Representative: WJ Westman.

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850m		Date	20-Jan-03
Report Number	8		Contractor / Rig	Sides / Bourne 2000		DFS	4.00
Last Casing String	7"	Set at	257	LOP	200psi	MAASP	200psi
Last BOP Test	19-Jan-03		Next BOP Test Due	26-Jan-30		AFD's	8
Daily Well Costs	$29,767			Cumulative Well Cost		$235,468	

06:00 Operation	Drill ahead.
Operations Forecast	Drill ahead.
Safety Meetings:	Discuss kick recognition and well control procedures w/ 2nd crew.

06:00 Depth (m)	516	24hr Progress (m)	255	Formation	

Bit Information

Bit No.	2	
Size (in)	6 1/8	
Make	Varel	
Type	ETD14	
IADC	4.3.7	
S/N	146728	
Jets (/32")	12 x 3	
In (m)	258	
Out (m)	Rng	
Metres	258	
Hours	12 1/2	
ROP (m/hr)	21	
WOB (Klb)	10	
RPM	90	
JV (ft/sec)	185	
HSI	1.36	
Condition	Rng	

Mud Information

Dens (ppg)	8.8
ECD (ppg)	9.1
Visc (sec)	41
PV(cp)/YP(lb)	(12) (12)
Temp (˚F)	
Gels (s/m)	(1) (5)
API Filt (cc)	8
Cake (/32")	2
pH	9.5
Solids (%)	2
Sands (%)	Tr
KCL (%)	4.20%
Cl (ppm)	15,500
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	$957.00
Cum. Cost	$3,094.00

Operations Analysis

Operation	HRS	Cum. HRS
Drilling	12½	2/½
Tripping		3¾
Reaming		1
Survey		½
Circ&Cond		3
Handle BOP's		12
Test BOP's		2
Handle Tools		
Slip&Cut		
Safety Meet		1
Fishing		
Rig Repair		
Rig Service		
Logging		
Coring		
DST		
Casing		7
Cementing		1½
WOC		
Well Control		
Other	11½	15¼
Totals	24.0	44½

Pump Information

	Pump #1	Pump #2
Make/Type	Clarke	
BorexStk	5.5 x 10	
SPM	40	
SPR (spm)	25	
SPP (psi)	200	

Flow Information

GPM	250
SPP (psi)	600
AV-DC (fpm)	354
AV-DP (fpm)	197

Fuel Usage	Rig	Camp
24hr Use	500	
On Hand	1500	

Survey Information

MD (m)	TVD (m)	Incln. (˚)	Azimuth		MD (ft)	TVD (ft)	Incln. (˚)	Azimuth

BHA Information

BHA	Bit / Bit sub c/w float / 1 x 4¾" Dc / Stab / 8 x 4¾" Dc / 3½" Dp / 2-7/8 Dp.				
BHA Length (m)	88	Buoyed BHA Wt (klb)	13409	String Wt (klb)	26878
Hook Load (klb)	19880	Wt below Jars (klb)		Cum. Jar Hours	
Drag Up (klb)	0	Drag Down (klb)	0	Motor Hours	

24hr Operations Summary (06:00 - 06:00)

From	To	Hrs	Description
7:00	18:30	11.50	Wait on second drill crew.
18:30	7:00	12.50	Drill ahead 261m - 538m.
		0.00	
		0.00	
		0.00	
		0.00	
		0.00	
		0.00	
		0.00	
		0.00	
	Total	24.00	

Company Representative: WJ Westman.

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850m		Date	21-Jan-03
Report Number	9		Contractor / Rig	Sides / Bourne 2000		DFS	5.00
Last Casing String	7"	Set at	257	LOP	200psi	MAASP	190psi
Last BOP Test	19-Jan-03		Next BOP Test Due	26-Jan-30		AFD's	9
Daily Well Costs	$21,820			Cumulative Well Cost		$257,288	

06:00 Operation	POOH to log.
Operations Forecast	Schlumberger run electric logs.
Safety Meetings:	Safety with gas.
06:00 Depth (m)	850m

24hr Progress (m): 312m

Bit Information

Bit No.	2	
Size (in)	6 1/8	
Make	Varel	
Type	ETD14	
IADC	4.3.7	
S/N	146728	
Jets (/32")	12 x 3	
In (m)	258	
Out (m)	850m	
Metres	592m	
Hours	29	
ROP (m/hr)	20.4	
WOB (Klb)	10	
RPM	90	
JV (ft/sec)	185	
HSI	1.36	
Condition	Rng	

Mud Information

Dens (ppg)	9.1
ECD (ppg)	9.6
Visc (sec)	37
PV(cp)/YP(lb)	(16) (5)
Temp (˚F)	
Gels (s/m)	(1) (3)
API Filt (cc)	7
Cake (/32")	1
pH	9
Solids (%)	4.9
Sands (%)	Tr
KCL (%)	4.10%
Cl (ppm)	20,000
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	$1,101.00
Cum. Cost	$4,195.00

Operations Analysis

Operation	HRS	Cum. HRS
Drilling	16½	37
Tripping	4¾	8½
Reaming		1
Survey		½
Circ&Cond	2¼	5¼
Handle BOP's		12
Test BOP's		2
Handle Tools		
Slip&Cut		
Safety Meet		1
Fishing		
Rig Repair		
Rig Service		
Logging		
Coring		
DST		
Casing		7
Cementing		1½
WOC		
Well Control		
Other		15¼
Totals	24.0	92½

Fuel Usage	Rig	Camp
24hr Use	500	
On Hand	3500	

Pump Information

	Pump #1	Pump #2
Make/Type	Clarke	
BorexStk	5.5 x 10	
SPM	40	
SPR (spm)	25	
SPP (psi)	200	

Flow Information

GPM	230
SPP (psi)	800
AV-DC (fpm)	270
AV-DP (fpm)	174

Survey Information

MD (m)	TVD (m)	Incln. (˚)	Azimuth	MD (ft)	TVD (ft)	Incln. (˚)	Azimuth

BHA Information

BHA: Bit / Bit sub c/w float / 1 x 4¾" Dc / Stab / 8 x 4¾" Dc / 3½" Dp / 2-7/8 Dp.

BHA Length (m)	88	Buoyed BHA Wt (klb)	13409	String Wt (klb)	31900
Hook Load (klb)	19880	Wt below Jars (klb)		Cum. Jar Hours	
Drag Up (klb)	0	Drag Down (klb)	0	Motor Hours	

24hr Operations Summary (07:00 - 07:00)

From	To	Hrs	Description
7:00	15:00	8.00	Drill ahead 538m - 697m.
15:00	15:30	0.50	Circulate sample.
15:30	19:00	3.50	Drill ahead 697m - 733m.
19:00	19:30	0.50	Circulate sample.
19:30	20:45	1.25	Drill ahead 733m - 756m.
20:45	21:15	0.50	Circulate sample.
21:15	1:30	4.25	Drill ahead 756m - 850m.
1:30	2:15	0.75	Circulate clean..
2:15	3:30	1.25	POOH. Hole tight at 670m. Backream 2 joints.
3:30	7:00	3.50	Continue to POOH. Backream any tight hole.
	Total	24.00	Company Representative: WJ Westman.

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850m		Date	22-Jan-03
Report Number	10		Contractor / Rig	Sides / Bourne 2000		DFS	6.00
Last Casing String	7"	Set at	257	LOP	200psi	MAASP	190psi
Last BOP Test	19-Jan-03		Next BOP Test Due	26-Jan-30		AFD's	10
Daily Well Costs	$19,790			Cumulative Well Cost			$277,078

06:00 Operation	R/d Schlumberger
Operations Forecast	Wiper trip. Run MDT.
Safety Meetings:	Radioactive source handling. Explosives handling.
06:00 Depth (m)	850m
24hr Progress (m)	

Bit Information

Bit No.	2	
Size (in)	6 1/8	
Make	Varel	
Type	ETD14	
IADC	4.3.7	
S/N	146728	
Jets (/32")	12 x 3	
In (m)	258	
Out (m)	850m	
Metres	592m	
Hours	29	
ROP (m/hr)	20.4	
WOB (Klb)	10	
RPM	90	
JV (ft/sec)	185	
HSI	1.36	
Condition	1.1.WT.E.I. TD.	

Mud Information

Dens (ppg)	9.1
ECD (ppg)	9.6
Visc (sec)	37
PV(cp)/YP(lb)	(16) (5)
Temp (˚F)	
Gels (s/m)	(1) (3)
API Filt (cc)	7
Cake (/32")	1
pH	9
Solids (%)	4.9
Sands (%)	Tr
KCL (%)	4.10%
Cl (ppm)	20,000
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	$0.00
Cum. Cost	$4,195.00

Operations Analysis

Operation	HRS	Cum. HRS
Drilling		37
Tripping	9	17½
Reaming		1
Survey		½
Circ&Cond	1	6¼
Handle BOP's		12
Test BOP's		2
Handle Tools		
Slip&Cut		
Safety Meet		1
Fishing		
Rig Repair		
Rig Service		
Logging	15	15
Coring		
DST		
Casing		7
Cementing		1½
WOC		
Well Control		
Other		15¼
Totals	24.0	116½

Pump Information

	Pump #1	Pump #2
Make/Type	Clarke	
BorexStk	5.5 x 10	
SPM		
SPR (spm)		
SPP (psi)		

Flow Information

GPM	
SPP (psi)	
AV-DC (fpm)	
AV-DP (fpm)	

Fuel Usage

	Rig	Camp
24hr Use	500	
On Hand	3000	

Survey Information

MD (m)	TVD (m)	Incln. (˚)	Azimuth		MD (ft)	TVD (ft)	Incln. (˚)	Azimuth

BHA Information

BHA

BHA Length (m)		Buoyed BHA Wt (klb)		String Wt (klb)	
Hook Load (klb)		Wt below Jars (klb)		Cum. Jar Hours	
Drag Up (klb)		Drag Down (klb)		Motor Hours	

24hr Operations Summary (07:00 - 07:00)

From	To	Hrs	Description
7:00	10:30	3.50	RIH wiper trip.
10:30	11:30	1.00	Circulate clean.
11:30	17:00	5.50	POOH.
17:00	17:30	0.50	Safety meeting. R/u Schlumberger.
17:30	19:30	2.00	RIH w/ Pex/Hals.
19:30	21:00	1.50	R/u for velocity shoot.
21:00	6:00	9.00	Run velocity shoot.
6:00	7:00	1.00	R/d Schlumberger.
	Total	24.00	Company Representative WJ Westman.

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850m		Date	23-Jan-03
Report Number	11		Contractor / Rig	Sides / Bourne 2000		DFS	7.00
Last Casing String	7"	Set at	257m	LOP	200psi	MAASP	165psi
Last BOP Test	19-Jan-03		Next BOP Test Due	26-Jan-30		AFD's	11
Daily Well Costs	$89,495			Cumulative Well Cost		$366,573	

06:00 Operation	Schlumberger POOH w/ MDT.
Operations Forecast	Run CST. Evaluate logs.
Safety Meetings:	TD corrected. Previous BHA measurement incorrect.
06:00 Depth (m)	859m

24hr Progress (m)

Bit Information

Bit No.	2	
Size (in)	6 1/8	
Make		
Type		
IADC		
S/N		
Jets (/32")		
In (m)		
Out (m)		
Metres		
Hours		
ROP (m/hr)		
WOB (Klb)		
RPM		
JV (ft/sec)		
HSI		
Condition		

Mud Information

Dens (ppg)	9.4
ECD (ppg)	
Visc (sec)	39
PV(cp)/YP(lb)	(16) (5)
Temp (˚F)	
Gels (s/m)	(1) (3)
API Filt (cc)	7
Cake (/32")	1
pH	9
Solids (%)	4.9
Sands (%)	Tr
KCL (%)	4.10%
Cl (ppm)	20,000
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	
Cum. Cost	

Operations Analysis

Operation	HRS	Cum. HRS
Drilling		37
Tripping	13½	31
Reaming		1
Survey		½
Circ&Cond	4	10¼
Handle BOP's		12
Test BOP's		2
Handle Tools		
Slip&Cut		
Safety Meet		1
Fishing		
Rig Repair		
Rig Service		
Logging	6½	21½
Coring		
DST		
Casing		7
Cementing		1½
WOC		
Well Control		
Other		15¼
Totals	24.0	140½

Pump Information

	Pump #1	Pump #2
Make/Type	Clarke	
BorexStk	5.5 x 10	
SPM		
SPR (spm)		
SPP (psi)		

Flow Information

GPM	
SPP (psi)	
AV-DC (fpm)	
AV-DP (fpm)	

Fuel Usage	Rig	Camp
24hr Use	500	
On Hand	2500	

Survey Information

MD (m)	TVD (m)	Incln. (˚)	Azimuth		MD (ft)	TVD (ft)	Incln. (˚)	Azimuth

BHA Information

BHA

BHA Length (m)		Buoyed BHA Wt (klb)		String Wt (klb)	
Hook Load (klb)		Wt below Jars (klb)		Cum. Jar Hours	
Drag Up (klb)		Drag Down (klb)		Motor Hours	

24hr Operations Summary (07:00 - 07:00)

From	To	Hrs	Description
7:00	10:30	3.50	RIH wiper trip.
10:30	11:30	1.00	Circulate clean.
11:30	15:00	3.50	POOH to shoe.
15:00	17:30	2.50	Circulate. Fluid out of balance.
17:30	20:00	2.50	RIH to bottom.
20:00	20:30	0.50	Circulate bottoms up.
20:30	0:30	4.00	POOH.
0:30	7:00	6.50	Schlumberger run MDT tool. 10 pre-tests 2 samples. POOH.
	Total	24.00	Company Representative WJ Westman.

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850m		Date	24-Jan-03
Report Number	12		Contractor / Rig	Sides / Bourne 2000		DFS	8.00
Last Casing String	7"	Set at	257m	LOP	200psi	MAASP	
Last BOP Test	19-Jan-03		Next BOP Test Due	26-Jan-30		AFD's	12
Daily Well Costs	$25,950			Cumulative Well Cost		$392,523	

06:00 Operation	N/d BOP and wellhead.
Operations Forecast	Mix and spot surface plug. Release rig.
Safety Meetings:	Rig moving safely.
06:00 Depth (m)	24hr Progress (m)

Bit Information

Bit No.		
Size (in)		
Make		
Type		
IADC		
S/N		
Jets (/32")		
In (m)		
Out (m)		
Metres		
Hours		
ROP (m/hr)		
WOB (Klb)		
RPM		
JV (ft/sec)		
HSI		
Condition		

Mud Information

Dens (ppg)	9.4
ECD (ppg)	
Visc (sec)	39
PV(cp)/YP(lb)	
Temp (°F)	
Gels (s/m)	
API Filt (cc)	
Cake (/32")	
pH	
Solids (%)	
Sands (%)	
KCL (%)	
Cl (ppm)	
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	$250.00
Cum. Cost	
Mud Eng Released	

Operations Analysis

Operation	HRS	Cum. HRS
Drilling		37
Tripping	9	40
Reaming		1
Survey		½
Circ&Cond	1½	11¾
Handle BOP's		12
Test BOP's		2
Handle Tools		
Slip&Cut		
Safety Meet		1
Fishing		
Rig Repair		
Rig Service		
Logging	4½	26
Coring		
DST		
Casing		7
Cementing	3	4½
WOC	6	
Well Control		
Other		15¼
Totals	24.0	164½

Pump Information

	Pump #1	Pump #2
Make/Type	Clarke	
BorexStk	5.5 x 10	
SPM		
SPR (spm)		
SPP (psi)		

Flow Information

GPM	
SPP (psi)	
AV-DC (fpm)	
AV-DP (fpm)	

Fuel Usage	Rig	Camp
24hr Use	500	
On Hand	4000	

Survey Information

MD (m)	TVD (m)	Incln. (°)	Azimuth		MD (ft)	TVD (ft)	Incln. (°)	Azimuth

BHA Information

BHA

BHA Length (m)		Buoyed BHA Wt (klb)		String Wt (klb)	
Hook Load (klb)		Wt below Jars (klb)		Cum. Jar Hours	
Drag Up (klb)		Drag Down (klb)		Motor Hours	

24hr Operations Summary (07:00 - 07:00)

From	To	Hrs	Description
7:00	7:30	0.50	Schlumberger L/d MDT.
7:30	8:30	1.00	Hold safety meeting. P/u CST.
8:30	11:30	3.00	S'berger RIH. Shoot cores w/ 25 shot CST. POOH. R/d Schlumberger.
11:30	17:00	5.50	RIH open-end to set abandonment plugs.
17:00	18:30	1.50	Circulate. POOH and set plug #1.
18:30	19:00	0.50	POOH. Set plug #2.
19:00	19:30	0.50	POOH. Set plug #3.
19:30	20:00	0.50	POOH. Set plug #4.
20:00	21:00	1.00	POOH 15 jts. Circulate clean.
21:00	2:00	5.00	Wait on cement. Check samples.
2:00	3:00	1.00	RIH. Tag shoe plug. Plug still soft.
3:00	3:15	0.25	POOH 4 jts. Wash out cement from end of drill pipe.
3:15	5:00	1.75	POOH. SLM pipe.
5:00	6:30	1.50	Wait on cement.
6:30	7:00	0.50	RIH to tag plug.
	Total	24.00	Company Representative: WJ Westman.

DAILY DRILLING REPORT

Well	Koroit West #1		Proposed TD	850m		Date	25-Jan-03
Report Number	13		Contractor / Rig	Sides / Bourne 2000		DFS	9.00
Last Casing String	7"	Set at	257m	LOP		MAASP	
Last BOP Test			Next BOP Test Due			AFD's	13
Daily Well Costs	$60,200			Cumulative Well Cost		$452,723	

06:00 Operation	Rig released.
Operations Forecast	Demob remaining equipment.
Safety Meetings:	
06:00 Depth (m)	24hr Progress (m)

Bit Information

Bit No.		
Size (in)		
Make		
Type		
IADC		
S/N		
Jets (/32")		
In (m)		
Out (m)		
Metres		
Hours		
ROP (m/hr)		
WOB (Klb)		
RPM		
JV (ft/sec)		
HSI		
Condition		

Mud Information

Dens (ppg)	
ECD (ppg)	
Visc (sec)	
PV(cp)/YP(lb)	
Temp (˚F)	
Gels (s/m)	
API Filt (cc)	
Cake (/32")	
pH	
Solids (%)	
Sands (%)	
KCL (%)	
Cl (ppm)	
SO_3- (ppm)	
PHPA (ppb)	
Daily Cost	
Cum. Cost	

Operations Analysis

Operation	HRS	Cum. HRS
Drilling		37
Tripping	2½	42½
Reaming		1
Survey		½
Circ&Cond	1	12¾
Handle BOP's	3	15
Test BOP's		2
Handle Tools		
Slip&Cut		
Safety Meet		1
Fishing		
Rig Repair		
Rig Service		
Logging		26
Coring		
DST		
Casing		7
Cementing	½	5
WOC		
Well Control		
Other	4½	15¼
Totals	11.5	164½

Pump Information

	Pump #1	Pump #2
Make/Type		
BorexStk		
SPM		
SPR (spm)		
SPP (psi)		

Flow Information

GPM	
SPP (psi)	
AV-DC (fpm)	
AV-DP (fpm)	

Fuel Usage	Rig	Camp
24hr Use		
On Hand		

Survey Information

MD (m)	TVD (m)	Incln. (˚)	Azimuth		MD (ft)	TVD (ft)	Incln. (˚)	Azimuth

BHA Information

BHA

BHA Length (m)		Buoyed BHA Wt (klb)		String Wt (klb)	
Hook Load (klb)		Wt below Jars (klb)		Cum. Jar Hours	
Drag Up (klb)		Drag Down (klb)		Motor Hours	

24hr Operations Summary (07:00 - 07:00)

From	To	Hrs	Description
7:00	7:30	0.50	Tag plug at 280m.
7:30	8:30	1.00	Circulate.
8:30	9:00	0.50	Set cement plug on top of existing plug. 280m to 210m.
9:00	11:00	2.00	POOH.
11:00	14:00	3.00	Break down flare line and choke manifold. Release mudloggers.
14:00	17:00	3.00	N/d flowline. N/d BOP.
17:00	17:30	0.50	RIH w/ survey line. Tag cement at 217m.
17:30	18:30	1.00	Remove bradenhead. Set surface cement plug.
			Rig released at 18:30 hrs 25th Jan 2003.
	Total	11.50	Company Representative WJ Westman.

Appendix 3: Casing Tables

KOROIT WEST #1 7" SURFACE CASING CEMENT JOB

EPR. **Cementing Company : Sides Engineering** **Date of Job: 17th Jan 2003**

Single Stage

LEAD CEMENT	**NA**	ppg
previous shoe		m
bottom of lead		m
gauge hole (ft3)		ft3
plus 100% excess		ft3
Caliper hole volume (logs)	**n/a**	ft3
csg-csg ann. cap. (cuft/ft)		ft3/ft
length (ft)		ft
csg-csg volume (cuft)		ft3
shoe track		ft3
slurry volume (cuft)		ft3
No. of sacks		sx
mix water theory		bbls
mix water actual		bbls
Retarder 0.04 gals/sx		gals
bentonite (30kg/tonne)		sx
D144 Antifoam.		gals
D145A Retarder		
CaCl2	**0**	kgs
Displacement	**32.3**	bbl
Cementer	**0**	bbl
Rig pump	**32.3**	bbl
liner size (in)	**5.50**	in
97% efficiency	**0.123**	bbl/stk
number of strokes	**262**	
rate	**5**	BPM
SPM	**40**	
annular velocity	**221**	fpm
approx. time	**7**	min

TAIL CEMENT	**15.8**	ppg
top of tail	**0**	m
bottom of tail	**250**	m
gauge hole (ft3)	**104.0**	ft3
plus 50% excess	**156.0**	ft3
Caliper hole volume (logs)		ft3
csg-csg ann. cap. (cuft/ft)		ft3/ft
length (ft)		ft
csg-csg volume (cuft)		ft3
shoe track		ft3
slurry volume (cuft)		ft3
No. of sacks	**136**	sx
mix water theory	**16.8**	bbls
mix water actual		bbls
D145A Dispersant		gal
D144 Antifoam		gal

Diesel Spacer	**7.09**	ppg
Amount	**n/a**	bbl
diesel	**n/a**	bbl
MCS B	**n/a**	
Chemical Wash	**8.3**	ppg
Amount	**n/a**	bbl
water (39.9 galls/bbl)	**n/a**	bbl
MCS B (2.1 galls/bbl)	**n/a**	gal
FP9L	**0**	gal
Pressures		
max differential	**350**	psi
Job Time Estimate		
mixing slurry	40	min
displacement	23	min
total time	70	min
thickening time	4	hour

JOB SUMMARY

Time	mins	Description & Comments
18:15 - 18:30	½	Pump 10 bbls water ahead.
18:30 - 18:35	5	Test lines 500psi Ok.
18:35 - 19:00	25	Mix and pump cement.
19:00 - 19:15	15	Drop top plug. Displace.
19:15 - 19:30	5	Bump plug w/ 500 psi 5 mins OK.
		Bleed back. Float OK.

KOROIT WEST #1 7" SURFACE CASING RUNNING TALLY							
Joint No.	**Joint Length (meters)**	**Cumulative Length (meters)**	**Depth Landed 254.00m**	**Capacity (bbls) 0.03937bbl/ft**	**Displacement (bbls) 0.02381bbl/ft**	**String Weight klb 23.00lb/ft**	**Remarks Drill to 258m.**
Shoe Jt	12.27	**12.27**	254.00	1.58 bbl	0.96 bbl	798	**shoe length 0.40 m**
2	11.98	**24.25**	241.73	3.13 bbl	1.89 bbl	1,577	**Centralizer**
3	11.99	**36.24**	229.75	4.68 bbl	2.83 bbl	2,357	
4	11.99	**48.23**	217.76	6.23 bbl	3.77 bbl	3,137	Centralizer
5	11.98	**60.21**	205.77	7.78 bbl	4.70 bbl	3,916	
6	11.99	**72.20**	193.79	9.33 bbl	5.64 bbl	4,696	
7	11.98	**84.18**	181.80	10.87 bbl	6.58 bbl	5,476	
8	11.98	**96.16**	169.82	12.42 bbl	7.51 bbl	6,255	Centralizer
9	11.98	**108.14**	157.84	13.97 bbl	8.45 bbl	7,034	
10	11.98	**120.12**	145.86	15.52 bbl	9.38 bbl	7,813	
11	11.99	**132.11**	133.88	17.06 bbl	10.32 bbl	8,593	
12	11.98	**144.09**	121.89	18.61 bbl	11.26 bbl	9,372	
13	11.98	**156.07**	109.91	20.16 bbl	12.19 bbl	10,152	
14	11.99	**168.06**	97.93	21.71 bbl	13.13 bbl	10,932	
15	11.99	**180.05**	85.94	23.26 bbl	14.06 bbl	11,712	
16	11.98	**192.03**	73.95	24.80 bbl	15.00 bbl	12,491	
17	11.97	**204.00**	61.97	26.35 bbl	15.94 bbl	13,269	
18	11.98	**215.98**	50.00	27.90 bbl	16.87 bbl	14,049	
19	11.98	**227.96**	38.02	29.44 bbl	17.81 bbl	14,828	
20	11.98	**239.94**	26.04	30.99 bbl	18.74 bbl	15,607	
21	11.99	**251.93**	14.06	32.54 bbl	19.68 bbl	16,387	
Pup Jt	1.65	**253.58**	2.07	32.75 bbl	19.81 bbl	16,494	
Lnd Jt	3.30	**256.88**	0.42	33.18 bbl	20.07 bbl	16,709	
Stick up above RT		-					

CASING RUN SUMMARY

Conduct pre-casing meeting.
Rig up to run casing.

Tag bottom. Pick up of bottom to cement.
Prepare for cementing.
Conduct pre-cementing meeting.
Commence cement job.

BIT RECORD

Bit No.	Size (ins)	Make	Type	IADC Code	Serial No.	Jets 32nds	Depth Out (m)	Drilled (m)	Hrs	ROP (m/hr)	WOB Klbs	RPM	Press (psi)	Pump (gpm)	MW Ppg	Dev (deg)	Grade						
																	I	O	D	L	B	G	R
1	8½	DBS	FS2565	PDC	5996742RW	14 x 5	258	249	8	31	5	90	500	340	8.6	.125	0	0	0	A	X	I	TD
2	6-1/8	Varel	ETD14	4.3.7	146728	12 x 3	850	592	29	20.4	10	90	800	230	9.1	.25	1	1	Wt	A	E	I	TD

f:bit-rec.doc

BALANCED PLUG CALCULATIONS ABANDONMENT
Koroit West #1

CEMENT NEEDED

Desired Top of Plug	690	*M*
Desired Bottom of Plug	790	*M*
Average Hole Size	6	In
Volume Required	11.5	Bbls

CEMENT DESIGN

Type Cement			Class G	
Quantity Cement			56	Sks
Slurry Weight			15.80	ppg
Yield			1.15	cuft/sk
Mix Water		**Freshwater**	5.01	gps
Additive		**R21-LS**	0.0	gals
Additive		CD-31-LS	0.0	gals
Additive		FPL-9L	0.0	gals
Total mix fluid			6.7	Bbls
Mixwater required			7	Bbls
Tbg. Disp.			0.0212	Bbls/m
OH Cap.			0.1147	Bbls/m
Total cap.			2.1206	Bbls

STRING CAPACITY

	Pipe O.D.	*ID*	*Bbls/m*	*Section Length m.*	*Bbls Volume*
Tubing	3.5	2.6020	0.02158	100	2.16
Drillpipe	3.5	2.6020	0.02158	590	12.7
				690	14.9

BALANCED PLUG HEIGHT

Note: Program assumes plug height is no longer than stinger length.

Plug Lngth	100	Mts
Cement in Stinger	2.2	Bbls

PUMPING AND DISPLACEMENT

Spacer Ahead	10	**Freshwater (bbls)**
Cement	11.5	
Spacer Behind	2.9	**Freshwater**
Mud	12.0	

BALANCED PLUG CALCULATIONS ABANDONMENT

Koroit West #1

Plug #2

CEMENT NEEDED

Desired Top of Plug	535	*M*
Desired Bottom of Plug	565	*M*
Average Hole Size	6.125	In
Volume Required	3.6	Bbls

CEMENT DESIGN

Type Cement			Class A	
Quantity Cement			18	Sks
Slurry Weight			15.80	ppg
Yield			1.15	cuft/sk
Mix Water		**Freshwater**	5.01	gps
Additive		**R21-LS**	0.0	gals
Additive		CD-31-LS	0.0	gals
Additive		FPL-9L	0.0	gals
Total mix fluid			2.1	Bbls
Mixwater required			2	Bbls
Tbg. Disp.			0.0084	Bbls/m
OH Cap.			0.1196	Bbls/m
Total cap.			0.2519	Bbls

STRING CAPACITY

	Pipe O.D.	*ID*	*Bbls/m*	*Section Length m.*	*Bbls Volume*
Tubing	2.875	2.4690	0.01943	100	1.94
Drillpipe	2.875	2.4690	0.01943	465	9.0
				565	11.0

BALANCED PLUG HEIGHT

Note: Program assumes plug height is no longer than stinger length.

Plug Lngth	30	Mts
Cement in Stinger	0.6	Bbls

PUMPING AND DISPLACEMENT

Spacer Ahead	10	**Freshwater (bbls)**
Cement	3.6	
Spacer Behind	2.0840	**Freshwater**
Mud	8.9	

BALANCED PLUG CALCULATIONS ABANDONMENT

Koroit West #1

Plug #3

CEMENT NEEDED

Desired Top of Plug	470	*M*
Desired Bottom of Plug	520	*M*
Average Hole Size	6.125	In
Volume Required	6.0	Bbls

CEMENT DESIGN

Type Cement			Class A	
Quantity Cement			29	Sks
Slurry Weight			15.80	ppg
Yield			1.15	cuft/sk
Mix Water		**Freshwater**	5.01	gps
Additive		**R21-LS**	0.0	gals
Additive		CD-31-LS	0.0	gals
Additive		FPL-9L	0.0	gals
Total mix fluid			3.5	Bbls
Mixwater required			3	Bbls
Tbg. Disp.			0.0084	Bbls/m
OH Cap.			0.1196	Bbls/m
Total cap.			0.4198	Bbls

STRING CAPACITY

	Pipe O.D.	*ID*	*Bbls/m*	*Section Length m.*	*Bbls Volume*
Tubing	2.875	2.4690	0.01943	100	1.94
Drillpipe	2.875	2.4690	0.01943	420	8.2
				520	10.1

BALANCED PLUG HEIGHT

Note: Program assumes plug height is no longer than stinger length.

Plug Lngth	50	Mts
Cement in Stinger	1.0	Bbls

PUMPING AND DISPLACEMENT

Spacer Ahead	10	**Freshwater (bbls)**
Cement	6.0	
Spacer Behind	2.0840	**Freshwater**
Mud	8.0	

BALANCED PLUG CALCULATIONS ABANDONMENT

Koroit West #1 Plug #4

CEMENT NEEDED

Desired Top of Plug	227	*M*
Desired Bottom of Plug	287	*M*
Average Hole Size	6.125	In
Volume Required	7.2	Bbls

CEMENT DESIGN

Type Cement			Class A	
Quantity Cement			35	Sks
Slurry Weight			15.80	ppg
Yield			1.15	cuft/sk
Mix Water		**Freshwater**	5.01	gps
Additive		**R21-LS**	0.0	gals
Additive		CD-31-LS	0.0	gals
Additive		FPL-9L	0.0	gals
Total mix fluid			4.2	Bbls
Mixwater required			4	Bbls
Tbg. Disp.			0.0084	Bbls/m
OH Cap.			0.1196	Bbls/m
Total cap.			0.5038	Bbls

STRING CAPACITY

	Pipe O.D.	*ID*	*Bbls/m*	*Section Length m.*	*Bbls Volume*
Tubing	2.875	2.4690	0.01943	100	1.94
Drillpipe	2.875	2.4690	0.01943	187	3.6
				287	5.6

BALANCED PLUG HEIGHT

Note: Program assumes plug height is no longer than stinger length.

Plug Lngth	60	Mts
Cement in Stinger	1.2	Bbls

PUMPING AND DISPLACEMENT

Spacer Ahead	10	**Freshwater (bbls)**
Cement	7.2	
Spacer Behind	2.0840	**Freshwater**
Mud	3.5	

BALANCED PLUG CALCULATIONS ABANDONMENT

Koroit West #1 Plug #5

CEMENT NEEDED

Desired Top of Plug	227	*M*
Desired Bottom of Plug	287	*M*
Average Hole Size	6.125	In
Volume Required	7.2	Bbls

CEMENT DESIGN

Type Cement			Class A	
Quantity Cement			35	Sks
Slurry Weight			15.80	ppg
Yield			1.15	cuft/sk
Mix Water		**Freshwater**	5.01	gps
Additive		**R21-LS**	0.0	gals
Additive		CD-31-LS	0.0	gals
Additive		FPL-9L	0.0	gals
Total mix fluid			4.2	Bbls
Mixwater required			4	Bbls
Tbg. Disp.			0.0084	Bbls/m
OH Cap.			0.1196	Bbls/m
Total cap.			0.5038	Bbls

STRING CAPACITY

	Pipe O.D.	*ID*	*Bbls/m*	*Section Length m.*	*Bbls Volume*
Tubing	2.875	2.4690	0.01943	100	1.94
Drillpipe	2.875	2.4690	0.01943	187	3.6
				287	5.6

BALANCED PLUG HEIGHT

Note: Program assumes plug height is no longer than stinger length.

Plug Lngth	60	Mts
Cement in Stinger	1.2	Bbls

PUMPING AND DISPLACEMENT

Spacer Ahead	10	**Freshwater (bbls)**
Cement	7.2	
Spacer Behind	2.0840	**Freshwater**
Mud	3.5	

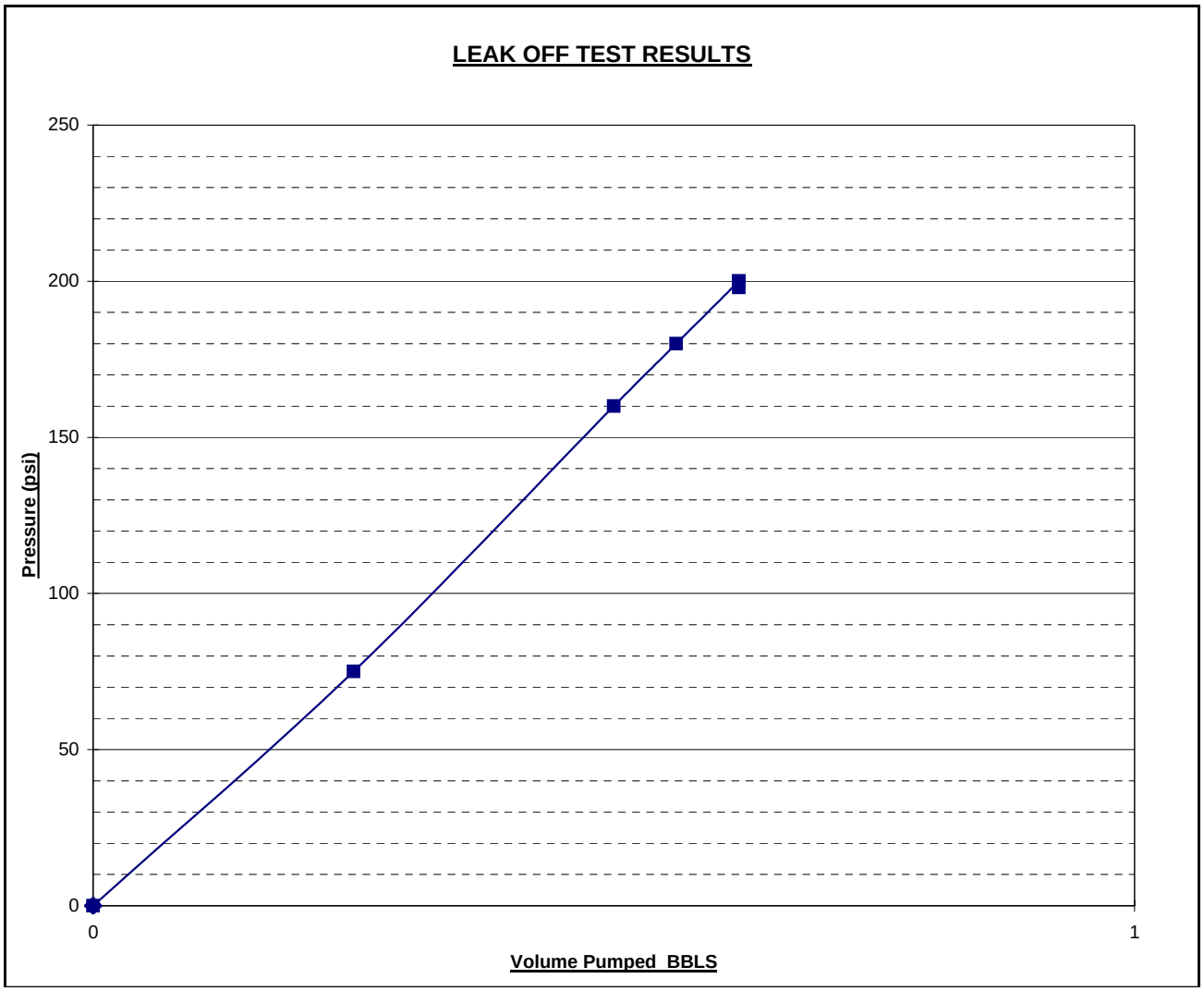
LEAK OFF TEST RESULTS

WELL: Koroit West #1 **RIG:** Sides Engineering **DATE:** 28/11/2003

CASING SIZE: 7" SUPERVISOR: WJ Westman

A. MUD DENSITY IN USE:	8.6	(ppg)	
B. HOLE DEPTH:	261	(m)	
C. SHOE DEPTH:	254	(m)	
D. LEAK-OFF PRESSURE (GRAPH):	200	(psi)	
E. EQUIVALENT DENSITY:			
LEAK-OFF PRES. (D) (psi) + MUD DENSITY IN USE (A) (ppg)	**13.2**	**(ppg)**	**(EMW)**
SHOE DEPTH (C) (ft) x 0.052			
F. MAXIMUM PRESSURE RECORDED:	200	(psi)	
G. VOLUME PUMPED:	0.62	(bbls)	
H. VOLUME REGAINED:	0.25	(bbls)	

BBLS.	0	0.25	0.5	0.56	0.62	0.62	0.62	0.62								
PRESSURE:	0	75	160	180	200	200	200	198								



Appendix 4: Drilling Mud

4 Jikara Drive
Glen Osmond SA 5064
Phone : 61 8 83387266
Fax : 61 8 83387277
ABN : 13 211 314 811

DRILLING FLUID SUMMARY

FOR : ESSENTIAL PETROLEUM RESOURCES

WELL : KOROIT WEST #1

OTWAY BASIN

VICTORIA

Prepared by : Liam Nitschke
Andre Skujins

Date : January 2003

Operator	**:**	**Essential Petroleum Resources**
Well	**:**	**Koroit West #1**
Rig	**:**	**Sides Engineering R99**
Spud	**:**	**16th January 2003**

CONTENTS

Operator : **Essential Petroleum Resources**
Well : **Koroit West #1**
Rig : **Sides Engineering R99**
Spud : **16th January 2003**

1. SUMMARY OF OPERATIONS

Koroit West #1 was spudded in on the 16th of January 2003 utilising Sides Engineering Rig R99 and reached a total depth of 858 m on the 22nd of January 2003.

Make up water:

pH	:	7.5
Pf/Mf	:	0/0.1
Chlorides	:	4000 mg/L
Hardness	:	120 mg/L as Ca^{++}

HOLE SIZE : 8½"
MUD TYPE : Gel Spud Mud
INTERVAL : 0 – 258 m
CASING : 7" set @ 254 m

Ausgel was mixed at 8.8 ppb with 1 sack of Kwikseal Medium. The gel was allowed to hydrate for 2 hours and was then transferred into the suction pit. The viscosity was kept low due to mud making formations in the top hole section. This mix was continued as the well was spudded.

Although the viscosity and rheology of the mud was low, properties improved once the marls were encountered at 135 m. Minor mud losses (2-5 bbls/hr) to unconsolidated fine sands occurred until this depth.

Drilling continued until casing point of 258 m. A wiper trip was conducted at this point. No fill was encountered on bottom and the hole was circulated clean. The pipe was pulled out of the hole and laid out sideways. The rig was moved forward and a crane was used to run 7" surface casing. The casing was run in the hole with no problems to a casing depth of 254 m. The casing was then cemented in and displaced with mud. Displacement volume was approximately 60 bbls.

HOLE SIZE : 6⅛"
MUD TYPE : KCl / Gel / Polymer
INTERVAL : 258 m to 858 m (TD)

The gel mud was kept. KCl Polymer premixes were mixed at 17 ppb KCl and 2 ppb AMC Pac R respectively. These were added as the BOPs were nippled up. The shakers were dressed with 1 x B20 and 1 x B80 screens each.

Once the BOPs were nippled up and pressure tested, a 6⅛" bit and BHA were made up and run in hole. The cement and casing shoe were drilled out with the KCl / Gel / Polymer mud and returns were directed into the settling pit. Extra water and Soda Ash were added to lower the pH and hardness from the cement. At 261 m a LOT was conducted which resulted in an EMW of 13.2 ppg.

Operator	**:**	**Essential Petroleum Resources**
Well	**:**	**Koroit West #1**
Rig	**:**	**Sides Engineering R99**
Spud	**:**	**16th January 2003**

Drilling continued to 430 metres where a gas was liberated which lower the pH of the mud. Caustic Soda was added to raise the pH back to 9.0. Biocide was added to counter bacterial degradation. Drilling continued to TD without any noticeable problems.

At TD a wiper trip was conducted to the casing shoe with tight hole encountered on the way out. Running in the hole no tight hole was encountered. The hole was circulated clean and the pipe was pulled out of the hole for logging. The first two logging runs were completed.

At this stage the pipe was run in the hole and the hole was circulated again. Another premix of 17 ppb KCl, 2 ppb of AMC Pac R and 2 ppb of Soda Ash was mixed and transferred to build properties. Biocide was also added. The pipe was pulled out of the hole and some flow was noted coming out of the pipe. The pipe was run back in hole. Before pulling out of the hole again the pipe was slugged with drilled solids stirred up from the bottom of the suction pit. The pipe was then pulled out of the hole with no further flow noted.

The final logging runs were completed and the decision was made to plug and abandon the hole. The mud engineer was released at this stage.

2. OBSERVATIONS, RECOMMENDATIONS AND WELL ANALYSIS

Koroit West # 1 was drilled to a total depth of 858 m for a total mud cost of $4,760.50 or $5.55 per metre. The well was drilled and evaluated quickly and efficiently with no significant mud related problems. Minor tight hole was noted on wiper trips but not cause further problems.

8½" Surface Hole

This section of hole was drilled for a mud cost of $560.50 or $2.17 per metre. A basic gel spud mud was used to commence drilling. Once marls were encountered at around 135 m, water dilution became necessary to control the viscosity.

The mixing and hydrating of the gel highlighted some of the deficiencies of the mixing equipment. There was a large dead zone across the bottom of the mixing tank, meaning that there was a fair amount of gel left on the bottom of the tank after the fluid was transferred. This had to be stirred up with a shovel when the next mix was made up. Adding soda ash first before mixing the gel also helped the hydrating of the gel.

The mud losses noted until the marls were reached were slightly healed by the addition of Kwikseal medium. However as the formation that was taking mud was a fine to very fine unconsolidated sand, a finer product should probably be used on future wells. The fact that the losses weren't noted after the marls were reached, bears out the fact that drilled solids helped to heal the loss zone.

Although the top-hole section was drilled in just one shift, there were some indications that the marls were swelling. Sharp edged fragments of marls were noted when circulating the hole clean. The addition of KCl would provide some inhibition to prevent the swelling of the marls. However, this should not occur unless the marl shows distinct signs of causing further problems. Another approach may be to use SAPP to disperse the marls.

Ideally in future, to improve the mixing of gel for the top-hole section some modification of the mixing tank could be undertaken. These modifications include the installation of gunlines along the bottom of the tank as well as an agitator (if possible). This would help prevent the clumping of large lumps of unmixed gel along the bottom of the tank. However, unless the rig were to drill a few "oilfield" wells, modifications of rig mixing equipment will probably not become a high priority with the contractor.

6⅛" Production Hole

This section of hole was drilled with a KCl Polymer fluid for a mud cost of $4,200.00 or $7.00 per metre. The fluid was based on the previous section's gel based mud. There were no major problems with this section. The KCl and AMC Pac R fluid was very easy to mix with the rig equipment. The AMC Pac R was very effective at lowering the water loss and providing rheology.

Drilling out the casing shoe and cement with the new fluid could have caused problems with cement contamination. However without the ability to isolate and dump returns, the only way to counter was to dilute with water to lower the pH and adding soda ash to lower the hardness. Although the pH increased to 11.5, no problems were noted with either mud properties or hole conditions.

The set up of the dug pits meant that solids control was difficult and the build up of solids was difficult to control. The drilled solids were having an effect on the mud rheology and the mud weight. However the increase in mud weight was within acceptable limits and rheological properties remained within reasonable bounds.

The presence of CO_2 lowered the pH. However this had little effect on mud properties overall (apart from a drop in pH) and was easily countered by the addition of caustic soda.

A similar type of mud system is recommended for future wells of this type.

3. INTERVAL COSTS

Product			8-1/2" Surface Hole			6-1/8" Production Hole			Total Well Consumption		
	Interval :		0 - 258 m			258 m - 858 m (TD)			0 - 858 m (TD)		
	Cost	Unit Size	Used	Cost	%Cost	Used	Cost	%Cost	Used	Cost	%Cost
AMC Pac-R	$ 175.00	25 kg				11	$1,925.00	45.8%	11	$1,925.00	40.4%
Ausgel	$ 12.00	25 kg	27	$324.00	57.8%				27	$324.00	6.8%
Biocide	$ 205.00	25 kg				2	$410.00	9.8%	2	$410.00	8.6%
Caustic Soda	$ 45.00	25 kg	1	$45.00	8.0%	2	$90.00	2.1%	3	$135.00	2.8%
KCl	$ 18.00	25 kg				96	$1,728.00	41.1%	96	$1,728.00	36.3%
Kwikseal M	$ 56.00	18.2 kg	3	$168.00	30.0%				3	$168.00	3.5%
Soda Ash	$ 23.50	25 kg	1	$23.50	4.2%	2	$47.00	1.1%	3	$70.50	1.5%
Totals :				**$560.50**	**100.0%**		**$4,200.00**	**100.0%**		**$4,760.50**	**100.0%**
Cost per Metre :				**$2.17**			**$7.00**			**$5.55**	

4. MATERIALS RECONCILIATION

Previous Well : **Ex Melbourne Warehouse**
Well : **Koroit West # 1**
Transferred to : **Back to Melbourne Warehouse**

PRODUCT	UNIT	TOTAL RECEIVED	TOTAL USED	TRANSFER BALANCE
Aus Pac-L	25 kg	10		10
Aus Pac-R	25 kg	40	11	29
Ausgel	25 kg	126	27	99
Barite	25 kg	400		400
Biocide	25 lt	4	2	2
Caustic Soda	20 kg	16	3	13
Defoamer	25 lt	6		6
KCl Tech	25 kg	504	96	408
Kwikseal Medium	40 lbs	60	3	57
Lime	20 kg	4		4
Liquipol	25 kg	8		8
Rodfree	25 kg	8		8
Sapp	25 kg	20		20
Soda Ash	25 kg	4	3	1
Sodium Sulphite	25 kg	20		20
Xantemp SD	25 kg	4		4

RMN Drilling Fluids

5. FLUID PROPERTIES SUMMARY

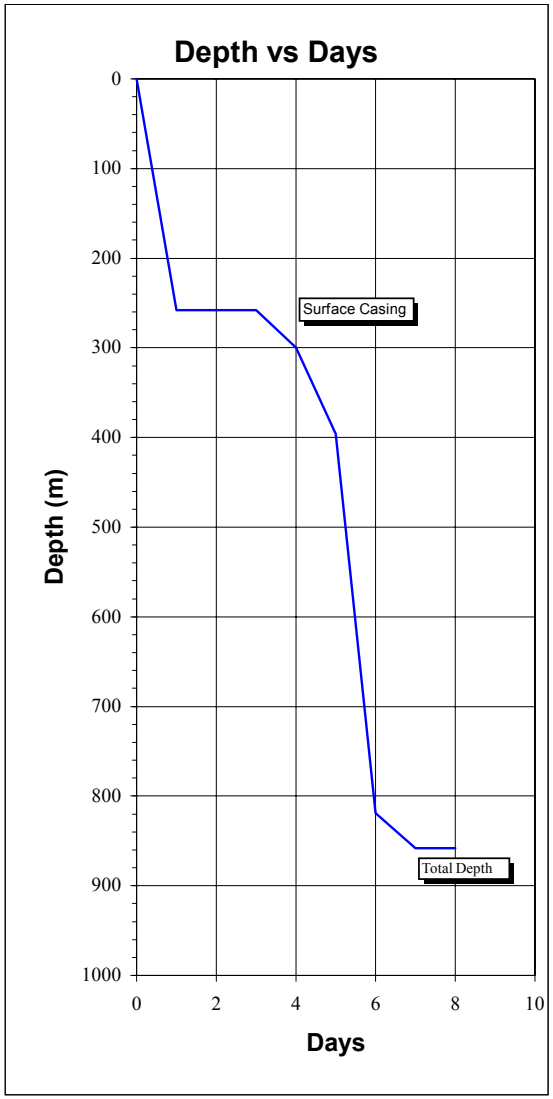
							Gels		Filtrate		Solids							
Date	Mud Type	Depth	Weight	Vis	PV	YP	10 sec	10 min	API	Cake	Solids	Water	pH	Pf	Mf	Cl-	Ca++	KCl
15-Jan-03	Spud Mud	0	8.40	34					NC		0.2	99.8	8.0		0.20	4,000	120	
16-Jan-03	Spud Mud	258	8.90	34	7	10	7	9	NC		3.8	96.2	9.0	0.10	0.55	4,000	40	
17-Jan-03	Spud Mud	258	8.95	37	6	12	7	8	NC		4.1	95.9	9.0	0.10	0.44	4,000	40	
18-Jan-03	KCl Pac R	258	8.60	70	20	39	13	14	9		0.5	99.5	9.0	0.10	0.30	22,500	40	4.7
19-Jan-03	KCl/Pac R/Gel	258	8.75	44	12	22	4	5	15		1.8	98.2	11.5	1.30	2.00	18,500	800	4.8
20-Jan-03	KCl/Pac R/Gel	396	8.75	40	12	12	1		8.0		2.0	98.0	9.5	0.20	1.20	15,500	230	4.2
21-Jan-03	KCl/Pac R/Gel	612	9.10	40	13	10	1	2	8.8	1	4.5	95.5	8.5		0.40	15,200	280	3.5
	KCl/Pac R/Gel	794	9.20	37	16	5	1	3	7.0	1	4.9	95.1	9.0	0.10	0.50	20,000	240	4.1
22-Jan-03	KCl/Pac R/Gel	850	9.30	37	15	9	1	2	7.0	2	5.7	94.3	9.0	0.10	0.40	20,000	300	4.0
23-Jan-03	KCl/Pac R/Gel	858	9.40	39	14	10	1	2	7.0	2	6.4	93.6	9.0	0.15	0.50	19,500	250	4.0

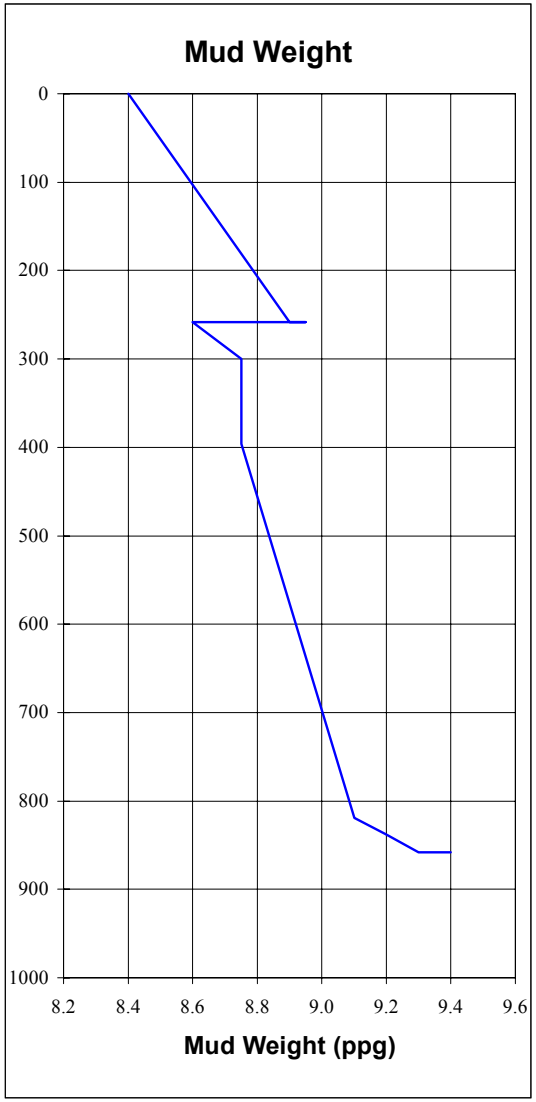
6. Mud Volume Analysis

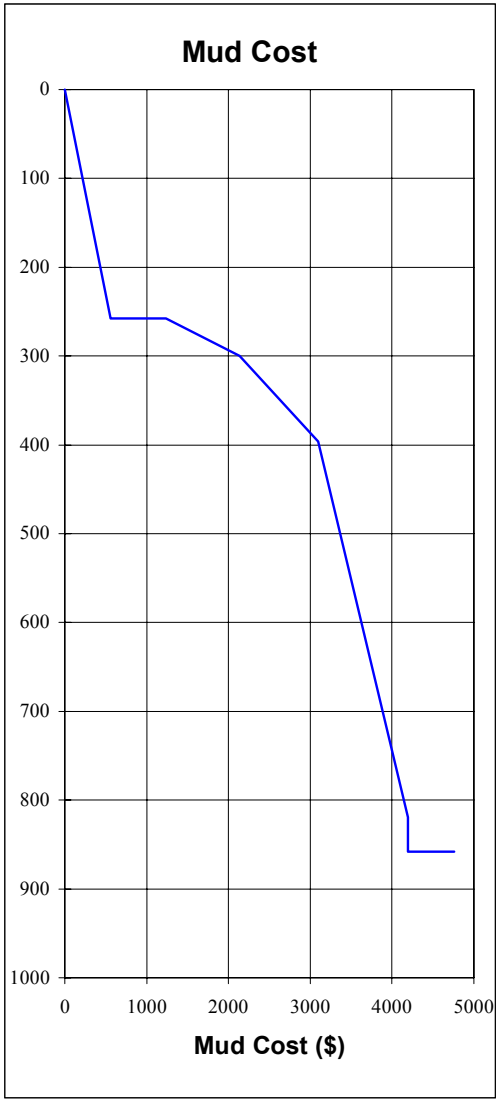
Date	Hole Size	Interval From	Interval To	Mud Type	Fluid Built & Received: Fresh Premix	Sump Premix	Direct Recirc	Water	Other	Fluid Disposed: De-sander	De-silter	Down-hole	Dumped	Other	Summary: Initial	Received	Disposed	Final
15-Jan-03	8-1/2"	0 m	258 m	Spud Mud						0	0	0			0	0	0	0
16-Jan-03	8-1/2"	258 m	258 m	Spud Mud	180			300		0	0	30			0	480	30	450
17-Jan-03	8-1/2"	258 m	258 m	Spud Mud	30							30			450	30	30	450
Sub Total					**210**	**0**	**0**	**300**	**0**	**0**	**0**	**60**	**0**	**0**		**510**	**60**	
18-Jan-03	6-1/8"	258 m	258 m	KCl Polymer	60					0	0	0	186		450	60	186	324
19-Jan-03	6-1/8"	258 m	261 m	KCl Polymer	60			100		0	0	9			324	160	9	474
20-Jan-03	6-1/8"	261 m	396 m	KCl Polymer	60					0	0	21			474	60	21	514
21-Jan-03	6-1/8"	396 m	819 m	KCl Polymer	60					0	0	12			514	60	12	561
22-Jan-03	6-1/8"	819 m	858 m	KCl Polymer						0	0	21			561	0	21	541
23-Jan-03	6-1/8"	858 m	858 m	KCl Polymer						0	0	30			541	0	30	511
Sub Total					**240**	**0**	**0**	**100**	**0**	**0**	**0**	**93**	**186**	**0**		**340**	**279**	
Well Total					**450**	**0**	**0**	**400**	**0**	**0**	**0**	**153**	**186**	**0**		**850**	**339**	

Dilution Factors	Interval Length	Dilution Vol	Dilution Factor
8½" Surface Hole	258 m	330 bbls	1.3 bbls/m
6-1/8" Production Hole	600 m	340 bbls	0.6 bbls/m

7. Graphs


Depth vs Days
Depth (m)
0
100
200
300
400
500
600
700
800
900
1000
Surface Casing
Total Depth
0
2
4
6
8
10
Days


Mud Weight
0
100
200
300
400
500
600
700
800
900
1000
8.2
8.4
8.6
8.8
9.0
9.2
9.4
9.6
Mud Weight (ppg)


Mud Cost
0
100
200
300
400
500
600
700
800
900
1000
0
1000
2000
3000
4000
5000
Mud Cost ($)

8. Bit & Hydraulics Record

Bit #	Size	Make	Type	Jets					Depth Out	Depth Drilled	Hours	Cumm Hours	WOB	RPM	GPM	Mud Wt	Jet Vel	HHPb/sq"	Impact Force
1	8 1/2"	DBS	FS 2565	14	14	14	14	14	258	258	8	8	5	90	340	9.25	145	35	236
2	6 1/8"	Varel	ETD14	12	12	12			858	600	29	37	10	90	230	9.4	222	56	249

9. Daily Drilling Fluid Reports

DRILLING FLUID REPORT

RMN Drilling Fluids

Report #	1	Date :	15-Jan-2003
Rig No	R99	Spud :	
Depth		to	Metres

OPERATOR	Essential Petroleum Resources	CONTRACTOR	Sides Engineering
REPORT FOR	Wally Westman	REPORT FOR	Peter Freeman
WELL NAME AND No	Koroit West #1	FIELD: PEP 152	LOCATION: Otway Basin / STATE: Victoria

DRILLING ASSEMBLY			JET SIZE			CASING		MUD VOLUME (BBL)		CIRCULATION DATA			
BIT SIZE	TYPE		14	14	14	SURFACE	ft	HOLE	PITS	PUMP SIZE		CIRCULATION	
8.5	Smith DAO49X		14	14		SET @	M			5.5 X 10	Inches	PRESS (PSI)	psi
DRILL PIPE SIZE	TYPE	#	Length		Mtrs	INT.	ft	TOTAL CIRCULATING VOL.		PUMP MODEL	ASSUMED EFF	BOTTOMS UP (min)	
						SET @	M			Clark	90.0		min
DRILL PIPE SIZE	TYPE	HW	Length		Mtrs	PROD. or LNR Set @	ft M	IN STORAGE		BBL/STK	STK / MIN	TOTAL CIRC. TIME (min)	
										0.1360			min
DRILL COLLAR SIZE (")			Length		Mtrs	MUD TYPE				BBL/MIN	GAL / MIN	ANN VEL. (ft/min) DP DCs	
						Spud Mud							

MUD PROPERTIES			
SAMPLE FROM		Pit	
TIME SAMPLE TAKEN		1500	
DEPTH (ft) - (m)	Metres		
FLOWLINE TEMPERATURE	^{0}C / ^{0}F		
WEIGHT	ppg / SG	8.40	1.008
FUNNEL VISCOSITY (sec/qt) API @	^{0}C	34	
PLASTIC VISCOSITY cP @	^{0}C		
YIELD POINT (lb/100ft^2)			
GEL STRENGTHS (lb/100ft^2) 10 sec/10 min			
FILTRATE API (cc's/30 min)		NC	
HPHT FILTRATE (cc's/30 min) @	^{0}F		
CAKE THICKNESS API : HPHT (32nd in)			
SOLIDS CONTENT (% by Volume)		0.2	
LIQUID CONTENT (% by Volume) OIL/WATER		99.8	
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH		8.0	
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.20	
CHLORIDE (mg/L)		4,000	
TOTAL HARDNESS AS CALCIUM (mg/L)		120	
SULPHITE (mg/L)			
K+ (mg/L)			
KCl (% by Wt.)			
PHPA (ppb)			

MUD PROPERTY SPECIFICATIONS					
Mud Weight	ALAP	API Filtrate	NC	HPHT Filtrate	
Plastic Vis		Yield Point		pH	
KCl		PHPA		Sulphites	

OBSERVATIONS

Make up Water:

pH: 7.5

Pf/Mf: 0/0.1

Chlorides: 4000

Hardness: 120

Mixed 4 sacks of Ausgel and 1 of Kwikseal Medium into the mixing tank and hydrated for two hours. Transferred mud to suction pit. Starting off with a low viscosity fluid due to mud making marl in top hole. Some zones of lost circulation noted around the area so planning to keep adding LCM as required.

OPERATIONS SUMMARY

Rig on site and rigging up.

Mud Accounting (bbls)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	30	Desander		INITIAL VOLUME	0
Premix (recirc from sump)		Desilter			
Drill Water	400	Downhole		+ FLUID RECEIVED	430
Direct Recirc Sump		Dumped		-FLUID LOST	
Other (eg Diesel)		Other		+ FLUID IN STORAGE	
TOTAL RECEIVED	430	TOTAL LOST		FINAL VOLUME	430

Solids Control Equipment

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	1x40,1x20	
Degasser	P-B		Desilter			Shaker #2	1x40,1x20	

	Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)
Desander		0	
Desilter		0	

Product	Price	Start	Received	Used	Close	Cost
Ausgel	$12.00	126		4	122	$ 48.00
Kwikseal M	$56.00	60		1	59	$ 56.00

Solids Analysis	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids		
Salt		
n @ Hrs		
K @ Hrs		

Bit Hydraulics & Pressure Data
Jet Velocity
Impact force
HHP
HSI
Bit Press Loss
CSG Seat Frac Press
Equiv. Mud Wt.
ECD
Max Pressure @ Shoe :

DAILY COST	CUMULATIVE COST
$104.00	$104.00

RMN ENGINEER	Liam Nitschke	CITY	Adelaide Office	TELEPHONE	08 8338 7266

DRILLING FLUID REPORT

RMN Drilling Fluids

Report #	2	Date :	16-Jan-2003
Rig No	R99	Spud :	16-Jan-2003
Depth	0 to 258		Metres

OPERATOR	Essential Petroleum Resources	CONTRACTOR	Sides Engineering
REPORT FOR	Wally Westman	REPORT FOR	Peter Freeman
WELL NAME AND No	Koroit West #1	FIELD: PEP 152	LOCATION: Otway Basin / STATE: Victoria

DRILLING ASSEMBLY			JET SIZE			CASING		MUD VOLUME (BBL)		CIRCULATION DATA			
BIT SIZE	TYPE		14	14	14	SURFACE	ft	HOLE	PITS	PUMP SIZE		CIRCULATION	
8.5	Smith DAO49X		14	14		SET @	M	50	400	5.5 X 10	Inches	PRESS (PSI)	psi
DRILL PIPE	TYPE	Length				INT.	ft	TOTAL CIRCULATING VOL.		PUMP MODEL	ASSUMED EFF	BOTTOMS	
SIZE 3.5	13.3 #	192	Mtrs			SET @	M	450		Clark	90.0	UP (min)	22 min
DRILL PIPE	TYPE	Length				PROD. or	ft	IN STORAGE		BBL/STK	STK / MIN	TOTAL CIRC.	
SIZE	HW		Mtrs			LNR Set @	M			0.1360	15	TIME (min)	245 min
DRILL COLLAR SIZE (")		Length				MUD TYPE				BBL/MIN	GAL / MIN	ANN VEL. DP	31
6.25		66	Mtrs			Spud Mud				1.84	77	(ft/min) DCs	57

MUD PROPERTIES			
SAMPLE FROM		Flowline	
TIME SAMPLE TAKEN		1630	
DEPTH (ft) - (m)	Metres	258	
FLOWLINE TEMPERATURE	^{0}C / ^{0}F		
WEIGHT	ppg / SG	8.90	1.068
FUNNEL VISCOSITY (sec/qt) API @	^{0}C	34	
PLASTIC VISCOSITY cP @	^{0}C	7	
YIELD POINT (lb/100ft^2)		10	
GEL STRENGTHS (lb/100ft^2) 10 sec/10 min		7	9
FILTRATE API (cc's/30 min)		NC	
HPHT FILTRATE (cc's/30 min) @	^{0}F		
CAKE THICKNESS API : HPHT (32nd in)			
SOLIDS CONTENT (% by Volume)		3.8	
LIQUID CONTENT (% by Volume) OIL/WATER			96.2
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH		9.0	
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.10	0.55
CHLORIDE (mg/L)		4,000	
TOTAL HARDNESS AS CALCIUM (mg/L)		40	
SULPHITE (mg/L)			
K+ (mg/L)			
KCl (% by Wt.)			
PHPA (ppb)			

MUD PROPERTY SPECIFICATIONS					
Mud Weight	ALAP	API Filtrate	NC	HPHT Filtrate	
Plastic Vis		Yield Point		pH	
KCl		PHPA		Sulphites	

OBSERVATIONS

Building premixes as required. Due to chlorides in m/u water Caustic Soda and Soda Ash were used to yield the Gel. Mixing tank also has large dead zone across the entire surface area on the bottom. This required agitation with shovel whilst gunline operating. Improvements in rheology were seen as soon as the Marl was reached. Due to the volume of the pits vs the mixing tank, very little was achieved due to the amount of time required to mix and hydrate the gel. Mud properties improved once mud making formation reached. Using a product like Bio-Vis would provide the viscosity required without the time to mix and hydrate. If gel is used again then an agitator in the bottom of the mixing tank plus gunlines along the bottom of the tank would speed up the process. Minor losses from spud to 135 m (2-5 bbl/hr).

OPERATIONS SUMMARY

Koroit West #1 spudded in at 0830 hrs on the 16/01/03. Drilling ahead with 8 1/2" hole to casing point (258m). Circulate bottoms up and POOH to drill collars.

Mud Accounting (bbls)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	180	Desander		INITIAL VOLUME	
Premix (recirc from sump)		Desilter			
Drill Water	300	Downhole	30	+ FLUID RECEIVED	480
Direct Recirc Sump		Dumped		-FLUID LOST	30
Other (eg Diesel)		Other		+ FLUID IN STORAGE	
TOTAL RECEIVED	480	TOTAL LOST	30	FINAL VOLUME	450

Solids Control Equipment

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	1x40,1x20	8
Degasser	N/A		Desilter			Shaker #2	1x40,1x20	

	Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)
Desander		0	
Desilter		0	

Product	Price	Start	Received	Used	Close	Cost
Ausgel	$ 12.00	122		23	99	$ 276.00
Biocide	$ 205.00	4			4	
Caustic Soda	$ 45.00	16		1	15	$ 45.00
KCl	$ 18.00	504			504	
Kwikseal M	$ 56.00	59		2	57	$ 112.00
Soda Ash	$ 23.50	4		1	3	$ 23.50

Solids Analysis	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids		
Salt		
n @ Hrs		
K @ Hrs		

Bit Hydraulics & Pressure Data	
Jet Velocity	33
Impact force	
HHP	
HSI	
Bit Press Loss	
CSG Seat Frac Press	
Equiv. Mud Wt.	
ECD	8.99 ppg
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$456.50	$560.50

RMN ENGINEER Liam Nitschke CITY Adelaide Office TELEPHONE 08 8338 7266

DRILLING FLUID REPORT

RMN Drilling Fluids

Report #	3	Date :	17-Jan-2003
Rig No	R99	Spud :	16-Jan-2003
Depth	258 to 258		Metres

OPERATOR	Essential Petroleum Resources	CONTRACTOR	Sides Engineering
REPORT FOR	Wally Westman	REPORT FOR	Peter Freeman
WELL NAME AND No	Koroit West #1	FIELD: PEP 152	LOCATION: Otway Basin / STATE: Victoria

DRILLING ASSEMBLY			JET SIZE			CASING		MUD VOLUME (BBL)		CIRCULATION DATA			
BIT SIZE	TYPE		14	14	14	SURFACE	ft	HOLE	PITS	PUMP SIZE		CIRCULATION PRESS (PSI)	psi
8.5	Smith DAO49X		14	14		SET @	M	50	400	5.5 X 10 Inches			
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 192 Mtrs				INT.	ft	TOTAL CIRCULATING VOL.		PUMP MODEL	ASSUMED EFF	BOTTOMS UP (min)	22 min
						SET @	M	450		Clark	90.0		
DRILL PIPE SIZE	TYPE HW	Length Mtrs				PROD. or LNR Set @	ft M	IN STORAGE		BBL/STK 0.1360	STK / MIN 15	TOTAL CIRC. TIME (min)	245 min
DRILL COLLAR SIZE (")		Length				MUD TYPE				BBL/MIN	GAL / MIN	ANN VEL. DP	31
6.25		66 Mtrs				Spud Mud				1.84	77	(ft/min) DCs	57

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
SAMPLE FROM	Pit		Mud Weight ALAP	API Filtrate NC	HPHT Filtrate
TIME SAMPLE TAKEN	1600		Plastic Vis	Yield Point	pH
DEPTH (ft) - (m) Metres	258		KCl	PHPA	Sulphites
FLOWLINE TEMPERATURE ^{0}C / ^{0}F					
WEIGHT ppg / SG	8.95	1.074			
FUNNEL VISCOSITY (sec/qt) API @ ^{0}C	37				
PLASTIC VISCOSITY cP @ ^{0}C	6				
YIELD POINT (lb/100ft^2)	12				
GEL STRENGTHS (lb/100ft^2) 10 sec/10 min	7	8			
FILTRATE API (cc's/30 min)	NC				
HPHT FILTRATE (cc's/30 min) @ ^{0}F					
CAKE THICKNESS API : HPHT (32nd in)					
SOLIDS CONTENT (% by Volume)	4.1				
LIQUID CONTENT (% by Volume) OIL/WATER		95.9			
SAND CONTENT (% by Vol.)					
METHYLENE BLUE CAPACITY (ppb equiv.)					
pH	9.0				
ALKALINITY MUD (Pm)					
ALKALINITY FILTRATE (Pf / Mf)	9.10	0.44			
CHLORIDE (mg/L)	4,000				
TOTAL HARDNESS AS CALCIUM (mg/L)	40				
SULPHITE (mg/L)					
K+ (mg/L)					
KCl (% by Wt.)					
PHPA (ppb)					

OBSERVATIONS

Mud in pits was covered by a thin film of water. Once circulation started mud returned to normal. A lot of large cuttings noted when hole was circulating. The sharp edges indicates that these probably came off the bore rather than being reworked from yesterday. Swelling of the soft, shaley formations by fresh water was probably happening over the time the hole was left static. Although no

if it can be avoided.

OPERATIONS SUMMARY

RIH with drill pipe. Some displacement occurring. Circulate hole clean. POOH and Lay out sideways to run 7" casing. Move rig forward. Rig up to run casing. Using crane to do casing job. Run in hole with casing. Displacement going into cellar. Rig up and conduct cement job. Displace with rig pumps. Volume gain in pit approximately 60 bbls.

Mud Accounting (bbls)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	30	Desander		INITIAL VOLUME	450
Premix (recirc from sump)		Desilter			
Drill Water		Downhole		+ FLUID RECEIVED	30
Direct Recirc Sump		Dumped		-FLUID LOST	
Other (eg Diesel)		Other		+ FLUID IN STORAGE	
TOTAL RECEIVED	30	TOTAL LOST		FINAL VOLUME	480

Solids Control Equipment

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	1x40,1x20	3
Degasser	N/A		Desilter			Shaker #2	1x40,1x20	3

	Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)
Desander			
Desilter			

Product	Price	Start	Received	Used	Close	Cost
Ausgel	$ 12.00	99			99	
Biocide	$ 205.00	4			4	
Caustic Soda	$ 45.00	15			15	
KCl	$ 18.00	504			504	
Kwikseal M	$ 56.00	57			57	
Soda Ash	$ 23.50	3			3	

Solids Analysis	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids		
Salt		
n @ Hrs		
K @ Hrs		

Bit Hydraulics & Pressure Data	
Jet Velocity	33
Impact force	
HHP	
HSI	
Bit Press Loss	
CSG Seat Frac Press	
Equiv. Mud Wt.	
ECD	9.01 ppg
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
	$560.50

RMN ENGINEER Liam Nitschke CITY Adelaide Office TELEPHONE 08 8338 7266

DRILLING FLUID REPORT

RMN Drilling Fluids

Report #	4	Date :	18-Jan-2003
Rig No	R99	Spud :	16-Jan-2003
Depth	258 to 258		Metres

OPERATOR	Essential Petroleum Resources	CONTRACTOR	Sides Engineering
REPORT FOR	Wally Westman	REPORT FOR	Peter Freeman
WELL NAME AND No	Koroit West #1	FIELD: PEP 152	LOCATION: Otway Basin / STATE: Victoria

DRILLING ASSEMBLY			JET SIZE			CASING			MUD VOLUME (BBL)		CIRCULATION DATA			
BIT SIZE	TYPE		14	14	14	7 SURFACE	847	ft	HOLE	PITS	PUMP SIZE			CIRCULATION PRESS (PSI)
8.5	Smith DAO49X		14	14		SET @	258	M	24	300	5.5 X 10	Inches		psi
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 192 Mtrs				INT. SET @		ft M	TOTAL CIRCULATING VOL. 324		PUMP MODEL Clark	ASSUMED EFF 90.0		BOTTOMS UP (min) min
DRILL PIPE SIZE	TYPE HW	Length Mtrs				PROD. or LNR Set @		ft M	IN STORAGE		BBL/STK 0.1360	STK / MIN		TOTAL CIRC. TIME (min) min
DRILL COLLAR SIZE (") 6.25		Length 66 Mtrs				MUD TYPE KCl Pac R					BBL/MIN	GAL / MIN		ANN VEL. (ft/min) DP DCs

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS					
SAMPLE FROM	Pit		Mud Weight	ALAP	API Filtrate	7-10	HPHT Filtrate	
TIME SAMPLE TAKEN	1600		Plastic Vis		Yield Point		pH	
DEPTH (ft) - (m) Metres	258		KCl	4-5%	PHPA		Sulphites	
FLOWLINE TEMPERATURE ^{0}C ^{0}F								
WEIGHT ppg / SG	8.60	1.032						
FUNNEL VISCOSITY (sec/qt) API @ ^{0}C	70							
PLASTIC VISCOSITY cP @ ^{0}C	20							
YIELD POINT (lb/100ft^2)	39							
GEL STRENGTHS (lb/100ft^2) 10 sec/10 min	13	14						
FILTRATE API (cc's/30 min)	9.0							
HPHT FILTRATE (cc's/30 min) @ ^{0}F								
CAKE THICKNESS API : HPHT (32nd in)								
SOLIDS CONTENT (% by Volume)	0.5							
LIQUID CONTENT (% by Volume) OIL/WATER		99.5						
SAND CONTENT (% by Vol.)								
METHYLENE BLUE CAPACITY (ppb equiv.)								
pH	9.0							
ALKALINITY MUD (Pm)								
ALKALINITY FILTRATE (Pf / Mf)	0.10	0.30						
CHLORIDE (mg/L)	22,500							
TOTAL HARDNESS AS CALCIUM (mg/L)	40							
SULPHITE (mg/L)								
K+ (mg/L)	25,399							
KCl (% by Wt.)	4.7							
PHPA (ppb)								

OBSERVATIONS

Mud dumped out of the third pit into extra flare pit. Tranferring mud from the 2nd mud pit to the third. Start mixing KCl and Pac R clearwater fluid at 17 ppb KCl and 2 ppb Pac R. Two lots of this premix in the suction pit. Will continue with this mix until new fluid evident over shakers.

down hole and mixed with gel mud already in pits.

OPERATIONS SUMMARY

Back out the landing and pup joints. Nipple Up BOPs and choke manifold.
Rig up flare line.

Mud Accounting (bbls)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	60	Desander		INITIAL VOLUME	450
Premix (recirc from sump)		Desilter			
Drill Water		Downhole		+ FLUID RECEIVED	60
Direct Recirc Sump		Dumped	100	-FLUID LOST	100
Other (eg Diesel)		Other		+ FLUID IN STORAGE	
TOTAL RECEIVED	60	TOTAL LOST	100	FINAL VOLUME	410

Solids Control Equipment

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	1x40,1x20	
Degasser	N/A		Desilter			Shaker #2	1x40,1x20	

	Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)
Desander			
Desilter			

Product	Price	Start	Received	Used	Close	Cost
AMC Pac-R	$ 175.00	40		2	38	$ 350.00
Ausgel	$ 12.00	99			99	
Biocide	$ 205.00	4			4	
Caustic Soda	$ 45.00	15			15	
KCl	$ 18.00	504		18	486	$ 324.00
Kwikseal M	$ 56.00	57			57	
Soda Ash	$ 23.50	3			3	

Solids Analysis	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids		
Salt		
n @ Hrs		
K @ Hrs		

Bit Hydraulics & Pressure Data
Jet Velocity
Impact force
HHP
HSI
Bit Press Loss
CSG Seat Frac Press
Equiv. Mud Wt.
ECD
Max Pressure @ Shoe :

DAILY COST	CUMULATIVE COST
$674.00	$1,234.50

RMN ENGINEER Liam Nitschke CITY Adelaide Office TELEPHONE 08 8338 7266

DRILLING FLUID REPORT

RMN Drilling Fluids

Report #	5	Date :	19-Jan-2003
Rig No	R99	Spud :	16-Jan-2003
Depth	258 to 261		Metres

OPERATOR	Essential Petroleum Resources	CONTRACTOR	Sides Engineering
REPORT FOR	Wally Westman	REPORT FOR	Peter Freeman
WELL NAME AND No	Koroit West #1	FIELD: PEP 152	LOCATION: Otway Basin / STATE: Victoria

DRILLING ASSEMBLY		JET SIZE			CASING		MUD VOLUME (BBL)		CIRCULATION DATA			
BIT SIZE	TYPE	14	14	14	7 SURFACE	847 ft	HOLE	PITS	PUMP SIZE		CIRCULATION	
6.125	Varel 437				SET @	258 M	25	450	5.5 X 10 Inches		PRESS (PSI)	psi
DRILL PIPE	TYPE	Length			INT.	ft	TOTAL CIRCULATING VOL.		PUMP MODEL	ASSUMED EFF	BOTTOMS	
SIZE 3.5	13.3 #	161 Mtrs			SET @	M	475		Clark	90.0	UP (min)	9 min
DRILL PIPE	TYPE	Length			PROD. or	ft	IN STORAGE		BBL/STK	STK / MIN	TOTAL CIRC.	
SIZE	HW	Mtrs			LNR Set @	M			0.1360	15	TIME (min)	259 min
DRILL COLLAR SIZE (")		Length			MUD TYPE				BBL/MIN	GAL / MIN	ANN VEL. DP	75
4.75		100 Mtrs			KCl/Pac R/Gel				1.84	77	(ft/min) DCs	126

MUD PROPERTIES			
SAMPLE FROM		Pit	
TIME SAMPLE TAKEN		1200	
DEPTH (ft) - (m)	Metres	258	
FLOWLINE TEMPERATURE	^{0}C / ^{0}F		
WEIGHT	ppg / SG	8.75	1.050
FUNNEL VISCOSITY (sec/qt) API @	^{0}C	44	
PLASTIC VISCOSITY cP @	^{0}C	12	
YIELD POINT (lb/100ft^2)		22	
GEL STRENGTHS (lb/100ft^2) 10 sec/10 min		4	5
FILTRATE API (cc's/30 min)		15.0	
HPHT FILTRATE (cc's/30 min) @	^{0}F		
CAKE THICKNESS API : HPHT (32nd in)			
SOLIDS CONTENT (% by Volume)		1.8	
LIQUID CONTENT (% by Volume) OIL/WATER		98.2	
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH		11.5	
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		1.30	2.00
CHLORIDE (mg/L)		18,500	
TOTAL HARDNESS AS CALCIUM (mg/L)		800	
SULPHITE (mg/L)			
K+ (mg/L)		25,939	
KCl (% by Wt.)		4.8	
PHPA (ppb)			

MUD PROPERTY SPECIFICATIONS					
Mud Weight	ALAP	API Filtrate	7-10	HPHT Filtrate	
Plastic Vis		Yield Point		pH	
KCl	4-5%	PHPA		Sulphites	

OBSERVATIONS

Continuing to add the same mix as yesterday. Added some biocide to the pits to counter any bacterial degradation due to warm weather. Some cement contamination of the mud evident with high pH and Hardness. Diluting mud with water to lower pH and yield point and adding Soda Ash to counter the hardness. Overall mud in good shape. Will continue to build mud volumes up tomorrow.

Rheology Readings: 46/34/28/22/18/15/10/4

OPERATIONS SUMMARY

Finish nippling up BOPs and Choke manifold. RIH with new 6 1/8" bit and BHA. Tag cement and pull back. Pressure test BOPs and Choke Manifold. Drill new hole to 261m. Conduct LOT, EMW=13.2 ppg.

Mud Accounting (bbls)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	60	Desander		INITIAL VOLUME	324
Premix (recirc from sump)		Desilter			
Drill Water	100	Downhole	8	+ FLUID RECEIVED	160
Direct Recirc Sump		Dumped		-FLUID LOST	8
Other (eg Diesel)		Other		+ FLUID IN STORAGE	
TOTAL RECEIVED	160	TOTAL LOST	8	FINAL VOLUME	475

Solids Control Equipment

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	1x20,1x80	
Degasser	N/A		Desilter			Shaker #2	1x20,1x80	

	Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)
Desander			
Desilter			

Product	Price	Start	Received	Used	Close	Cost
AMC Pac-R	$ 175.00	38		2	36	$ 350.00
Ausgel	$ 12.00	99			99	
Biocide	$ 205.00	4		1	3	$ 205.00
Caustic Soda	$ 45.00	15			15	
KCl	$ 18.00	486		18	468	$ 324.00
Kwikseal M	$ 56.00	57			57	
Soda Ash	$ 23.50	3		1	2	$ 23.50

Solids Analysis	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids		
Salt		
n @ Hrs		
K @ Hrs		

Bit Hydraulics & Pressure Data	
Jet Velocity	55
Impact force	
HHP	
HSI	
Bit Press Loss	
CSG Seat Frac Press	
Equiv. Mud Wt.	
ECD	9.65 ppg
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$902.50	$2,137.00

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DRILLING FLUID REPORT

RMN Drilling Fluids

Report #	6	Date :	20-Jan-2003
Rig No	R99	Spud :	16-Jan-2003
Depth	261 to 396		Metres

OPERATOR	Essential Petroleum Resources	CONTRACTOR	Sides Engineering
REPORT FOR	Wally Westman	REPORT FOR	Peter Freeman
WELL NAME AND No	Koroit West #1	FIELD: PEP 152	LOCATION: Otway Basin / STATE: Victoria

DRILLING ASSEMBLY		JET SIZE			CASING		MUD VOLUME (BBL)		CIRCULATION DATA			
BIT SIZE	TYPE	12	12	12	7 SURFACE	833 ft	HOLE	PITS	PUMP SIZE		CIRCULATION	
6.125	Varel ETD 14				SET @	254 M	39	475	5.5 X 10 Inches		PRESS (PSI)	psi
DRILL PIPE	TYPE	Length			INT.	ft	TOTAL CIRCULATING VOL.		PUMP MODEL	ASSUMED EFF	BOTTOMS UP (min)	
SIZE 3.5	13.3 #	296 Mtrs			SET @	M	514		Clark	90.0	8	min
DRILL PIPE	TYPE	Length			PROD. or	ft	IN STORAGE		BBL/STK	STK / MIN	TOTAL CIRC.	
SIZE	HW	Mtrs			LNR Set @	M			0.1360	28	TIME (min) 150	min
DRILL COLLAR SIZE (")		Length			MUD TYPE				BBL/MIN	GAL / MIN	ANN VEL. DP	140
4.75		100 Mtrs			KCl/Pac R/Gel				3.43	144	(ft/min) DCs	236

MUD PROPERTIES			
SAMPLE FROM		Flowline	
TIME SAMPLE TAKEN		0005	
DEPTH (ft) - (m)	Metres	396	
FLOWLINE TEMPERATURE	^{0}C / ^{0}F		
WEIGHT	ppg / SG	8.75	1.050
FUNNEL VISCOSITY (sec/qt) API @	^{0}C	40	
PLASTIC VISCOSITY cP @	^{0}C	12	
YIELD POINT (lb/100ft^2)		12	
GEL STRENGTHS (lb/100ft^2) 10 sec/10 min		1	
FILTRATE API (cc's/30 min)		8.0	
HPHT FILTRATE (cc's/30 min) @	^{0}F		
CAKE THICKNESS API : HPHT (32nd in)			
SOLIDS CONTENT (% by Volume)		2.0	
LIQUID CONTENT (% by Volume) OIL/WATER			98.0
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH		9.5	
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.20	1.20
CHLORIDE (mg/L)		15,500	
TOTAL HARDNESS AS CALCIUM (mg/L)		230	
SULPHITE (mg/L)			
K+ (mg/L)		22,697	
KCl (% by Wt.)		4.2	
PHPA (ppb)			

MUD PROPERTY SPECIFICATIONS					
Mud Weight	ALAP	API Filtrate	7-10	HPHT Filtrate	
Plastic Vis		Yield Point		pH	
KCl	4-5%	PHPA		Sulphites	

OBSERVATIONS

Adding more premix to build mud volume. Once drilling minimal losses down hole evident. Still drilling in the marls, so keeping close eye on viscosity and rheology. mud weight climbing slowly due to increase in drilled solids. Marls are causing some problems at the shakers by packing up the possum belly. Dumping the possum belly every three or four connections and physically cleaning by hand to counter. Overall mud appears in good shape with little evidence of mud rings at the moment.

Rheology Readings: 36/24/19/12/9/6/2/1

OPERATIONS SUMMARY

Start drilling at 1900 hrs. Drill 6 1/8" hole from 261 m to 396 m.

Mud Accounting (bbls)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	60	Desander		INITIAL VOLUME	475
Premix (recirc from sump)		Desilter			
Drill Water		Downhole	21	+ FLUID RECEIVED	60
Direct Recirc Sump		Dumped		-FLUID LOST	21
Other (eg Diesel)		Other		+ FLUID IN STORAGE	
TOTAL RECEIVED	60	TOTAL LOST	21	FINAL VOLUME	514

Solids Control Equipment

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	1x20,1x80	5
Degasser	N/A		Desilter			Shaker #2	1x20,1x80	5

	Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)
Desander			
Desilter			

Product	Price	Start	Received	Used	Close	Cost
AMC Pac R	$175.00	36		3	33	$ 525.00
KCl	$18.00	468		24	444	$ 432.00

Solids Analysis	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids		
Salt		
n @ 0005 Hrs	0.58	
K @ 0005 Hrs	0.63	

Bit Hydraulics & Pressure Data	
Jet Velocity	139
Impact force	91
HHP	13
HSI	0.4
Bit Press Loss	152
CSG Seat Frac Press	
Equiv. Mud Wt.	13.20 ppg
ECD	9.25 ppg
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$957.00	$3,094.00

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DRILLING FLUID REPORT

RMN Drilling Fluids

Report #	7	Date :	21-Jan-2003
Rig No	R99	Spud :	16-Jan-2003
Depth	396 to 819		Metres

OPERATOR	Essential Petroleum Resources	CONTRACTOR	Sides Engineering
REPORT FOR	Wally Westman	REPORT FOR	Peter Freeman
WELL NAME AND No	Koroit West #1	FIELD: PEP 152	LOCATION: Otway Basin / STATE: Victoria

DRILLING ASSEMBLY			JET SIZE			CASING			MUD VOLUME (BBL)		CIRCULATION DATA				
BIT SIZE	TYPE		12	12	12	7 SURFACE	833	ft	HOLE	PITS	PUMP SIZE			CIRCULATION	
6.125	Varel ETD 14					SET @	254	M	87	475	5.5 X 10	Inches		PRESS (PSI)	psi
DRILL PIPE	TYPE	Length				INT.		ft	TOTAL CIRCULATING VOL.		PUMP MODEL	ASSUMED EFF		BOTTOMS	
SIZE 2.9	6.9 #	467	Mtrs			SET @		M	562		Clark	90.0		UP (min)	13 min
DRILL PIPE	TYPE	Length				PROD. or		ft	IN STORAGE		BBL/STK	STK / MIN		TOTAL CIRC.	
SIZE 3.5	HW	252	Mtrs			LNR Set @		M			0.1360	45		TIME (min)	102 min
DRILL COLLAR SIZE (")		Length				MUD TYPE					BBL/MIN	GAL / MIN		ANN VEL. DP	194
4.75		100	Mtrs			KCl/Pac R/Gel					5.51	231		(ft/min) DCs	379

MUD PROPERTIES			
SAMPLE FROM		Flowline	Flowline
TIME SAMPLE TAKEN		1200	2320
DEPTH (ft) - (m)	Metres	612	794
FLOWLINE TEMPERATURE	^{0}C / ^{0}F		
WEIGHT	ppg / SG	9.10 1.092	9.20 1.104
FUNNEL VISCOSITY (sec/qt) API @	^{0}C	40	37
PLASTIC VISCOSITY cP @	^{0}C	13	16
YIELD POINT (lb/100ft^2)		10	5
GEL STRENGTHS (lb/100ft^2) 10 sec/10 min		12	13
FILTRATE API (cc's/30 min)		8.8	7.0
HPHT FILTRATE (cc's/30 min) @	^{0}F		
CAKE THICKNESS API : HPHT (32nd in)		1	1
SOLIDS CONTENT (% by Volume)		4.5	4.9
LIQUID CONTENT (% by Volume) OIL/WATER		95.5	95.1
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH		8.5	9.0
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.40	0.10 0.50
CHLORIDE (mg/L)		15,200	20,000
TOTAL HARDNESS AS CALCIUM (mg/L)		280	240
SULPHITE (mg/L)			
K+ (mg/L)		18,914	22,156
KCl (% by Wt.)		3.5	4.1
PHPA (ppb)			

MUD PROPERTY SPECIFICATIONS					
Mud Weight	ALAP	API Filtrate	7-10	HPHT Filtrate	
Plastic Vis		Yield Point		pH	
KCl	4-5%	PHPA		Sulphites	

OBSERVATIONS

Very little in the way of losses. Mud volume still good. Some depletion of KCl evident in in morning mud check. Adding more KCl and Pac R premixes to boost K ion concentration and lower fluid loss. Screens wearing out on the shakers, particularly the bottom fine screen. Replacing one side with coarser screen on the bottom. Rheology showing that native solids are having an effect on mud properties. Without effective solids control there is every little that can be done about this, apart from dumping and diluting which would be impractical at this stage of the hole. Due to presence of marls in some of the samples indicates that turbulent mud flow may be eroding this formation.
Rheology Readings: 37/21/17/10/7/5/3/1

OPERATIONS SUMMARY

Drill ahead from 396 m to 819m.

Mud Accounting (bbls)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	60	Desander		INITIAL VOLUME	514
Premix (recirc from sump)		Desilter			
Drill Water		Downhole	12	+ FLUID RECEIVED	60
Direct Recirc Sump		Dumped		-FLUID LOST	12
Other (eg Diesel)		Other		+ FLUID IN STORAGE	
TOTAL RECEIVED	60	TOTAL LOST	12	FINAL VOLUME	562

Solids Control Equipment

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	2x40	22
Degasser	N/A		Desilter			Shaker #2	1x40,1x80	22

	Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)
Desander			
Desilter			

Product	Price	Start	Received	Used	Close	Cost
AMC Pac R	$175	33		3	30	$ 525.00
Caustic Soda	$45	15		2	13	$ 90.00
KCl	$18	444		27	417	$ 486.00

Solids Analysis	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids		
Salt		
n @ 2320 Hrs	0.82	
K @ 2320 Hrs	0.13	

Bit Hydraulics & Pressure Data	
Jet Velocity	223
Impact force	246
HHP	56
HSI	1.9
Bit Press Loss	413
CSG Seat Frac Press	
Equiv. Mud Wt.	13.20 ppg
ECD	9.90 ppg
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$1,101.00	$4,195.00

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DRILLING FLUID REPORT

RMN Drilling Fluids

Report #	8	Date :	22-Jan-2003
Rig No	R99	Spud :	16-Jan-2003
Depth	819 to 850		Metres

OPERATOR	Essential Petroleum Resources	CONTRACTOR	Sides Engineering
REPORT FOR	Wally Westman	REPORT FOR	Peter Freeman
WELL NAME AND No	Koroit West #1	FIELD: PEP 152	LOCATION: Otway Basin / STATE: Victoria

DRILLING ASSEMBLY		JET SIZE			CASING			MUD VOLUME (BBL)		CIRCULATION DATA			
BIT SIZE	TYPE	12	12	12	7 SURFACE	833	ft	HOLE	PITS	PUMP SIZE		CIRCULATION PRESS (PSI)	900 psi
6.125	Varel ETD 14				SET @	254	M	91	450	5.5 X 10 Inches			
DRILL PIPE SIZE 2.9	TYPE 6.9 #	Length 498 Mtrs			INT. SET @		ft / M	TOTAL CIRCULATING VOL. 541		PUMP MODEL Clark	ASSUMED EFF 90.0	BOTTOMS UP (min)	14 min
DRILL PIPE SIZE 3.5	TYPE HW	Length 252 Mtrs			PROD. or LNR Set @		ft / M	IN STORAGE		BBL/STK 0.1360	STK / MIN 45	TOTAL CIRC. TIME (min)	98 min
DRILL COLLAR SIZE (") 4.75		Length 100 Mtrs			MUD TYPE KCl/Pac R/Gel					BBL/MIN 5.51	GAL / MIN 231	ANN VEL. (ft/min) DP / DCs	194 / 379

MUD PROPERTIES				MUD PROPERTY SPECIFICATIONS				
SAMPLE FROM			Flowline	Mud Weight	ALAP	API Filtrate	7-10	HPHT Filtrate
TIME SAMPLE TAKEN			1030	Plastic Vis		Yield Point		pH
DEPTH (ft) - (m)	Metres		850	KCl	4-5%	PHPA		Sulphites
FLOWLINE TEMPERATURE	^{0}C	^{0}F						
WEIGHT	ppg / SG		9.30 1.116					
FUNNEL VISCOSITY (sec/qt) API @	^{0}C		37					
PLASTIC VISCOSITY cP @	^{0}C		15					
YIELD POINT (lb/100ft^2)			9					
GEL STRENGTHS (lb/100ft^2) 10 sec/10 min			1 2					
FILTRATE API (cc's/30 min)			7.0					
HPHT FILTRATE (cc's/30 min) @	^{0}F							
CAKE THICKNESS API : HPHT (32nd in)			2					
SOLIDS CONTENT (% by Volume)			5.7					
LIQUID CONTENT (% by Volume) OIL/WATER			94.3					
SAND CONTENT (% by Vol.)								
METHYLENE BLUE CAPACITY (ppb equiv.)								
pH			9.0					
ALKALINITY MUD (Pm)								
ALKALINITY FILTRATE (Pf / Mf)			0.10 0.40					
CHLORIDE (mg/L)			20,000					
TOTAL HARDNESS AS CALCIUM (mg/L)			300					
SULPHITE (mg/L)								
K+ (mg/L)			21,616					
KCl (% by Wt.)			4.0					
PHPA (ppb)								

OBSERVATIONS

Mud still in good shape for logging runs. Nothing added today.

Rheology Readings: 39/24/16/10/7/4/2/1

OPERATIONS SUMMARY

Drill ahead from 819 m to 850 m (TD). TD reached at 0115 hrs. Circulate up last sample. POOH - some tight hole on way out. POOH to shoe and RIH for wiper trip Circulate hole clean and pull out of hole for logging run. Rig wireline loggers and conduct logging run #1. POOH and b/o logging tools. Rig up for velocity survey. Run velocity survey.

Mud Accounting (bbls)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	562
Premix (recirc from sump)		Desilter			
Drill Water		Downhole	22	+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	22
Other (eg Diesel)		Other		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST	22	FINAL VOLUME	541

Solids Control Equipment

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	2x40	3
Degasser	N/A		Desilter			Shaker #2	1x40,1x80	3

	Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)
Desander			
Desilter			

Product	Price	Start	Received	Used	Close	Cost

Solids Analysis

	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids		
Salt		
n @ 1030 Hrs	0.70	
K @ 1030 Hrs	0.31	

Bit Hydraulics & Pressure Data

Jet Velocity	223
Impact force	249
HHP	56
HSI	1.9
Bit Press Loss	417
CSG Seat Frac Press	
Equiv. Mud Wt.	13.20 ppg
ECD	9.90 ppg
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
	$4,195.00

RMN ENGINEER Liam Nitschke CITY Adelaide Office TELEPHONE 08 8338 7266

DRILLING FLUID REPORT

RMN Drilling Fluids

Report #	9	Date :	23-Jan-2003
Rig No	R99	Spud :	16-Jan-2003
Depth	858 to 858		Metres

OPERATOR	Essential Petroleum Resources	CONTRACTOR	Sides Engineering
REPORT FOR	Wally Westman	REPORT FOR	Peter Freeman
WELL NAME AND No	Koroit West #1	FIELD: PEP 152	LOCATION: Otway Basin / STATE: Victoria

DRILLING ASSEMBLY			JET SIZE			CASING			MUD VOLUME (BBL)		CIRCULATION DATA				
BIT SIZE	TYPE		12	12	12	7 SURFACE	833	ft	HOLE	PITS	PUMP SIZE			CIRCULATION PRESS (PSI)	900 psi
6.125	Varel ETD 14					SET @	254	M	92	420	5.5 X 10	Inches			
DRILL PIPE SIZE 2.9	TYPE 6.9 #	Length 506 Mtrs				INT. SET @		ft M	TOTAL CIRCULATING VOL. 512		PUMP MODEL Clark	ASSUMED EFF 90.0		BOTTOMS UP (min)	14 min
DRILL PIPE SIZE 3.5	TYPE HW	Length 252 Mtrs				PROD. or LNR Set @		ft M	IN STORAGE		BBL/STK 0.1360	STK / MIN 45		TOTAL CIRC. TIME (min)	93 min
DRILL COLLAR SIZE (") 4.75		Length 100 Mtrs				MUD TYPE KCl/Pac R/Gel					BBL/MIN 5.51	GAL / MIN 231		ANN VEL. (ft/min) DP	194
														DCs	379

MUD PROPERTIES			
SAMPLE FROM			Flowline
TIME SAMPLE TAKEN			2230
DEPTH (ft) - (m)	Metres		858
FLOWLINE TEMPERATURE	^{0}C	^{0}F	
WEIGHT	ppg / SG		9.40 1.128
FUNNEL VISCOSITY (sec/qt) API @	^{0}C		39
PLASTIC VISCOSITY cP @	^{0}C		14
YIELD POINT (lb/100ft^2)			10
GEL STRENGTHS (lb/100ft^2) 10 sec/10 min			1 2
FILTRATE API (cc's/30 min)			7.0
HPHT FILTRATE (cc's/30 min) @	^{0}F		
CAKE THICKNESS API : HPHT (32nd in)			2
SOLIDS CONTENT (% by Volume)			6.4
LIQUID CONTENT (% by Volume) OIL/WATER			93.6
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH			9.0
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)			0.15 0.50
CHLORIDE (mg/L)			19,500
TOTAL HARDNESS AS CALCIUM (mg/L)			250
SULPHITE (mg/L)			
K+ (mg/L)			21,616
KCl (% by Wt.)			4.0
PHPA (ppb)			

MUD PROPERTY SPECIFICATIONS					
Mud Weight	ALAP	API Filtrate	<7	HPHT Filtrate	
Plastic Vis		Yield Point		pH	
KCl	4-5%	PHPA		Sulphites	

OBSERVATIONS

Added another premix to give the mud more body due to extra time required to keep the hole open. Also added biocide to counter any bacterial degradation of the mud. Whilst the well was circulating monitored the mud weight to check that no flows were entering the well.

Rheology Readings: 38/24/20/12/10/6/3/1

OPERATIONS SUMMARY

Finish velocity survey. Rig down wireline loggers. RIH. Circulate hole clean. POOH. Some flow noted when pulling out. RIH and circulate hole. Pump slug and POOH. No flow noted after pumping slug.

Mud Accounting (bbls)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	542
Premix (recirc from sump)		Desilter			
Drill Water		Downhole	30	+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	30
Other (eg Diesel)		Other		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST	30	FINAL VOLUME	512

Solids Control Equipment

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	2x40	3
Degasser	N/A		Desilter			Shaker #2	1x40,1x80	17

	Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)
Desander		0	
Desilter		0	

Product	Price	Start	Received	Used	Close	Cost
AMC Pac R	$175	30		1	29	$ 175.00
Biocide	$205	3		1	2	$ 205.00
KCl	$18	417		9	408	$ 162.00
Soda Ash	$23.50	2		1	1	$ 23.50

Solids Analysis	PPB	%
High Grav solids		
Total LGS		
Bentonite		#DIV/0!
Drilled Solids		#DIV/0!
Salt		
n @ 2230 Hrs	0.66	
K @ 2230 Hrs	0.39	

Bit Hydraulics & Pressure Data	
Jet Velocity	223
Impact force	252
HHP	57
HSI	1.9
Bit Press Loss	422
CSG Seat Frac Press	
Equiv. Mud Wt.	13.20 ppg
ECD	10.00 ppg
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$565.50	$4,760.50

RMN ENGINEER Liam Nitschke CITY Adelaide Office TELEPHONE 08 8338 7266

Appendix 5: Cuttings Description

Essential Petroleum Resources Limited

Depth		Koroit West No 1 - Sample Descriptions							
From	To	Sst	Slt	Clyst	Lst	Marl	Co	Vis Por	Description and shows:
261	267				20	80			LST: white to very pale yellow fossil fragments, loose, coarse grained, pred Echinoid & Crinoid remains, unconsolidated,as thin bands MARL: very light grey, silty to smooth,occ w/ sand sized fossil frags, pred soft, sticky amorphous.
267	273				10	90			LST and MARL as above
273	279				20	80			LST and MARL as above
279	285				10	90			MARL: 50% clay very light to light grey, occ very pale yellowish grey, soft to very soft, silty, trace dark brown specks.
285	294				10	90			Marl: as above
294	303					100			MARL: light grey to light olive grey, soft, friable, trace pyrite aggregates, common medium and co grained fossil frags washing out.
303	312				20	80			Fossil Fragments: coarse to very coarse, MARL: as above, fossil fragments washing.
312	321				30	70			Marl: as above, fossil frags increasing
321	330				40	60			LST: Calcarenite, white to light grey, very light yellowish grey, fine to medium grained w/ coarse and very coarse fossil fragments, trace terriginous material..
330	339				10	90			MARL:, very light grey, soft, medium and coarse fossil frags
339	348				30	70			MARL: light to very light grey, occ very light greyish brown and greyish green, silty blocky, friable, CALCARENITE: Fossil Frags: medium to very coarse, echinoid, crinoid, bryozan, molluscs,
348	357				30	70			MARL: colours as above, pred v pale greenish bluish grey, soft to becoming sl firm. Silty
357	366				20	80			Calcarenite: white to yellowish grey, pale grey, prwed lse fossil frags, occ fine to medium grained aggs w/ trace terriginous material, firm. Marl: as above
366	375				10	90			MARL: 30% clay, light grey, occ very pale greenish grey, silty texture, occ fine calcarenite inclusions and foss frags, soft, blocky,
375	384				30	70			CALCARENITE: Fossil Fragments as inclusions in Marl and ? Discrete layers.
384	393				40	60		g	MARL: light to occ medium grey,occ greyish brown, bec sandy w/ 10% medium and coarse calcite grains, soft to friable, blocky, CLACARENITE as above becoming loosley cemented w/calcite

Depth		Koroit West No 1 - Sample Descriptions							
From	To	Sst	Slt	Clyst	Lst	Marl	Co	Vis Por	Description and shows:
393	399				40	60			MARL: as above:, silty and occ sandy txt, 30-50% clay. Calcarenite: light grey, yellowish grey, fine to coarse grained, trace terriginous material in part, rare loose very coarse very well rounded polished qtz grains.
399	405				60	40		p	Marl: as above, trace terrig mat, CALCARENITE: very light grey to greenish and gryish brown, very fine to coarse grained, poorly sorted, white calcite cement and tr quartz silt, bec moderately cemented, friable to occ firm aggs, rr spherical qtz grains
405	411				70	30			MARL as above, medium grey, CALCARENITE: white to medium grey occasionally greyish brown, very fine, silty to very coarse/fossiliferous, poorly sorted, micritic and with trace clay and qtz silt.
411	417				70	30			MARL: light to medium grey, speckled w/ up to 10% white medium ?foss calcite grains. Soft to occ firm, CALCARENITE as above
417	423				80	20			CALCARENITE: white to mottled orange and reddish brown/ oxidised. Medium to coarse grained fossiliferous, moderately sorted, firmly cemented with Fe stained calcite, trace dark grains. MARL: medium grey, speckled w/ up to 10% white medium ?foss calcite grains.
423	429				80	20			CALCARENITE: as above, trace dark detrital grains, MARL:, medium grey, blocky, homogenous
429	435	5		tr	75	20		p	CLYST Tr dk brn, disp SST, light brownish grey, fine grained, well std, sucrosic, calc cmt, tr glauc
435	441	5		5	75	15			As above
441	447	30		5	55	10		f	Sst: clr to ltight brn as above, and with 5% very coarse loose qtz gns
447	453	70	10		10	10		g	sst: light brn, orange-brown, transl, pred lse sa to well rnd gns, ?volc, highly polished,
453	462	90						vg	SST brown, very coarse gn, as above
462	468	85	5			10		f	SST, clr to brown, fine to very coarse, p std, sub angular to occ v well rnd, polished, loose to mod cemented wl calc cmt, tr py aggs, trace fossil frags. SLTST dark brown, clayey, firm, w/ very coarse qtz inclusions. N/S
468	474	80	10			10		f	SST, Fe stained, and Sltst as above n/s, MARL: pale greenish grey, foss, ?cavings
474	480	80	10			10		f	SST, clear to light brown, fine to pred med grained occ coarse, mod std, ang to subang, calc cmt adhering to loose gns, N/S
480	486	90				10		f	SST:clr to white, trace brown, fine to coarse gn, p std, sa to w rnd, calc cmt, n/s
486	495	95				5		vg	SSt, clear, white to pale, yellow, med to pred very coarse gn, lse, sl calc cmt, occ well cemented pyrite aggs. MARL and tr foss frgas as above.
495	501	85	10			5		g	SST a/a N/S, SLTST: brown, sandy, calc, foss.
501	507	80	5		10	5		g	SST as above, bec more well cmt, acc very tight aggs, w/ dense cement. Slst. Brown, sandy, w/ med and co qtz grains. Foss calcarenite ? Cavings
507	513	70	15		10	5		g	qa/a
513	519	50	5			45			abundant cavings of marl and foss frags
519	525	60	10		5	25			a/a
525	531	80	5		5	10		g	sst:, clr, white, occ pale yellsh, pred lse, med to v co gn, mod std, clean to occ calc, occ dense pyrite cmt, occ brn silty mtx.

Depth		Koroit West No 1 - Sample Descriptions							
From	To	Sst	Slt	Clyst	Lst	Marl	Co	Vis Por	Description and shows:
531	537	65	10		5	20		g	sst a/a, Sltst:, medium brown, sandy, calc, firm. Marl cavings a/a
537	543	90	5			5		g	sst: clr, whi, f to co gn, mod std, sa to sr, pred lse, marl, greenish gret, caved
543	549	60	35			5		f	sst a/a, siltstone, very pale gret to greenish grey, sandy, soft, calc, tr Siltstone: dark brown
549	555	40	45	5	5	5		f	Clystone, dark brown,silty, carb, gds to Siltstone, grey to greyish brown to greenish grey, sandy, calc in part, sst a/a, f to co, p std, pred clean,
555	561	40	10	5	10	35			SST:, light grey, calc, fine grained well sorted, and fine to coarse poorly sorted, predominantly loose, MARL, greenish grey, fossiliferous,
561	567	80	5		5	10		f	sltst, brown, sl carb, sandy.SST:clear, light grey, light yellowish brn, fine to coarse grained, pred medium, well std, sa sr, calc cmt adhereing to grains, n/s
567	573	60	5	5		30		f	calcarenite, reddish brown fe`stained, cavings,Siltstone grades`to clayst, brown, dispersive. Sst: as above, pyritic cmt in part.
573	579	60	5	5	10	20			as above
579	585	40	5	5	20	30			limited sample ?washing out, caving predominant? Brown clyst washing out
585	591	40	5	5	10	40			siltst grds to clyst, brown, dispersive
591	593	40	5	5	10	40			a/a ?dispersve clay
593	597	40	5	5	10	40			dk brn mdst washing out in mud, foss calcarenite, ?cavings.
597	603	35	5	10	10	40			a/a dispersive
603	609	90				10		f	CBU, SST: light grey, fine grained, well std, sa, qtz, lse, calc cmt i/p, n/s
609	615	70	10	20					Glauconite sandstone 30%, black, medium, well sorted black glauconite grains in black firm matrix. Quartz Sandstone:40% fine to coarse, greenish cherty lithic grains, Siltsone, black, hard ? Matrix.
615	621	70	20	10					qtz sand 20%, glauc sst 50% grades to glauc mudstone, black, hard
621	627	70	30						SSt as above, qtz sst bec silty, dense calcareous cement i/p, Glauc sst bec 20% of sand fraction
627	633	70	30					g	Siltstone, medium to dark grey to greyish brown, SST, bec quartzose, medium to coarse grained, pred lse.
633	639	80	20					vg	SST , clr, white, fine to medium grain occ coarse, well sorted, pred lse, sli calc cmt. n/s
639	645	100						vg	sst a/a bec co & v coarse grained.common black glauc grains (?caved)
645	651	100						vg	sst a/a, no shows caved lithologies to 10% of tray
651	657	90	10					vg	sst as above, grades to sandy siltstone,, grey brown soft.
657	663	70	20			10		vg	10% caved lithologies.
663	669	50	30	10		10		f	Sltst: brn, greyish brown, tr carb mat in part, tr green glauconite, brown clay washing out at shakers
669	675	60	20	5		15			SST: a/a, pred lse, occ w/ dense silica cement, few grains min flu.
675	681	80	10			10			SST a/a
681	687	80	10			10		g	a/a
687	693	90	5			5		g	a/a

Depth		Koroit West No 1 - Sample Descriptions							
From	To	Sst	Slt	Clyst	Lst	Marl	Co	Vis Por	Description and shows:
693	696	90	10					g	SST: clr, light brn, f to m gn, pred lse well std, calc cmt adhering to grains, trace glauc,
696	699	50	15	20	5	10		vg	SST: as above, Clyst: medium grey, fissile in part, in part medium brown, gds to sltst, poor sample, shakers down. Circulated sample at 696m.
	696							vg	CBU, SST: light grey, fine grained, well std, sa, qtz, lse, calc cmt i/p, n/s
699	705	60	20	10		10			10% caved materials, SST, clr lt brn, fine to med occ coarse, med std, pred lse calc cmt adhering to gns.Sltst, medium brown to greyish brown, blocky, grades to claystone, fissile in part.
705	711	60	20	10		10		g	as above
711	717	40	30	30					Sltst, in part medium brown, blocky, finely micromicaceous, grades to claystone,
717	723	40	40	20					SLTST: Homogenous medium brown as above, grades to clyst. SST a/a ?caved lithologies.
723	729	30	50	20					SLTST a/a, dark grey to medium greyish brown occ medium brown, ?caved fine sand
729	735	80	20					g	SST: clr to very light brown, yellowish brown, fine to medium, occ coarse grained, mod std, subang to subrnd, pred lse, w/ calc cmt adhering to gns, common black glauconite grains, trace greyish green lithic grains.
735	741	80	20					g	CBU @ 733 SST: as loose grains, clr, lt gy,
741	747	60	40				tr	f	SLTST: medium to dark grey to greyish brown, v finely sandy in part, blocky sodt to firm, carb in part. Grds to clyst. SST, light brown, f to v co, poorly sorted, subang, calcite cement adhering to grains.
747	753	75	20	5			tr		SST: clear - whi, occ green, black gns, and grey cherty lithics, fine to medium gn, well std, pred lse, occ w/ dense brownish calc cmt. tr pyritised wood fragments, trace carbonaceous material and coaly grains. SLTST: greyish brown, sandy, glauconitic in part.
753	756	90	10				tr	g	SST: clr to lt brn, occ yellsh gy, f-m gn, well std, ang -subrnd, calc cmt adhering to pred lse gns, trace black glauconite.
756	759	80	20				tr	f (i/p)	SST: (1) clr-whi-lt brn, f to coarse, mod std, sa, pred lse, occ wl sl calc cmt adhering, (2) mottled white, f - m qtz and lithic gns in dense white calcite cement, trace glauconite, (3) trace glauconite sand - black grains in dark brown silty matrix.
759	765	90	5				5	f (i/p)	SST: mottled, green white, brown. medium grained, subangular ,mod sorted, tight aggregates of quartz, glauconite, lithic grains with abundant white calcite cement, 30% of sample. SST: clr to lt brn, co to v co gn, lse, sa - ang, tr calc cmt adhereing to gns.
765	777	80	20						SST: as loose grains, grey, white, pale green, greenish-bluish grey, and occ red qtz and aphanitic siliceous lithic grains, SLTST: dark grey to brown, firm, non calc.
777	783	90	10					f (i/p)	SLTST: pale brown, sl vf sndy, soft, blocky-amorphous. SST: a/a, f -m gn, predom qtz and siliceous lithic grains.
783	789	70	30						SST: as above, SLTST: very pale greyish brown and occ greenish grey, non calc, very finely sandy w/ heterogenous lithic grains & qtz,
789	795	70	30						a/a
795	801	100						f (i/p)	SST: pred lse qtz and heterogenous lithic as above, f-m gn well std, v sli calc.as above
801	807	100						ff (i/p)	as above ? Very finely micromicaceous
807	813	70	30						SLTST: v pale brown, speckled, vf sndy, grades in part to very fine silty SST. v soft to firm SST: pred a/a, f -m gn, predom qtz and multicoloured siliceous lithic grains.

Depth		Koroit West No 1 - Sample Descriptions							
From	To	Sst	Slt	Clyst	Lst	Marl	Co	Vis Por	Description and shows:
813	819	30	70						SLTST a/a, v thinly laminated v pale brown to medium brown, occ reddish brown, v finely sandy in part, very soft to occ firm, SST a/a
819	825	50	50						SLTST: laminated as above, SST, a/a trace orange and red grains, pred greenish and blue-greenish grey.
825	831	30	60	10					SLTST as above, massive to laminated, pred white to very pale greenish grey, occ reddish brown
831	837	30	60	10					SLTST as above
837	843	30	60	10					
843	849	40	60						SST abundant grey lithic & sltst a/a
849	850	50	50						SST abundant grey lithic & sltst a/a

Appendix 6: MDT

KOROIT WEST-1 MDT RESULTS

Log of Events

Test	depth	psia	Event
1	428.0		tight test, did not build up beyond 34 psi in 5 minutes
2	431.0		tight test, aborted
			use 10cc drawdown, presure built to 653psi then fell away, do
2 reset	430.8	639.12	2nd 10cc drawdown, supercharge
3	434.0		no seal
3 reset	433.8	603.10	10cc drawdown FP 603.14, 2nd drawdown, 603.10, good test
4	502.0	797.66	good test
	509.0		held over in case of further testing problems
5	518.0	720.44	20cc drawdown,
6	549.0	765.22	good test
			good test, pumped 34 ltres total, RW stable at 0.58 Ohmm, sampled 8l into chamber, chamber filled to 3950 psi with last
7	561.0	783.22	50cc of content (i.e. contents incompressible)
8	562.0	784.73	excellent perm
9	563.0	786.14	excellent perm
10	432.0	600.75	Perm OK for pretest but too tight to sample
11	432.5	601.44	Perm OK for pretest but too tight to sample
12	433.0		no seal
12a	433.0		reset w/ some cable movement, no seal.

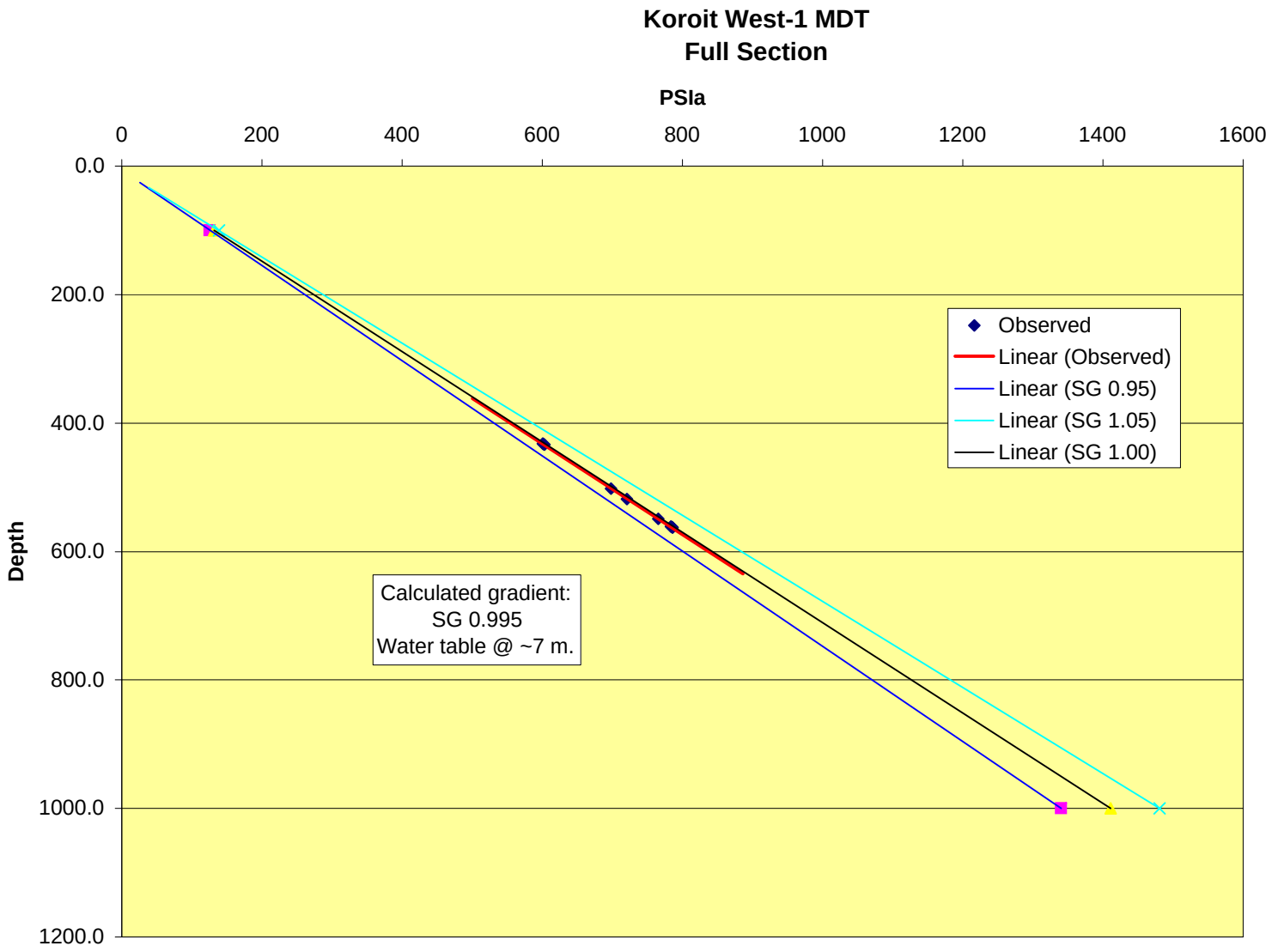
para beinning "good test, pumped..." relates to sample point #7

Final Pressures and Mobility

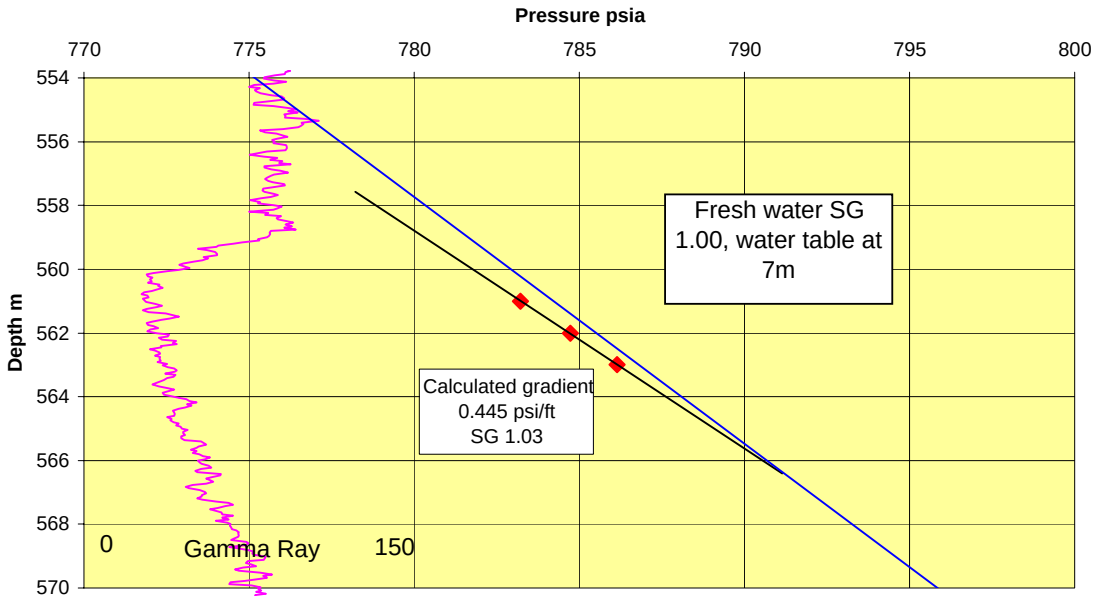
Depth	Drawdown Mobility	Mud Pressure Before	Mud Pressure After	Last read build-up Pr	Formation Pressure	Test Type
M	MD/CP	PSIA	PSIA	PSIA	PSIA	
428.0		702.36	699.34			Dry Test
430.8	0.20	706.34	706.14	639.12	639.12	Volumetric Pretest
433.8	2.30	710.91	710.70	603.09	603.09	Volumetric Pretest
502.0	269.60	821.16	820.92	697.67	697.67	Volumetric Pretest
518.0	39.00	847.07	846.93	720.43	720.43	Normal Pretest
549.0	2733.20	897.33	897.28	765.21	765.21	Normal Pretest
561.0	622.90	916.71	916.42	783.22	783.22	Normal Pretest
562.0	1813.20	918.07	917.91	784.72	784.72	Normal Pretest
563.0	2119.40	919.45	919.32	786.13	786.13	Normal Pretest
432.0	2.80	705.80	705.59	600.67	600.67	Normal Pretest
432.5	1.70	706.47	706.33	601.40	601.40	Normal Pretest

Gradients

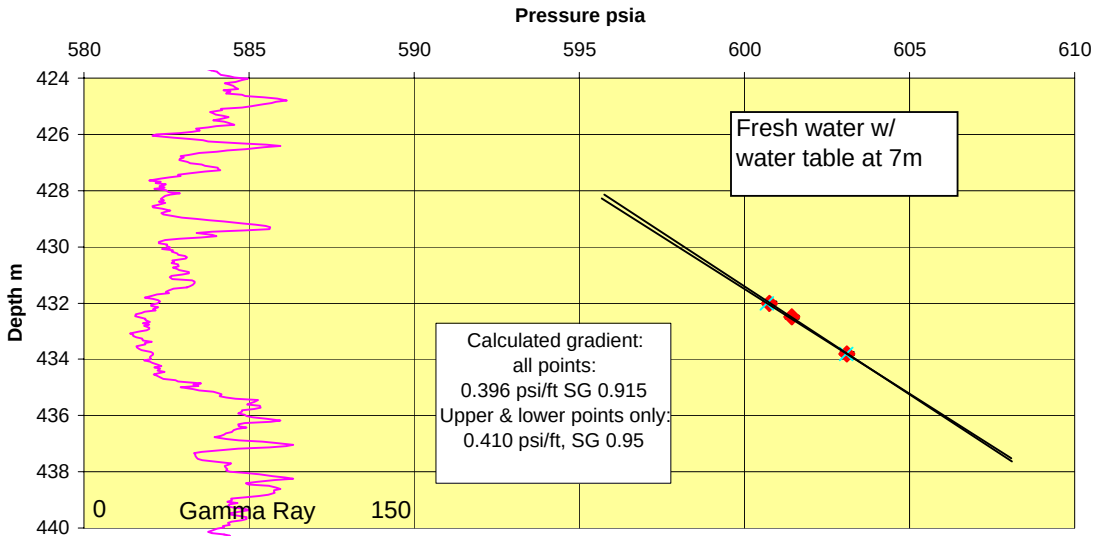
Clift Fm 432.0 - 433.8m			Pember Mdst 561.0 - 563.0m		
delta PSI	2.420	+/-0.01	delta PSI	2.910	+/-0.01
delta ft	5.905	+/-0.328	delta ft	6.562	+/-0.328
	0.410	calculated gradient		**0.443**	calculated gradient
	0.024	error bar		0.024	error bar
	0.385	minimum gradient		0.420	minimum gradient
	0.434	maximum gradient		0.467	maximum gradient


Koroit West-1 MDT
Full Section
PSIa
0
200
400
600
800
1000
1200
1400
1600
Depth
0.0
200.0
400.0
600.0
800.0
1000.0
1200.0
Observed
Linear (Observed)
Linear (SG 0.95)
Linear (SG 1.05)
Linear (SG 1.00)
Calculated gradient:
SG 0.995
Water table @ ~7 m.

Koroit West-1 MDT Pember Fm Sands



Koroit West-1 MDT Clifton Fm Sands



Appendix 7: Sidewall Cores

SIDEWALL SAMPLE DESCRIPTIONS

WELL: Koroit West 1 **TYPE:** 6 gm / Combo
FIELD: wildcat **SHOT:** 25 **REC:** 16
DATE: 24 January 2002 **REF. LOG:** Gamma Ray **MISFIRED:** 0 **LOST:** 15
LOG SUITE: 1 **GUN:** CST (slim, ~15mm diameter cores) **DESCRIBED BY:** G. Wakelin-King **EMPTY:** 1

NO.	DEPTH (m)	RECOVERY mm COND	FORMATION	DESCRIPTION	SHOWS
1	785.0	nil	Eumeralla		
2	767.5	nil	Waarre		
3	759.0	nil	Lwr Belfast/Flaxman		
4	751.0	25	Lwr Belfast/Flaxman	**Claystone:** medium greyish brown, silty, glauconitic, micromicaceous, non-calcareous, common coarse grain-sized pyrite nodules, trace carbonaceous matter, firm.	Very faint dull green solv fluorescence. Nil ring residue
5	744.0	nil	Intra Belfast/Flaxman		
6	740.5	nil	Intra Belfast/Flaxman		
7	738.5	nil	Belfast		
8	732.8	nil	Belfast		
9	675.5	nil	Top Skull Creek		
10	635.5	<1, nil	Basal Pebble Point	No core sample. Few blobs of wallcake mixed with sandgrains and ?cuttings. Not investigated further in case required for palynology.	Sample preserved intact
11	632.5	18, good	Massacre Shale	**Claystone:** peloidal, dark grey to black, abundant irregular to spherical black pellets , firm to hard, polished, dark grey to greenish grey clay matrix, ?glauconitic.	Nil
12	623.0	25, good	Top Pebble Point	**Silty Claystone:** very dark greyish brown, glauconitic, micromicaceous, common black sherical ?glauconite pellets in silty clay matrix, common very fine coaly organic matter, firm to hard.	Slow evolution of very small gas bubbles when crushed under fluid. Extremely faint solv fluorescence, nil residue.
13	608.0	18, good	basal Pember	**Claystone,** dark brown, silty, slightly sandy, micromicaceous, firm, subfissile, dispersive in water, trace organic material.	Very faint dull green solv fluorescence, nil ring residue.
14	570.0	20, good	Pember	**Argillaceous Sandstone:** dark brown**,** very fine grained, poorly sorted, quartzose, fine organic matter, inferred porosity very poor.	Extremely faint dull green solv fluorescence, nil ring residue
15	566.9	15, good	Pember sand	**Sandstone,** light brown, fine to occasionally medium grained, well sorted, clay matrix, inferred porosity poor to fair.	Extremely faint dull green solv fluorescence, nil ring residue

NO.	DEPTH (m)	RECOVERY mm COND			SHOWS
16	560.5	12, fair	Pember sand	**Sandstone:** light brown, medium grained to rarely coarse, moderately sorted, angular to sub-angular, moderate clay matrix, porosity fair.	Extremely faint dull green solv fluorescence, nil ring residue
17	550.0	4mm, few crumbs of rock	Pember sand	**Sandstone:** very light brown translucent, fine to medium predominantly fine grained, angular to subrounded, moderately sorted, quartzose, moderate calcareous cement and very slight brown clay matrix, framework dissagregated by SWC process. Inferred porosity fair to good.	Very faint dull green crush solv fluorescence develops over 10 mins. Nil residue. Did not repeat on second sampling (?)
18	545.0	15, fair	Top Pember	**Claystone:** very dark brown, silty aqnd very finely sandy, micromicaceous, firm but dispersive in water, very slightly calcareous.	Very faint dull green solv fluorescence, nil ring residue
19	531.5	10, poor	Dilwyn Formation	**Sandstone:** very light yellowish brown, very fine to medium grained, predominantly fine, subangular, moderately sorted, quartzose, very slight calcareous cement and clay matrix, porosity good,	nil
20	513.5	15, good	Dilwyn Formation	**Sandstone:** fine to occasionally medium grained predominantly fine, angular to subangular, well sorted, quartzose with trace mica and ?phylittic lithic grains, porosity good, very slight trace pale brown clay as matrix and grain coatings. porosity good.	nil
21	502.2	15, good	Dilwyn Formation	**Sandstone:** pale yellowish grey, fine to coarse grained, angular to well rounded, moderately sorted, quartzose, very slight trace clay matrix, porosity good to very good.	nil
22	498.5	22, good	Dilwyn Formation	**Silty Claystone:** dark greyish brown, very finely sandy, abundant fine flakey carbonaceous material, firm.	Very faint dull green solv fluorescence, nil ring residue
23	436.0	10, poor	Narrawaturk Marl	**Fossilferous Marl:** very light grey clay and micritic calcite, extremely dispersive in fresh water, with common fine and medium sand-sized foraminiferal tests, soft.	Very faint dull green solv fluorescence, nil ring residue
24	433.0	15, good	Clifton Formation	**Iron-oxidised Calcarenite:** mottled orange/white, fine to coarse, clayey, dense micrite matrix, ?structure partially destroyed by weathering and/or compaction in the coring process, minor fine grained glauconite, visible intergranular porosity poor, abundant very fine intercrystalline porosity in matrix, and rare surviving ? secondary porosity channels. Original porosity hard to estimate but possibly very high.	Nil
25	432.0	20, good	Clifton Formation	**Calcarenite, mottled** brown/white, originally ?medium to coarse grained, now shattered to very fine and silt size calcite particles, trace coarse grain detrital grains, slightly clayey, porosity originally fair?	Nil

Appendix 8: Palynology

PALYNOLOGY OF

KOROIT WEST-1,

OTWAY BASIN, AUSTRALIA

BY

ROGER MORGAN

Prepared for

ORIGIN ENERGY

June, 2003

REF: OTW.KOROIT WEST-1 REPORT

PALYNOLOGY OF

KOROIT WEST-1,

OTWAY BASIN, AUSTRALIA

CONTENTS **PAGE**

1 SUMMARY

436.0 m (swc) : *N. asperus* Zone : Middle to Late Eocene : nearshore marine : Narrawaturk Marl equivalent

498.5 m swc – 545.0 m swc : upper *M. diversus-P. asperopolus* Zones : Early to Middle Eocene : very nearshore to marginal marine : Dilwyn Formation / Pember Mudstone equivalent

570.0 m (swc) – 608.0 m (swc) : middle to lower *M. diversus* Zone : Early Eocene : marginally marine : Pember Mudstone equivalent

623.0 m (swc) : *L. balmei* Zone : Paleocene : marginal marine : Pebble Point equivalent

632.5 m (swc) : upper *F. longus* Zone and upper *M. druggii* Dinoflagellate Zone : late Maastrichtian : shelfal marine : Massacre Shale / Timboon Sand equivalent

635.5 m (swc) : lean upper *F. longus* Zone and lower *M. drug*gii Dinoflagellate Zone : late Maastrichtian : marginal marine : Massacre Shale / Timboon Sand equivalent

751.0 m (swc) : lower *P. mawsonii* Zone (*H. trinalis* subzone of Partridge) and lower *P. infusorioides* Zone (*C. edwardsii* subzone of Partridge) : Turonian : very nearshore marine : Waare B equivalent

2 INTRODUCTION

The Cretaceous zonation used herein (Figure 1) is that of Morgan (2002) developed from extensive sample suites in the Thylacine-Geographe area, but kept within the framework of Helby, Morgan and Partridge (1987). Figure 2 compares the new zonation with that of Partridge (1998) and the lithostratigraphy of Partridge (1998, 2001). The Tertiary zonation used (Figure 3) is based on Partriddge (1976 and pers. comm.). Table 1 summarises the palynological details of the studied samples. Brief discussion of formation assignments is included in the text.

A total of 9 samples have been restudied from **Koroit West-1** for Origin Energy.

Maturity data were generated in the form of Spore Colour Index, and are plotted on Figure 2 Maturity Profile: Koroit West-1. The oil and gas windows on Figure 2 follow the general consensus of geochemical literature. The oil window corresponds to spore colours of light-mid brown (Staplin Spore Colour Index of 2.7) to dark brown (3.6), equivalent to vitrinite reflectance values of 0.6% to 1.3%. Geochemists argue variations on kerogen type, basin type and basin history. The maturity interpretation is thus open to reinterpretation using the basic colour observations as raw data. However, the range of interpretation philosophies is not great, and probably would not move the oil window by more than 200 m.

Species names are given in full when first mentioned in the text, but only the genus initial and full species name is given when subsequently mentioned.

Raw palynological data are included in Appendix 1. The data are based on a 100 specimen count from which an indication of marine microplankton to terrestrial palynomorph proportions can be derived. The microplankton percentages are listed in Table 1, which also summarizes other palynological details. Environmental assessments are derived from the palynomorph counts using content and diversity of saline taxa (dinoflagellates and spiny acritarchs), other microplankton (mostly freshwater algae), and terrestrial spores and pollen. The criteria for these assessments are defined in Table 1. However, dinoflagellate content and diversity in the Otway Basin are lower than might be expected from other data sources, especially sedimentology in the offshore marine shales. It may be that dinoflagellate productivity is suppressed by lowered salinity or restricted oceanic circulation caused by the enclosed nature of a long narrow marine gulf. Environments interpreted here may therefore underestimate marine influence in this section with environments really being more marine than interpreted here. In running text, frequency of taxa is discussed in the following intervals: Very rare = <1%, Rare = 1-3%, Frequent = 4-10%, Common = 11-29%, Abundant = 30-49%, Super-abundant = 50-100%.

TABLE 1

SUMMARY OF PALYNOLOGICAL DATA : KOROIT WEST-1

LOG DEPTH (m)	SAMPLE TYPE	MICROFOSSIL YIELD	PRESERVATION *1	PERCENTAGE				DIVERSITY *2		SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE	ENVIRONMENT *3
				MICROPLANKTON			SPORE-POLLEN					
				DINOFLAG.	SPINY AC.	OTHER	N	MICROPLANKTON	SPORE-POLLEN			
436.0	SWC	LOW	GOOD	14	0	<1	86	LOW	HIGH	N. ASPERUS		NEARSHORE
498.5	SWC	LOW	GOOD	6	0	1	93	EX LOW	V HIGH	P. ASPERO-UP M. DIVERUS		VERY NEARSHORE
545.0	SWC	MOD	GOOD	<1	0	2	98	EX LOW	V HIGH	P. ASPERO- UP M. DIVERUS		MARGINAL MARINE
570.0	SWC	MOD	GOOD	2	1	0	97	LOW	V HIGH	M. DIVERSUS, MID-LOW		MARGINAL MARINE
608.0	SWC	MOD	GOOD	<1	0	2	98	EX LOW	V HIGH	M. DIVERSUS, MID-LOW		MARGINAL MARINE
623.0	SWC	LOW	GOOD	<1	0	30	70	LOW	HIGH	L. BALMEI		MARGINAL MARINE
632.5	SWC	MOD	GOOD	<1	58	3	49	MOD	V HIGH	F. LONGUS	M. DRUGGII, UP	SHELFAL MARINE
635.5	SWC	VERY LOW	GOOD	2	0	6	92	EX LOW	HIGH	F. LONGUS	M. DRUGGII, LOW	MARGINAL MARINE
751.0	SWC	HIGH	GOOD	8	0	1	91	LOW	V HIGH	P. MAWSONII, LOW	P. INFUSORIDES, LOW	VERY NEARSHORE

*1 NOTE : PRESERVATION
(FRAGMENTATION INDEX)
1 = SUPERB
2 = EXCELLENT
3 = GOOD
4 = FAIR
5 = POOR

*2 DIVERSITY	
VERY HIGH	30+ SPECIES
HIGH	20-29 SPECIES
MODERATE	10-19 SPECIES
LOW	5-9 SPECIES
EX LOW	1-4 SPECIES

*3 ENVIRONMENTS	DINOFLAGELLATE CONTENT %	DINOFLAGELLATE DIVERSITY	FRESHWATER ALGAE CONTENT%
OFFSHORE MARINE	67 to 100	VERY HIGH	LOW
SHELFAL MARINE	34 to 66	HIGH	"
NEARSHORE MARINE	11 to 33	MODERATE	"
VERY NEARSHORE MARINE	5 to 10	MODERATE-LOW	"
MARGINAL MARINE	<1 to 4	LOW-VERY LOW	"
BRACKISH	0, SPINY ACRITARCHS ONLY	EXTREMELY LOW	"
NON-MARINE (UNDIFF)	0, NO SPINY ACRITARCHS	NIL	LOW <3
NON-MARINE (LACUSTRINE)	0, NO SPINY ACRITARCHS	NIL	MODERATE 3-10+

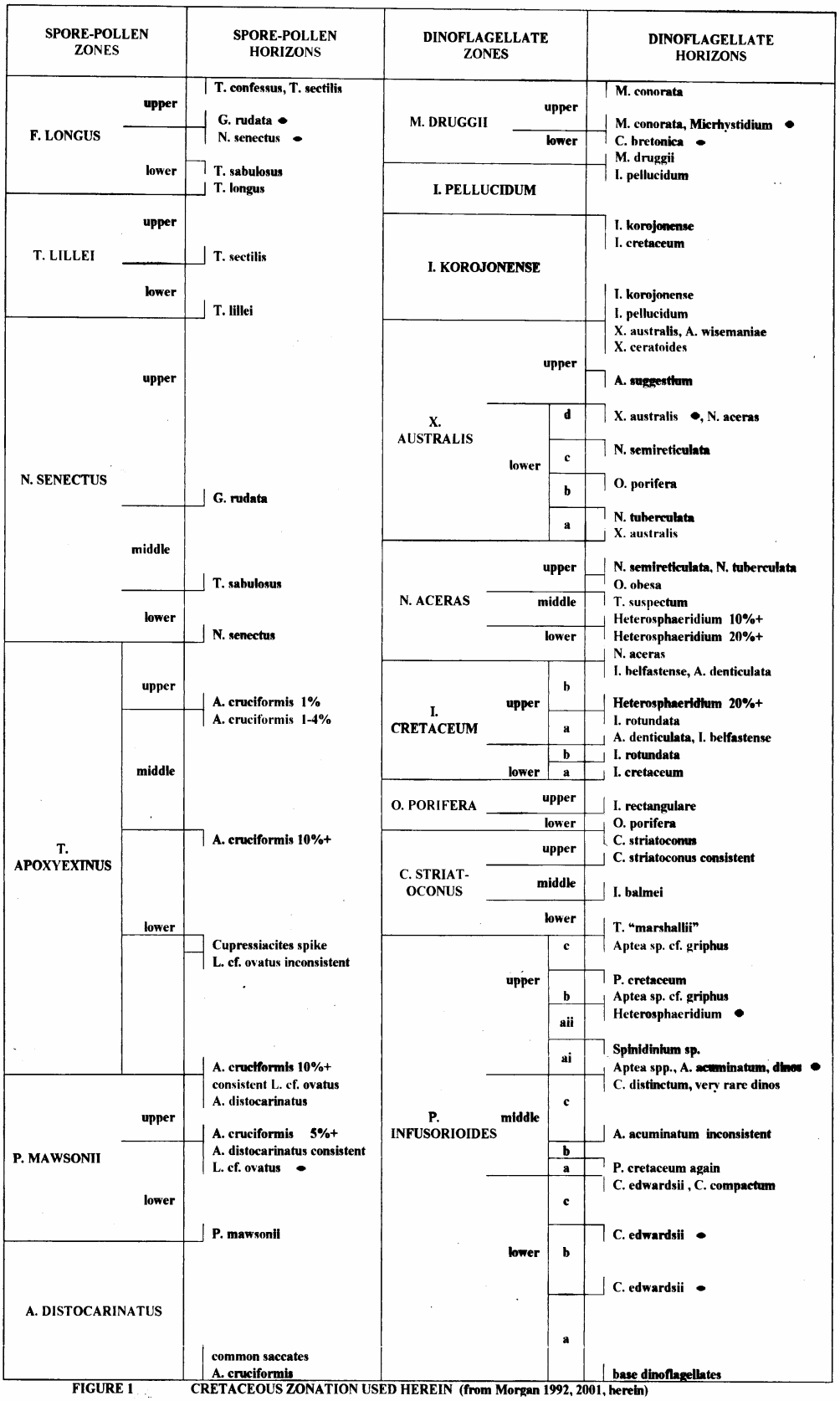


FIGURE 1 CRETACEOUS ZONATION USED HEREIN (from Morgan 1992, 2001, herein)

● = frequent (4-10%) ● = common (11-30%)

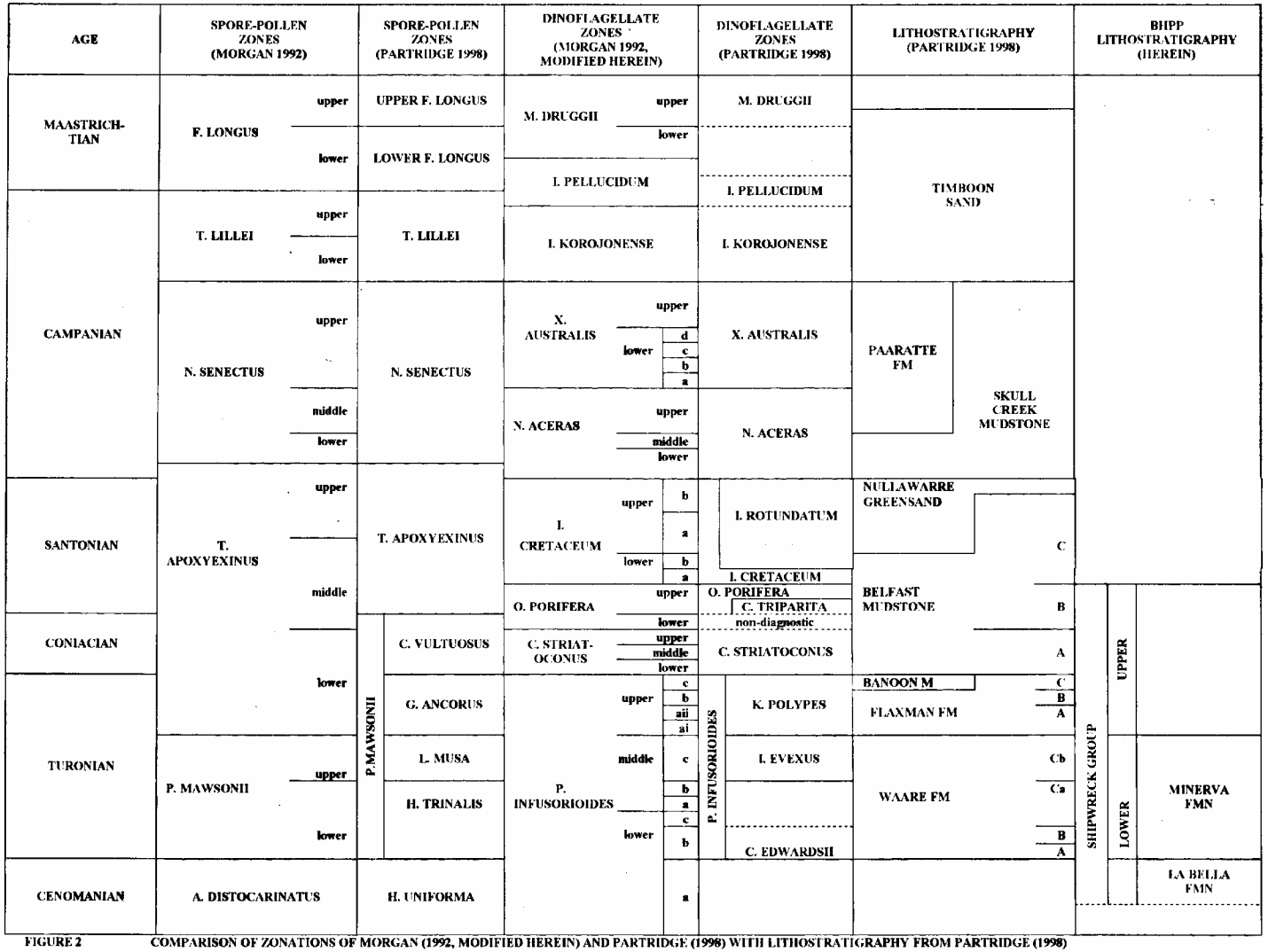


FIGURE 2 COMPARISON OF ZONATIONS OF MORGAN (1992, MODIFIED HEREIN) AND PARTRIDGE (1998) WITH LITHOSTRATIGRAPHY FROM PARTRIDGE (1998)

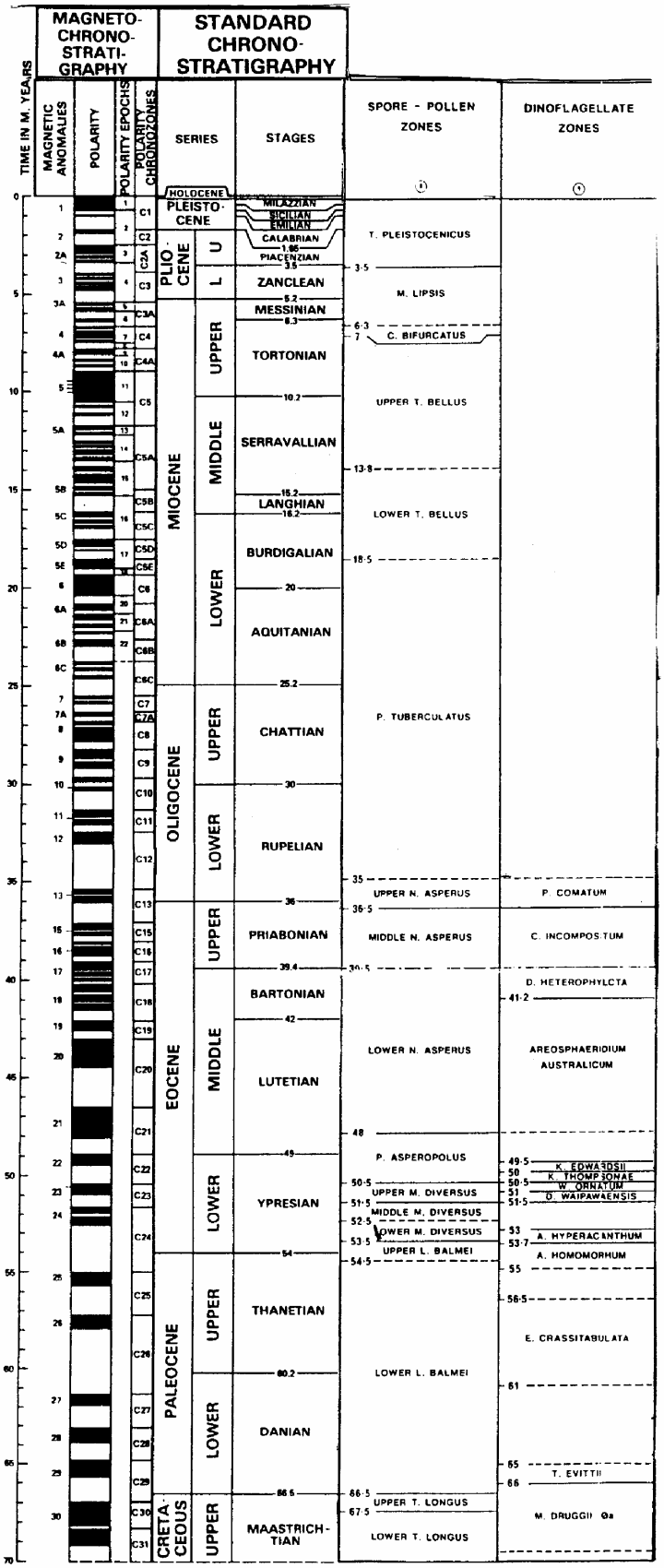
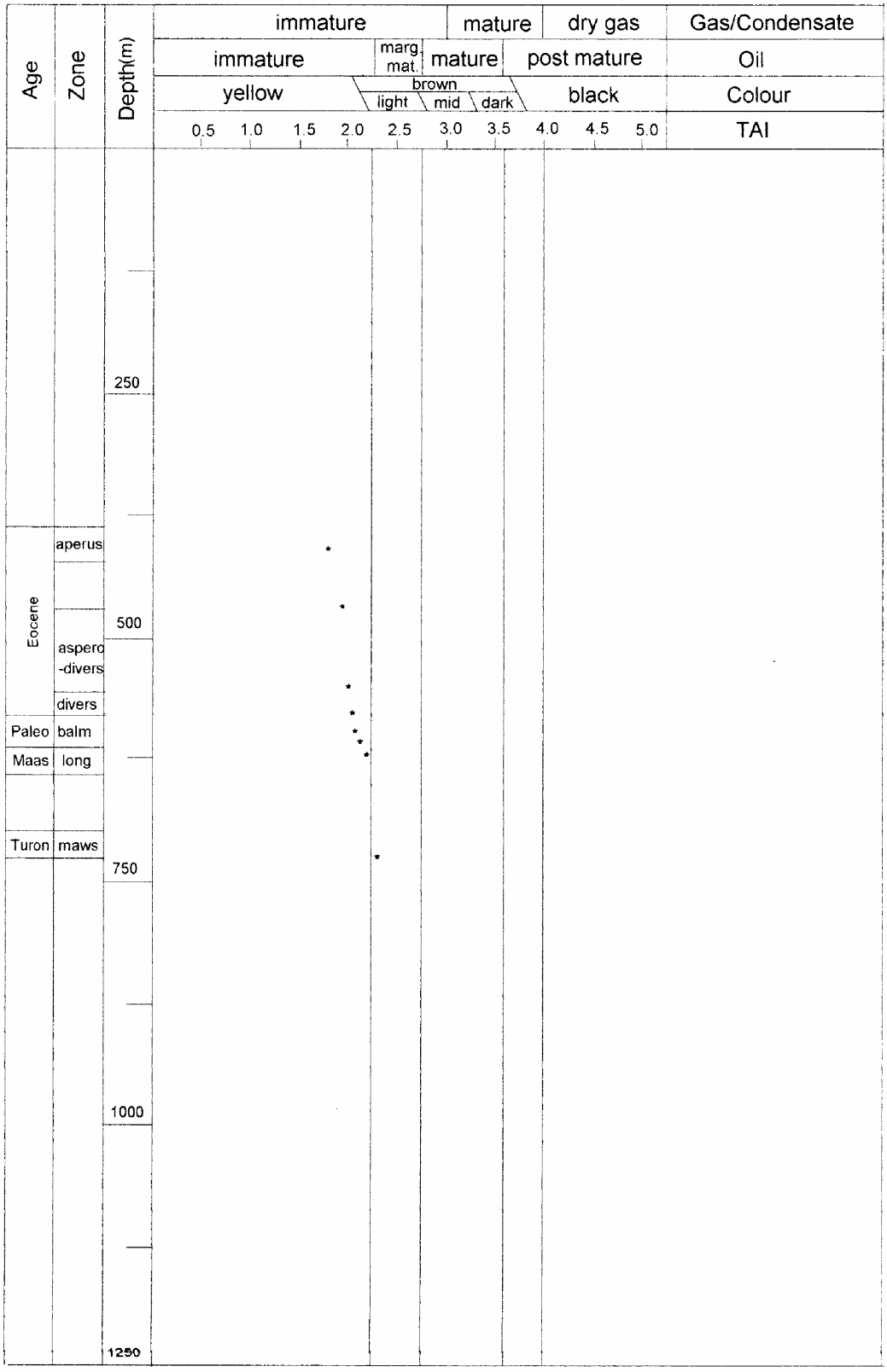


FIGURE 3 **TERTIARY ZONATION SCHEME (Partridge 1976 and pers. comm. using time scale of Haq et al)**

FIGURE 4 MATURITY PROFILE : KOROIT WEST-1



3 PALYNOSTRATIGRAPHY

3.1 436.0 m (swc) : *N. asperus* Zone

Assignment is indicated by the dominant *Nothofagidites* spp., especially common *N. emarcidus* and rare *N. falcata*. Subzonal assignment is not possible with this lean assemblage, but the presence of *Riccia* sp. suggests the middle subzone or younger. Overall, common are *Dilwynites granulatus* and *N. emarcidus* with frequent *Cyathidites minor, Falcisporites similis, Haloragacidites harrisii, Lygistepollenites florinii* and *Vitreisporites pallidus*. Rare elements include *Malvacipollis subtilis, N. falcata* and *Spinozonocolpites prominatus*.

Dinoflagellates are minor and not age diagnostic. *Spiniferites ramosus* is common with other elements rare.

Nearshore marine environments are indicated by the dominant and diverse spores and pollen and the minor low diversity dinoflagellates.

Colourless spore colours indicate immaturity for hydrocarbons.

3.2 498.5 m (swc) – 545.0 m (swc) : upper *M. diversus-P. asperopolus* Zones

Assignment is indicated by common *H. harrisii* at the top and oldest *Proteacidites pachypolus* at the base. Common are *C. minor, F. similis, H. harrisii* and *V. pallidus*, with frequent *Ericipites scabratus, Laevigatosporites ovatus, L. florinii, Microcachryidites antarcticus, Phyllocladidites mawsonii* and *Proteacidites* spp. Rare elements include *Anacolosidites acutullus, Cyathidites gigantis, Malvacipollis diversus, Periporopollenites demarcatus, P. pachypolus, Proteacidites grandis* and *Stereisporites punctatus*. Rare reworking was seen from the Permian and Early Cretaceous (*Coptospora paradoxa, Pilosisporites notensis*).

Dinoflagellates are very rare. *Muratodinium fimbriatum* at 498.5 m (swc) and *Deflandrea pachyoceros* at 545.0 m (swc) consistent with the spore-pollen assignment.

Marginal marine to very nearshore marine environments are indicated by the minor low diversity dinoflagellates amongst the dominant and diverse spores and pollen.

Colourless spore colours indicate immaturity for hydrocarbons.

3.3 570.0 m (swc) – 608.0 m (swc) : middle to lower *M. diversus* Zone

Assignment is indicated at the top by the absence of younger markers and confirmed by youngest *Tricolpites phillipsii*. At the base, the absence of older markers plus oldest *M. diversus* and *P. demarcatus* indicate the assignment. Common are *C. minor, D. granulatus, F. similis, Proteacidites* spp. and *V. pallidus*, with frequent *H. harrisii, L. ovatus, L. florinii, M. antarcticus* and *P. mawsonii*. Rare elements include *C. gigantis, M. diversus, M. subtilis, P. demarcatus, P. grandis, Proteacidites kopiensis* and *T. phillipsii*. Rare Permian reworking was seen.

Dinoflagellates are extremely rare but include *Apectodinium quinquelatum, D. pachyceros* and *Deflandrea truncata*, consistent with the spore-pollen assignment.

Marginal marine environments are indicated by the minor low diversity dinoflagellates amongst the dominant and diverse spores and pollen.

Colourless spore colours indicate immaturity for hydrocarbons.

3.4 623.0 m (swc) : *L. balmei* Zone

Assignment is indicated at the top by youngest *Lygistepollenites balmei* and at the base by the absence of older markers. In this lean assemblage, common are *F. similis* and *V. pallidus* with frequent *C. minor, M. antarcticus, P. mawsonii* and *Proteacidites* spp. Rare elements include *Australopollis obscurus, Herkosporites elliottii, L. balmei, Periporopollenites polyoratus, Peninsulapollis gillii* and *T. phillipsii.* The absence of *P. grandis* suggests the lower subzone. Rare Permian reworking was seen.

Dinoflagellates are rare but include *Cerodinium speciosum* and *Palaeoperidinium pyrophorum* consistent with the lower part of the *L. balmei* Zone. Other microplankton include frequent saline acritarchs (*Micrhystridium* spp.) and freshwater algae (common *Paralecaniella indentata* and frequent leiospheres).

Marginal marine environments are indicated by the frequent spiny acritarchs, rare dinoflagellates, common freshwater algae and dominant and diverse spores and pollen.

Yellow spore colours indicate immaturity for hydrocarbons.

3.5 632.5 m (swc) – 635.5 m (swc) : upper *F. longus* Zone and *M. druggii* Zone

Assignment is indicated at the top by youngest *Quadraplanus brossus* and *Tubuliflordites lillei* and at the base by oldest *S. punctatus*. *Gambierina rudata* is more frequent than *Nothofagidites endurus*. Common are *F. similis* and *Proteacidites* spp. with frequent *D. granulatus, M. antarcticus, O. wellmanii* and *V. pallidus.* Rare elements include *G. rudata, L. balmei, N. endurus, Q. brossus, S. punctatus* and *T. lillei*. At 635.5 m, a lean assemblage contains minor mud contamination from the upper *L. balmei* Zone including *H. harrisii, M. subtilis* and *P. grandis.*

Microplankton include *Manumiella conorata* in both samples, indicating the *M. druggii* Zone. At 632.5 m, *Micrhystridium* spp. are super-abundant, indicating the upper subzone. At 635.5 m (swc), *Micrhystridium* spp. are rare, indicating the lower subzone. Dinoflagellates are all rare but include *M. druggii, M. conorata* and *Palaeocystodinium australinum.*

Environments are shelfal marine at 632.5 m (indicated by subequal proportions of saline microplankton and terrestrial spores and pollen) and marginal marine at 635.5 m (indicated by minor low diversity saline microplankton and dominant and diverse spores and pollen).

Yellow spore colours indicate immaturity for hydrocarbons.

3.6 751.0 m (swc) : lower *P. mawsonii* Zone and lower *P. infusorioides* Zone

Spore-pollen assignment is indicated by youngest *Hoegisporis "trinalis"* at the top and oldest *P. mawsonii* at the base. Common are *C. minor, Cupressiacites* spp., *F. similis* and *M. antarcticus* with frequent *O. wellmanii, P. mawsonii, P. microsaccatus, S. antiquasporites* and *V. pallidus.* Rare elements include *Appendicisporites distocarinatus, Cicatricosisporites australiensis, Cicatricosisporites ludbrookiae* and *H." trinalis"*. Rare reworking includes the Early Cretaceous (*Foraminispors wonthaggiensis, P. notensis*) and Triassic.

Microplankton comprise rare dinoflagellates including consistent/frequent *Cribroperidinium edwardsii* indicating the dinoflagellate subzone. Other rare elements include *Amosopollis cruciformis, Chlamydophorella nyei, Cyclonephelium compactum* and *Palaeoperidinium cretaceum*.

Very nearshore marine environments are indicated by the minor moderately diverse dinoflagellates and the dominant and diverse spores and pollen.

Light brown spore colours indicate marginal maturity for oil but immaturity for gas/condensate.

4 REFERENCES

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Appendix 9:Fluid Analyses

REPORT
Explosives
Water & Waste Water
Environmental
Food & Pharmaceuticals
Micro Biological

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Analytical Report

OIL COMPANY OF AUSTRALIA (ORIGIN ENERG
GPO BOX 148
BRISBANE

QLD 4001

Contact	: **HOLLY PHILLIPS**
Batch Number	: **0310306**
Job Ref	: **OTWAY BASIN, KORO**
Sample(s) Received	: **17/06/2003**
Report No	: **96921**

Methods:

501-FID Total Petroleum Hydrocarbons, mg/kg
501-FID Total Petroleum Hydrocarbons, Oil

Attached Results Approved by:

Anthony Crane
B.App.Sci. (Environmental)
Laboratory Manager

Daniel Dam
B.App.Sci (Chemistry)
Senior Analyst - Semi-Volatiles

This Laboratory is accredited by the National Association of Testing Authorities, Australia. The tests reported herin have been performed in accordance with its terms of accreditation.

NATA ENDORSED DOCUMENT

NATA Accreditation No. 1645 (Chemical Testing) NATA Accreditation No. 14278 (Biological Testing)

**** This is the Final Report which supersedes any reports previously issued relating to the sample(s) included.***

All samples tested as submitted by client.

 # Denotes methods not covered by NATA terms of accreditation

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Results

Report No: **96921**

	0310306/001 #15	***0310306/002 #16***
	MISC 16/06/2003	***MISC 16/06/2003***
HYDROCARBONS, AS RECEIVED		
Method: 501-FID Units: mg/kg		
TPH C10 - C14	<20	<20
TPH C15 - C28	<20	40
TPH C29 - C36	<20	39
TPH fingerprint match #	COMMENT	COMMENT

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Quality Results

Report No: 96921

	0310306Q003 QCBlank METHOD BLANK 19/06/2003	0310306Q004 Spike Recovery LAB CONTROL 19/06/2003	0310306Q005 Spike Recovery SOIL 19/06/2003
HYDROCARBONS, AS RECEIVED			
Method: 501-FID Units: mg/kg			
TPH C10 - C14	<20	-	-
TPH C15 - C28	<20	-	-
TPH C29 - C36	<20	-	-
QC RESULTS - SPIKED SAMPLES			
Percent Recovery, %			
TPH C10 - C14	-	92.5	101
TPH C15 - C28	-	93.3	102
TPH C29 - C36	-	102	-

Quality Results provided in this report are for laboratory Quality Control purposes.

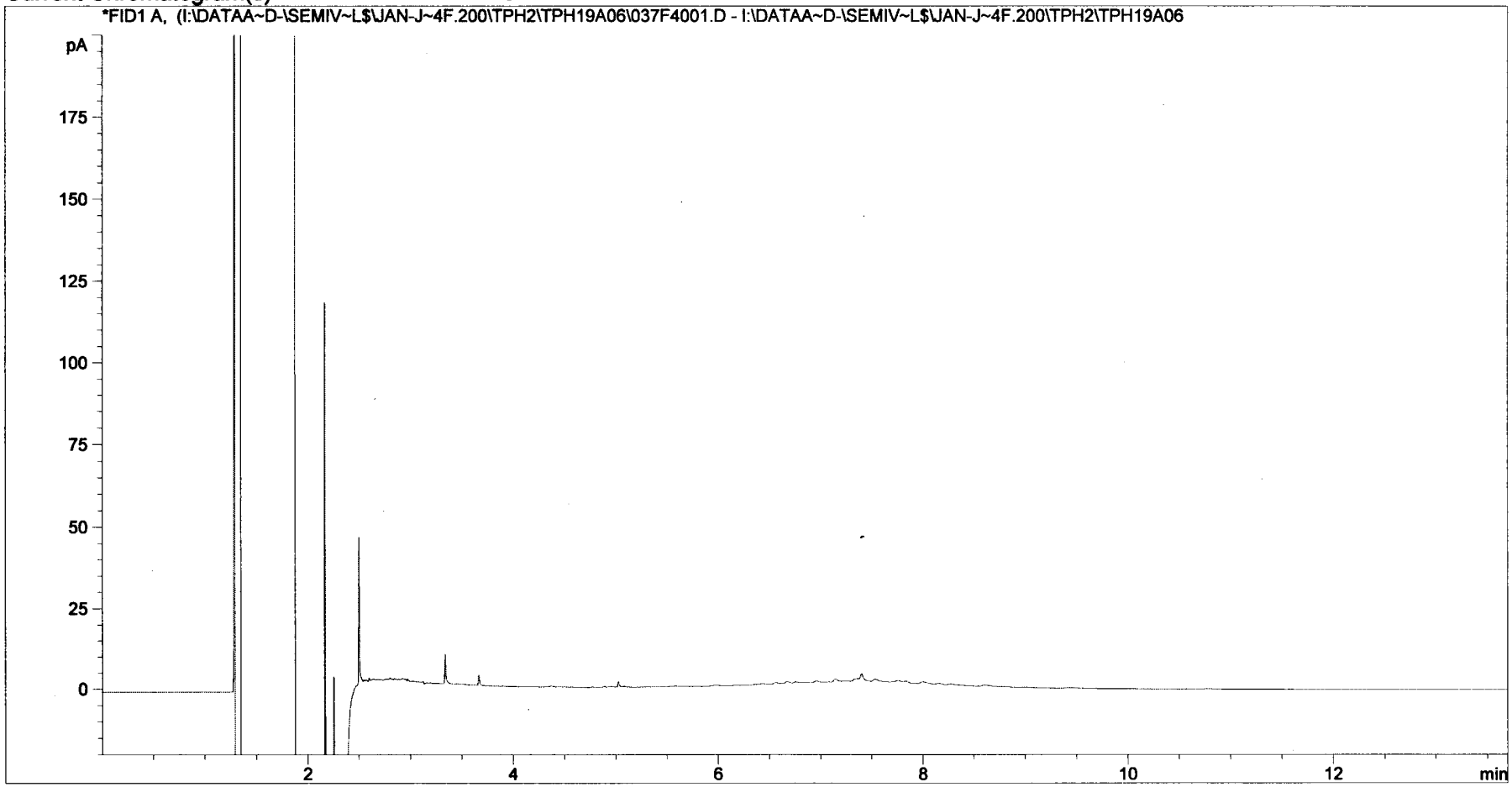
Sample Comments:

0310306/001	No TPH detected.
0310306/002	Trace level of TPH detected, but unable to match to any common hydro-carbon due to low leve

Print of window 38: Current Chromatogram(s)

Injection Date : 6/20/03 8:05:14 AM Seq. Line : 40
Sample Name : 0310306/001 Vial : 37
Acq. Operator : njp Inj : 1
Inj Volume : 2 µl
Acq. Method : C:\HPCHEM\1\METHODS\TPHNEW.M
Last changed : 6/12/03 12:31:55 PM by njp
Analysis Method : C:\HPCHEM\1\METHODS\030917.M
Last changed : 9/18/03 10:40:09 AM by ntj
(modified after loading)
TPH analysis C10+.

Current Chromatogram(s)

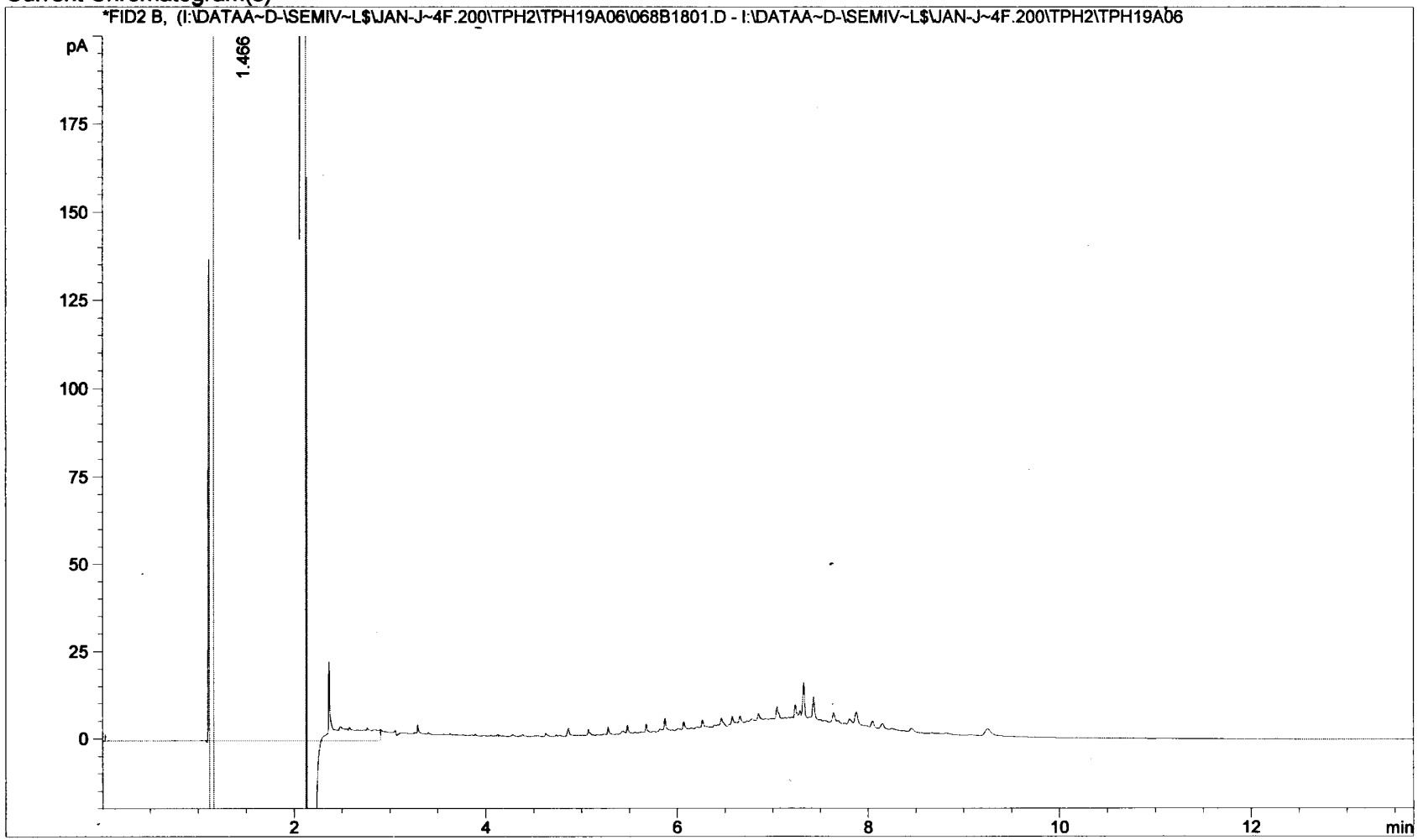


TPH_2 9/18/03 1:22:57 PM ntj

Print of window 38: Current Chromatogram(s)

Injection Date : 6/20/03 12:55:01 AM Seq. Line : 18
Sample Name : 0310306/002 Vial : 68
Acq. Operator : njp Inj : 1
Inj Volume : 2 µl
Acq. Method : C:\HPCHEM\1\METHODS\TPHNEW.M
Last changed : 6/12/03 12:31:55 PM by njp
Analysis Method : C:\HPCHEM\1\METHODS\030917.M
Last changed : 9/18/03 10:40:09 AM by ntj
(modified after loading)
TPH analysis C10+.

Current Chromatogram(s)



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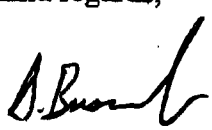
Facsimile: 61 7 3357 1100
Phone: 61 7 3357 1133

Date:	24th February 2003		
To:	Chris Shield	***Company:***	Oil Company of Australia Ltd
Fax:	3858 0248	***Copy to:***	
Subject:	Koroit West-1 Water Analysis		
Our Ref:	0583-06/001:sb	***Your Ref:***	
Sender:	Steve Buscumb	***Total Pages:***	6

Hi Chris,

Please find attached a draft copy of the water analysis for the MDT water sample and the mud filtrate sample collected from the Koroit West-1 well. A final report will be issued to you shortly.

Kind regards,



STEVE BUSCUMB
Reservoir Fluids & PVT Analysis

WATER ANALYSIS

Client : Oil Company of Australia
Well: Koroit West-1
Sample: 1 - MDT Water
Date: 22/1/2003

CHEMICAL COMPOSITION

	Cations		Anions	
	mg/L	meq/L	mg/L	meq/L
Sodium (Na):	1010.0	43.9		
Calcium (Ca):	62.0	3.1		
Magnesium (Mg):	37.0	3.0		
Iron (Fe):	0.1	0.0		
Potassium (K):	1420.0	36.3		
Chloride (Cl):			2650.0	74.6
Bi-Carbonate (HCO_3):			507.0	10.1
Sulphate (SO_4):			92.0	1.9
Carbonate (CO_3):			<1.0	0.0
Fluoride (F)			2.1	0.1
Hydroxide (OH):			<1.0	0.0
Bromide (Br):			7.8	0.1
Nitrate (NO_3):			<0.1	0.0

DERIVED DATA

	mg/L
Total Dissolved Solids:	
Based on E.C	5600
Calculated ($HCO_3 = CO_3$)	5820
Total Hardness (as Ca CO_3)	305
Total Alkalinity (as Ca CO_3)	507

OTHER ANALYSES

Resistivity	1.030 ohm.m @ 25 °C
Conductivity (E.C)	9700.0 µS/cm @ 25 °C
Reaction - pH	8.0

TOTAL AND BALANCE

Cations	86
Anions	87
Ion Balance (Diff*100/sum)	0.232
Sodium Adsorption Ratio	25.1
Difference (Anions - Cations)	0.40
Sum (Anions + Cations)	173.2

WATER ANALYSIS

Client : Oil Company of Australia
Well: Koroit West-1
Sample: 2 - Mud Filtrate
Date: 22/1/2003

CHEMICAL COMPOSITION

	Cations		Anions	
	mg/L	meq/L	mg/L	meq/L
Sodium (Na):	2370.0	103.1		
Calcium (Ca):	236.0	11.8		
Magnesium (Mg):	116.0	9.5		
Iron (Fe):	1.1	0.0		
Potassium (K):	14900.0	381.1		
Chloride (Cl):			15700.0	442.2
Bi-Carbonate (HCO_3):			10400.0	207.8
Sulphate (SO_4):			387.0	8.1
Carbonate (CO_3):			120.0	2.0
Fluoride (F)			1.7	0.1
Hydroxide (OH):			<1.0	0.0
Bromide (Br):			38.4	0.5
Nitrate (NO_3):			0.4	0.0

DERIVED DATA

Total Dissolved Solids:	mg/L
Based on E.C	40500
Calculated ($HCO_3 = CO_3$)	39100
Total Hardness (as Ca CO_3)	1070
Total Alkalinity (as Ca CO_3)	10500

OTHER ANALYSES

Resistivity	0.154 ohm.m @ 25 °C
Conductivity (E.C)	65100.0 µS/cm @ 25 °C
Reaction - pH	8.7

TOTAL AND BALANCE

Cations	506
Anions	660
Ion Balance (Diff*100/sum)	13.264
Sodium Adsorption Ratio	31.5
Difference (Anions - Cations)	154.61
Sum (Anions + Cations)	1165.7

Appendix 10:Petrology

RESERVOIR SOLUTIONS PTY LTD
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PETROLOGY OF SAMPLES FROM KOROIT WEST-1, OTWAY BASIN, PEP 152

Julian C. Baker PhD

A report to:

Oil Company of Australia Ltd.
339 Coronation Drive
Milton QLD 4064

22 July, 2003

C O N T E N T S

1. INTRODUCTION

A petrological study was carried out on two samples from 432.0mKB (#25) and 566.9mKB (#15) in Koroit West-1, Otway Basin (PEP 152) to determine lithology, mineralogy, diagenetic effects and porosity characteristics.

2. ANALYTICAL PROGRAM

Thin-sections were cut in kerosene, impregnated with blue-dyed epoxy resin to aid porosity recognition, and stained with sodium cobaltinitrite to aid feldspar identification. Mineral composition and visible porosity were determined by a count of 400 points, and mean grain size and sorting were estimated in thin-section with the aid of an eyepiece graticule. Photomicrographs were taken to illustrate texture, composition, clay distribution, diagenetic effects and porosity.

3. THIN-SECTION ANALYSES

Lithology, texture and composition are given in Table 1, and the QFR ratio for #15 is plotted in Figure 1. Annotated photomicrographs are presented in Appendix 1.

3.1. #25; 432.0M (CLIFTON FORMATION) (PLATES 1, 2)

This **biomicrite limestone** contains scattered, poorly sorted, fine to coarse (up to at least 3.6mm long) calcareous fossil allochems (shell fragments, echinoderm plates, forams) and angular to subangular, very fine to fine sand-sized detrital quartz grains that are supported by iron oxide/hydroxide-stained calcareous micrite matrix. The limestone also includes rare argillaceous siltstone intraclasts. Shell fragments are unabraded or slightly abraded. Clots of iron oxide/hydroxide replace allochems and micrite and fill intragranular cavities. Fine (0.05-0.10mm), authigenic dolomite rhombs are disseminated throughout the micrite matrix. Ignoring artifact porosity resulting from thin-section preparation, the limestone contains little (<0.3%) macroporosity and thus would have negligible permeability.

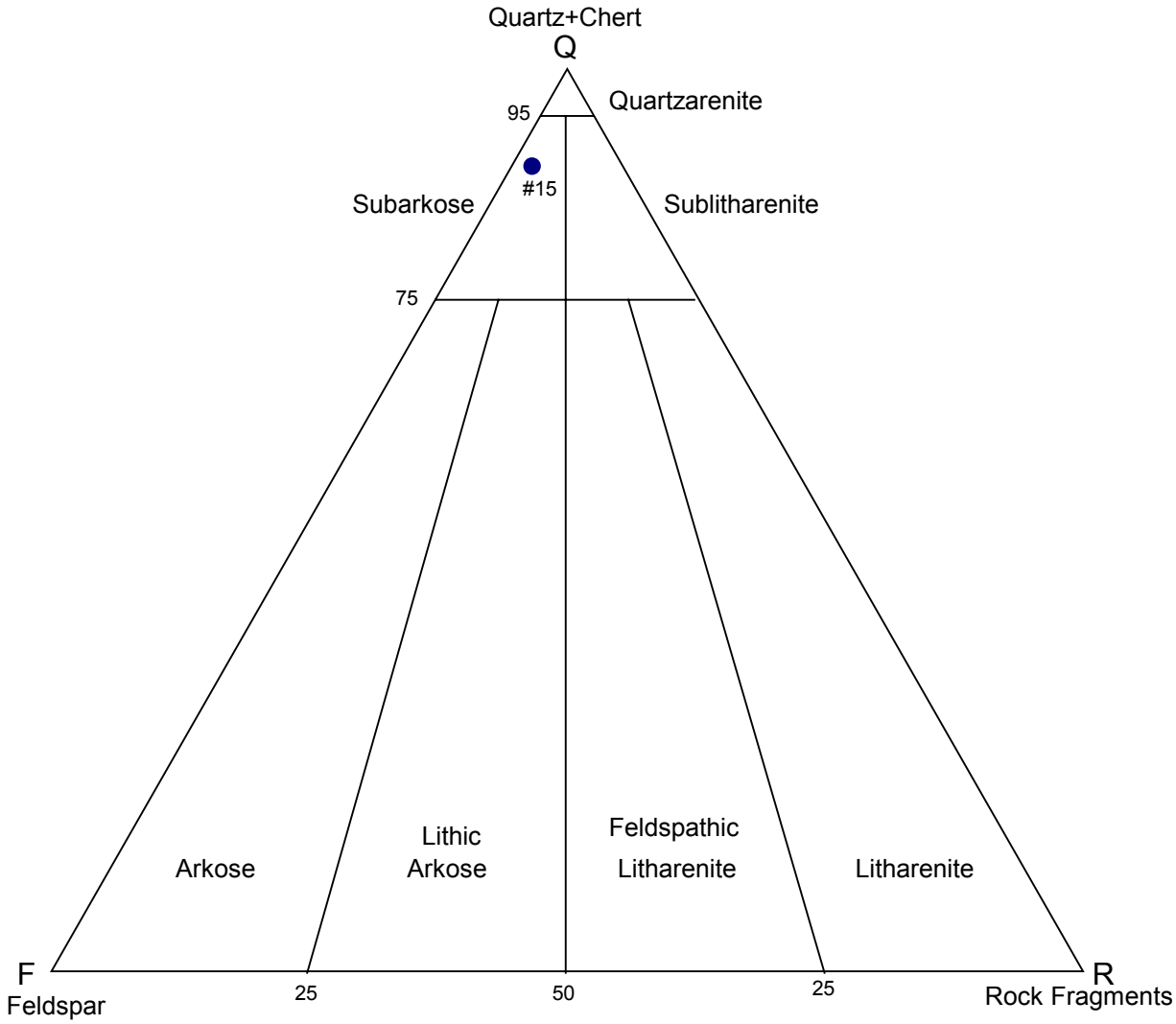
3.2. #15; 566.9M (PEMBER MUDSTONE) (PLATES 3, 4)

Framework grains in this grain/matrix-supported, moderately-well sorted, **fine grained, argillaceous subarkose** are mainly quartz and also include K-feldspar (fresh to slightly altered granitic orthoclase and microcline), plagioclase, chert, micaceous metamorphic rock fragments, felsic volcanic rock fragments, altered biotite, muscovite, organics, and accessory heavy minerals (tourmaline, monazite, zircon, opaques). Quartz grains are mainly angular to subangular. Detrital clay forms widely dispersed matrix and is also concentrated along irregular, very fine laminae, the distribution of which has been influenced by bioturbation. Clay also includes minor authigenic chlorite, kaolinite and illite that have formed by mica alteration. Zeolite forms rare poikilotopic cement patches. Fine pyrite framboids are associated with detrital clay and organic fragments. Little (2.0%) primary intergranular porosity is preserved due to extensive pore filling by detrital clay, authigenic clay, compacted micaceous grains, and compacted organic fragments. Primary intergranular porosity is mainly confined to localised areas that are relatively clean, but, with intervening areas being almost totally microporous due to pore filling by clay, would not be conducive to permeability.

TABLE 1. THIN-SECTION ANALYSES

Sample #	25	15
Depth (mKB)	432.0	566.9
Unit	Clifton Fm	Pember Mst
Lithology	limestone	argill. sst
Quartz	2.1	55.1
Chert	-	0.7
K-feldspar	-	4.7
Plagioclase	-	0.5
Volcanic rock fragments	-	0.3
Metamorphic rock fragments	-	0.7
Sedimentary rock fragments	0.3	-
Mica	-	0.7
Organics	-	1.8
Calcareous fossil	12.6	-
Iron oxide	37.9	-
Pyrite	-	1.8
Calcareous micrite	44.7	-
Dolomite	2.4	-
Authigenic kaolin	-	0.3
Authigenic illitic clay	-	0.3
Detrital clay	-	31.1
Primary porosity	-	2.0
Secondary porosity	-	-
Q (quartz + chert)	-	90.0
F (feldspar)	-	8.4
R (rock fragments)	-	1.6
Mean grain size (mm)	-	0.15
Grain size class	-	fine
Sorting class	-	mod-well

FIGURE 1. QFR COMPOSITION



4. SUMMARY AND CONCLUSIONS

- Samples #25 (432.0mKB) and #15 (566.9mKB) from Koroit West-1 are an iron oxide/hydroxide-stained biomicrite limestone and a bioturbated, fine grained, argillaceous subarkosic sandstone, respectively.

- The biomicrite limestone (#25) contains little macroporosity and would have negligible permeability.

- In the argillaceous subarkose (#15), most intergranular spaces are filled by detrital clay, authigenic clay, compacted micaceous grains, and compacted organic fragments. Minor primary intergranular porosity is confined to localised areas that are relatively clean, but, with intervening areas being almost totally microporous due to pore filling by clay, permeability would be low.

- Compacted, pyritic, detrital carbonaceous fragments in #15 account for all observed organics. Residual bitumen in absent.

APPENDIX 1.

PHOTOMICROGRAPHS

PLATE 1: #25 432.0m Clifton Formation

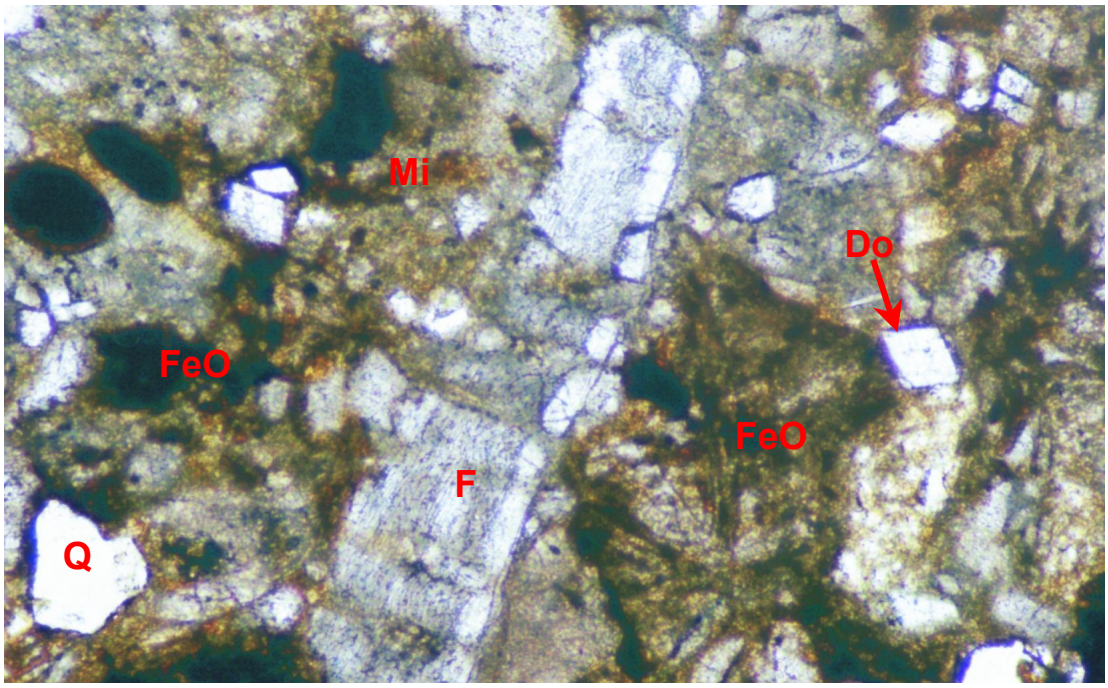
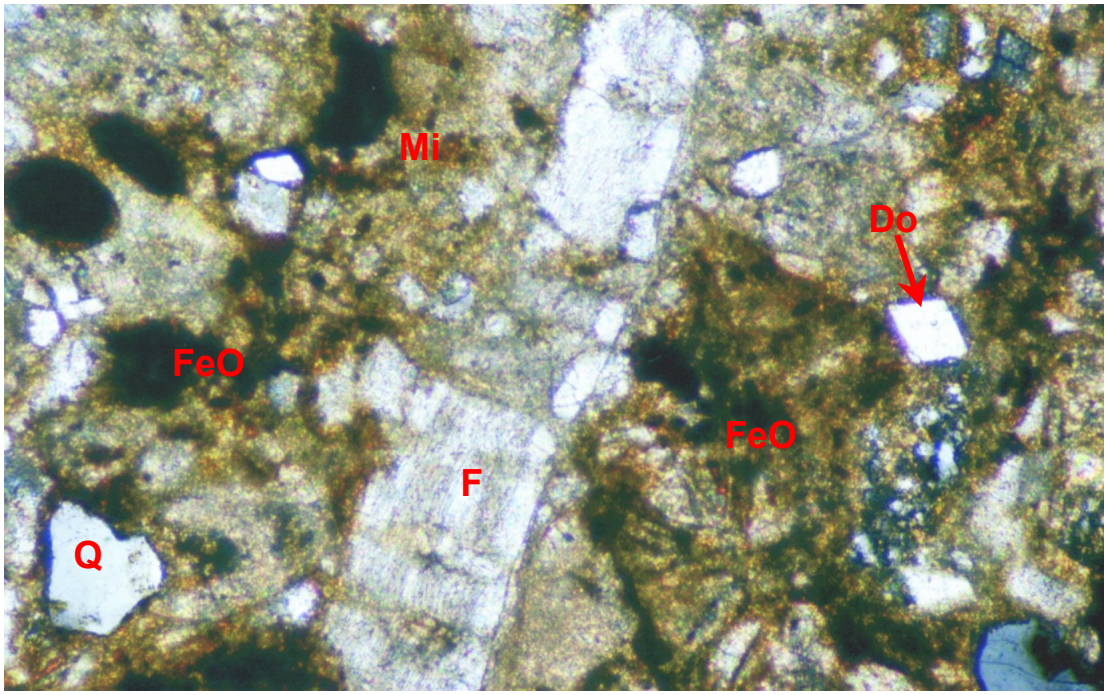


FIGURE 1 Plane polarised light
FIGURE 2 Crossed polarisers

0.2mm



Biomicrite limestone in which calcareous shell fragments (F) and detrital quartz grains (Q) are supported by iron-oxide/hydroxide (FeO)-stained micrite matrix (Mi) in which fine dolomite rhombs (Do) have precipitated.

PLATE 2: #25 432.0m Clifton Formation (cont.)

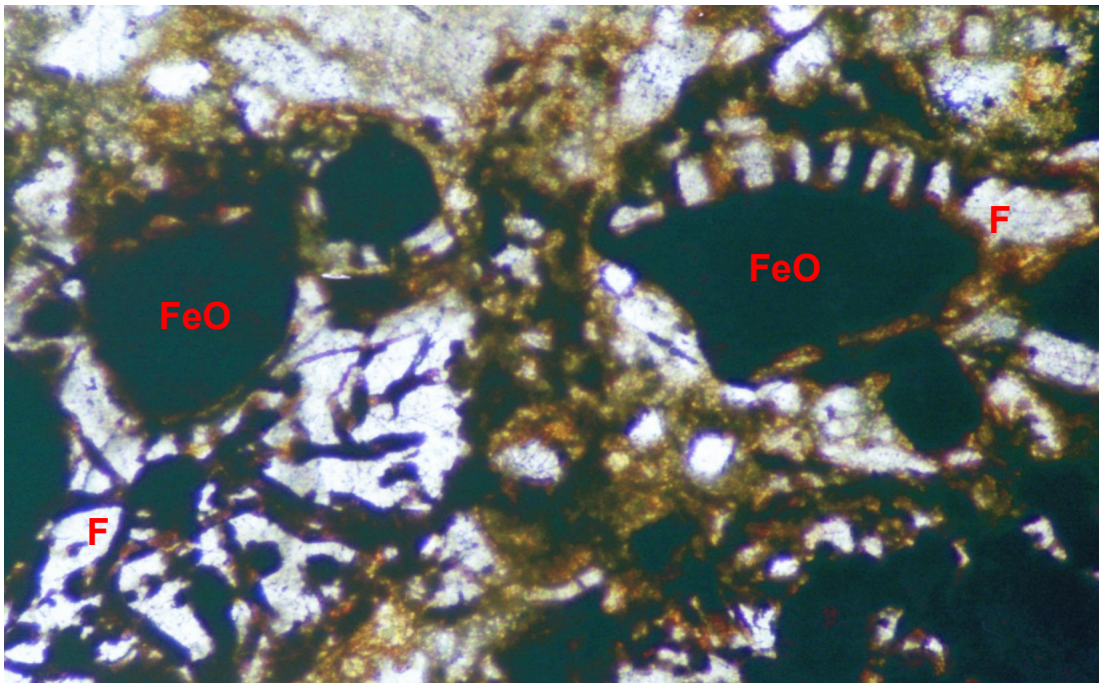
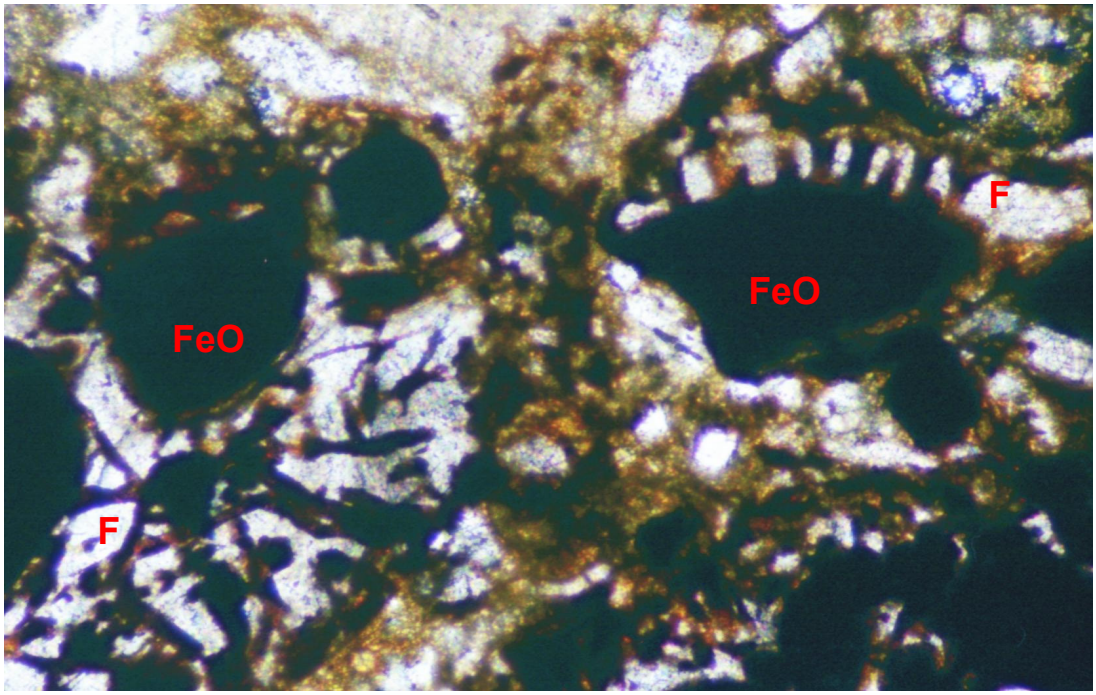


FIGURE 1 Plane polarised light

FIGURE 2 Crossed polarisers

0.2mm



Clots of iron oxide/hydroxide (FeO) replace calcareous fossils (F) and fill intragranular cavities. The limestone is strongly stained by iron oxide/hydroxide.

PLATE 3: #15 566.9m Pember Mudstone

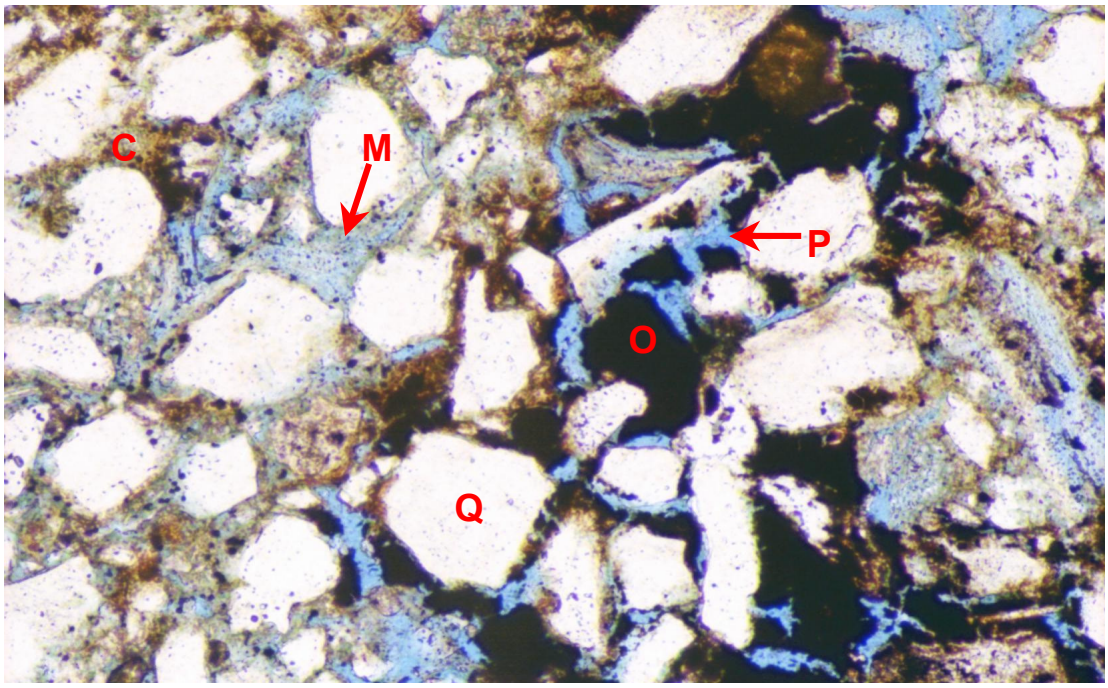
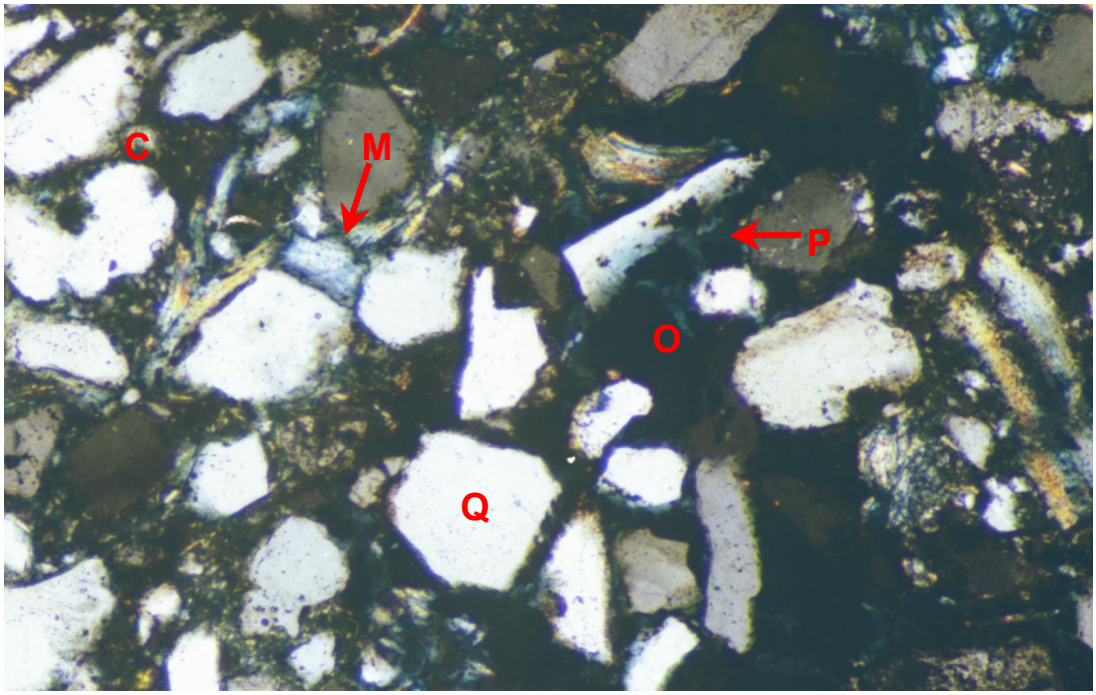


FIGURE 1 Plane polarised light

FIGURE 2 Crossed polarisers

0.2mm



Fine grained, argillaceous subarkose in which intergranular spaces between quartz framework grains (Q) are largely filled by compacted organic fragments (O), altered/compacted mica (M), and dispersed detrital clay matrix (C). Intergranular macroporosity (P) is localised and thus would not be conducive to permeability.

PLATE 4: #15 566.9m Pember Mudstone (cont.)

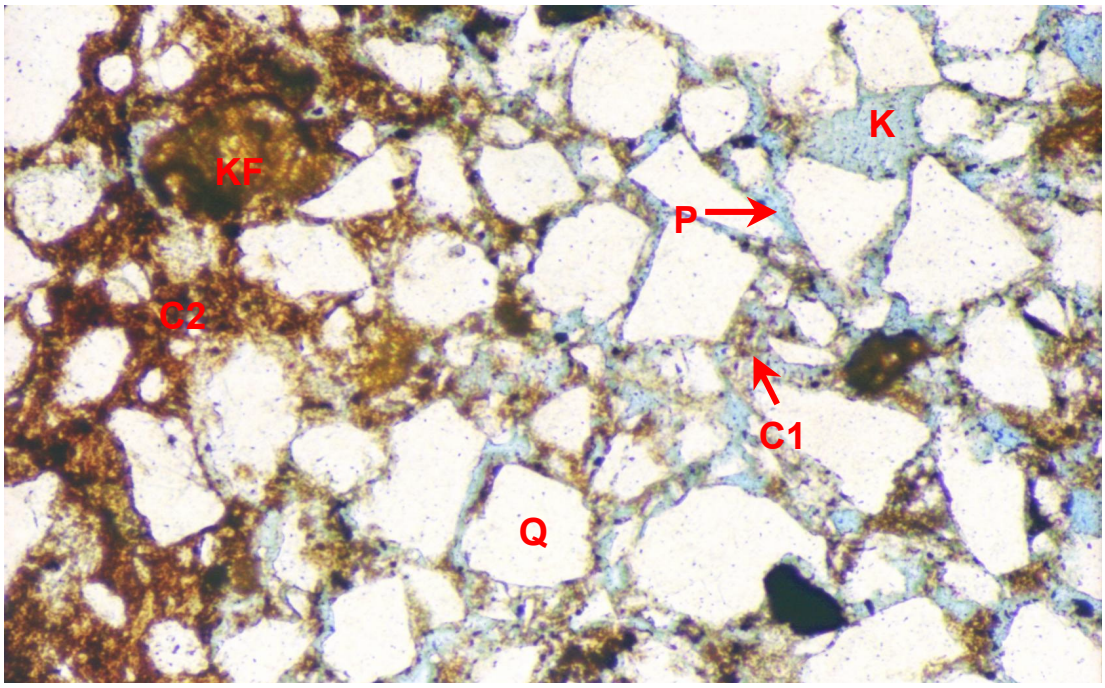
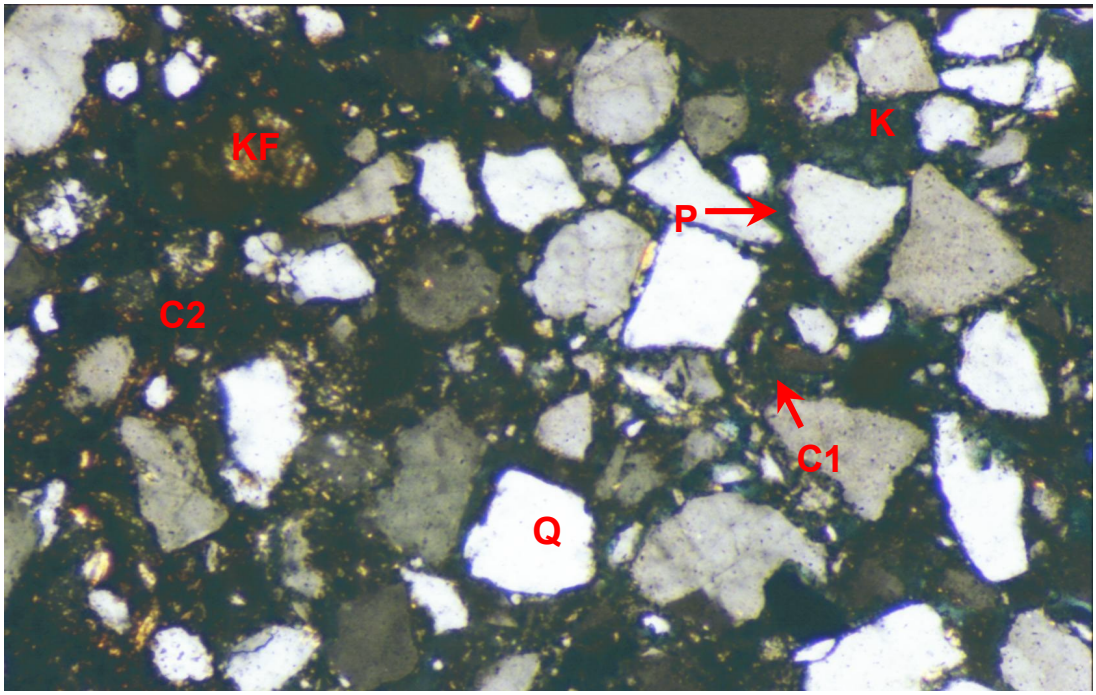


FIGURE 1 Plane polarised light
FIGURE 2 Crossed polarisers

0.2mm



Macroporosity (P) is confined to localised, relatively clean areas, but even here intergranular spaces are partly filled by authigenic kaolinite (K) and thinly dispersed detrital clay (C1). Elsewhere, intergranular spaces are completely filled by detrital clay matrix (C2). Framework grains are mainly quartz (Q) and K-feldspar (KF) (stained brown).

Appendix 11:Petrophysics

memorandum

To	Jenny Bauer	Date	23-January-2003
From	Chris Shield		
Copy	Richard Suttill, Rob Willink, Roger Blake		
Subject	**Koroit West-1 Preliminary Petrophysical Review (426-610mMDRT)**		

Ref: N:\chris\otway\exploration\Koroit_west_1\run-1\reports\Koroit West-1 Preliminary Petrophysical Memo.doc

A request was made from the Otway Asset Team to evaluate the reservoir and hydrocarbon potential of clastic reservoirs in the Clifton Formation and the Pember Mudstone.

A quick-look deterministic petrophysical analysis was conducted in CDP Petrolog v9.1 software. A complex lithology model was applied to evaluate the quality of the sandstones. An Indonesian saturation equation was applied, to allow for the shaley nature of some of the sandstones.

The log quality is of a high standard.

Clay volume (VCl) was calculated using the minima of a linear gamma ray, density-neutron, and sonic-density methods. Total log porosities were calculated from the density-neutron log, and were corrected to effective porosities using the VCl. The resistivity signature and lack of curve separation throughout the interpreted interval suggests that the permeabilities could be restricted.

The major uncertainty with this analysis is the choice of formation water resistivity to apply. The sandstones within the Parratte Formation were used to derive an Rwa, as these sandstones were described as clean, porous, and water-bearing. The best estimate of the formation water resistivity (Rw) is 7,250ppmNaCleq, as this value provides the best match to the data on the attached Hingle (Figure-1) and Pickett cross-plots (Figure-2). A log summary plot of the reservoirs applying this Rw is attached (Figure-3). However to generate sensitivities for this parameter, a high-side of 10,000ppmNaCleq, and a low-side of 3,000ppmNaCleq were calculated. Hingle plots and log summary plots are generated for these two cases (Figures 4-7).

Applying the preferred Rw of 7,250ppmNaCleq, all reservoirs between 490 and 570mMDRT are interpreted to contain residual levels of hydrocarbon. As there is no possibility of an 80-metre residual column at this locality, this result is interpreted as a series of sandstones separated by imperfect seals that have had hydrocarbon migrate through them.

The low-side of 3,000ppmNaCleq removes all evidence of hydrocarbon saturation, and suggests that the sandstones are 100% water-wet. This scenario contradicts the total gas readings provided by the wellsite geologist, and is not

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considered any further. The high-side case of applying 10,000 ppmNaCleq as the Rw increases hydrocarbon saturation in the reservoirs, but the levels of saturation are still suggestive of residual and not live hydrocarbons. As is visible on the the Hingle Plot for this case (Figure-6), this Rw value is optimistic to the extent that even the water-bearing Paaratte Formation is interpreted with up to 10% hydrocarbon saturation, and is not considered any further.

An attached plot displays in greater detail the available wireline log suite, the log analysis results, and displays flags identifying the location of reservoir and pay potential using the cut-offs listed on the plot. A reservoir summary table is attached, summarising the reservoir parameters. Finally, a summary of the petrophysical model, zonation, constants, and parameters was generated and attached.

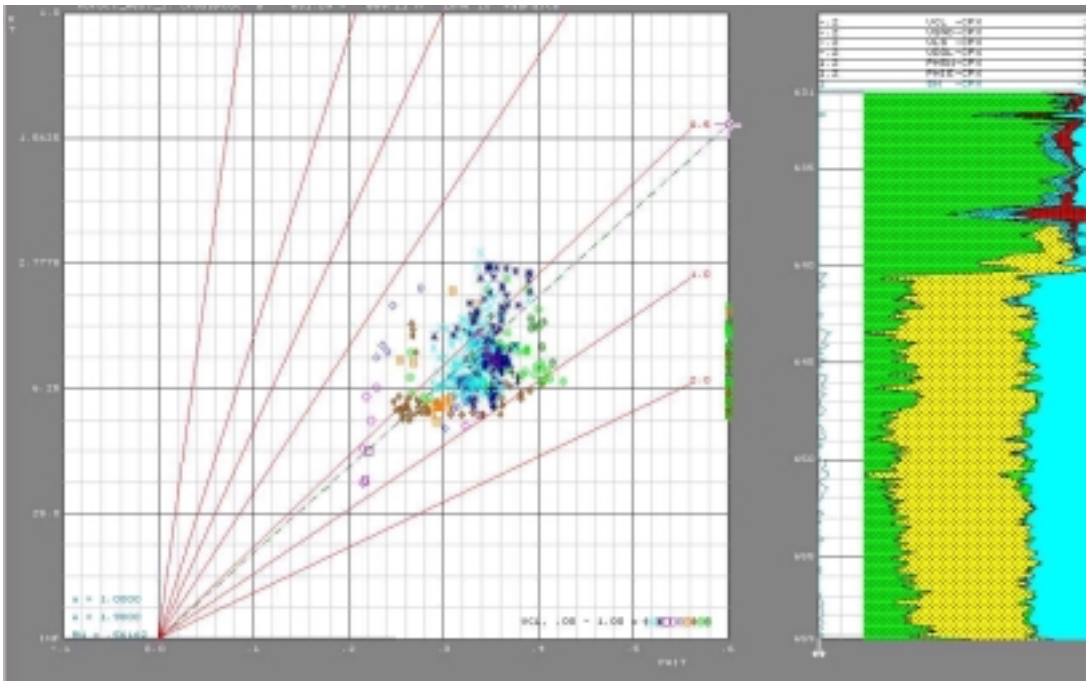

Figure-1: Hingle Plot for optimal case of Rw=7,250ppmNaCleq.

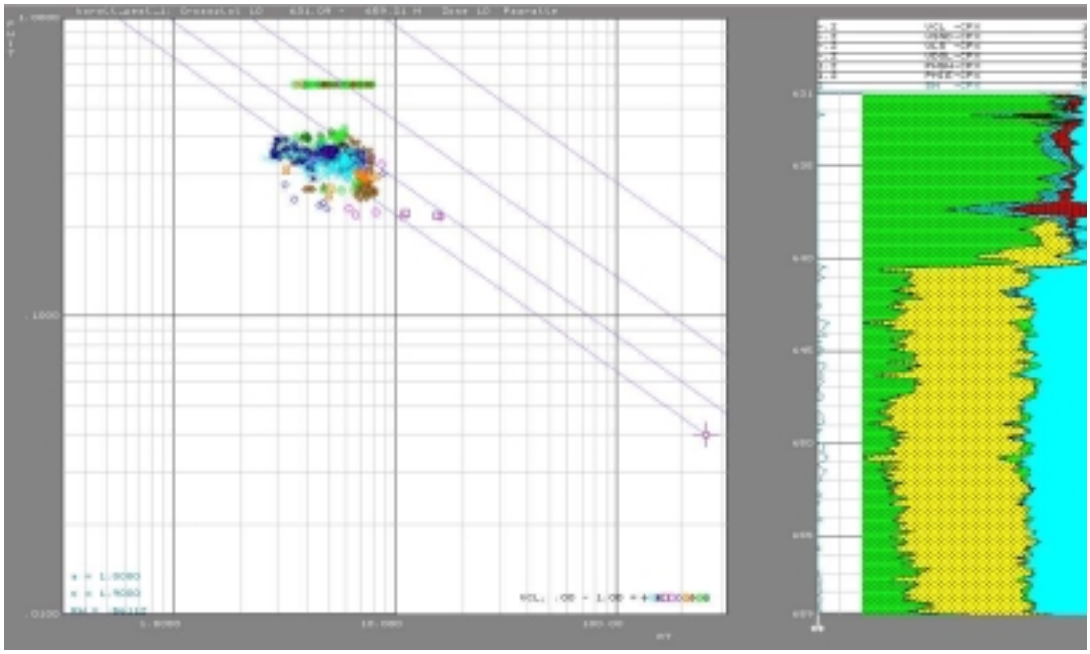

Figure-2: Pickett Plot for optimal case of Rw=7,250ppmNaCleq.

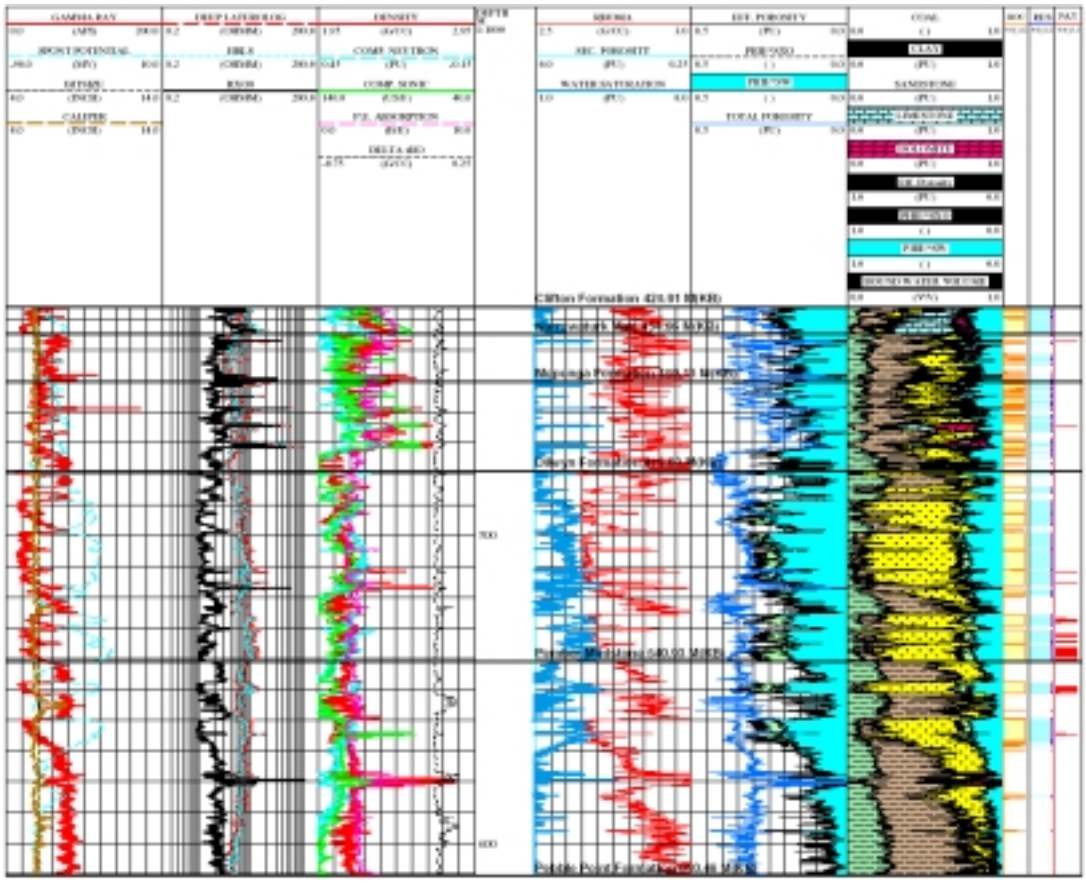

Figure-3: Well summary plot displaying the optimal case of Rw=7,250ppmNaCleq.

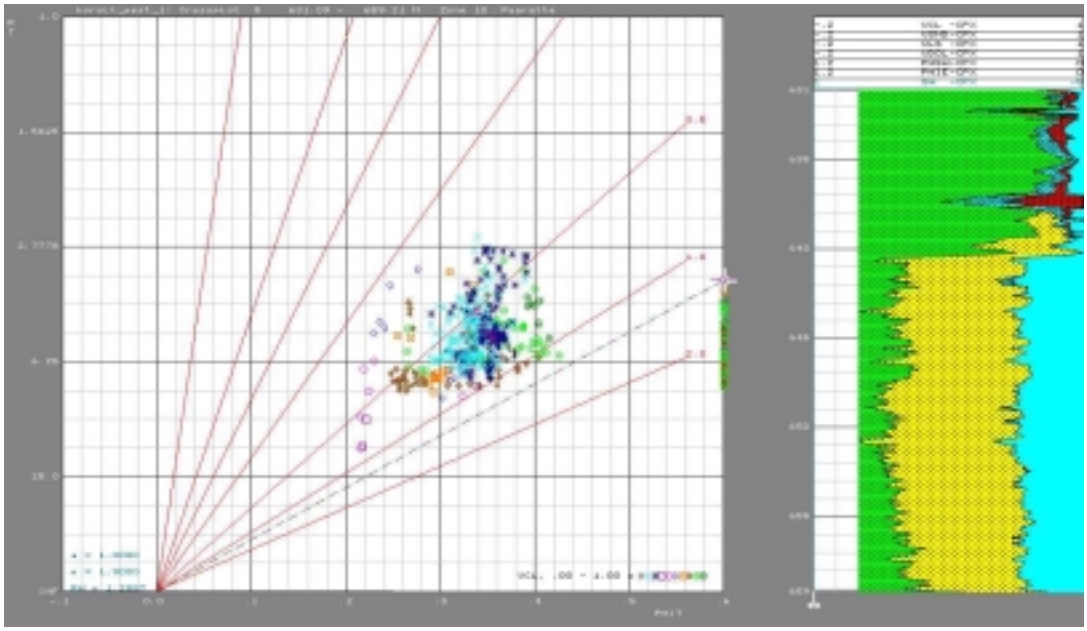

Figure-4: Hingle Plot for low-side case of Rw=3,000ppmNaCleq. Note the total lack of any hydrocarbon saturation, suggesting that this case may be too pessimistic and may tend to under-estimate any potential hydrocarbon saturation.

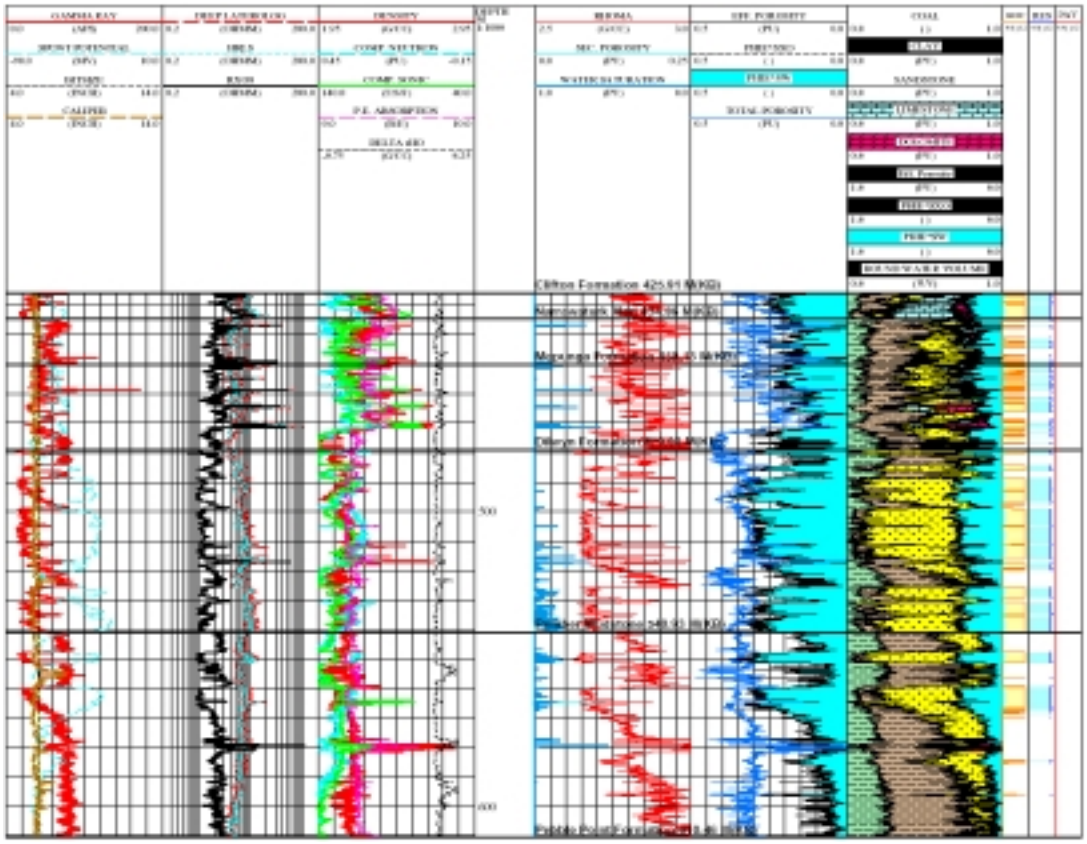

Figure-5: Well summary plot displaying the low-side case of Rw=3,000ppmNaCleq.

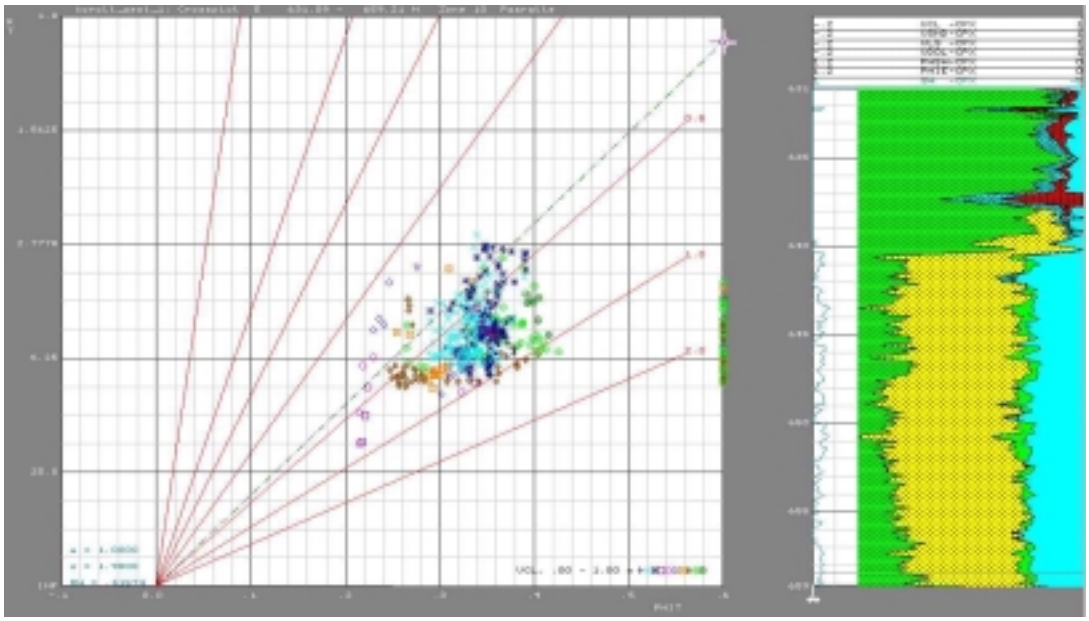

Figure-6: Hingle Plot for high-side case of Rw=10,000ppmNaCleq. Note the residual hydrocarbon saturation throughout the reservoir, suggesting that this case is too optimistic to derive a valid Rw.

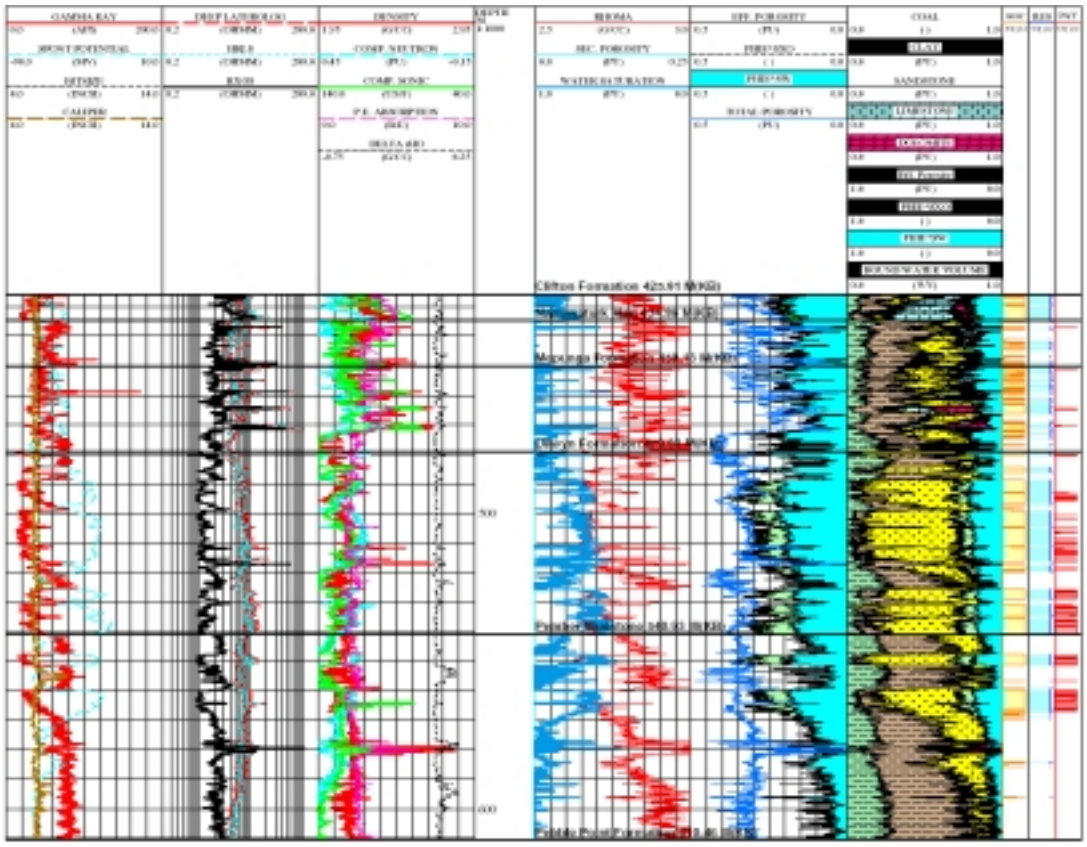

Figure-7: Well summary plot displaying the high-side case of Rw=10,000ppmNaCleq.

KOROIT WEST-1 RESERVOIR SUMMARY

FORMATION NAME	INTERVAL FROM mMDRT	INTERVAL TO mMDRT	GROSS INTERVAL M	NET RES INTERVL M	AVERG VCL %	AVERG PHIE %	NET RES / GROSS %	NET PAY INTERVL M	AVERG SW %	NET PAY / GROSS %	Rw ppm NaCl equiv
Clifton Formation	425.9	434.9	9.0	8.1	22.9	22.1	89.8	0.0		0.0	7,250
Dilwyn Formation	478.9	540.9	62.0	42.9	16.7	27.8	69.3	3.7	62.3	6.0	7,250
Pember Mudstone	540.9	610.5	69.5	12.0	20.4	27.7	17.3	1.0	60.9	1.5	7,250
Intra Belfast Sandstone	739.2	746.1	6.9	0.5	35.5	19.7	7.3	0.0		0.0	14,900
Waarre Formation	760.2	781.9	21.7	0.0			0.0	0.0		0.0	14,900
		TOTAL	**169.0**	**63.5**	**21.5**	**26.1**	**37.6**	**4.7**	**61.9**	**2.8**	

Cut-offs Applied		
Net Reservoir	VCl < 0.4	PHIE > 8%
Net Pay	Sw < 0.65	

Created on: 23/01/2003

KOROIT WEST-1 mMDRT
Petrophysical Parameter Listing

```
LOG ANALYSIS REPORT BY PETROLOG REVISION  9.10
File name: koroit_west_1.pro    23/01/2003  10:21:19

          Company           : ORIGIN ENERGY LIMITED
          Well Name         : KOROIT WEST-1
          Field             : Wildcat
          Country           : Australia
          State             : Victoria
          Field Location    : Permit PEL152
          Latitude          : 038 16' 47.530" S    DMS
          Longitude         : 142 17' 48.550" E    DMS
          Permanent Datum   : MSL
          Elevation of PD   :        .00 M

          Hole depth M     Temperature C     Gradient Deg C / 100 M
               855.0           47.00          2.3782
                  .0           26.67

          Log data
          Column     Logs       Logs
          Position   Available  Used
              1      DEPT       DEPT
              2      BS
              3      DT         DT
              4      GDEV
              5      HCAL       CALI
              6      HDRA       DRHO
              7      HGR
              8      HRLD       LLD
              9      HRLS       LLS
             10      HTNP       NPHI
             11      ICV
             12      IHV
             13      ITT        TTI
             14      PEF8       PEF
             15      POTA       POTA
             16      RHO8       RHOB
             17      RXO8       MSFL
             18      SP         SP
             19      TENS
             20      THOR       THOR
             21      UPRA
             22      HGR_       GR
             23      Env_
             24      HRLD
             25      HRLS
             26      HTNP
             27      PEF8
             28      RHO8
             29      RXO8
             30      HGR_
             31      NET
             32      NET
             33      NET
             34      NET

                                Caliper recorded in : Inches
                                Mud weight units    : g/cc
                                Density log units   : g/cc
                                DRHO    log units   : g/cc
                                Sonic   log units   : Us/ft
                                Neutron log units   : LS POR
                                Density tool type   : LDT
                                RHO (H,MA,f)  units : g/cc
                                Dens. X-plots units : g/cc
                                GRV units           : Mbbl

          Log scaling data
          ----------------
          Log         Scaling     Coeff.      Coeff.
          Mnemonic    Option        A           B
            PEF        1        -.20000     1.00000

Lithology models
    1.   Sand-Dolomite               2.62 to     2.89
    2.   Sand-Limestone              2.62 to     2.75
    3.   Sand                        2.63 to     2.69
    4.   Limestone                   2.67 to     2.75
    5.   Dolomite                    2.75 to     2.89
    6.   Limestone-Dolomite          2.68 to     2.89

 CPX flag values
    1.  VCL greater than 0.95
    2.  VN  greater than 0.75
    3.  VS  greater than 0.75
    4.  Bad hole condition
    5.  Matrix density greater than Lithological model
    6.  Matrix density less than Lithological model
    7.  Porosity derived from Sonic Log
    8.  Porosity derived from or limited by PHIMAX
    9.  Porosity derived from Density Log
    $.  Pay zone

 Water saturation equations
    1.  Indonesia
    2.  Simandoux
    3.  Fertl & Hammock
    4.  Laminar
    5.  Bussian
    6.  User defined
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```
   7.  Single Sonic

VGRTYPE :Vclay from GR Equations used
   0.  Not Used
                        IGR=(GR-GRmin)/(GRmax-GRmin)
   1.  Linear           VGR=IGR
   2.  Asymmetric (S shaped)
          Defined by 2 sets of intermediate points
          through which the S bend passes through.
          GR1, VGR1 and GR2, VGR2.
       Steiber equation:  VGR= IGR/(A + (A-1.0)*IGR)
   3.  Steiber 1  A = 2.0
   4.  Steiber 2  A = 3.0
   5.  Steiber 3  A = 4.0
   6.  Steiber 50%
        A is computed to give VGR= 0.5 when GR = GR50%)
   7.  Larinov Old Rocks: VGR= (2**(2*IGR)-1.0)/3.0
   8.  Larinov Tertiary : VGR= 0.083*(2.0*(3.7058*IGR)-1.0)
   9.  Clavier          : VGR= 1.7-SQRT(3.38-(IGR+0.7)**2.0)

Cementation factor m
   1.  Linear        m = m
   2.  Shell formula m = 1.87 + 0.019/PHI
   3.  Borai formula m = 2.2 -0.035/(PHI+0.042)

             KOROIT WEST-1                     Complex Lithology Results
             ORIGIN ENERGY LIMITED             23-01-2003
                          Neutron               RT Determination
Logging Company   Mud type     log type          Flags by priority
0. Schlumberger   0. NaCl      0. CNL CORR       23. ERT (external RT)
1. HLS            1. KCl %     1. TNPH            1. Dual Laterolog - RXO
2. Dresser        2. Oil-base  2. SNP            20. PHASOR-SFL
3. BPB            3. Barite    3. N              21. PHASOR-RXO
4. Sperry MWD                  4. HLS DSN2        2. Dual Induction - LL8
5. Baker MWD                   5. CNL PRE 86      3. ILD-SFL-RXO
6. Anadril MWD                 6. APLU           10. DIL-SFL
                               7. FPLU           11. DIL-LL3
                               8. CDN 6.5"        8. ILD & 16 inch Normal
                               9. CDN 8.0"       17. LLD-LLS
Formation                     10. ADN 6.75       18. ID PHASOR
Water                         11. ATLAS 2435 CN   4. ILD
0=NaCl                        12. ATLAS 2420 CN   5. LLD
1=NaHCO3                      13. ATLAS SNP       6. LL3 or LL7
                              14. BPB             7. Dual Laterolog
                              15. HLS G          13. LLS
                                                 19. IM PHASOR
                                                 14. ILM
                                                 15. LL8
                                                  9. 64 inch Normal Log
                                                 12. SFL
                                                 22. N16
                                                 16. RXO
                                                  0. No RT logs
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Zone no.	1	2	3	4	5	6	7	8	9	10
Formation	PortCamp	Gellibra	CliftonF	CliftonF	Narrawat	MepungaF	DilwynFo	PemberMu	PebblePo	Paaratte
1. Top depth	24.130	137.750	425.910	431.714	434.860	450.130	479.000	540.930	610.460	631.090
2. Bottom depth	137.750	425.910	431.663	434.860	450.130	479.000	540.930	610.460	631.090	659.210
3. No logs										
4. No logs	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
5. RM	.282	.282	.282	.282	.282	.282	.282	.282	.282	.282
6. Temp. RM	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
7. RMF	.201	.201	.201	.201	.201	.201	.201	.201	.201	.201
8. Temp. RMF	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000	28.000
9. RMC	.202	.202	.202	.202	.202	.202	.202	.202	.202	.202
10. Temp. RMC	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
11. Bit size	6.125	6.125	6.125	6.125	6.125	6.125	6.125	6.125	6.125	6.125
12. Mud wt	1.114	1.114	1.114	1.114	1.114	1.114	1.114	1.114	1.114	1.114
13. SSP	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
14. RW (SP)	.169	.154	.106	.106	.144	.143	.140	.137	.134	.133
15. Temperature	28.592	33.369	36.864	36.971	37.190	37.715	38.794	40.358	41.430	42.009
16. RW @ FT	.711	.649	.611	.609	.607	.602	.591	.576	.566	.561
17. RW@75F(23.9C	.785	.785	.785	.785	.785	.785	.785	.785	.785	.785
18. RW salinity	7250.001	7250.001	7250.001	7250.002	7250.002	7250.001	7250.001	7250.001	7250.001	7250.001
19. RMF @ FT	.199	.181	.170	.170	.170	.168	.165	.161	.158	.157
20. RMF salinity	.0289115	.0289115	.0289115	.0289115	.0289115	.0289115	.0289115	.0289115	.0289115	.0289115
21. RM @ FT	.256	.234	.220	.219	.219	.217	.213	.207	.204	.202
22. RHO H	.800	.800	.800	.800	.800	.800	.800	.800	.800	.800
23. Gas Flag	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
24. RHO F	1.020	1.019	1.019	1.018	1.018	1.018	1.018	1.018	1.018	1.018
25. t F	188.992	188.992	188.992	188.992	188.992	188.992	188.992	188.992	188.992	188.992
26. RHOMA	2.650	2.650	2.650	2.650	2.650	2.650	2.650	2.650	2.650	2.650
27. PHIN min	-.0350000	-.0350000	-.0350000	-.0350000	-.0350000	-.0350000	-.0350000	-.0350000	-.0350000	-.0350000
28. t MA	55.500	55.500	55.500	55.500	55.500	55.500	55.500	55.500	55.500	55.500
29. t MA min	48.000	48.000	48.000	48.000	48.000	48.000	48.000	48.000	48.000	48.000
30. Sonic option	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
31. Compact/Ovrt	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
32. CAL cut off	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000
33. RUGO.cut off	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
34. DRHO cut off	.150	.150	.150	.150	.150	.150	.150	.150	.150	.150
35. Bad Hole	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
36. No clay	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP
	RT	RT	RT	RT	RT	RT	RT	RT	RT	RT
	N	N	N	N	N	N	N	N	N	N
	MN	MN	MN	MN	MN	MN	MN	MN	MN	MN
	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN
37. Vclay Flag	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
38. Vclay type	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
39. Vclay inp1	.200	.200	.200	.200	.200	.200	.200	.200	.200	.200
40. Vclay out1	.150	.150	.150	.150	.150	.150	.150	.150	.150	.150
41. Vclay inp2	.800	.800	.800	.800	.800	.800	.800	.800	.800	.800
42. Vclay out2	.800	.800	.800	.800	.800	.800	.800	.800	.800	.800
43. Vclay 50%	.500	.500	.500	.500	.500	.500	.500	.500	.500	.500
44. VclayGR type	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
45. GR clean	9.419	9.419	9.419	9.419	9.419	9.419	9.419	9.419	9.419	9.419
46. GR clay	100.000	100.082	99.808	99.808	99.533	100.082	99.259	99.808	100.082	100.082

47.	GR Dispersed	60.000	60.000	60.000	60.000	60.000	60.000	60.000	60.000	60.000	60.000
48.	GR1	36.000	36.000	36.000	36.000	36.000	36.000	36.000	36.000	36.000	36.000
49.	VGR1	.100	.100	.100	.100	.100	.100	.100	.100	.100	.100
50.	GR2	84.000	84.000	84.000	84.000	84.000	84.000	84.000	84.000	84.000	84.000
51.	VGR2	.800	.800	.800	.800	.800	.800	.800	.800	.800	.800
52.	GR50%	70.000	70.000	70.000	70.000	70.000	70.000	70.000	70.000	70.000	70.000
53.	R clay	9.738	9.738	9.738	9.738	9.738	9.738	9.738	9.738	9.738	9.738
54.	R limit	1000.000	1000.000	1000.000	1000.000	1000.000	1000.000	1000.000	1000.000	1000.000	1000.000
55.	Rclay1 flag	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
56.	Rclay1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
57.	Vcl @ Rclay1	.150	.150	.150	.150	.150	.150	.150	.150	.150	.150
58.	RHOB sand	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150	2.150
59.	RHOB silt	2.620	2.620	2.620	2.620	2.620	2.620	2.620	2.620	2.620	2.620
60.	RHOB clay	2.182	2.182	2.182	2.182	2.182	2.182	2.182	2.182	2.182	2.182
61.	RHO Dry Clay	2.700	2.700	2.700	2.700	2.700	2.700	2.700	2.700	2.700	2.700
62.	Rhob Calcite	2.850	2.850	2.850	2.850	2.850	2.850	2.850	2.850	2.850	2.850
63.	PHIN Sand	.250	.250	.250	.250	.250	.250	.250	.250	.250	.250
64.	PHIN silt	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000
65.	PHIN clay	.479	.479	.479	.479	.479	.479	.479	.479	.479	.479
66.	Phin Calcite	.100	.100	.100	.100	.100	.100	.100	.100	.100	.100
67.	PHISILT	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000
68.	Calcite Flag	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
69.	t clay	135.490	135.490	135.490	135.490	135.490	135.490	135.490	135.490	135.490	135.490
70.	M clay	.460	.460	.460	.460	.460	.460	.460	.460	.460	.459
71.	N clay	.448	.448	.448	.448	.448	.448	.448	.448	.447	.447
72.	PHIN 2.2	.235	.235	.235	.235	.235	.235	.220	.207	.235	.199
73.	t 2.2	90.000	90.000	90.000	90.000	90.000	90.000	90.000	90.000	90.000	90.000
74.	a	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
75.	A1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
76.	m	2.000	2.100	2.000	1.900	2.050	2.050	1.950	2.000	2.000	1.900
77.	m1	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
78.	m Function	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
79.	n	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
80.	n1	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
81.	B from BQV	4.821	5.427	4.265	4.274	6.153	6.246	6.435	6.709	6.902	7.008
82.	A(QV)	.0003050	.0003050	.0003050	.0003050	.0003050	.0003050	.0003050	.0003050	.0003050	.0003050
83.	B(QV)	-3.450	-3.450	-3.450	-3.450	-3.450	-3.450	-3.450	-3.450	-3.450	-3.450
84.	Lithomod	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
85.	SXO limit	.200	.200	.200	.200	.200	.200	.200	.200	.200	.200
86.	PHI max	.400	.538	.427	.427	.429	.436	.494	.500	.502	.400
87.	PHIT Dispers	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000
88.	PHI min c.o.	.0010000	.0010000	.0010000	.0010000	.0010000	.0010000	.0010000	.0010000	.0010000	.0010000
89.	EXPX	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
90.	Clay cut off	.300	.300	.300	.300	.300	.300	.300	.300	.300	.300
91.	PHIe cut off	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000
92.	PHIt cut off	.100	.100	.100	.100	.100	.100	.100	.100	.100	.100
93.	SWe cut off	.500	.500	.500	.500	.500	.500	.500	.500	.500	.500
94.	SWt cut off	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
95.	GrossRockVol	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
96.	Oil Exp.Fact	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200
97.	FormGeom.Fac	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
98.	RecoveryFact	.200	.200	.200	.200	.200	.200	.200	.200	.200	.200
99.	SWB max	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
100.	RWB	.100	.884	1.343	1.343	1.002	1.262	1.655	1.621	2.083	1.604
101.	SWB cut off	.300	.300	.300	.300	.300	.300	.300	.300	.300	.300
102.	RWF	.711	.649	.611	.609	.607	.602	.591	.576	.566	.561
103.	RMFF	.199	.181	.170	.170	.170	.168	.165	.161	.158	.157
104.	Sw Eq. CPX	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
105.	Sw Eq. SSS	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
106.	Glauconite	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
107.	SWirr.cutoff	.300	.300	.300	.300	.300	.300	.300	.300	.300	.300
108.	Perm Expon.	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000
109.	PERM K coef	62500.000	62500.000	62500.000	62500.000	62500.000	62500.000	62500.000	62500.000	62500.000	62500.000
110.	RHOMA 1	2.650	2.650	2.650	2.650	2.650	2.650	2.650	2.650	2.650	2.650
111.	RHOMA 2	2.725	2.725	2.725	2.725	2.725	2.725	2.725	2.725	2.725	2.725
112.	RHOMA 3	3.168	3.168	3.168	3.168	3.168	3.168	3.168	3.168	3.168	3.168
113.	UMA 1	4.800	4.800	4.800	4.800	4.800	4.800	4.800	4.800	4.800	4.800
114.	UMA 2	16.018	16.018	16.018	16.018	16.018	16.018	16.018	16.018	16.018	16.018
115.	UMA 3	12.004	12.004	12.004	12.004	12.004	12.004	12.004	12.004	12.004	12.004
116.	UF	.400	.400	.400	.400	.400	.400	.400	.400	.400	.400
117.	UMACL	9.974	9.974	9.974	9.974	9.974	9.974	9.974	9.974	9.974	9.974
93.	PHINmat1	.200	.200	.200	.200	.200	.200	.200	.200	.200	.200
94.	PHIDmat1	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
95.	PHINmat2	.350	.350	.350	.350	.350	.350	.350	.350	.350	.350
96.	PHIDmat2	.200	.200	.200	.200	.200	.200	.200	.200	.200	.200
97.	PHINmat3	.050	.050	.050	.050	.050	.050	.050	.050	.050	.050
98.	PHIDmat3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
99.	PHINmat4	.200	.200	.200	.200	.200	.200	.200	.200	.200	.200
100.	PHIDmat4	-.100	-.100	-.100	-.100	-.100	-.100	-.100	-.100	-.100	-.100

	Zone no.	11	12	13	14	15	16	17
	Formation	SkullCre	Nullawar	BelfastM	Intra-Be	LowerBel	WaarreFo	Eumerall
1.	Top depth	659.210	698.800	703.410	739.300	746.100	760.250	781.880
2.	Bottom depth	698.800	703.410	739.300	746.100	760.250	781.880	855.001
3.	No logs							
4.	No logs	.000	.000	.000	.000	.000	.000	.000
5.	RM	.282	.282	.282	.282	.282	.282	.282
6.	Temp. RM	24.000	24.000	24.000	24.000	24.000	24.000	24.000
7.	RMF	.201	.201	.201	.201	.201	.201	.201
8.	Temp. RMF	28.000	28.000	28.000	28.000	28.000	28.000	28.000
9.	RMC	.202	.202	.202	.202	.202	.202	.202
10.	Temp. RMC	24.000	24.000	24.000	24.000	24.000	24.000	24.000
11.	Bit size	6.125	6.125	6.125	6.125	6.125	6.125	6.125
12.	Mud wt	1.114	1.114	1.114	1.114	1.114	1.114	1.114
13.	SSP	.000	.000	.000	.000	.000	.000	.000
14.	RW (SP)	.132	.130	.129	.128	.128	.127	.125
15.	Temperature	42.815	43.340	43.822	44.329	44.578	45.004	46.131
16.	RW @ FT	.554	.550	.280	.277	.276	.275	.270
17.	RW@75F(23.9C	.785	.785	.402	.402	.402	.402	.402
18.	RW salinity	7250.001	7250.001	14863.000	14863.000	14863.000	14863.000	14863.000
19.	RMF @ FT	.155	.153	.152	.151	.151	.150	.147
20.	RMF salinity	.0289115	.0289115	.0289115	.0289115	.0289115	.0289115	.0289115
21.	RM @ FT	.200	.198	.196	.195	.194	.193	.190
22.	RHO H	.800	.800	.800	.800	.800	.800	.800
23.	Gas Flag	.000	.000	.000	.000	.000	.000	.000
24.	RHO F	1.017	1.017	1.017	1.017	1.017	1.017	1.017

25.	t F	188.992	188.992	188.992	188.992	188.992	188.992	188.992
26.	RHOMA	2.650	2.650	2.650	2.650	2.650	2.650	2.650
27.	PHIN min	-.0350000	-.0350000	-.0350000	-.0350000	-.0350000	-.0350000	-.0350000
28.	t MA	55.500	55.500	55.500	55.500	55.500	55.500	55.500
29.	t MA min	48.000	48.000	48.000	48.000	48.000	48.000	48.000
30.	Sonic option	.000	.000	.000	.000	.000	.000	.000
31.	Compact/Ovrt	1.000	1.000	1.000	1.000	1.000	1.000	1.000
32.	CAL cut off	12.000	12.000	12.000	12.000	12.000	12.000	12.000
33.	RUGO.cut off	1.000	1.000	1.000	1.000	1.000	1.000	1.000
34.	DRHO cut off	.150	.150	.150	.150	.150	.150	.150
35.	Bad Hole	.000	.000	.000	.000	.000	.000	.000
36.	No clay	SP RT N MN SN	SP RT N MN SN	SP RT N MN SN	SP RT N MN SN	SP RT N MN SN	SP RT N MN SN	SP RT N MN SN
37.	Vclay Flag	.000	.000	.000	.000	.000	.000	.000
38.	Vclay type	.000	.000	.000	.000	.000	.000	.000
39.	Vclay inp1	.200	.200	.200	.200	.200	.200	.200
40.	Vclay out1	.150	.150	.150	.150	.150	.150	.150
41.	Vclay inp2	.800	.800	.800	.800	.800	.800	.800
42.	Vclay out2	.800	.800	.800	.800	.800	.800	.800
43.	Vclay 50%	.500	.500	.500	.500	.500	.500	.500
44.	VclayGR type	1.000	1.000	1.000	1.000	1.000	1.000	1.000
45.	GR clean	9.419	9.419	9.419	9.419	9.419	39.340	39.063
46.	GR clay	100.082	99.808	99.259	100.082	100.357	100.082	99.808
47.	GR Dispersed	60.000	60.000	60.000	60.000	60.000	60.000	60.000
48.	GR1	36.000	36.000	36.000	36.000	36.000	36.000	36.000
49.	VGR1	.100	.100	.100	.100	.100	.100	.100
50.	GR2	84.000	84.000	84.000	84.000	84.000	84.000	84.000
51.	VGR2	.800	.800	.800	.800	.800	.800	.800
52.	GR50%	70.000	70.000	70.000	70.000	70.000	70.000	70.000
53.	R clay	9.738	9.738	3.085	3.085	3.085	3.085	3.085
54.	R limit	1000.000	1000.000	1000.000	1000.000	1000.000	1000.000	1000.000
55.	Rclay1 flag	.000	.000	.000	.000	.000	.000	.000
56.	Rclay1	1.000	1.000	1.000	1.000	1.000	1.000	1.000
57.	Vcl @ Rclay1	.150	.150	.150	.150	.150	.150	.150
58.	RHOB sand	2.150	2.150	2.150	2.150	2.150	2.150	2.150
59.	RHOB silt	2.620	2.620	2.620	2.620	2.620	2.620	2.620
60.	RHOB clay	2.182	2.182	2.182	2.182	2.182	2.182	2.182
61.	RHO Dry Clay	2.700	2.700	2.700	2.700	2.700	2.700	2.700
62.	Rhob Calcite	2.850	2.850	2.850	2.850	2.850	2.850	2.850
63.	PHIN Sand	.250	.250	.250	.250	.250	.250	.250
64.	PHIN silt	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000
65.	PHIN clay	.479	.479	.479	.479	.479	.479	.479
66.	Phin Calcite	.100	.100	.100	.100	.100	.100	.100
67.	PHISILT	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000	.0200000
68.	Calcite Flag	.000	.000	.000	.000	.000	.000	.000
69.	t clay	135.490	135.490	135.490	135.490	135.490	135.490	135.490
70.	M clay	.459	.459	.459	.459	.459	.459	.459
71.	N clay	.447	.447	.447	.447	.447	.447	.447
72.	PHIN 2.2	.207	.235	.235	.235	.235	.235	.235
73.	t 2.2	90.000	90.000	90.000	90.000	90.000	90.000	90.000
74.	a	1.000	1.000	1.000	1.000	1.000	1.000	1.000
75.	A1	1.000	1.000	1.000	1.000	1.000	1.000	1.000
76.	m	2.200	2.000	2.100	2.000	2.100	2.000	2.000
77.	m1	2.000	2.000	2.000	2.000	2.000	2.000	2.000
78.	m Function	1.000	1.000	1.000	1.000	1.000	1.000	1.000
79.	n	2.000	2.000	2.000	2.000	2.000	2.000	2.000
80.	n1	2.000	2.000	2.000	2.000	2.000	2.000	2.000
81.	B from BQV	7.148	7.242	7.327	7.415	7.461	7.533	7.722
82.	A(QV)	.0003050	.0003050	.0003050	.0003050	.0003050	.0003050	.0003050
83.	B(QV)	-3.450	-3.450	-3.450	-3.450	-3.450	-3.450	-3.450
84.	Lithomod	1.000	1.000	1.000	1.000	1.000	1.000	1.000
85.	SXO limit	.200	.200	.200	.200	.200	.200	.200
86.	PHI max	.449	.425	.458	.495	.468	.475	.457
87.	PHIT Dispers	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000
88.	PHI min c.o.	.0010000	.0010000	.0010000	.0010000	.0010000	.0010000	.0010000
89.	EXPX	1.500	1.500	1.500	1.500	1.500	1.500	1.500
90.	Clay cut off	.300	.300	.300	.300	.300	.300	.300
91.	PHIe cut off	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000	.0500000
92.	PHIt cut off	.100	.100	.100	.100	.100	.100	.100
93.	SWe cut off	.500	.500	.500	.500	.500	.500	.500
94.	SWt cut off	.600	.600	.600	.600	.600	.600	.600
95.	GrossRockVol	.000	.000	.000	.000	.000	.000	.000
96.	Oil Exp.Fact	1.200	1.200	1.200	1.200	1.200	1.200	1.200
97.	FormGeom.Fac	1.000	1.000	1.000	1.000	1.000	1.000	1.000
98.	RecoveryFact	.200	.200	.200	.200	.200	.200	.200
99.	SWB max	1.000	1.000	1.000	1.000	1.000	1.000	1.000
100.	RWB	1.113	1.476	.472	.932	.426	.477	.472
101.	SWB cut off	.300	.300	.300	.300	.300	.300	.300
102.	RWF	.554	.550	.280	.277	.276	.275	.270
103.	RMFF	.155	.153	.152	.151	.151	.150	.147
104.	Sw Eq. CPX	1.000	1.000	1.000	1.000	1.000	1.000	1.000
105.	Sw Eq. SSS	1.000	1.000	1.000	1.000	1.000	1.000	1.000
106.	Glauconite	.000	.000	.000	.000	.000	.000	.000
107.	SWirr.cutoff	.300	.300	.300	.300	.300	.300	.300
108.	Perm Expon.	6.000	6.000	6.000	6.000	6.000	6.000	6.000
109.	PERM K coef	62500.000	62500.000	62500.000	62500.000	62500.000	62500.000	62500.000
110.	RHOMA 1	2.650	2.650	2.650	2.650	2.650	2.650	2.650
111.	RHOMA 2	2.725	2.725	2.725	2.725	2.725	2.725	2.725
112.	RHOMA 3	3.168	3.168	3.168	3.168	3.168	3.168	3.168
113.	UMA 1	4.800	4.800	4.800	4.800	4.800	4.800	4.800
114.	UMA 2	16.018	16.018	16.018	16.018	16.018	16.018	16.018
115.	UMA 3	12.004	12.004	12.004	12.004	12.004	12.004	12.004
116.	UF	.400	.400	.400	.400	.400	.400	.400
117.	UMACL	9.974	9.974	9.974	9.974	9.974	9.974	9.974
93.	PHINmat1	.200	.200	.200	.200	.200	.200	.200
94.	PHIDmat1	.240	.240	.240	.240	.240	.240	.240
95.	PHINmat2	.350	.350	.350	.350	.350	.350	.350
96.	PHIDmat2	.200	.200	.200	.200	.200	.200	.200
97.	PHINmat3	.050	.050	.050	.050	.050	.050	.050
98.	PHIDmat3	.000	.000	.000	.000	.000	.000	.000
99.	PHINmat4	.200	.200	.200	.200	.200	.200	.200
100.	PHIDmat4	-.100	-.100	-.100	-.100	-.100	-.100	-.100

KOROIT WEST-1

COMPOSITE AND PETROPHYSICAL SUMMARY

Company	ORIGIN ENERGY LIMITED
Well Name	KOROIT WEST-1
Field	Wildcat
Country	Australia
Nation	Australia
State	Victoria
County or Rig name	Bourne 2000 THD
Field Location	Permit PEL152
Field Locn. Line 1	Easting 613433.14
Field Locn. Line 2	Northing 5762322.04
Latitude	038 16' 47.530" S DMS
Longitude	142 17' 48.550" E DMS
Permanent Datum	MSL
Elevation of PD	.00 M
Elevation of KB	47.00 M
Elevation of DF	47.00 M
Elevation Ground lv	45.00 M
Elevation Log Zero	47.00 M
Above Perm. Datum	47.00 M
Log measured from	DF
Drill measured from	DF
Services	PEx(HALS)-NGT-BHC
Other Services Ln 1	CSAT-GR
Other Services Ln 2	MDT-GR
Other Services Ln 3	CST-GR
Service company	Schlumberger
Number of runs	1
Well class	Exploration
Basin	Otway
Tenement/Concession	PEL152
On-Shore Flag	On-shore
Date	22-Jan-2003
Log date	22-JAN-2003
Date computed	24-02-03
Date plotted	24-02-2003
Time plotted	10:53:59

PETROLOG SOFTWARE Revision 9.10 — CRECKER DATA PROCESSING

RUN INFORMATION

Run number	1
Log date	22-JAN-2003
Depth-Driller	850.00 M
Depth-Logger	858.00 M
Bottom log interval	855.00 M
Top log interval	256.80 M
Casing-Driller	254.00 M
Casing-Logger	256.80 M
Casing Diameter	7.0000 inch
Casing Weight	23.0000 lb/ft
Casing Depth	.00 M
Bit Size	6.1250 inch
Hole Fluid type	KCl Polymer
Fluid Density	1.1144 gm/cc
Fluid Viscosity	37.0000 s
Fluid PH	9.00000
Fluid Loss	7.0000 C3
Mud Sample Source	Pit
RM @ Surface	.2820 Ohmm
Mud temp Surface	24.00 degC
RMF @ Surface	.2010 Ohmm
MF temp Surface	28.00 degC
RMC @ Surface	.2020 Ohmm
MC Temp Surface	24.00 degC
Source of RMF/RMC	Press
Mud Sample Temp	
Mud Cake SampleTemp	47.00 degC
Mud Filt.SampleTemp	47.00 degC
Time logger at btm	18:01
Date logger at btm	23-Jan-2003
Surface hole temp	26.67 degC
Bottom hole temp	47.00 degC
Surface temperature	24.00 degC
Max recorded temp	47.00 degC
Logging unit No	3170
Logging unit Loc	QEA
Logging Company ID	440
Recorded by	G. Jonsson
Witness	G.J. Wakelin-King
Program Version	10C0-306
Maximum Hole Deviat	.0000 deg
Temp Conn.WaterSamp	37.78 degC
% Sand	Barite: Nil

FIELD REMARKS

PEx(HALS)-NGT-BHC
Rmc value lower than expected, but not re-measured.

COMPUTATION PARAMETERS

DEPTH INTERVAL	RW PPM	RW OHMM	TEMP C	GR MIN	GR MAX	R CLAY	RHOB CLAY	PHIN CLAY	t CLAY	RHOH	a	m
24.1 - 137.8	5429	.933	28.6	9	100	10	2.18	.479	135	.80	1.00	2.00
137.8 - 425.9	5429	.852	33.4	9	100	10	2.18	.479	135	.80	1.00	2.10
425.9 - 431.7	5429	.801	36.9	9	100	10	2.18	.479	135	.80	1.00	2.00
431.7 - 434.9	5429	.800	37.0	9	100	10	2.18	.479	135	.80	1.00	1.95
434.9 - 450.1	5429	.797	37.2	9	100	10	2.18	.479	135	.80	1.00	2.05
450.1 - 479.0	5429	.790	37.7	9	100	10	2.18	.479	135	.80	1.00	2.00
479.0 - 540.9	5429	.776	38.8	9	99	10	2.18	.479	135	.80	1.00	2.00
540.9 - 610.5	5429	.756	40.4	9	100	10	2.18	.479	135	.80	1.00	2.05
610.5 - 631.1	5429	.743	41.4	9	100	23	2.18	.479	135	.80	1.00	2.20
631.1 - 659.2	5429	.736	42.0	9	100	3.8	2.18	.479	135	.80	1.00	1.80
659.2 - 698.8	5429	.727	42.8	9	100	3.8	2.18	.479	135	.80	1.00	2.05
698.8 - 703.4	5429	.721	43.3	9	100	3.8	2.18	.479	135	.80	1.00	1.95
703.4 - 739.3	5429	.716	43.8	9	99	3.8	2.18	.479	135	.80	1.00	2.20
739.3 - 746.1	5429	.710	44.3	9	100	3.8	2.18	.479	135	.80	1.00	2.10
746.1 - 760.3	5429	.708	44.6	9	100	3.8	2.18	.479	135	.80	1.00	2.20
760.3 - 781.9	5429	.703	45.0	39	100	3.8	2.18	.479	135	.80	1.00	1.90
781.9 - 855.0	5429	.691	46.1	39	100	3.8	2.18	.479	135	.80	1.00	1.95

LOG DESCRIPTION

ROMA-CPX	Apparent Matrix Density (Complex Litho Model)
SPI -CPX	Secondary Porosity Indicator = PHIT-PHIS >=0 (Complex Litho Model)
SW -CPX	Formation Water Saturation <=1.0 (Complex Litho Model)
PHIE-CPX	Effective Porosity (Complex Litho Model)
PHXO-CPX	Product (PHIE * SXO) (Complex Litho Model)
PHSW-CPX	Product (PHIE * SW) (Complex Litho Model)
MINERAL	Special Mineral Table output flag (Salt,Trona,Anhydrite,Gypsum,Coal)
VCL -CPX	Volume of clay (Complex Litho Model)
VSND-CPX	Volume of Sand (Complex Litho Model)
VLS -CPX	Volume of Limestone (Complex Litho Model)
VDOL-CPX	Volume of Dolomite (Complex Litho Model)
PHIE-CPX	Effective Porosity (Complex Litho Model)
PHXO-CPX	Product (PHIE * SXO) (Complex Litho Model)
PHSW-CPX	Product (PHIE * SW) (Complex Litho Model)
VBW -CPX	Volume of bound water (Complex Litho Model)
HGR_corr	HiRes Gamma-Ray - Casing Corrected
SP	SP Shifted {F13.4}
BS	Bit Size {F13.4}
HCAL	HRCC Cal. Caliper {F13.4}
RHO8	HRDD High Resolution Formation Density {F13.4}
HTNP	HiRes Thermal Neutron Porosity {F13.4}
DT	Delta-T {F13.4}
PEF8	HRDD High Resolution Formation Photoelectric Factor {F13.4}
HDRA	HRDD Density Correction {F13.4}
PHIT-CPX	Total porosity from CPX model after hydrocarbon correction (Complex Litho Model)
HRLD	HALS High Resolution Deep Resistivity {F13.4}
HRLS	HALS High Resolution Shallow Resistivity {F13.4}
RXO8	MCFL High Resolution Invaded Zone Resistivity {F13.4}
NET -RES	
NET -PAY	
NET -ROC	

Enclosure 1 Mudlog

Enclosure 2 Composite Log

Enclosure 3 Wireline Logs