LAKES OIL N.L.

A.C.N. 004 247 214

NORTH SEASPRAY No. 3

WELL COMPLETION REPORT

PEP 137 - VICTORIA

by

D.A. SHORT & J.N. MULREADY

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A.C.N. 004 247 214
Level 11,
500 Collins Street
MELBOURNE 3000

July, 2000

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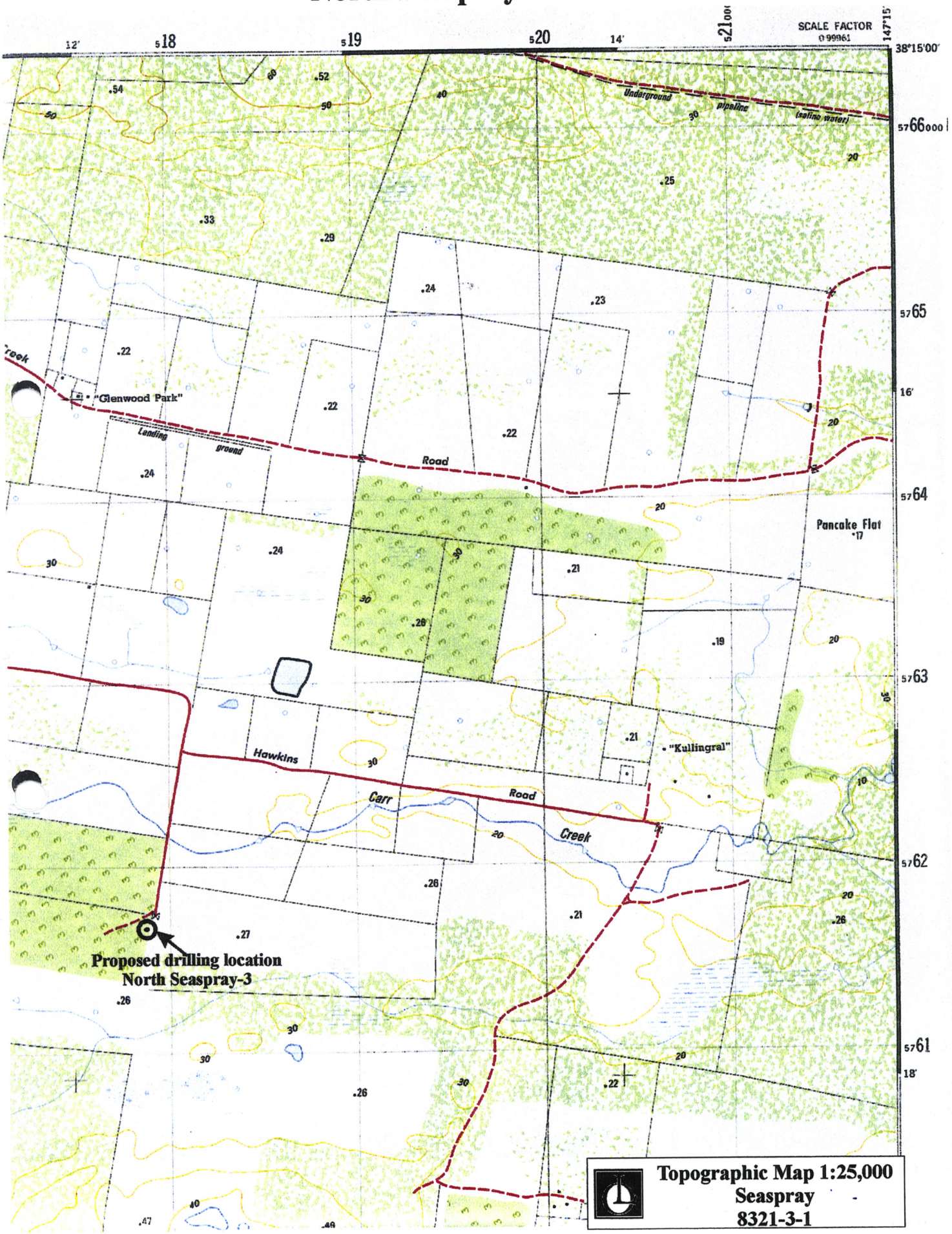
SCALE

903900 006

PE908900_color001

Location Map
North Seaspray-3



Topographic Map 1:25,000
Seaspray
8321-3-1

1.0 SUMMARY

North Seaspray-3 was located in PEP 137 of the Gippsland Basin, approximately 24 kilometres south south-east of Sale. The closest well was North Seaspray-1 approximately 200 metres to the west south west.

The well was drilled to assess the hydrocarbon prospectivity of the pre Latrobe Group sands encountered at North Seaspray-1 which flowed gas at an estimated 100Mcfd. These sands were believed to have suffered formation damage while drilling the original well, so they were planned to be air drilled at North Seaspray-3 so as to minimise damage.

North Seaspray-3 spudded on May 28th, 2000 and surface hole (311 mm./12.25") was drilled to 187m. Surface casing (244 mm./9.625") was set at 184.8m. and 216 mm. (8.5") hole was drilled to 1104m. With the exception of weak (<5units) gas shows over the basal 50 metres, no hydrocarbon shows were recorded while drilling this section.

Intermediate casing (178mm./7") was set at 1103.8m. and the well was air drilled (156mm. hole) to 1155m. where due to cleaning problems and tight hole the hole was displaced to KCl mud. Small gas flows were encountered while air drilling and two flow tests were run to measure the flows (150Mcfd @ 1149m. & 141Mcfd @ 1155m.). Mud drilling continued from 1155 metres to a total depth of 1170 metres which was reached on 16th June 2000.

At North Seaspray-3 a typical on-shore Gippsland Basin sedimentary section was encountered and as expected formations were intersected slightly higher than in North Seaspray-1. The target sands had poor to fair reservoir quality and were very argillaceous with a high percentage of lithics and feldspar.

After reaching total depth and running wireline logs a drill stem test was carried out over the interval 1100-1170 metres. The gas flow was significantly less (22Mcfd) than that achieved while air drilling and the hole was subsequently plugged and suspended and the rig released on 19th June 2000.

2.0 WELL HISTORY

2.1 General Data

2.1.1	Well Name and Number	:	NORTH SEASPRAY No.3
2.1.2	Location	:	Latitude : 38°17'32.10"S Longitude : 147°12'15.84"E Easting : 517 874.39 Northing : 5 761 723.94 Seismic : VP 260 Line LGK-00-1
2.1.3	Elevations	:	G.L. : 22.45m. A.S.L. K.B. : 24.50m. A.S.L.
2.1.4	Petroleum Tenement	:	PEP 137
2.1.5	Name of Operator	:	LAKES OIL N.L. A.C.N. 004 247 214 11th Level, 500 Collins Street, MELBOURNE 3000
2.1.6	Other Participants	:	None
2.1.7	Date Drilling Commenced:		1600 hours 28th May, 2000
2.1.8	Date Drilling Completed	:	1930 hours 16th June, 2000
2.1.9	Date Rig Released	:	2000 hours 19th June, 2000
2.1.10	Drilling Time to T.D.	:	21.2 days
2.1.11	Total Depth	:	Driller : 1170.0m. Logger : 1170.0m. (Extrapolated)
2.1.12	Status	:	Plugged and suspended for future evaluation.

2.2 Rig Data

2.2.1	Drilling Contractor	:	Sides Engineering Pty Ltd 25 Garden Road, Clayton, VIC, 3168
2.2.2	Rig	:	Cardwell HL 195
2.2.3	Rig Carrier:		Cardwell HL-195 rated to 8000' with 3 1/2" drillpipe. Trailer mounted. Telescopic 94' mast tested to 73,600kg / 162,000lbs.
2.2.4	Weight Indicator:		Direct string weight readout gauge at drillers console.
2.2.5	Power:		Detroit Diesel 6V71 power source giving 320 HP, with emergency shutdown system.
2.2.6	Rotary:		Brewster 17 1/2" oil bath type. Powered by drawworks motors.
2.2.7	Blocks:		Ideal 42 ton.
2.2.8	Pumps:		(i) Ideco T-440 – dressed with liners for continuous drilling operation at 280 gpm @ 1000psi. (ii) Emsco AA-10 – dressed with liners for continuous drilling operation at 280 gpm @ 800 psi.
2.2.9	Mud Mixing:		Mud mixing hopper and necessary hoses and lines.
2.2.10	Sump Pump:		Diaphragm sump pump 2", c/w suction and discharge hoses.
2.2.11	Transfer Pump:		Water and mud transfer pump 2", c/w suction and discharge hoses
2.2.12	Tubulars:		87 joints of 3 1/2" drillpipe with 3 1/2" XH connections.

		9 joints of 6" OD drill collars with 4 1/2" FH connections. 9 joints of 5" OD drill collars with 3 1/2" FH connections.
2.2.13	Fishing Tools:	As required to fish Contractor supplied tubulars
2.2.14	Handling Tools:	As required for all Contractor supplied tubulars. 7" casing lift elevator. 7" casing slips. General hand tools as required.
2.2.15	Stabiliser:	1 piece 8 1/2" OD stabiliser with 4 1/2" FH connections.
2.2.16	Spare Parts:	As reasonably required to conduct operations for programmed well
2.2.17	Personnel:	Each 12 hour tour to consist of: 1 Toolpusher. 1 Driller. 2 Roustabouts. 1 Mechanic (on 24 hour call).

2.3 Drilling Data

2.3.1 The following is the daily operations summary for North Seaspray-3. It has been compiled from the tour sheets and daily drilling reports. Onsite drilling supervision for Lakes Oil N.L. was provided by I. Johnstone and W. Lawson (from 11th June 2000) Further details are provided in the time/depth curve (Figure 2) and the time analysis chart (Figure 3).

The depths in the following summary are those reached at 2400 hours on each day with the operations given for the previous 24 hour period.

Date	Depth	Operation
28.05.00	62.0m.	Spudded 16:00 hours 28/5/2000 - Held Safety Meeting with all Site personnel. - Rigged up tools, drilled to 62 metres at 24:00 hrs
29.05.00	187.0m.	Drilled 311mm hole to 187m. - Circulate hole clean & POH for wiper trip. RIH no fill. - Ran 2nd. wiper trip in order to lay down drill pipe. (to avoid having pipe racked for pull test on mast) - Circulate well. - Unable to lay down pipe due to slippery conditions on lease. (forklift skidding on mud) - POH with pipe using local farmer's tractor. Lay down pipe @ 24:00 hrs
30.05.00	187.0m.	Rigged up & ran 15 joints 244mm (9-5/8") 64.9kg/m (43.5 lb/ft) L80 casing to 185m. - Circulate and condition casing - Pumped 1.0m3 water preflush, followed by 9.0m3 Class A cement slurry (Readimix) - 1.83SG (15.2ppg). Displaced with mud using 255 strokes with rig pump. - Bumped plug with 4800 kPa (700 psi) - Hold pressure 10 minutes. Floats not holding. Shut in casing & WOC - Cut & remove conductor. - Wait on cement.
31.05.00	187.0m.	Wait on cement to achieve maximum strength prior to conducting mast load test (by pulling on casing) for D.N.R.E.
01.06.00	187.0m.	Wait on cement - Pump out mud pits - Pull on casing to 162,000lb (73,600kg) - Mast OK - Top up annulus with cement / sand slurry & removed landing joint. - Removed rotary table, table beam & floor plates - Install bradenhead - Start mixing

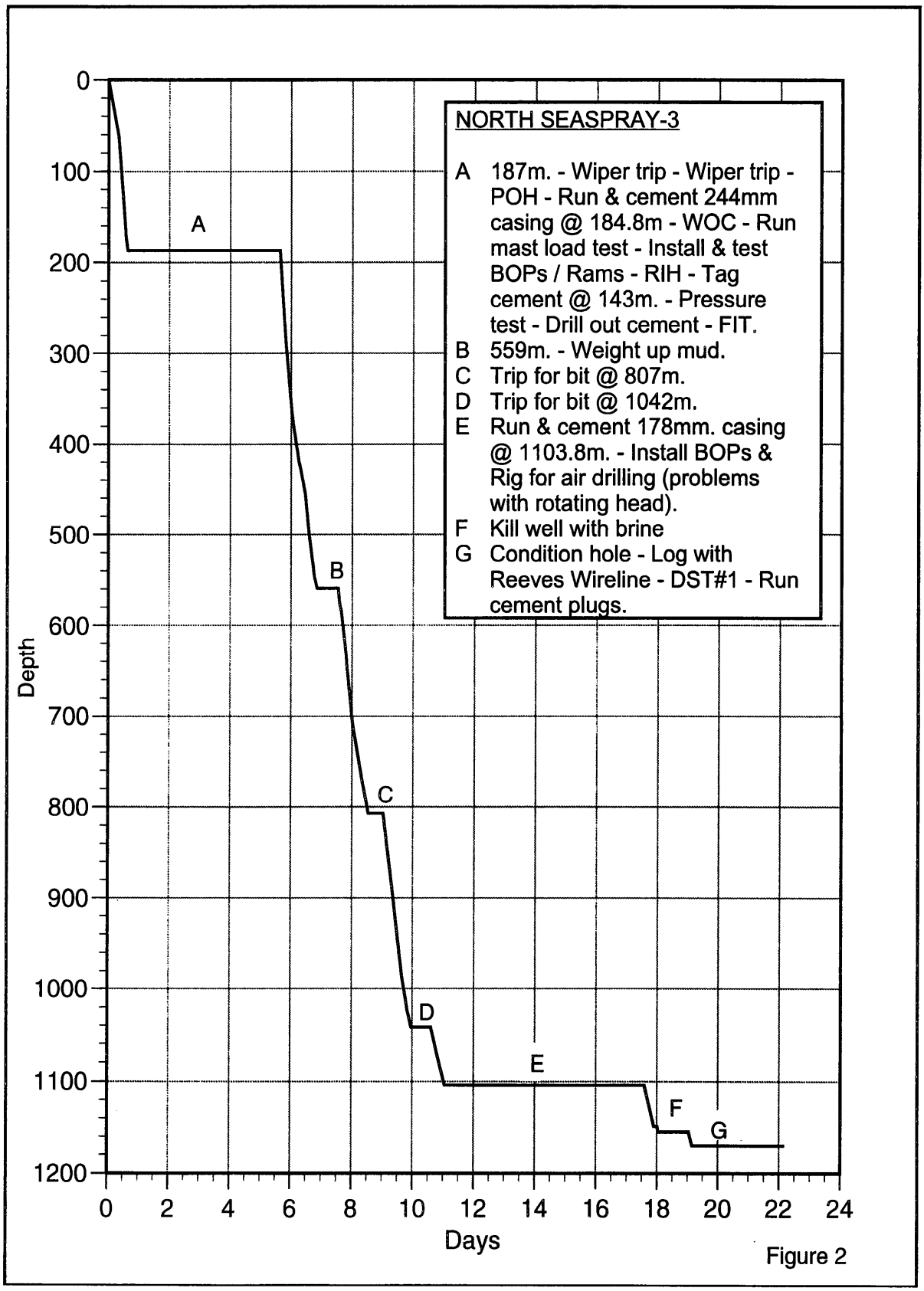

NORTH SEASPRAY-3
A 187m. - Wiper trip - Wiper trip - POH - Run & cement 244mm casing @ 184.8m - WOC - Run mast load test - Install & test BOPs / Rams - RIH - Tag cement @ 143m. - Pressure test - Drill out cement - FIT.
B 559m. - Weight up mud.
C Trip for bit @ 807m.
D Trip for bit @ 1042m.
E Run & cement 178mm. casing @ 1103.8m. - Install BOPs & Rig for air drilling (problems with rotating head).
F Kill well with brine
G Condition hole - Log with Reeves Wireline - DST#1 - Run cement plugs.
Depth
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
0
2
4
6
8
10
12
14
16
18
20
22
24
Days
A
B
C
D
E
F
G

Figure 2

mud - Install drilling spool & BOP's - Re-fit rotary table beam & nipple up BOP's

02.06.00	187.0m.	Nipple up BOP's; modify flow nipple - Install choke manifold & accumulator - Function test BOP's. - Pressure test blind rams / casing / drilling spool / bradenhead / choke manifold / choke line to low pressure 1380 kPa (200 psi) & high pressure 6890 kPa (1000 psi) - All OK. - Re-install rotary table & beam. - Backfill No. 1 water storage pit (collapsed) - Repair & re-surface lease - Mix mud - Run out flare-line - Prepare & strap BHA - Wire in dog-house light and re-wire - Koomey power cable - Pick up drill collars & RIH with pendulum BHA - Tag cement @ 143m. - Pressure test annular, pipe rams, standpipe, & stabbing valve to 1378 / 6890 kPa (200/1000psi) - Circulate to shear polymers.
03.06.00	434.0m.	Circulated, then drilled cement from 143m. to 172m. - Drilled float collar; shoe joint; float shoe - Drilled to 190m. - Circulated hole clean & ran Leak off test. EMW = 1.477 (12.3 ppg). Drilled to 367 m. & ran survey. - Drilled to 434m.
04.06.00	559.0m.	Drilled to 558m. - Ran Totco survey (1°). Drilled to 559m. - Circulate & raise mud weight from 1.056 (8.8 ppg) to 1.080 (9.0ppg) - Unload 177.8mm (7") casing - Wait on barytes - Unload barytes & weight up mud in system, while circulating well.
05.06.00	772.0m.	Weight up mud in system to 1.14 SG (9.5ppg) - Drill to 583m. - Circulate sample - Drill to 603m. - Circulate coals every 3m. - Drill to 663m. - Rig service.- Drill to 716m. - Change shaker screen - Drill to 772m.
06.06.00	892.0m.	Drill to 807m. - Circulate hole clean - Drop survey - POH - Pick up kelly & circulate/work pipe through 720m. to 710m. (10k overpull.) - Hole unloading coal & cavings - Change bit & lay out stabiliser (to reduce drag in tight hole) - RIH - Pick up kelly, wash through bridge 720m.

- 711m. - Wash through 36m. fill on bottom – Circulate - Drill from 807m. to 813m. - Repair gear linkage on draw-works - Drill from 813m. to 892m. pumping LCM sweeps each connection to stabilise coals and seal off unconsolidated sands.

07.06.00 1042.0m. Drill from 892m. to 1042m.- High torque - POH to check bit (one cone locked.) - Service Rig - make up Bit #4RR & RIH - Hit bridge @ 750m.- Wash & ream 750m. to 760m.- RIH to 790m. Wash & ream from 790m. to 850m.

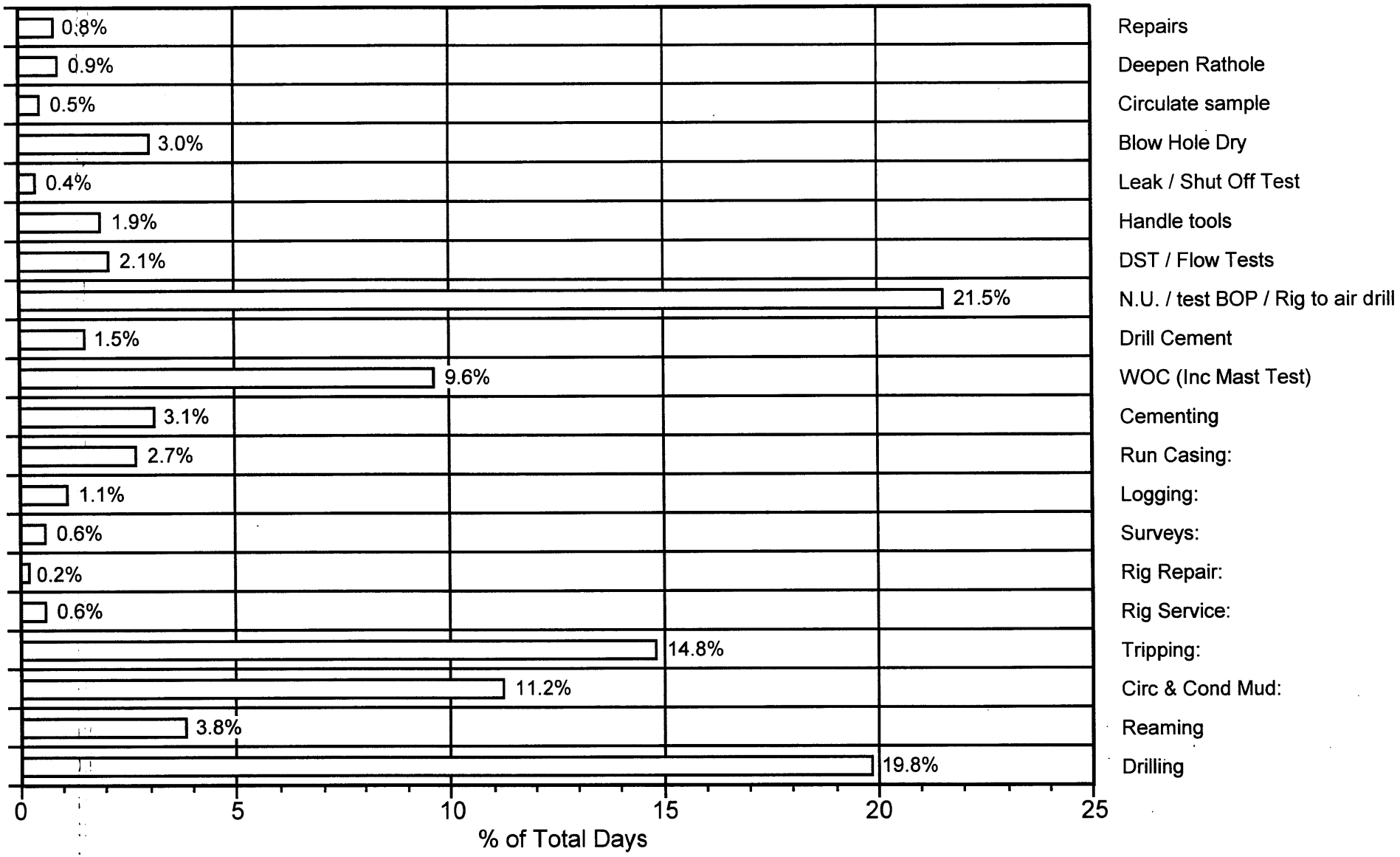
08.06.00 1104.0m. Ream & wash 850m.to 860m.- RIH to 900m - ream 900m. to 1042m. - Rig Service - Drill from 1042m to 1100m - Circulate sample - Drill to 1104m - Circulate sample - Wiper trip to 600m (minor tight spots) - RIH back to bottom (no fill) - Drop survey - Trip out of hole.

09.06.00 1104.0m. Finish POH - Lay down 150mm DC's - Recover survey - Rig to run casing - Run 178 mm. (7") casing - Rig up & circulate - Lost returns - Mix LCM - Build mud volume - Work pipe - Partial returns - Run remainder of 7" x 34.23kg/m (23#) K55 BT&C (total 84 jts) - Landed at 1103.8m - Rig up cementers - Pump 5 bbl water - Pressure test lines to 14,00 kPa - Pump 20 bbl water- Drop bottom plug - Load top plug - Pumped 12m^3 Class A Readymix slurry (very lumpy) - Drop top plug - Displace with 140.5 bbl water - Bump plug & pressure test casing to 10,300 kPa (1500 psi) - Bled back 1 bbl - Floats held - Rig down cementers & prepare to set slips - Start nipple down BOP's.

10.06.00 1104.0m. Run & set slips with 27,000kg (60,000lb) - Rough cut casing - Lift BOP's - Trim casing - Install casing seal - Nipple up & function test BOP's.- Change manifold valve - Pressure test BOP's .- Pick up 2 x drill collars & 2 x DP and pressure test pipe rams & hydril to 1378kPa (200psi) & 6890kPa (1000psi) - Test stabbing valve & inside BOP - Transfer drill pipe across

work deck & rig up to deepen rathole for longer hexagonal kelly (requested for air drilling)

11.06.00	1104.0m.	Change out kelly – Rig for air drilling. Extend rathole, transfer mus in pits, rig up and install new kelly. Wait on air drill equipment.
12.06.00	1104.0m.	Make up blooie line and primary jet supply line – Wait for drill collars – Install dual kelly hose – Mix mud for kill fluid – Safety meeting – Attempt unsuccessfully to latch rubber sealing element into body of rotating BOP – Wait on replacement unit.
13.06.00	1104.0m.	Remove rotating head – Strip head and re-seat bearings, service and re-assemble head – Sealing rubber insert to head still not sealing correctly in housing – Machined same but still oversized – Unable to lock into head – wait on replacement insert.
14.06.00	1104.0m.	Wait on rotating BOP parts – Installed new insert – Staged blow-down of hole at 140m. intervals to top of cement at 1087m. – Drying inside casing.
15.06.00	1155.0m.	Dried hole – Drilled out float, shoe joint cement to 1098m. – Wait for rotating BOP seals – Install new seals – Drill out shoe and 1m. of new hole – Carry out water shut-off test – OK – Drilled 156mm. hole to 1149m. – Flow test – Drill to 1155m., tight hole – Pull back to shoe – Flow test – Wiper trip to collars.
16.06.00	1170.0m.	RIH to shoe, attempt to ream to bottom but no success – Kill well with 9.0ppg mud – Circulated and conditioned mud – Washed and reamed to bottom – Drill 1155 – 1170m. (TD) – Circulated hole clean – Wiper trip to shoe – Tight hole at 1145m. – RIH reaming tight spots to condition for wireline logging.
17.06.00	1170.0m.	Condition hole – Sweep with Hi-Vis pill – Spot Hi-Vis pill on bottom – POH – Run wireline



NORTH SEASPRAY-3 - Time Breakdown Chart

Figure 3

logs – RIH with bit and wash 12m. to bottom – 3m. fill – Circulated and conditioned hole – Spotted Hi-Vis pill – POH to test.

18.06.00 1170.0m. Pick up test tools and RIH – Wait on daylight – Safety meeting – Run DST#1 – POH – Lay out drill collars and test tools – RIH with open ended drill pipe – Circulate and condition mud – Run 3 cubic metre cement plug 1170-1090m. – Displace with 26 barrels of mud – Pull back to 1030m. and circulate to clear drill pipe.

19.06.00 1170.0m. POOH – RIH – Tag plug @ 1096m. POOH laying down drill pipe. Rig down. Mix and pump 0.6m^3 surface plug. Rig down, clean cement unit. Install spool protection plate. Rig released 2030 hrs.

2.3.2 Hole Sizes and Depths :

12.25" / 311 mm. to 187.0m.
8.5" / 216 mm. to Total Depth

2.3.3 Casing and Cementing :

<u>Surface</u>

Size -	9.625" / 244 mm.
Weight -	64.9kg/m.
Grade -	L80
Shoe Setting Depth -	184.8m.
Quantity of Cement -	9 cubic metres "A"

<u>Intermediate</u>

Size -	7" / 178mm.
Weight -	34.2kg/m.
Grade -	K55
Shoe Setting Depth -	1103.8m.
Quantity of Cement -	12 cubic metres "A"

2.3.4 Deviation Surveys :

Depth (metres)	Deviation (degrees)	Depth (metres)	Deviation (degrees)	Depth (metres)	Deviation (degrees)
367	0.25	796	0.50	1099	0.50
548	1.00				

2.3.5 Drilling Fluid :

(a) Spud - 187m. Type - Gel Spud Mud
Additives - Aquagel, Caustic, Lime.

(b) 187 – 1104m. Type - KCl - Polymer
Additives - KCl Tech, Caustic, Alcomer 110 PHPA, Enerseal fine, Soda Ash, Dextrid LT, Barytes, PAC-R,

(c) 1104 – 1155m. Type - Air

(d) 1155 – 1170m. Type - KCl - Polymer
Additives - KCl Tech, Caustic, PAC-R, XCD Polymer

2.3.6 Physical Mud Properties :

Date	Depth	Wt.	Vis.	WL	FC	pH	KCl	K+	Solids	Cl-
28/05	0	8.45	40	38.0	3	9.2				600
29/05	187	9.50	45	27.0	4	9.0				700
30/05	187	9.20	39	35.0	4	8.8				600
31/05	187	Wait on	cement							
01/06	187	Wait on	cement							
02/06	187	8.40	43	7.5	1	8.8	3.0	16212		15000
03/06	320	8.60	43	7.0	1	8.8	3.0	16212	1.0	15000
04/06	550	8.85	41	7.0	1	8.8	3.1	16752	2.7	15500
05/06	665	9.55	43	7.5	1	9.0	4.9	26480	3.4	26000
06/06	892	9.60	52	7.0	1	8.8	4.8	25939	5.2	25000
07/06	1042	9.65	52	7.8	1		4.8	25939	5.6	25000
08/06	1100	9.70	52	8.0	1		4.6	24858	6.1	24000
09/06	1104	Air	drilling							
10/06	1104	Air	drilling							
11/06	1104	Air	drilling							
12/06	1104	8.40	29	8.5	1	9.0	1.8	9727		9500
13/06	1104	8.40	29	8.8	1	9.5	1.8	9727		9700
14/06	1104	8.40	29	8.0	1	8.5	1.8	9727		9700
15/06	1155	8.40	28	7.8	1	8.5	1.8	9727		9700
16/06	1160	9.20	32	7.5	1	7.5	8.8	47555	3.3	48000
17/06	1170	9.20	35	7.5	1	8.0	8.3	44853	3.4	46000
18/06	1170	9.20	36	7.5	1	8.0	8.3	44853	3.4	46000

Chemicals Used :

Product	Units	Amount
Aquagel	185	
Caustic Soda	10	
Lime	1	
Alcomer 110 PHPA	18	
KCl Tech	495	
PAC R	20	
Soda Ash	6	
XCD Polymer	6	
Barytes	996	
Enerseal Fine	31	
Dextrid LT	15	

2.3.7 Water Supply :

Water was obtained from a bore on site.

2.3.8 Perforation Record :

None

2.3.9 Plugging and Cementing :

Plug 1. 1170 - 1090m	3 cubic metres of cement.
Plug 2. 380.0 - 480.0m	100 sx 'G' Tagged at 400.0m
Plug 3. Surface	0.6 m^3

2.4 Logging and Testing

2.4.1 Wellsite Geologist :

D.A. Short

2.4.2 Mudlogging :

Mudlogging services were provided by Geoservices. Cuttings gas was monitored from surface casing shoe to total depth using a hot-wire gas detector and a gas chromatograph.

A mudlog recording lithology, penetration rate, mud gas and other data was prepared and is an enclosure to this report.

2.4.3 Ditch Cutting Samples :

Cuttings were collected at 10m. intervals from surface to 180m. and then at 3m. intervals to 1170.0m. (T.D). The cuttings samples and sets were:

Sample Type	No. Sets

Unwashed	1
Washed	2
Samplex Trays	1

2.4.4 Coring :

No cores were cut.

2.4.5 Sidewall Cores :

None

2.4.6 Testing :

Flow Test No.:	1
Formation :	Pre Latrobe Group
Interval :	1104 - 1149m. (D&L)
Result:	Opened on 1/4" orifice plate through 2" critical flow prover but pressure went off scale (>40psi) on gauge so shut-in at surface and changed to 1/2" plate. Re-opened through 1/2" plate and pressure decreased slowly to 18psi at which point the test was terminated. The pressure would probably have stabilized at about 15psi with a corresponding flow rate of 150Mcfd. (92/6/2/1/Tr)

Flow Test No.:	2
Formation :	Pre Latrobe Group
Interval :	1100 - 1155m. (D&L)
Result:	Opened on 1/2" plate and pressure increased slowly to a stabilized pressure of 10psi giving a flow rate of 141Mcfd. (87/9/3/1/Tr)

DST No.:	1 Bottom Hole (Packer in 178mm. casing.)
Formation :	Pre Latrobe Group
Interval :	1100 - 1170m. (D&L)
Result:	Opened on 1/8" plate and pressure increased slowly to 48psi giving a flow rate of 22Mcfd. at the end of the 60 minute final flow.
Recovery :	212 metres of drilling mud.

2.4.7 Wireline Logs :

One suite of logs was run by Reeves Logging Services.

Type Log	Interval (m)
1.1 Slim Dual Resistivity & Caliper	1163.6 - 1104.2
1.2 Slim Density / Neutron / Gamma Ray / Caliper	1164.8 - 1104.2 (GR to surface)

2.4.8 Temperature Surveys :

Wireline logging recorded the following bottom hole temperatures :-

1. 42°C / 5.3 hours after circulation ceased.
2. 42°C / 7.5 hours after circulation ceased.

2.4.9 Velocity Survey :

None

3.0 GEOLOGY

3.1 Regional Geology

The Gippsland Basin is an Early Cretaceous to Cainozoic basin occupying approximately 46,000 km^2 of the southeastern margin of the Australian continent. The basin is flanked on the north, west and south-west by Palaeozoic rocks and confined between the structural uplifts of the Victoirian Highlands in the north and the Bassian Rise in the south. The eastern margin of the basin is open to the Tasman Sea. The Gippsland Basin is an east-west trending half graben feature with 70% of its area being beneath Bass Strait and 30% onshore.

With the exception of occasional wildcat drilling in the boom of the 1980's, exploraiton of the onshore Gippsland Basin has been largely ignored since the 1970's.

The early exploration activities in the onshore part were aimed primariluy at the Early Cretaceous Strzelecki Group and, later on, at the top of the Latrobe Group coarse clastics, but a lack of understanding of the stratigraphy and the mechanism of hydrocarbon gereration, migration and timing of structures, along with poor quality of the seismic and well log data, resulted in a downgrading of the hydrocarbon potential of the onshore area.

Permit PEP 137 (now PEP 157)

Lakes Oil N.L. acquired the PEP 137 permit in April 1999, following the drilling by Roma Oil NLO of the McCreesh-1 well, an unsuccessful test of the top Latrobe Group sands. PEP 137 covers an area of 1,680 sq kms within the onshore Gippsland Basin. The permit extends over the northern part of the Seaspray Depression, the southern portion of the Lake Wellington Depression and part of the Baragwanath Anticline. Ten exploration wells have been drilled from 1962 – 2000, with lakes Oil recently testing gas at the North Seaspray-3 location.

Exploration History

Hydrocarbon exploraiton commenced in the onshore region of the basin in 1924 when the Lake Bunga water well encountered traces of oil, leading to the discovery and development of the Lakes Entrance oil field. The oil accumulation is found in a stratigraphic trap within a glauconitic sand member of the Oligocene Lakes Entrance Formation. The field produced a total of 10,000 bbls of 15.7° API gravity oil before production ceased in 1956. Aside from the Lakes Entrance oil accumulation, wet gas flowed to the surface during testing from the Strzelecki sandstones at North Seaspray 1 and 3.

Petroleum exploraiton in the permit commenced in the early 1960's and continued into the early 1970's, conducted mainly by Woodside and Arco with eight wells being drilled within the permit. This exploraiton originally had as its main objective the Strzelecki Group with emphasis moving to the Latrobe Group later in this period. Most of these wells, apart from North Seaspray-1, are thought to be located within closure at the Top Latrobe Group level.

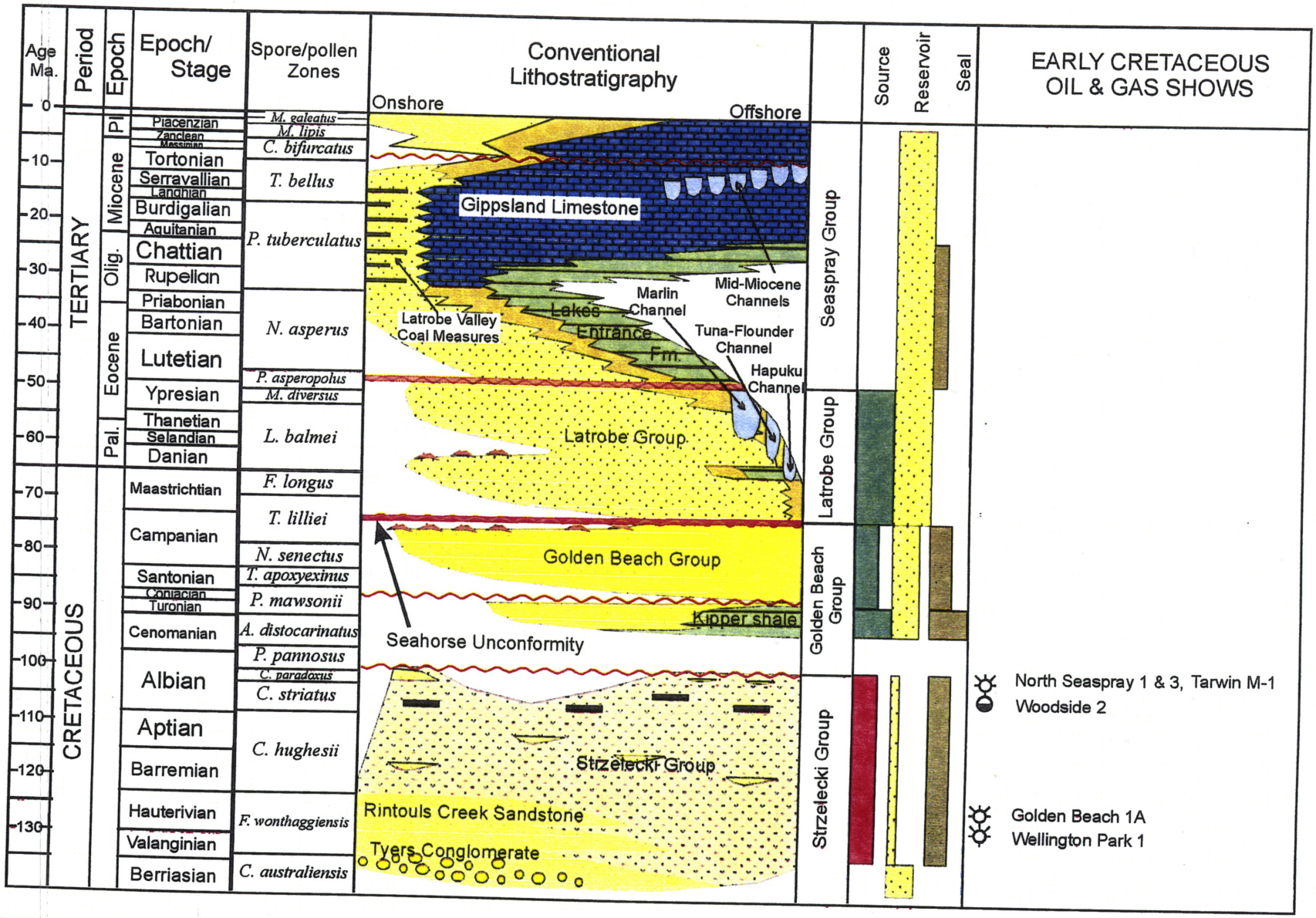
Several shallow bores have been drilled in the vicinity of PEP 135 by Victoria Electricity, Coal and Water Resources authorities; however, none of these bores encountered latrobe Group reservoirs at a significant depth or within closure.

During 1985, Hartogen Energy Ltd drilled Burong 1 to test the Top Latrobe at the crest of a northeast to southwest trending asymmetrical anticline that is fault controlled to the northwest. While the Latrobe section contained excellent reservor rock, no significant shows were recorded within this section.

Recently Lakes Oil has drilled four wells within their onshore Gippsland permits; Petro Tech-1 targeted greensands of the Lakes Entrance Formaiton but was not tested, and Hunters Lane-1 produced oil from the same formation at an uneconomic rate. Baudin-1 and Investigator-1, which targeted Lower Latrobe Formation sands, were unsuccessful, presumable due to lack of seal.

Tectonic History

The Gippsland Basin is a rift basin, which originated in the Late Jurassic – Early Cretaceous and consists of alternating half grabens structures along its east-west trend. It is characterised by a deep central basin, flanked by northern and southern terraces. In the onshore area, the late Cretaceous movements were accompanied with volcanism in the western margin of the basin. Several phases of positive structural inversion occurred in the Gippsland Basin from Mid-Oligocene to the present time, creating the major hydrocarbon bearing structures seen in the offshore region. The main phase occurred during the Late Miocene, which onshore resulted in inversion of existing features and the creation of anticlinal structures.



LITHOSTRATIGRAPHY
GIPPSLAND BASIN

Table 1

Structural Elements

The onshore area can be tectonically sub-divided into six major areas:

(a) Lakes Entrance Platform (Northern Platform): This lies immediately south of the Easter Highlands, where the Palaeozoic basement gently slopes southwards and is unconformably overlapped by Oligocene – Miocene marine sediments and thin Pliocene to Quaternary continental deposits.

(b) Latrobe Valley Depression: This lies between the Palaeozoic Eastern Highlands to the north and the Early Cretaceous Balook Block to the south. Over 700 metres of continental Latrobe Valley sediments are present in this area.

(c) Lake Wellington Depression: This lies to the south of the Lakes Entrance Platform, where over 1,200 metres of Eocene to Pliocene sediments unconformably overlie the Early Cretaceous rocks. This trough is offset from the Latrobe Valley Depression to the west, by left lateral displacement on the Yinnar Transfer Fault Zone during the Tertiary. The boundary also closely coincides with the western limit of the marine Tertiary sediments. To the east it merges with the Strzelecki Terrace.

(d) Baragwanath Anticline: This is the eastern extension of the outcropping Balook High. It is an Early Cretaceous block, which has been elevated during the Late Miocene time as a result of the renewed right lateral strike slip wrenching along the Boundary Fault Systems. It separates the Lake Wellington Depression to the north from the Seaspray Depression to the north from the Seaspray Depression to the south. On the crest of the structure, thin Miocene strata are succeeded unconformably by a veneer of Pliocene-Pleistocene sediments. On the flanks of the structure, however, the Miocene sediments wedge out towards the crest by on-lap at the base and erosion at the top of the sequence.

(e) Seaspray Depression: This is the onshore extension of the Central Deep. It occupies the southern onshore part of the basin, where the most complete stratigraphic section is present. The permit occupies the northeastern part of the Seaspry Depression.

(f) South Terrace: Wison's Promontory is an erosional remnant of a broad shallow basement platform bounding the Gippsland Basin on the south side. The Southern Terrace represents the edge of this platform. The Chitts Creek Conglomerate onlaps the South Terrace as a mirror image to the Tyers Conglomerate on the North Terrace.

3.2 Reasons for Drilling

The principal target for the well was the gas sand which was intersected in North Seaspray-1 within what had been interpreted as Golden Beach Sub-Group but is now recognised as Strzelecki Formation. The first drill stem test on this sand produced an estimated 100Mcfd of petroliferous gas. Subsequent testing encountered difficulties, culminating in testing behind casing after the well had reached total depth, drilling with a mud weight in excess of 10.1 ppg.

The sandstone reservoir is kaolinitic and almost certainly sustained formation damage during the 14 days it was exposed to drilling fluid. No formation water was encountered in any of the drill stem tests.

Calculated porosities from micro-log and sonic log were in the 20-30% range, as were measured porosities in sidewall cores in the same interval. However, permeabilities were low; the reservoir may respond to fracing.

The site for North Seaspray-3 was selected on the North Seaspray Anticline using seismic mapping by Terra-Tek Pty. Ltd. Based on this data formation tops at the base Tertiary unconformity were predicted to be 18 metres higher than in North Seaspray-1 which Arco classified as "temporarily suspended" in 1962. The sands of the Latrobe Group were expected to be water filled as in the North Seaspray-1&2 wells.

Testing of the Pre Latrobe Section sands has proved to be a major problem in the past due to caving of the Latrobe Group sediments which overlie it. No conclusive test of this target has been possible to date with the partial exception of North Seaspray-1. Accordingly it was programmed to drill through the Latrobe section with a heavy, high viscosity mud designed to inhibit caving, then run casing immediately on penetrating pre-Latrobe Group sediments.

No open hole wireline logs were programmed for the Latrobe Group section.

3.3 Stratigraphic Prognosis

The stratigraphic prognosis was made utilising the results of nearby wells and the available seismic coverage.

A comparison between prognosed and actual formation tops is given below.

FORMATION	PROGNOSED	ACTUAL	DIFFERENCE
	MD (mKB)	MD (mKB)	MD (m)
Haunted Hill Gravels	2.0	2.0	0.0
Jemmy's Point Fm.	80.0	77.0	3.0
Tambo River Fm.	147.0	133.0	14.0
Gippsland Limestone	180.0	179.0	1.0
Lakes Entrance Fm.	505.0	511.0	-6.0
Latrobe Group	571.0	575.0	-4.0
Strzelecki Fm.	1038.0	1087.0	-49.0
Total Depth	1170.0	1170.0	0.0

3.4 Stratigraphy

The stratigraphic section encountered in North Seaspray-3 is graphically illustrated in Figure 4 and discussed below.

HAUNTED HILL GRAVELS

2.0 - 77.0 metres Thickness : 75.0 metres

2.0 - 77.0m SANDSTONE, clear to translucent white, coarse to very coarse, occasionally granular, sub-angular to rounded, moderate sorted, trace grey to grey-black chert grains, rare greenish bronze mica flakes, rare carbonaceous fragments and pyrite, no visible matrix or cement, loose, very good porosity.

JEMMY'S POINT FORMATION

77.0 - 133.0metres Thickness : 56.0 metres

77.0 - 133.0m LIMESTONE with minor SANDSTONE (probably cavings from above)
LIMESTONE, white to grey, fine to medium, calcareous cemented calcareous fragments and minor quartz grains, trace argillaceous matrix, common to abundant fossil fragments including bryozoan, forams and molluscs, poor inferred porosity.
SANDSTONE, milky white, translucent white to translucent yellow, medium to very coarse, sub-angular to well rounded, moderate sorted, common grey to grey-black chert grains, rare carbonaceous material, loose, very good inferred porosity.

TAMBO RIVER FORMATION

133.0 - 179.0 metres Thickness : 46.0 metres

133.0 - 179.0m LIMESTONE, grading to MARL at base and minor SANDSTONE.
LIMESTONE, white to pale yellow weakly cemented fine to medium calcite (fossil) fragments, abundant bryozoan fragments and forams.

LIMESTONE / MARL, white to cream fine to medium calcite grains, minor silty to very fine quartz grains and green-black glauconite, abundant fossil fragments, fair inferred porosity.
SANDSTONE, milky white, translucent white to translucent yellow, medium to very coarse, sub-angular to well rounded, moderate sorted, common grey to grey-black chert grains, rare carbonaceous material, loose, very good porosity.

GIPPSLAND LIMESTONE

179.0 - 511.0 metres Thickness : 322.0 metres

179.0 - 511.0m LIMESTONE grading to MARL.
LIMESTONE, white to cream minor greenish white, occasional pinkish white, silty and argillaceous in part, glauconitic in part, trace to common coarse to very coarse, rounded, loose quartz grains, abundant bryozoan forams, and other fossil fragments, poor inferred porosity, grades to marl in part.
MARL, light to moderate greenish grey, pale to moderate grey , soft, silty, very argillaceous, occasionally glauconitic, fossiliferous, grades to calcareous claystone.

LAKES ENTRANCE FORMATION

511.0 - 575.0 metres Thickness : 64.0 metres

511.0 - 560.0m CLAYSTONE with MARL at top.
CLAYSTONE, white to off-white, light to moderate green, greenish grey, rare coarse, rounded loose quartz grains, calcareous and grades to marl, glauconitic.
MARL, white to very pale grey-brown, greenish grey, silty and argillaceous, glauconitic, fossiliferous, grades to calcareous claystone.

560.0 - 575.0m CLAYSTONE, light to moderate grey to greenish grey, soft to firm, silty in part, calcareous, abundant (5%) dark green glauconite nodules /

pellets. Trace hard, light to moderate translucent brown limestone at base.

LATROBE GROUP

575.0 - 1087.0 metres Thickness : 512.0 metres

575.0 - 599.0m COAL with minor CLAYSTONE and SANDSTONE.
COAL, very dark brown to black, earthy to dull lustre, lignitic.
CLAYSTONE, light to dark brown, soft to firm, silty in part, very carbonaceous and grades to lignite in part
SANDSTONE, light to moderate translucent brown, very fine to fine, sub-angular to sub-rounded, moderate to well sorted, minor argillaceous matrix, trace glauconite, moderate to strong calcite cement, friable to hard, nil to occasional fair porosity, grades to limestone in part.

599.0 - 715.0m SANDSTONE with trace CLAYSTONE.
SANDSTONE, translucent white, predominantly coarse to very coarse, some medium, sub-angular to well rounded, moderate to well sorted, trace grey chert grains, rare pyrite, loose, very good porosity.
CLAYSTONE, dark brown, soft, dispersive, carbonaceous.

715.0 - 1087.0m SANDSTONE with interbedded CLAYSTONE and COAL.
SANDSTONE, clear to translucent white, fine to very coarse, sub-angular to rounded, poor to moderate sorted, trace brown argillaceous matrix, predominantly loose, good inferred porosity.
CLAYSTONE, moderate to dark brown, soft to firm, dispersive, very carbonaceous and grades to lignite / coal.
COAL, very dark brown to black, earthy / dull lustre, lignitic, friable.

PRE-LATROBE GROUP

1087.0 - 1170.0 metres Thickness : 83.0 metres

1087.0 - 1157.0m. Lithic SANDSTONE with interbedded CLAYSTONE.
Argillaceous lithic SANDSTONE, light to dark grey, very fine to fine occasional medium sub-angular to sub-rounded, moderate sorted quartz / feldspar and grey, grey-black and grey-green lithic / chert grains, trace calcite and mica, abundant grey silty clay matrix, (grains are matrix supported in part), minor pyrite nodules and cement, silica cement in part, friable to moderately hard, poor to occasional fair porosity.
CLAYSTONE, pale to moderate grey, amorphous, dispersive, soft, silty / sandy in part.

1157.0 - 1170.0m. CLAYSTONE with interbedded lithic SANDSTONE.
CLAYSTONE, light to moderate grey and grey-green, firm, silty in part; minor moderate to dark brown, trace carbonaceous at top.
LITHIC SANDSTONE, light to moderate grey, very fine to fine, sub-angular to sub-rounded, moderate sorted quartz / feldspar and grey-green lithic / chert grains, abundant clay matrix, trace calcite, rare pyrite, friable to moderately hard, poor porosity.

TOTAL DEPTH

Driller: 1170.0 metres
Logger: 1170.0 metres (Extrapolated)

3.5 Hydrocarbon Shows

No gas shows or fluorescence were seen in the well until 1050 metres below which gas shows were recorded. No fluorescence was observed throughout.

Interval 1050 – 1104 metres -	Mud drilled	
Gas shows 1 – 5 units	Composition	100:0:0:0:0
Interval 1104 – 1134 metres -	Air drilled	
Gas shows 1 – 3 units	Composition	100:0:0:0:0
Interval 1134 – 1157 metres -	Air drilled	
Gas shows @ 1135m. 250 units	Composition	96:3:1:0:0
Gas shows @ 1148m. 1100 units	Composition	97:3:0:0:0
Interval 1157 – 1170 metres -	Mud drilled	
Gas shows 1 – 3 units	Composition	96:3:1:0:0

Two flow tests and one drill stem test were run to evaluate the pre-Latrobe section :

Flow Test #1 1104 - 1149 metres
Opened on 1/4" orifice plate through 2" critical flow prover but pressure went off scale (>40psi) on gauge so shut-in at surface and changed to 1/2" plate. Re-opened through 1/2" plate and pressure decreased slowly to 18psi at which point the test was terminated. The pressure would probably have stabilized at about 15psi with a corresponding flow rate of 150Mcfd. (Composition = 92/6/2/1/Tr)

Flow Test #2 1104 - 1155 metres
Opened on 1/2" plate and pressure increased slowly to a stabilized pressure of 10psi giving a flow rate of 141Mcfd. (Composition = 87/9/3/1/Tr)

Drill Stem Test #1 1100 - 1170 metres
Opened on 1/8" plate and pressure increased slowly to 48psi giving a flow rate of 22Mcfd. at the end of the 60 minute final flow. 212 metres of drilling mud were recovered in the drill string.

4.0 DISCUSSION AND CONCLUSIONS

North Seaspray-3 intersected a normal onshore Gippsland Basin sedimentary section and as prognosed the formation tops were up-dip from North Seaspray-1.

North Seaspray-3 achieved its' objective of evaluating the primary target, namely the gas sand(s) of the pre Latrobe section which were encountered in North Seaspray-1.

At North Seaspray-3 cuttings samples show the pre-Latrobe sands are predominantly fine grained, lithic, very argillaceous and have poor reservoir quality and this appears to be confirmed by wireline logs.

The gamma ray log is a good indicator of clay content and the high readings (>100 API units) in the pre Latrobe Group sediments indicate they have poor reservoir quality. (c.f. the clean Latrobe Group sands which have readings <40 API units).

Moderate to high log resisitivities are generally present in hydrocarbon saturated sediments and the low resistivities (1-5 ohm.metres) observed in the pre Latrobe Group section at North Seaspray-3 suggest the section possibly has a fairly high water saturation.

The oversize hole below 1100 metres could also be caused by "breaking out" of tight sands which, because of low permeability which inhibits fluid flow, tend to "explode" when the litho-static pressure is released while air drilling.

While gas readings confirm the presence of gas in the pre Latrobe section wireline logs and cuttings both suggest that overall sand reservoir quality is poor. The section may in fact have a high water saturation (supported by low log resistivities) and the gas produced on tests is possibly was from thin sands with sufficient porosity / permeability to flow gas but not water. It is planned to investigate the potential for "fracturing" of the pre Latrobe (Strzelecki Formation) sands.

5.0 COMPLETION

None – the well was plugged and suspended for possible re-entry.

Table 1 : NORTH SEASPRAY No.3 - STRATIGRAPHIC TABLE

Age	Formation	Depth KB (m)	Elevation (m)	Thickness (m)
TERTIARY- Pleistocene-Pliocene	Haunted Hill Gravels	2.0	24.0	75.0
TERTIARY- Pliocene	Jemmy's Point Fm.	77.0	-51.0	56.0
TERTIARY - Miocene	Tambo River Fm.	133.0	-107.0	46.0
TERTIARY - Miocene-Oligocene	Gippsland Limestone	179.0	-153.0	332.0
TERTIARY - Oligocene	Lakes Entrance Fm.	511.0	-485.0	64.0
TERTIARY – E Oligocene-Eocene	Latrobe Group	575.0	-549.0	512.0
TERTIARY - CRETACEOUS	Pre Latrobe Group	1087.0	-1061.0	83.0
	Total Depth	1170.0	-1144.0	

Table 1

APPENDIX 1

CUTTINGS DESCRIPTIONS

LAKES OIL : NORTH SEASPRAY-3 - LITHOLOGICAL DESCRIPTIONS

20 (2.4)	100	SANDSTONE, clear to translucent milky white, coarse to very coarse, sub-angular to rounded, moderate to well sorted, rare carbonaceous specks, no matrix or cement, loose, very good porosity.	0.0 (0:0:0:0:0)
30 (1.5)	100	SANDSTONE, a.a. – rare grey to grey-black chert grains, no matrix or cement, loose, very good porosity.	0.0 (0:0:0:0:0)
40 (0.9)	100	SANDSTONE, clear to translucent white, coarse to very coarse, occasionally granular, sub-angular to rounded, moderate sorted, trace grey to grey-black chert grains, rare greenish bronze mica flakes, no matrix or cement, loose, very good porosity.	0.0 (0:0:0:0:0)
50 (0.6)	100	SANDSTONE, trace to common smoky grey to grey-black chert grains, loose, very good porosity.	0.0 (0:0:0:0:0)
60 (0.6)	100	SANDSTONE, a.a. – rare carbonaceous fragments and pyrite.	0.0 (0:0:0:0:0)
70 (0.6)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
80 (0.7)	80 20	SANDSTONE, milky white, translucent white to translucent yellow, medium to very coarse, sub-angular to well rounded, moderate sorted, common grey to grey-black chert grains, rare carbonaceous material, loose, very good porosity. LIMESTONE, white, minor grey and greenish white, fossil fragments, bryozoan, forams and mollusc fragments, trace glauconite.	0.0 (0:0:0:0:0)
90 (0.7)	60 40	SANDSTONE, a.a. LIMESTONE, a.a.	0.0 (0:0:0:0:0)
100 (0.8)	30 70	SANDSTONE, a.a. LIMESTONE, white to grey, fine to medium, calcareous cemented calcareous fragments and minor quartz grains, trace argillaceous matrix, common to abundant fossil fragments including bryozoan, forams and molluscs, poor inferred porosity.	0.0 (0:0:0:0:0)
110 (0.9)	60 40	SANDSTONE, a.a. – fine to very coarse, sub-angular to rounded, poor to moderate sorted, loose, good inferred porosity. LIMESTONE, a.a. – grades to marl, rare glauconite.	0.0 (0:0:0:0:0)
120 (0.8)	20 80	SANDSTONE, a.a. LIMESTONE / MARL, a.a.	0.0 (0:0:0:0:0)
130 (0.7)	30 70	SANDSTONE, a.a. LIMESTONE / MARL, a.a.	0.0 (0:0:0:0:0)
140 (1.2)	20 80	SANDSTONE, a.a. LIMESTONE, white to cream, pale yellow fossil fragments, bryozoan and forams, some mollusc. minor grey marly limestone, fair to good inferred porosity.	0.0 (0:0:0:0:0)
150 (1.3)	20 80	SANDSTONE, a.a. LIMESTONE, white to pale yellow weakly cemented fine to medium calcite (fossil) fragments, abundant bryozoan fragments and forams.	0.0 (0:0:0:0:0)
160 (1.2)	30 70	SANDSTONE, a.a. LIMESTONE, a.a.	0.0 (0:0:0:0:0)
170 (1.0)	10 90	SANDSTONE, a.a. LIMESTONE, a.a. – some grey with minor siltstone.	0.0 (0:0:0:0:0)
180 (0.6)	20 80	SANDSTONE, a.a. LIMESTONE / MARL, white to cream fine to medium calcite grains, minor silty to very fine quartz grains and green-black glauconite, abundant fossil fragments, fair inferred porosity.	0.0 (0:0:0:0:0)
186 (1.2)	40 60	SANDSTONE, a.a. LIMESTONE / MARL, a.a.	0.0 (0:0:0:0:0)
189 (1.8)	100	LIMESTONE / MARL, a.a.	0.0 (0:0:0:0:0)
192 (1.5)	100	LIMESTONE / MARL, a.a.	0.0 (0:0:0:0:0)
195 (1.5)	100	LIMESTONE / MARL, a.a.	0.0 (0:0:0:0:0)
198 (1.6)	100	LIMESTONE / MARL, a.a.	0.0 (0:0:0:0:0)
201 (1.4)	100	LIMESTONE / MARL, a.a.	0.0 (0:0:0:0:0)
204 (1.4)	100	LIMESTONE / MARL, a.a.	0.0 (0:0:0:0:0)

LAKES OIL : NORTH SEASPRAY-3 - LITHOLOGICAL DESCRIPTIONS

207 (0.9)	100	LIMESTONE, white to cream, grey, minor greenish grey, fine to medium grained, silty and argillaceous in part and grades to marl, glauconitic in part, common coarse to very coarse rounded quartz grains, fossiliferous, poor inferred porosity.	0.0 (0:0:0:0:0)
210 (1.3)	100	LIMESTONE, a.a.	0.0 (0:0:0:0:0)
213 (1.4)	100	LIMESTONE, a.a.	0.0 (0:0:0:0:0)
216 (0.8)	100	LIMESTONE, a.a.	0.0 (0:0:0:0:0)
219 (0.6)	100	LIMESTONE, a.a. – common green glauconite nodules, fossiliferous.	0.0 (0:0:0:0:0)
222 (0.7)	100	LIMESTONE, a.a.	0.0 (0:0:0:0:0)
225 (0.7)	100	LIMESTONE, a.a.	0.0 (0:0:0:0:0)
228 (1.3)	100	LIMESTONE / MARL, white to cream, light grey to green-grey, fine to medium grained, silty, argillaceous, glauconitic in part, fossiliferous, poor porosity.	0.0 (0:0:0:0:0)
231 (1.4)	30 70	LIMESTONE, white to cream, fossiliferous, silty and grades to marl. MARL, light grey to greenish grey, argillaceous / silty, glauconitic, fossiliferous.	0.0 (0:0:0:0:0)
234 (1.4)	20 80	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
237 (1.1)	40 60	LIMESTONE, a.a. – trace coarse to very coarse, rounded, loose quartz grains. MARL, a.a.	0.0 (0:0:0:0:0)
240 (1.1)	70 30	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
243 (0.8)	70 30	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
246 (1.0)	80 20	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
249 (0.8)	80 20	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
252 (0.9)	80 20	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
255 (0.8)	80 20	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
258 (0.8)	70 30	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
261 (0.6)	70 30	LIMESTONE, white, cream, pinkish white, pale greenish white, fine grained, glauconitic, fossiliferous, (common bryozoa and forams), grades to marl in part. MARL, pale grey, pale greenish grey, firm, silty, argillaceous, fossiliferous in part.	0.0 (0:0:0:0:0)
264 (0.9)	70 30	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
267 (1.1)	80 20	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
270 (1.8)	80 20	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
273 (1.1)	80 20	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
276 (1.3)	80 20	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
279 (0.9)	80 20	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
282 (1.1)	70 30	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
285 (1.3)	80 20	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
288 (1.2)	80 20	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)

LAKES OIL : NORTH SEASPRAY-3 - LITHOLOGICAL DESCRIPTIONS

291 (1.1)	70 30	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
294 (1.3)	70 30	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
297 (1.2)	60 40	LIMESTONE, a.a. – minor coarse to very coarse, rounded, loose quartz grains. MARL, pale grey, pale greenish grey, soft to firm, argillaceous, glauconitic, fossiliferous.	0.0 (0:0:0:0:0)
300 (1.2)	60 40	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
303 (1.4)	50 50	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
306 (1.1)	40 60	LIMESTONE, a.a. MARL, a.a. – soft, light to moderate grey to greenish grey, fossiliferous.	0.0 (0:0:0:0:0)
309 (1.1)	30 70	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
312 (3.4)	30 70	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
315 (2.8)	30 70	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
318 (3.9)	30 70	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
321 (2.0)	30 70	LIMESTONE, a.a. trace coarse to very coarse, rounded, loose quartz grains, abundant fossil fragments. MARL, a.a.	0.0 (0:0:0:0:0)
324 (1.5)	30 70	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
327 (1.8)	30 70	LIMESTONE, a.a. – grades to marl. MARL, white to pale grey, soft to firm, silty / sandy, grades to limestone, glauconitic in part.	0.0 (0:0:0:0:0)
330 (0.7)	30 70	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
333 (1.4)	20 80	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
336 (1.4)	20 80	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
339 (0.9)	20 80	LIMESTONE, a.a. MARL, a.a. – white to brownish white, pale grey to greenish grey.	0.0 (0:0:0:0:0)
342 (1.2)	20 80	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
345 (1.3)	20 80	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
348 (1.7)	20 80	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
351 (1.6)	20 80	LIMESTONE, a.a. MARL, a.a. – grades to limestone.	0.0 (0:0:0:0:0)
354 (1.7)	20 80	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
357 (2.8)	100	MARL / LIMESTONE, white to pale grey, pale greenish grey, soft to firm, silty, argillaceous, glauconitic in part, fossiliferous, trace coarse to very coarse, rounded, loose quartz grains.	0.0 (0:0:0:0:0)
360 (1.9)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
363 (2.8)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
366 (2.9)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
369 (3.1)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
372 (4.1)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
375 (2.7)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
378 (4.2)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)

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381 (2.7)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
384 (6.3)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
387 (4.3)	100	MARL / LIMESTONE, white to pale grey, soft to firm, silty and argillaceous, occasionally glauconitic, forams, bryozoa and fossil fragments.	0.0 (0:0:0:0:0)
390 (4.1)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
393 (2.0)	100	MARL / LIMESTONE, a.a. – samples very poor quality due to polymer mud contamination.	0.0 (0:0:0:0:0)
396 (3.0)	100	MARL / LIMESTONE, a.a. – samples very poor quality due to polymer mud contamination.	0.0 (0:0:0:0:0)
399 (2.3)	100	MARL / LIMESTONE, a.a. – samples very poor quality due to polymer mud contamination.	0.0 (0:0:0:0:0)
402 (2.4)	100	MARL / LIMESTONE, a.a. – samples very poor quality due to polymer mud contamination.	0.0 (0:0:0:0:0)
405 (2.8)	100	MARL / LIMESTONE, white to pale brown, light to moderate grey, soft to firm, argillaceous / silty, fossiliferous.	0.0 (0:0:0:0:0)
408 (2.4)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
411 (3.2)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
414 (3.2)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
417 (4.3)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
420 (5.6)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
423 (8.2)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
426 (8.5)	100	MARL / LIMESTONE, light to moderate grey to grey-brown, firm to moderately hard, silty and argillaceous, trace glauconite, fossiliferous.	0.0 (0:0:0:0:0)
429 (6.9)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
432 (6.0)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
435 (10.5)	100	MARL / LIMESTONE, a.a.	0.0 (0:0:0:0:0)
438 (5.0)	20 80	LIMESTONE, white to pale grey-brown, silty and argillaceous, grades to marl, fossiliferous. MARL, light to moderate grey, silty and argillaceous.	0.0 (0:0:0:0:0)
441 (7.4)	30 70	LIMESTONE, a.a. – trace glauconite. MARL, a.a.	0.0 (0:0:0:0:0)
444 (4.9)	30 70	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
447 (5.9)	30 70	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
450 (5.2)	50 50	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
453 (4.8)	30 70	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
456 (5.5)	20 80	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
459 (3.1)	20 80	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
462 (3.0)	20 80	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
465 (2.9)	20 80	LIMESTONE, a.a. MARL, a.a.	0.0 (0:0:0:0:0)
468 (2.9)	100	MARL, light to moderate grey, soft to firm, silty and argillaceous, calcareous and fossiliferous.	0.0 (0:0:0:0:0)
471 (2.9)	100	MARL, a.a.	0.0 (0:0:0:0:0)

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474 (2.6)	100	MARL, pale greenish white to greenish grey, soft, very argillaceous, glauconitic, calcareous.	0.0 (0:0:0:0:0)
477 (3.1)	100	MARL, a.a.	0.0 (0:0:0:0:0)
480 (3.1)	100	MARL, a.a.	0.0 (0:0:0:0:0)
483 (3.4)	100	MARL, a.a.	0.0 (0:0:0:0:0)
486 (2.7)	100	MARL, a.a.	0.0 (0:0:0:0:0)
489 (2.6)	100	MARL, a.a.	0.0 (0:0:0:0:0)
492 (2.0)	100	MARL, a.a. – rare coarse to very coarse, rounded, loose quartz grains.	0.0 (0:0:0:0:0)
495 (2.5)	100	MARL, light to moderate greenish grey, soft, very argillaceous, grades to calcareous claystone.	0.0 (0:0:0:0:0)
498 (2.4)	100	MARL, a.a.	0.0 (0:0:0:0:0)
501 (1.3)	100	MARL / CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
504 (3.0)	100	MARL / CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
507 (2.4)	100	MARL / CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
510 (1.6)	100	MARL / CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
513 (2.5)	80 20	CLAYSTONE, pale to moderate green to grey-green, soft to firm, calcareous, glauconitic. MARL, light grey, light brown, light greenish grey, silty, argillaceous.	0.0 (0:0:0:0:0)
516 (2.2)	80 20	CLAYSTONE, .a.a MARL, a.a. – fossiliferous in part.	0.0 (0:0:0:0:0)
519 (3.7)	80 20	CLAYSTONE, .a.a MARL, a.a.	0.0 (0:0:0:0:0)
522 (3.7)	80 20	CLAYSTONE, .a.a MARL, a.a.	0.0 (0:0:0:0:0)
525 (3.3)	90 10	CLAYSTONE, .a.a MARL, light grey, light brown, occasional pink brown, silty, argillaceous, minor fossil fragments and limestone.	0.0 (0:0:0:0:0)
528 (3.2)	90 10	CLAYSTONE, .a.a MARL, a.a.	0.0 (0:0:0:0:0)
531 (5.2)	90 10	CLAYSTONE, .a.a MARL, a.a.	0.0 (0:0:0:0:0)
534 (6.4)	70 30	CLAYSTONE, .a.a MARL, a.a.	0.0 (0:0:0:0:0)
537 (6.4)	70 30	CLAYSTONE, white to off-white, light to moderate green, greenish grey, rare coarse, rounded loose quartz grains, calcareous and grades to marl, glauconitic. MARL, white to very pale grey-brown, greenish grey, silty and argillaceous, glauconitic, fossiliferous, grades to calcareous claystone.	0.0 (0:0:0:0:0)
540 (4.2)	80 20	CLAYSTONE, .a.a MARL, a.a.	0.0 (0:0:0:0:0)
543 (3.4)	90 10	CLAYSTONE, .a.a MARL, a.a.	0.0 (0:0:0:0:0)
546 (3.8)	90 10	CLAYSTONE, .a.a MARL, a.a.	0.0 (0:0:0:0:0)
549 (4.2)	100	CLAYSTONE, a.a. – white to pale green, moderate green to grey-green, trace coarse to very coarse, rounded, loose quartz grains.	0.0 (0:0:0:0:0)
552 (4.7)	100	CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
555 (5.5)	100	CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
558 (6.0)	100	CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
561 (4.5)	100	CLAYSTONE, a.a.	0.0 (0:0:0:0:0)

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564 (2.6)	100	CLAYSTONE, a.a. – abundant (5%) dark green glauconite nodules / pellets.	0.0 (0:0:0:0:0)
567 (2.9)	100	CLAYSTONE, light to moderate grey to greenish grey, soft to firm, silty in part, calcareous, abundant (5%) dark green glauconite nodules / pellets.	0.0 (0:0:0:0:0)
570 (2.9)	100	CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
573 (1.9)	100 Tr	CLAYSTONE, moderate to dark grey to greenish grey, soft to firm, calcareous, abundant glauconitic nodules / pellets. LIMESTONE, light to moderate translucent brown, glauconitic in part, hard.	0.0 (0:0:0:0:0)
576 (7.1)	10 90	SANDSTONE, light to moderate translucent brown, very fine to fine, sub-angular to sub-rounded, moderate to well sorted, minor argillaceous matrix, trace glauconite, moderate to strong calcite cement, friable to hard, nil to occasional fair porosity, grades to limestone in part. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
579 (15.3)	10 80 10	SANDSTONE, a.a. – grades to limestone in part. CLAYSTONE, a.a. LIMESTONE, a.a. – hard, crystalline, sandy and glauconitic in part.	Tr (100:0:0:0:0)
582 (1.6)	40 60	CLAYSTONE, a.a. COAL, very dark brown to black, earthy to dull lustre, lignitic.	0.1 (100:0:0:0:0)
585 (2.7)	90 10	CLAYSTONE, a.a. – also light to moderate brown, soft to firm, silty, carbonaceous. COAL, a.a.	0.1 (100:0:0:0:0)
588 (2.6)	50 50	CLAYSTONE, a.a. COAL, a.a.	0.1 (100:0:0:0:0)
591 (3.6)	50 50	CLAYSTONE, light to dark brown, soft to firm, silty in part, very carbonaceous and grades to lignite in part. COAL, a.a.	Tr (100:0:0:0:0)
594 (11.8)	80 20	CLAYSTONE, a.a. COAL, a.a.	Tr (100:0:0:0:0)
597 (2.4)	60 40	CLAYSTONE, a.a. COAL, very dark brown to black, dull, lignitic, grades to very carbonaceous claystone in part.	Tr (100:0:0:0:0)
600 (1.8)	60 40	CLAYSTONE, a.a. COAL, a.a.	0.1 (100:0:0:0:0)
603 (1.6)	20 60 20	SANDSTONE, translucent white, medium to very coarse, sub-rounded to rounded, moderate sorted, loose quartz grains, good inferred porosity. CLAYSTONE, a.a. COAL, a.a.	Tr (100:0:0:0:0)
606 (1.1)	100 Tr	SANDSTONE, a.a. – rare pyrite, good porosity. CLAYSTONE, a.a.	Tr (100:0:0:0:0)
609 (1.0)	100	SANDSTONE, a.a.	Tr (100:0:0:0:0)
612 (1.0)	100	SANDSTONE, translucent white, coarse to very coarse, sub-rounded to rounded, moderate sorted, loose quartz grains, trace brown argillaceous matrix on some grains, trace grey chert grains, very good porosity.	Tr (100:0:0:0:0)
615 (0.9)	100	SANDSTONE, a.a.	Tr (100:0:0:0:0)
618 (0.9)	100 Tr	SANDSTONE, a.a. CLAYSTONE, moderate brown, soft, dispersive, carbonaceous.	Tr (100:0:0:0:0)
621 (1.5)	100 Tr	SANDSTONE, a.a. CLAYSTONE, a.a.	Tr (100:0:0:0:0)
624 (1.3)	100 Tr	SANDSTONE, a.a. – predominantly very coarse, very good porosity. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
627 (1.3)	100 Tr	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
630 (0.8)	100 Tr	SANDSTONE, a.a. – rare pyrite. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
633 (0.7)	100 Tr	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
636 (1.1)	100 Tr	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
639 (1.5)	100 Tr	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)

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642 (2.7)	90 10	SANDSTONE, translucent white, medium to very coarse, sub-angular to rounded, moderate sorted, trace grey chert grains, loose, very good porosity. CLAYSTONE, dark brown, soft, dispersive, carbonaceous.	0.0 (0:0:0:0:0)
645 (2.7)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
648 (1.3)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
651 (1.4)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
654 (4.3)	90 10	SANDSTONE, a.a. – rare pyrite. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
657 (2.6)	100 Tr	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
660 (2.2)	100	SANDSTONE, a.a. – predominantly coarse to very coarse, very good porosity.	0.0 (0:0:0:0:0)
663 (2.7)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
666 (2.1)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
669 (2.3)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
672 (1.9)	100	SANDSTONE, a.a. – predominantly very coarse, very good porosity.	0.0 (0:0:0:0:0)
675 (2.8)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
678 (3.1)	90 10	SANDSTONE, a.a. – medium to very coarse. CLAYSTONE, dark brown, soft, dispersive, carbonaceous.	0.0 (0:0:0:0:0)
681 (3.3)	100 Tr	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
684 (2.2)	100	SANDSTONE, a.a. – predominantly very coarse.	0.0 (0:0:0:0:0)
687 (1.5)	100	SANDSTONE, a.a. – predominantly very coarse.	0.0 (0:0:0:0:0)
690 (1.8)	100	SANDSTONE, a.a. – predominantly very coarse.	0.0 (0:0:0:0:0)
693 (2.7)	100	SANDSTONE, a.a. – predominantly very coarse.	0.0 (0:0:0:0:0)
696 (3.3)	100	SANDSTONE, a.a. – very coarse.	0.0 (0:0:0:0:0)
699 (4.1)	100	SANDSTONE, a.a. – very coarse.	0.0 (0:0:0:0:0)
702 (3.4)	100	SANDSTONE, clear to translucent white, medium to very coarse, sub-rounded to rounded, moderate sorted, trace brown dispersive clay matrix, rare chert grains, loose, very good porosity.	0.0 (0:0:0:0:0)
705 (3.0)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
708 (2.9)	100	SANDSTONE, a.a. – coarse to very coarse, very good porosity.	0.0 (0:0:0:0:0)
711 (2.5)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
714 (3.5)	100	SANDSTONE, a.a. – predominantly very coarse.	0.0 (0:0:0:0:0)
717 (8.9)	50 50	SANDSTONE, a.a. CLAYSTONE, dark brown, soft, dispersive, very carbonaceous.	0.0 (0:0:0:0:0)
720 (5.4)	20 80	SANDSTONE, a.a. CLAYSTONE, a.a. – very carbonaceous.	Tr (100:0:0:0:0)
723 (6.8)	70 30	CLAYSTONE, a.a. COAL, very dark brown to black, earthy to dull lustre, friable, lignitic.	Tr (100:0:0:0:0)
726 (2.5)	40 60	CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
729 (3.3)	20 40 40	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)

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732 (2.7)	80 20	CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
735 (9.5)	80 20	CLAYSTONE, moderate to dark brown, soft, dispersive, carbonaceous. COAL, a.a.	0.0 (0:0:0:0:0)
738 (3.5)	Tr 100	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
741 (2.8)	10 90	SANDSTONE, clear to translucent white, coarse to very coarse, sub-rounded to rounded, moderate sorted, loose quartz grains, good inferred porosity. CLAYSTONE, moderate brown, soft, silty, dispersive, carbonaceous.	0.0 (0:0:0:0:0)
744 (2.5)	Tr 100	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
747 (2.6)	70 30	CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
750 (2.9)	Tr 80 20	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
753 (7.6)	10 90	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
756 (3.2)	100	CLAYSTONE, a.a. – moderate to dark brown.	0.0 (0:0:0:0:0)
759 (3.5)	100	CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
762 (5.1)	100	CLAYSTONE, a.a. – moderate brown.	0.0 (0:0:0:0:0)
765 (5.0)	70 30	CLAYSTONE, a.a. – moderate to dark brown. COAL, dark brown to black, earthy to dull lustre, lignitic, friable, grades to carbonaceous claystone in part.	0.0 (0:0:0:0:0)
768 (5.9)	100	CLAYSTONE, a.a. – dark brown, very carbonaceous.	0.0 (0:0:0:0:0)
771 (5.0)	100	CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
774 (6.8)	100	CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
777 (5.2)	40 50 10	SANDSTONE, clear to translucent white, coarse to very coarse, sub-rounded to rounded, moderate sorted, loose quartz grains, good inferred porosity. CLAYSTONE, a.a. – moderate to dark brown. COAL, a.a.	0.0 (0:0:0:0:0)
780 (11.4)	100 Tr	CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
783 (11.0)	30 70	SANDSTONE, a.a. – also pale brown, very fine to medium, sub-angular, moderate sorted, trace carbonaceous material, silty / argillaceous matrix, moderate calcite cement, friable to hard, poor porosity. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
786 (2.7)	30 70	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
789 (3.0)	30 70	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
792 (2.8)	20 80	SANDSTONE, clear to translucent white, coarse to very coarse, sub-rounded to rounded, moderate sorted, loose quartz grains, good inferred porosity. CLAYSTONE, light to moderate brown, soft, dispersive, carbonaceous.	0.0 (0:0:0:0:0)
795 (2.9)	50 50	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
798 (4.7)	90 10	CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
801 (4.3)	100 Tr	CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
804 (7.5)	20 80	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
807 (9.3)	40 40 20	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)

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810 (3.4)	40 40 20	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
813 (2.5)	20 30 50	SANDSTONE, clear to translucent white, fine to very coarse, sub-angular to rounded, poorly sorted, trace brown argillaceous matrix, loose, good inferred porosity. CLAYSTONE, moderate to dark brown, soft to firm, very carbonaceous and grades to lignite / coal. COAL, a.a.	0.0 (0:0:0:0:0)
816 (1.4)	20 60 20	SANDSTONE, a.a. CLAYSTONE, light to moderate brown, soft, dispersive, carbonaceous. COAL, a.a.	0.0 (0:0:0:0:0)
819 (5.5)	30 50 20	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
822 (3.8)	40 50 10	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
825 (2.9)	80 10 10	SANDSTONE, a.a. – coarse to very coarse, very good inferred porosity. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
828 (2.6)	50 50	CLAYSTONE, a.a. – interlaminated with coal. COAL, a.a.	0.0 (0:0:0:0:0)
831 (3.5)	40 30 30	SANDSTONE, a.a. - coarse to very coarse, very good inferred porosity. CLAYSTONE, a.a. – calcareous in part. COAL, a.a.	0.0 (0:0:0:0:0)
834 (3.0)	30 20 50	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
837 (2.9)	100	SANDSTONE, clear to translucent white, fine to very coarse, granular and pebbly in part, sub-angular to rounded, poorly sorted, trace brown dispersive clay matrix, loose, very good inferred porosity.	0.0 (0:0:0:0:0)
840 (2.5)	100	SANDSTONE, a.a. – mostly coarse to granular / pebbly, very good porosity.	Tr (100:0:0:0:0)
843 (2.4)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
846 (2.1)	100	SANDSTONE, a.a. – mostly coarse to granular, very good porosity.	0.0 (0:0:0:0:0)
849 (2.5)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
852 (4.1)	100	SANDSTONE, a.a. – coarse to pebbly.	0.0 (0:0:0:0:0)
855 (1.8)	100	SANDSTONE, a.a. – coarse to pebbly.	0.0 (0:0:0:0:0)
858 (2.5)	100	SANDSTONE, a.a. – very coarse to granular.	0.0 (0:0:0:0:0)
861 (1.5)	100	SANDSTONE, a.a. – predominantly coarse to very coarse.	0.0 (0:0:0:0:0)
864 (5.0)	100	SANDSTONE, a.a. – predominantly very coarse.	0.0 (0:0:0:0:0)
867 (4.7)	80 20	SANDSTONE, a.a. – coarse to very coarse, sub-angular to sub-rounded, moderate sorted, good porosity. CLAYSTONE, light brown, soft, dispersive, carbonaceous.	0.0 (0:0:0:0:0)
870 (1.9)	80 20	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
873 (2.6)	80 20	SANDSTONE, clear to translucent white, medium to very coarse, sub-angular to rounded, moderate sorted, loose, very good porosity. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
876 (3.9)	80 20	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
879 (2.4)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
882 (1.8)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)

LAKES OIL : NORTH SEASPRAY-3 - LITHOLOGICAL DESCRIPTIONS

885 (2.9)	50 50	SANDSTONE, a.a. COAL, very dark brown to black, friable in part, earthy / dull lustre, lignitic.	0.0 (0:0:0:0:0)
888 (3.1)	40 60	SANDSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
891 (2.2)	60 40	SANDSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
894 (5.4)	90 10	SANDSTONE, a.a. – coarse to granular, good porosity. CLAYSTONE, light brown, soft, dispersive, slightly carbonaceous.	0.0 (0:0:0:0:0)
897 (1.4)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
900 (1.4)	90 10	SANDSTONE, a.a. – coarse to pebbly. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
903 (1.3)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
906 (1.2)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
909 (3.4)	90 10	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
912 (1.7)	100	SANDSTONE, a.a. – coarse to pebbly.	0.0 (0:0:0:0:0)
915 (1.8)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
918 (1.4)	100	SANDSTONE, a.a. – rare pyrite cement.	0.0 (0:0:0:0:0)
921 (1.9)	100 Tr	SANDSTONE, a.a. – coarse to very coarse. COAL, a.a.	0.0 (0:0:0:0:0)
924 (9.1)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
927 (2.9)	100 Tr	SANDSTONE, a.a. – medium to very coarse, good porosity. COAL, a.a.	0.0 (0:0:0:0:0)
930 (1.4)	100	SANDSTONE, a.a. – sub-angular to sub-rounded, moderate to well sorted, rare pyrite.	0.0 (0:0:0:0:0)
933 (6.1)	100	SANDSTONE, a.a. – medium to very coarse, sub-angular to sub-rounded, rare pyrite.	0.0 (0:0:0:0:0)
936 (2.4)	100 Tr	SANDSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
939 (4.3)	100 Tr	SANDSTONE, a.a. – good porosity. COAL, a.a.	0.0 (0:0:0:0:0)
942 (2.9)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
945 (1.6)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
948 (1.7)	100 Tr	SANDSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
951 (1.9)	100 Tr	SANDSTONE, clear to translucent, coarse to very coarse, moderate to well sorted, loose quartz grains, good porosity. COAL, a.a.	0.0 (0:0:0:0:0)
954 (2.0)	100	SANDSTONE, a.a. – sub-rounded.	0.0 (0:0:0:0:0)
957 (3.9)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
960 (5.7)	100	SANDSTONE, a.a. – sub-angular to sub-rounded, good porosity.	0.0 (0:0:0:0:0)
963 (5.8)	50 10 40	SANDSTONE, a.a. – coarse to very coarse, sub-angular, good porosity. CLAYSTONE, white to pale brown, soft, amorphous, carbonaceous specks. COAL, a.a.	0.0 (0:0:0:0:0)
966 (6.0)	60 20 20	SANDSTONE, a.a. – angular to sub-angular. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
969 (3.6)	20 60 20	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)

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972 (1.6)	70 20 10	SANDSTONE, a.a. – sub-angular. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
975 (1.7)	100	SANDSTONE, clear, coarse to very coarse, sub-rounded, moderate to well sorted, loose quartz grains, very good porosity.	0.0 (0:0:0:0:0)
978 (2.7)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
981 (3.0)	80 10 10	SANDSTONE, a.a. – sub-angular to sub-rounded, good porosity. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
984 (2.7)	80 10 10	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
987 (4.6)	100	SANDSTONE, clear to translucent pale brownish white, mostly coarse to very coarse, minor fine to medium, sub-angular, poor to moderate sorted, minor brown silty clay matrix, trace carbonaceous material, trace smoky grey chert grains, rare pyrite, weak silica cement, good porosity.	0.0 (0:0:0:0:0)
990 (3.5)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
993 (11.7)	80 20	SANDSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
996 (5.3)	100 Tr	SANDSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
999 (4.0)	90 10	SANDSTONE, clear to translucent white, coarse to very coarse, minor fine to medium, sub-rounded, moderate sorted, mostly loose, minor brownish white dispersive clay matrix, minor weak silica cement, good porosity. COAL , black, dull lustre.	0.0 (0:0:0:0:0)
1002 (1.4)	90 10	SANDSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
1005 (2.5)	100 Tr	SANDSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
1008 (7.3)	30 50 20	SANDSTONE, a.a. CLAYSTONE, white to pale brown, soft, dispersive, carbonaceous in part. COAL, a.a.	0.0 (0:0:0:0:0)
1011 (6.6)	10 70 20	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
1014 (6.7)	40 40 20	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
1017 (2.2)	80 20	SANDSTONE, a.a. CLAYSTONE, a.a.	0.0 (0:0:0:0:0)
1020 (6.1)	50 40 10	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.0 (0:0:0:0:0)
1023 (7.8)	100	SANDSTONE, clear, coarse to very coarse, sub-angular, moderate to well sorted, trace clay matrix, rare pyrite nodules and coating, predominantly loose, weak silica cement, good porosity.	0.0 (0:0:0:0:0)
1026 (2.6)	100	SANDSTONE, a.a. – predominantly very coarse, sub-angular to sub-rounded, moderate to well sorted, good porosity.	0.0 (0:0:0:0:0)
1029 (1.8)	100	SANDSTONE, a.a. – predominantly very coarse.	0.0 (0:0:0:0:0)
1032 (3.3)	100	SANDSTONE, a.a. – predominantly very coarse, minor clay matrix.	0.0 (0:0:0:0:0)
1035 (4.9)	100	SANDSTONE, a.a. – coarse to very coarse, sub-angular, moderate sorted, loose quartz grains, trace grey and greenish grey chert grains, rare pyrite, good porosity.	0.0 (0:0:0:0:0)
1038 (5.6)	100	SANDSTONE, a.a. – minor brownish clay matrix and weak silica cement, good porosity.	0.0 (0:0:0:0:0)
1041 (6.4)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:0)
1044 (3.9)	100	SANDSTONE, a.a.	0.0 (0:0:0:0:100)

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1047 (2.6)	100	SANDSTONE, a.a.	Tr (100:0:0:0:0)
1050 (9.2)	100 Tr Tr	SANDSTONE, clear, predominantly very coarse, angular to sub-angular, moderate sorted, loose quartz grains, good inferred porosity. CLAYSTONE, white to pale brown, soft, dispersive, amorphous. COAL, black, dull lustre.	0.2 (100:0:0:0:0)
1053 (11.9)	100	SANDSTONE, a.a. – coarse to very coarse, trace pyrite.	0.8 (100:0:0:0:0)
1056 (9.6)	40 50 10	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.2 (100:0:0:0:0)
1059 (11.1)	50 40 10	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	0.1 (100:0:0:0:0)
1062 (11.1)	50 40 10	SANDSTONE, a.a. CLAYSTONE, a.a. COAL, a.a.	1.3 (100:0:0:0:0)
1065 (4.1)	60 40	SANDSTONE, a.a. CLAYSTONE, white to light brown, also some moderate to dark brown, soft, dispersive, amorphous, carbonaceous.	4.3 (100:0:0:0:0)
1068 (4.9)	70 30	SANDSTONE, a.a. CLAYSTONE, a.a.	2.7 (100:0:0:0:0)
1071 (7.2)	90 10	SANDSTONE, a.a. – clear, coarse to very coarse, good porosity. COAL, black, dull to occasional sub-vitreous lustre.	1.0 (100:0:0:0:0)
1074 (4.1)	100 Tr	SANDSTONE, a.a. – trace grey chert grains. CLAYSTONE, a.a.	1.2 (100:0:0:0:0)
1077 (6.2)	100 Tr	SANDSTONE, a.a. CLAYSTONE, a.a.	1.4 (100:0:0:0:0)
1080 (8.5)	100 Tr	SANDSTONE, clear to translucent white, coarse to very coarse, sub-angular to sub-angular, moderate sorted, predominantly loose quartz grains, trace pyrite and chert grains, minor white to pale brown clay matrix, occasional weak to moderate silica cemented aggregates, good inferred porosity. CLAYSTONE, white to pale brown, minor moderate to dark brown, soft, dispersive, am, trace carbonaceous, trace pale to moderate green, silty.	1.8 (100:0:0:0:0)
1083 (6.9)	100 Tr	SANDSTONE, a.a. CLAYSTONE, a.a.	3.0 (100:0:0:0:0)
1086 (15.2)	100 Tr	SANDSTONE, a.a. CLAYSTONE, a.a.	1.3 (100:0:0:0:0)
1089 (15.0)	100	SANDSTONE, a.a. – rare pyrite, predominantly loose, occasional weak to moderate silica cement, trace grey chert grains, good porosity.	2.4 (100:0:0:0:0)
1092 (11.5)	80 20 Tr	SANDSTONE, clear to translucent white, occasionally very pale yellow-brown, coarse to very coarse, angular (fractured) to sub-angular, moderate sorted, rare grey chert grains, rare pyrite, predominantly loose, occasional weak to moderate silica cement, good porosity. CLAYSTONE, white to pale grey, soft, dispersive, amorphous. COAL, a.a.	1.6 (100:0:0:0:0)
1095 (4.0)	70 30	SANDSTONE, a.a. CLAYSTONE, a.a. – also trace moderate grey, soft, silty, amorphous.	1.1 (100:0:0:0:0)
1098 (4.2)	50 50	ARGILLACEOUS SANDSTONE, light to moderate grey, very fine to fine, sub-rounded, moderate sorted quartz and grey chert / lithic grains, abundant grey clay matrix, (grains are matrix supported in part), minor hard pyritic cemented aggregates, poor porosity. CLAYSTONE, pale to moderate grey, amorphous, dispersive, soft, silty / sandy in part.	1.7 (100:0:0:0:0)
1101 (2.4)	50 50	ARGILLACEOUS SANDSTONE, a.a. CLAYSTONE, a.a.	3.8 (100:0:0:0:0)
1104 (2.6)	60 40	ARGILLACEOUS SANDSTONE, a.a. CLAYSTONE, a.a.	2.2 (100:0:0:0:0)
1107 (1.7)	100	LITHIC SANDSTONE, light to moderate grey, fine to coarse, predominantly medium, sub-angular to sub-rounded, moderate to well sorted, predominantly loose quartz (60%) and grey / grey-black, greenish grey and green lithic / chert 40%) grains, rare pyrite cemented aggregates, silty clay matrix adhering to some grains, trace calcite, fair inferred porosity.	0.0 (0:0:0:0:0)

LAKES OIL : NORTH SEASPRAY-3 - LITHOLOGICAL DESCRIPTIONS

1110 (1.7)	100	LITHIC SANDSTONE, a.a.	0.0 (0:0:0:0:0)
1113 (1.5)	100 Tr	LITHIC SANDSTONE, a.a. CLAYSTONE, pale to moderate grey, bluish grey, light to moderate brown, silty, soft to firm.	Tr (100:0:0:0:0)
1116 (2.2)	100 Tr	LITHIC SANDSTONE, a.a. - minor pyrite nodules and pyrite cement. CLAYSTONE, a.a.	0.1 (100:0:0:0:0)
1119 (1.8)	100	LITHIC SANDSTONE, moderate grey, fine to medium, sub-angular to sub-rounded, moderate sorted quartz with some feldspar (70%) and grey, grey-black and grey-green lithic / chert (30) grains, minor pyrite nodules and cement, trace calcite, rare mica, silty argillaceous matrix, silica cement, friable to moderately hard, poor to fair porosity.	0.1 (100:0:0:0:0)
1122 (2.1)		NO SAMPLES DUE TO NIL / VERY POOR RETURNS BELOW 1120 METRES. Recovered sample chips are:- LITHIC SANDSTONE, light to dark grey, dominantly fine occasional medium, sub-angular to sub-rounded, moderate sorted quartz / feldspar and grey, grey-black and grey-green lithic / chert grains, minor pyrite nodules and cement, trace calcite and mica, moderate to abundant silty argillaceous matrix, silica cement, friable to moderately hard, poor to occasional fair porosity.	13.0 (100:0:0:0:0)
1125 (2.2)		NIL SAMPLE	1.3 (100:0:0:0:0)
1128 (2.2)		NIL SAMPLE	0.0 (92:8:0:0:0)
1131 (2.4)		NIL SAMPLE	5.9 (100:0:0:0:0)
1134 (2.5)		NIL SAMPLE	10.0 (100:0:0:0:0)
1137 (3.9)		NIL SAMPLE	246.0 (98:2:0:0:0)
1140 (6.2)		NIL SAMPLE	239.7 (98:2:0:0:0)
1143 (4.6)		NIL SAMPLE	556.2 (81:11:6:2:0)
1146 (7.8)		NIL SAMPLE	236.6 (99:1:0:0:0)
1149 (6.5)		NIL SAMPLE	1103.8 (96:3:1:0:0)
1152 (7.3)		NIL SAMPLE	766.9 (96:3:1:0:0)
1155 (5.6)		NIL SAMPLE	1087.6 (92:5:1:1:1)
1158 (4.3)	60 40	LITHIC SANDSTONE, light to moderate grey, fine to medium, sub-angular to sub-rounded, moderate sorted quartz / feldspar and grey-green lithic / chert grains, abundant clay matrix, trace calcite, rare pyrite, friable to moderately hard, poor porosity. CLAYSTONE, moderate to dark brown, moderate grey to grey-green, firm, silty in part.	1.6 (100:0:0:0:0)
1161 (7.1)	90 10	LITHIC SANDSTONE, a.a. - very fine to fine, abundant clay matrix, poor porosity. CLAYSTONE, light to moderate grey and grey-green, soft to firm, silty.	2.7 (100:0:0:0:0)
1164 (6.7)	80 20	LITHIC SANDSTONE, a.a. CLAYSTONE, a.a.	2.5 (100:0:0:0:0)
1167 (6.7)	90 10	LITHIC SANDSTONE, a.a. CLAYSTONE, a.a.	3.4 (100:0:0:0:0)
1170 (6.1)	90 10	LITHIC SANDSTONE, a.a. CLAYSTONE, a.a.	3.2 (100:0:0:0:0)
		Drillers TD of 1170m. reached, 1930hrs 16th June 2000.	

APPENDIX 2

BIT RECORD

Lakes Oil N.L. Drilling Bit Summary.

WELL: NORTH SEASPRAY #3 SPUD DATE: 16:00 hours 28/5/2000 RELEASE DATE: 20:00 hours 19/6/2000 RIG: SIDES - Cardwell HL 195

BIT DATA							OVERALL BIT PERFORMANCE						DRILLING PARAMETERS					MUD			DULL CONDITION							
							DEPTH				CUM				MAX						CUT. STRUCT.							
BIT No.	SIZE	MAKE	TYPE	IADC CODE	SERIAL No.	JETS	IN	OUT	Metres	HRS	HRS	ROP	WOB	RPM	DEV	PSI	GPM	WT	YP	PV	I	O	DC	LOC	B/S	G	ODC	POH
1	12.25	Varel	L114	1-1-4	124574	18-18-18	0	187	187	14.5	4.0	12.9	2.2 / 4.5	120	0.5	350	290	8.8	11.0	13.0	1	3	no	A	E	In	NO	CSG
2	8.50	Varel	L114	1-1-4	105480	15-15-15	187	807	620	49.5	53.5	12.5	10/20	120/160	1.0	425	295	9.6	32.0	16.0	4	4	SS	A	E	In	NO	Hours
3RR	8.50	Varel	L114	1-1-4	105471	15-15-15	807	1042	235	22.0	75.5	10.7	15	110	0.5	325	210	9.6	19.0	14.0	4	5	SS	A	F	1/4"	SD	TQ
4RR	8.50	Reed	MH13G	1-3-7	KT2055	Open	1042	1104	62	9.5	85.0	6.5	17	110	0.5	325	210	9.7	22.0	18.0	3	3	WT	A	E	In	NO	CSG
5	6.13	Varel	L127	1-2-7	128484	Open	1104	1170	66	10.0	95.0	6.6	5-10	60-70	-	350	224	9.2	15.0	10.0	4	3	WT	A	E	In	NO	TD

COMMENTS

WELLSITE FORMATION PICKS

DULL CHARACTERISTICS

BC	BROKEN CONE	ER	EROSION	PN	PLUGGED NOZZLE		
BT	BROKEN TEETH/CUTTERS	FC	FLAT CRESTED WEAR	RG	ROUNDED GAUGE		
BU	BALLED UP	HC	HEAT CHECKING	RO	RING OUT		
CC	CRACKED CONE	JD	JUNK DAMAGE	SD	SHIRTTAIL DAMAGE		
CD	CONE DRAGGED	LC	LOST CONE	SS	SELF-SHARPENING WEAR		
CI	CONE INTERFERENCE	LN	LOST NOZZLE	TR	TRACKING		
CR	CORED	LT	LOST TEETH/CUTTERS	WO	WASH OUT ON BIT		
CT	CHIPPED TEETH/CUTTERS	OC	OFF CENTRE WEAR	WT	WORN TEETH/CUTTERS		

REASON PULLED

FM	FORMATION CHANGE	TW	TWIST OFF	LOG	RUN LOGS
HP	HOLE PROBLEMS	WC	WEATHER CONDITIONS	RIG	RIG REPAIR
HR	HOURS	WO	WASHOUT-DRILL STRING	CM	CONDITION MUD
FT	FEET	BHA	CHANGE BOTTOMHOLE ASS.	CP	CORE POINT
PP	PUMP PRESSURE	DMF	DOWNHOLE MOTOR FAILURE	DP	DRILL PLUG
ROP	PENETRATION RATE	DSF	DRILL STRING FAILURE	CSG	CASING POINT
TD	TOTAL DEPTH	DST	DRILL STEM TEST	MSG	MISCELLANEOUS
TQ	TORQUE	DTF	DOWNHOLE TOOL FAILURE		

APPENDIX 3

DRILLING FLUID SUMMARY

by

RMN DRILLING FLUIDS PTY. LTD.

RMN
Drilling Fluids

DRILLING FLUID SUMMARY

FOR : LAKES OIL

WELL : SEASPRAY NORTH # 3

GIPPSLAND BASIN

VICTORIA

Prepared by : Neil Kyberd
Andre Skujins

Date : June 2000

RMN Drilling Fluids

CONTENTS

Operator	:	**Lakes Oil**
Well	:	**North Seaspay # 3**
Rig	:	**Sides Engineering**
Spud	:	**28th May 2000**

RMN Drilling Fluids

1. SUMMARY OF OPERATIONS

Seaspray North # 3 was spudded on the 28th of May 2000. Make up water was sourced from a local bore and had the following properties :

pH	7.1
Pf / Mf	0.0 / 0.15
Chlorides	400 mg/l
Hardness	40 mg/l

HOLE SIZE	:	**311 mm (12¼")**
MUD TYPE	:	**Gel Spud Mud**
INTERVAL	:	**Surface - 187 m**
CASING	:	**9 5/8" @ 184.7 m**

Prior to spud, 400 bbls of spud mud was mixed comprising 25 ppb Aquagel and caustic soda for a pH of 9.0 - 9.5. The 2 earthen pits each held 420 bbls so a trough was fashioned from sheets of galvanised roofing iron to reach from the shaker outlet, over the settling pit to the suction pit and effectively bypassing the settling pit and cutting the surface volume required in half. After fully yielding the gel, small additions of Lime were added to extend the viscosity above 50 sec/qt for spud. S50 over S60 shaker screens were fitted to the stand alone Brandt Shaker unit.

The well was spudded and drilled ahead through loose surficial sands. Viscosity was kept high for good hole cleaning and wellbore stability as the mud pump could only manage a 218 gpm flow rate. Mud making clays were eventually encountered which aided viscosity and new volume maintenance.

Drilling continued to the casing depth of 187 m without problems. A wiper trip to the collars found the hole in good condition and no fill on bottom. The 9-5/8" casing was run in and cemented with cement returned to surface.

Operator	:	**Lakes Oil**
Well	:	**North Seaspay # 3**
Rig	:	**Sides Engineering**
Spud	:	**28th May 2000**

RMN Drilling Fluids

HOLE SIZE	:	**216 mm (8½") Intermediate hole**
MUD TYPE	:	**3% KCl PHPA Polymer**
INTERVAL	:	**187m - 1104m**
CASING	:	**7" @ 1102 m**

While waiting on cement and nippling up the BOPs, the earthen suction pits were pumped out to remove the bulk of the mud and drilled solids and then filled with water. 800 bbls of mud was prepared containing :

3% KCl,
0.8 ppb PAC-R and
0.5 ppb PHPA.

All mud mixing pumps and portable diesel pumps were used to agitate and blend the fluid and to some degree, aid shearing of the polymers. Approximately 38 bbls of spud mud, which could not be removed from the pits was incorporated into the system. S50 over S60 shaker screens were left on the single "Brandt" type shaker.

The necessary pressure tests were conducted and a 216 mm (8½") bit was run in the hole. Cement was tagged at 140 m and the hole displaced to the new KCl – PHPA fluid. The fluid was circulated in the hole for a few hours to further shear the fluid through the mud pump and bit nozzles while rig repairs were effected.

The shoe track and formation were drilled to 141 m, where a Leak Off Test was performed. Drilling then resumed, with mud losses over the shaker to the sump pit being recycled back to the active system as soon as volume allowed. Within hours of drill out, fluid had got behind the plastic liners of the pits which caused the plastic to float about in the pit and cause major problems with suctions and mixing. Approximately half of the fluid in the pits was "behind" the plastic and remained untreated and unusable.

The turkeys nest pit had by this stage already collapsed due to faulty plastic and had to be filled in. Portable pumps were used to try to recover the fluid from behind the plastic liners with little success. System treatment to build KCl and PHPA concentrations proved erratic with variable amounts of fluid locked away behind the plastic.

From 440 m the system mud weight was built up from 8.6 to 9.5 ppg. This proved to be a difficult operation due to the fluid locked behind the plastic. As the active system was weighted up with Barytes, the increased weight inside the plastic forced the lighter (8.4 ppg), clean and partially unsheared mud (as the system was when this hole section started) back into the system causing more problems with weight, viscosity, KCl & PHPA concentrations, which all then needed attention.

Operator	:	**Lakes Oil**
Well	:	**North Seaspay # 3**
Rig	:	**Sides Engineering**
Spud	:	**28th May 2000**

RMN Drilling Fluids

Due to continual Baryte settling in the unagitated pits, KCl was also used to bring the weight up to the desired level. Drilling stopped at 570 m and the system circulated until an even 9.5 ppg was attained to drill the Latrobe Formation. Pockets of new light mud were sporadically released from behind the plastic creating an unbalanced system. Portable surface pumps were used to fold back the system and mix the patchy system together. Rising hardness picked up from the formation was treated with Soda Ash.

The Latrobe Formation was penetrated, maintaining the mud weight at 9.5 ppg and KCl at 5%. Caustic Soda was added to maintain the dropping pH due to the Latrobe Coals. A PHPA concentration above 0.6 ppb proved difficult to maintain as the shaker, now fitted with S40 over an S50 screen could not handle the flow rate (280 gpm) with any higher concentrations.

Drilling continued to 807 m where the hole was circulated clean and the pipe pulled out for a new bit. All surface pumps were rigged up to circulate the pits during the trip to minimise Barytes settling. Tight hole was found from 720 m – 710 m and was worked.

A new bit was run into the hole and washed through tight hole at 710 m. The hole was circulated clean, unloading cavings up to 5 cm in diameter. A high pressure hose fitted to the mud pump was used as a gun line to re-constitute the settled Barytes and maintain a minimum of 9.5 ppg. Drilling resumed and Enerseal fine was added while drilling the fractured coals of the Latrobe Formation to minimise fluid loss.

Eventually the heavier system fluid squeezed out most of the lighter fluid trapped behind the plastic but later the heavier system mud began finding its way in behind the plastic. By 1000 m the plastic liner had once again ballooned out into the pits and effectively locked away up to 80% of the total surface volume. System treatments for PHPA and KCl concentrations were constantly adjusted to maintain programmed specs as volume calculations proved unreliable due to the fluctuating volumes in the pit and behind the plastic.

Due to high torque, the bit was pulled at 1042m. While tripping all surface pumps were used to circulate the pits to maintain Barytes suspension and efforts were made to try and recover the fluid trapped behind the plastic. While running into the hole with a new bit , tight hole was lightly reamed from 750 – 760 m & 790 – 860 m and wash / reamed through 900 m to bottom. Continual caustic soda additions were made to treat the falling pH due to coals and rising hardness (Mg++). New volume was built after the trip due to losses attributed to surging while running into the hole.

Drilling continued to casing depth at 1104 m. A wiper trip was made back to 600 m finding the hole in good condition. The hole was circulated clean and the pipe pulled out to run 7" casing.

Operator	:	**Lakes Oil**
Well	:	**North Seaspay # 3**
Rig	:	**Sides Engineering**
Spud	:	**28th May 2000**

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While running casing, returns were lost at around 600 m. At 700 m, running of the casing was stopped and circulation of the casing was attempted but with no returns. A 30 bbl pill containing 10 ppb Enerseal was pumped and spotted around the bottom of the casing. After 10 minutes of pumping, circulation was regained with full returns to surface. The casing was then run to bottom and the hole circulated clean with full returns. The casing was cemented and displaced with water, with full returns throughout the operation.

HOLE SIZE	:	**152 mm (6¼") Production hole**
MUD TYPE	:	**2% KCl Brine Kill Mud**
INTERVAL	:	**1104 m - 1170 m**

While waiting on cement and rigging up to drill with air, the pits were pumped out and most of the mud and solids were removed. This section was planned to be drilled with air through the target zones for minimal formation damage. 420 bbls of kill mud, weighted to 8.4 with KCl and 2 ppb Dextrid for fluid loss control, was mixed and sheared for several days before allowing to settle (40 – 50 bbls of mud & solids from the previous hole section was impossible to remove.) Enerseal was programmed to be added for maximum fluid loss control but was withheld from mixing at this stage as the LCM would float out of suspension.

A 6¼" bit was run into the hole and unloaded the hole of displacement water in stages. Cement was tagged and Air drilling commenced. Once through the cement (with good dusting) drilling continued with fewer and fewer cuttings returned to surface. Connections were tight and at 1155 m the bit was pulled to wipe the hole back to the shoe. Tight hole was worked at 1148 m. The well was flow tested through the flow prover with little effect.

The pipe was pulled for a wiper trip through the casing to the collars while the kill mud weight was adjusted to 8.6 ppg with KCl. On running into the hole, a bridge was tagged at 1107 m. The hole was reamed from 1107 m to 1110 m and an attempt to run into the hole from there failed. After pulling back to the shoe the hole had to be re-reamed from 1107 – 1110 m. The Kill mud weight was then adjusted to 9.0 ppg with KCl. Pac-R and XCD Polymer were added to give a Yield point suitable for drilling, plus aid in controlling fluid loss.

At 1110 m the hole was displaced to the modified kill mud which now had a viscosity of 35 sec/qt and a Yield Point of 15 lb/100 ft². The hole unloaded abundant cavings to 1" diameter while the hole was washed and reamed down to 1155 m. The mud weight increased rapidly to 9.2 ppg by picking up the "dusted" cuttings that had stuck to the drill pipe and casing. (Initial returns weighed 10.3 ppg.)

Operator	:	**Lakes Oil**
Well	:	**North Seaspay # 3**
Rig	:	**Sides Engineering**
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Drilling then continued to the programmed Total Depth of 1170 m. Some connections were tight and a 30 bbl high viscosity sweep (Pac-R) brought further abundant cavings up to 1" diameter to surface. The hole was circulated and an second high viscosity sweep was pumped also unloading abundant cavings until the hole was eventually clean. A 25 bbl high viscosity pill was then spotted on bottom prior to pulling out of the hole with the bit.

After two logging runs which found 4 m of fill, the bit was run into the hole finding 3 m light fill. The hole was circulated clean and a 25 bbl high Viscosity pill spotted on bottom. The pipe was pulled and DST tools made up.

DST # 1 was performed successfully and the tools pulled out. Pipe was then run into the hole open ended and cement plugs set as per the P&A program.

Operator : Lakes Oil
Well : North Seaspay # 3
Rig : Sides Engineering
Spud : 28th May 2000

RMN Drilling Fluids

2. OBSERVATIONS, RECOMMENDATIONS AND WELL ANALYSIS

Seaspray North # 3 was drilled for a mud cost of $26,906.99 or $23.00 per metre. Some minor hole problems occurred but in general were not serious or time consuming. 1 DST was conducted after logging without hole problems.

12¼" Surface Hole

This section of hole was drilled with a Gel Caustic spud mud for a mud cost of $2,339.10 or $12.50 per metre. The section was drilled without problems but with minor mud losses to surficial sands and to the sump pit. This along with over 400 bbls of surface volume accounts for the high cost for the section. The relatively low pump rate meant that annular velocities, especially across the 3½" drill pipe, were low so hole cleaning had to be achieved more by maintaining high yield points.

8½" Intermediate Hole

This section was drilled for a mud cost of $18,082.91 or $19.72 per metre. An inhibitive KCl – PHPA system with baryte for mud weight was required for this section to handle the reactive clays and the large Latrobe Coal beds. Baryte was responsible for 40% of the section's mud cost.

Continual problems arose due to the failure of the plastic pit liner. Lack of solids control equipment and poorly operating shale shakers. All the above proved to be a nightmare for efficient system management. However the best was done onsite to provide a system that got the job done, which in the end was achieved.

The Latrobe coals required the system weight to be maintained at 9.5 ppg or above and Barytes was used for this task. Although some reaming of coals occurred and the hole briefly became packed off while running casing, in general the higher mud weight was successful in keeping the massive coal sequence under control.

The KCl level was kept at around 5% for the interval. For inhibition, it was thought that 2 - 3% was more than ample, but as the mud weight was to be maintained at 9.5 ppg, extra KCl was used. Using extra KCl was a more costly method to increase the mud weight, but it did have the benefit that it did not settle out like barytes.

Operator	:	**Lakes Oil**
Well	:	**North Seaspay # 3**
Rig	:	**Sides Engineering**
Spud	:	**28th May 2000**

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6¼" Production Hole

Fluid cost for this section was $6,484.98 or $98.26 per metre. The fluid appeared performed its task while remaining inhibitive and minimising formation damage.

Initially, this section was planned to be drilled with air. A clean drill in fluid was contemplated, but the idea was quashed when it was realised that the pits could not be cleaned out adequately to form a clean solids free fluid.

This section was programmed to be drilled with air, with a Kill Mud on standby and for final killing of the well prior to completion or P & A. Difficulties while air drilling required the kill mud to be modified for drilling and stabilising the wellbore for TD operations.

3. INTERVAL COSTS

Product	Cost	Interval : Unit Size	12-1/4" Surface Hole Used	Cost	%Cost	8-1/2" Intermediate Hole Used	Cost	%Cost	6-1/8" Production Hole Used	Cost	%Cost	Total Well Consumption Used	Cost	%Cost
Alcomer 110 PHPA	$ 84.63	25 kg				18	$1,523.34	8.4%				18	$1,523.34	5.7%
Aldacide G	$ 190.64	25 kg												
Aquagel	$ 12.38	25 kg	185	$2,290.30	97.9%							185	$2,290.30	8.5%
Baracarb 100	$ 10.18	25 kg												
Baracarb 25	$ 10.18	25 kg												
Barytes	$ 7.62	25 kg				966	$7,360.92	40.7%				966	$7,360.92	27.4%
Caustic Soda	$ 41.53	25 kg	1	$41.53	1.8%	7	$290.71	1.6%	2	$83.06	1.3%	10	$415.30	1.5%
Dextrid LT	$ 75.30	25 kg							15	$1,129.50	17.4%	15	$1,129.50	4.2%
Enerseal fine	$ 25.00	25 kg				36	$900.00	5.0%	5	$125.00	1.9%	41	$1,025.00	3.8%
KCL tech	$ 14.50	25 kg				280	$4,060.00	22.5%	215	$3,117.50	48.1%	495	$7,177.50	26.7%
Lime	$ 7.27	25 kg	1	$7.27	0.3%							1	$7.27	0.0%
PAC-R	$ 151.62	25 kg				16	$2,425.92	13.4%	4	$606.48	9.4%	20	$3,032.40	11.3%
Soda Ash	$ 16.43	25 kg				6	$98.58	0.5%				6	$98.58	0.4%
XCD Polymer	$ 474.48	25 kg				3	$1,423.44	7.9%	3	$1,423.44	21.9%	6	$2,846.88	10.6%
Totals :				**$2,339.10**	**100.0%**		**$18,082.91**	**100.0%**		**$6,484.98**	**100.0%**		**$26,906.99**	**100.0%**
Cost per Metre :				**$12.51**			**$19.72**			**$98.26**				

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4. MATERIALS RECONCILIATION

Previous Well : Porthos # 1
Well : North Seaspray # 3
Transferred to : Baroid Stores

PRODUCT	UNIT	TOTAL RECEIVED	TOTAL USED	TRANSFER BALANCE
Alcomer 110 PHPA	25 kg	42	18	24
Aldacide G	25 kg	2		2
Aquagel	25 kg	229	185	44
Baracarb 100	25 kg	48		48
Baracarb 25	25 kg	48		48
Barytes	25 kg	1957	966	991
Caustic Soda	25 kg	10	10	
Dextrid LT	25 kg	40	15	25
Enerseal fine	25 kg	120	41	79
KCL tech	25 kg	596	495	101
Lime	25 kg	4	1	3
PAC-R	25 kg	40	20	20
Soda Ash	25 kg	12	6	6
XCD Polymer	25 kg	20	6	14

5. FLUID PROPERTIES SUMMARY

Date	Mud Type	Depth m	Weight	Vis	PV	YP	Gels		Filtrate		Solids											
							10 sec	10 min	API	Cake	Solids	Water	Sand	MBT	pH	Pf	Mf	Cl-	Ca++	K+	KCl	PHPA
28-May-00	Gel Spud Mud	0	8.45	40	6	12	8	10	38	3	0.8	99.2		25.0	9.2	0.20	0.25	600	40			
	Gel Spud Mud	61	9.20	52	12	12	10	17	25	3	6.1	93.9		27.5	9.0	0.15	0.25	600	80			
29-May-00	Gel Spud Mud	187	9.50	45	15	12	10	18	27	4	8.2	91.8	1 1/2	27.5	9.0	0.15	0.25	700	120			
	Gel Spud Mud	187	9.40	43	13	11	10	17	27	3	7.5	92.5	1/4	25.0	8.8	0.10	0.25	650	120			
30-May-00	Gel Spud Mud	187	9.20	39	10	9	5	9	35	4	6.1	93.9		20.0	8.8	0.10	0.25	600	80			
2-Jun-00	3%KCL PHPA Polymer	187	8.40	43	13	15	2	3	7.5	1	-0.5	100.5		2.5	8.8	0.15	0.30	15,000	40	16,212	3.0	0.50
3-Jun-00	3%KCL PHPA Polymer	320	8.60	43	12	15	1	2	7.0	1	1.0	99.0		2.5	8.8	0.10	0.30	15,000	80	16,212	3.0	0.60
	3%KCL PHPA Polymer	434	8.60	46	15	17	2	3	7.0	1	1.0	99.0		2.5	8.5	0.10	0.25	15,000	220	16,212	3.0	0.60
4-Jun-00	3%KCL PHPA Polymer	550	8.85	41	13	16	3	4	7.0	1	2.7	97.3		5.0	8.8	0.10	0.25	15,500	180	16,752	3.1	0.65
	3%KCL PHPA Polymer	559	9.50	47	15	24	3	4	8.2	1	3.1	96.9		7.5	9.2	0.20	0.35	26,000	280	26,480	4.9	0.50
5-Jun-00	3%KCL PHPA Polymer	665	9.55	43	14	18	3	4	7.5	1	3.4	96.6		10.0	9.0	0.20	0.35	26,000	220	26,480	4.9	0.60
	3%KCL PHPA Polymer	775	9.60	44	16	32	5	3	7.0	1	4.1	95.9		10.0	8.5	0.10	0.25	25,500	200	25,939	4.8	0.60
6-Jun-00	3%KCL PHPA Polymer	892	9.60	52	14	19	4	6	7.5	1	5.2	94.8		7.5		0.10	0.30	25,000	200	25,939	4.8	0.40
7-Jun-00	3%KCL PHPA Polymer	1042	9.65	52	14	19	4	6	7.8	1	5.6	94.4		10.0		0.05	0.25	25,000	200	25,939	4.8	0.40
	3%KCL PHPA Polymer	1042	9.60	50	14	20	4	5	7.8	1	5.2	94.8		10.0		0.05	0.25	25,000	200	25,939	4.8	0.40
8-Jun-00	3%KCL PHPA Polymer	1100	9.70	52	18	21	4	6	8.0	1	6.1	93.9		10.0		0.05	0.20	24,000	200	24,858	4.6	0.40
	3%KCL PHPA Polymer	1104	9.70	51	18	22	4	6	8.2	1	6.0	94.0		10.0		0.05	0.20	25,000	200	25,399	4.7	0.40
	Kill Mud	1104	8.40	29	3	3	1	1	8.5	1	-0.1	100.1			9.0	0.10	0.20	9,500	40	9,727	1.8	
13-Jun-00	Kill Mud	1104	8.40	29	3	3	1	1	8.0	1	-0.1	100.1			8.8	0.20	0.30	9,700	40	9,727	1.8	
14-Jun-00	Kill Mud	1104	8.40	29	3	2	1	1	8.0	1	-0.1	100.1			8.5	0.10	0.25	9,700	40	9,727	1.8	
15-Jun-00	Kill Mud	1155	8.40	28	3	2	1	1	7.8	1	-0.1	100.1			8.5	0.05	0.25	9,700	40	9,727	1.8	
	Kill Mud	1155	8.65	28	3	2	1	1	7.8	1	0.1	99.9			8.2	0.05	0.25	34,000	80	31,343	5.8	
16-Jun-00	Kill Mud	1160	9.20	32	6	9	2	4	7.5	1	3.3	96.7			7.5	0.05	0.25	48,000	360	47,555	8.8	
	Kill Mud	1170	9.20	35	10	15	2	4	7.5	1	3.3	96.7			8.0	0.05	0.25	46,500	360	44,853	8.3	
17-Jun-00	Kill Mud	1170	9.20	35	9	14	2	4	7.5	1	3.4	96.6			8.0	0.05	0.25	46,000	360	44,853	8.3	
18-Jun-00	Kill Mud	1170	9.20	36	9	14	2	4	7.5	1	3.4	96.6			8.0	0.05	0.25	46,000	380	44,853	8.3	

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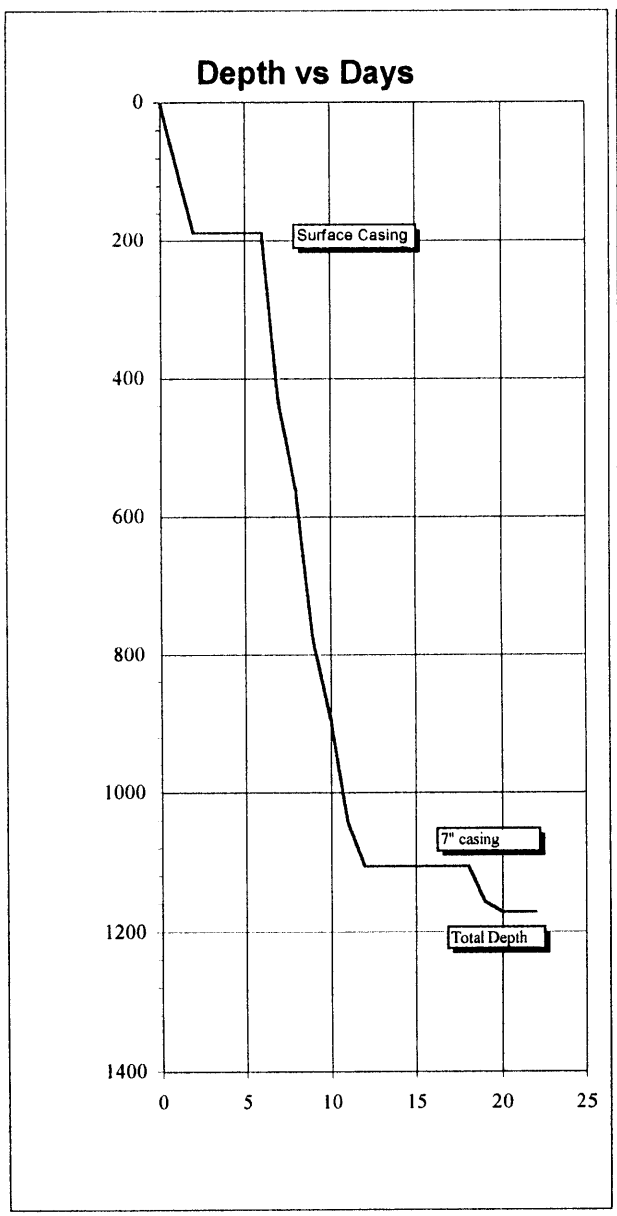
6. Mud Volume Analysis

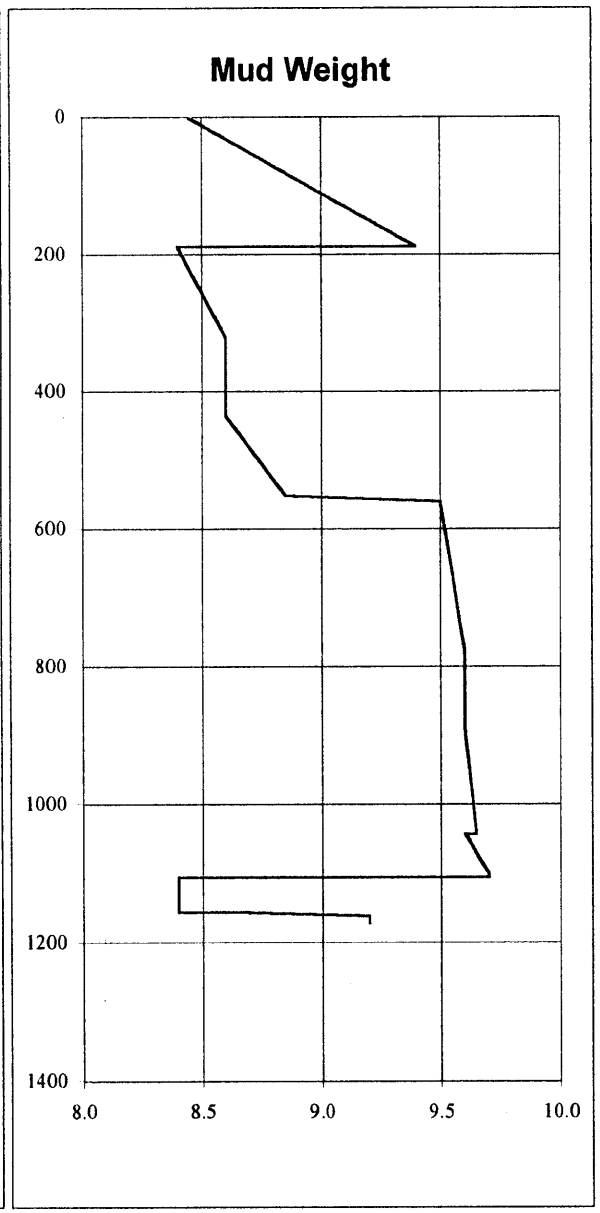
Date	Hole Size	Interval From	Interval To	Mud Type	Fluid Built & Received: Fresh Premix	Sump Premix	Direct Recirc	Water	Other	Fluid Disposed: De-sander	De-silter	Down-hole	Dumped	Other	Summary: Initial	Received	Disposed	Final
28-May-00	12-1/4"	0 m	61 m	Spud Mud	475							102			0	475	102	373
29-May-00	12-1/4"	61 m	187 m	Spud Mud								-58			373	0	-58	431
30-May-00	12-1/4"	187 m	187 m	Spud Mud											431	0	0	431
31-May-00	12-1/4"	187 m	187 m	Spud Mud									350		431	0	350	81
1-Jun-00	12-1/4"	187 m	187 m	Spud Mud									43		81	0	43	38
Sub Total					**475**	**0**	**0**	**0**	**0**	**0**	**0**	**44**	**393**	**0**		**475**	**437**	
2-Jun-00	8-1/2"	187 m	187 m	KCl PHPA	800							-4			38	800	-4	842
3-Jun-00	8-1/2"	187 m	187 m	KCl PHPA	30							12			842	30	12	860
4-Jun-00	8-1/2"	187 m	434 m	KCl PHPA					59			2			860	59	2	917
5-Jun-00	8-1/2"	434 m	559 m	KCl PHPA								-5			917	0	-5	923
6-Jun-00	8-1/2"	559 m	770 m	KCl PHPA	45							19			923	45	19	949
7-Jun-00	8-1/2"	770 m	892 m	KCl PHPA								3			949	0	3	947
8-Jun-00	8-1/2"	892 m	1042 m	KCl PHPA	30							2			947	30	2	975
9-Jun-00	8-1/2"	1042 m	1104 m	KCl PHPA				120				610			975	120	610	485
Sub Total					**905**	**0**	**0**	**120**	**59**	**0**	**0**	**638**	**0**	**0**		**1084**	**638**	
10-Jun-00	6.25"	1104 m	1104 m	Kill Mud				140					390		485	140	390	235
11-Jun-00	6.25"	1104 m	1104 m	Kill Mud											235	0	0	235
12-Jun-00	6.25"	1104 m	1104 m	Kill Mud	420							90			235	420	90	565
13-Jun-00	6.25"	1104 m	1104 m	Kill Mud											565	0	0	565
14-Jun-00	6.25"	1104 m	1104 m	Kill Mud											565	0	0	565
15-Jun-00	6.25"	1104 m	1104 m	Kill Mud								-3			565	0	-3	568
16-Jun-00	6.25"	1104 m	1155 m	Kill Mud								148			568	0	148	420
17-Jun-00	6.25"	1155 m	1170 m	Kill Mud											420	0	0	420
18-Jun-00	6.25"	1170 m	1170 m	Kill Mud											420	0	0	420
Sub Total					**420**	**0**	**0**	**140**	**0**	**0**	**0**	**235**	**390**	**0**		**560**	**625**	
Well Total					**1800**	**0**	**0**	**260**	**59**	**0**	**0**	**916**	**783**	**0**		**2119**	**1699**	

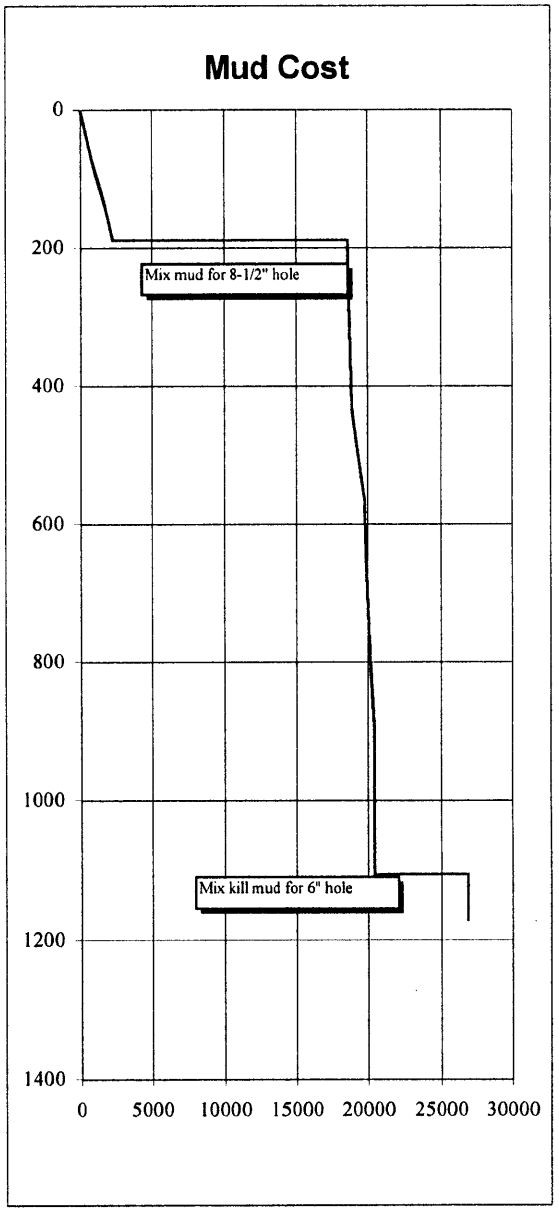
Dilution Factors			
	Interval Length	Dilution Vol	Dilution Factor
12¼" Surface Hole	187 m	75 bbls	0.4 bbls/m
8½" Mudded Up Hole	917 m	284 bbls	0.3 bbls/m
6¼" Production Hole	66 m	0 bbls	0.0 bbls/m

RMN Drilling Fluids

7. Graphs







RMN Drilling Fluids

8. Bit & Hydraulics Record

Operator : Lakes Oil	Well : North Seaspary # 3	Contractor : Sides Engineering	Supervisors : Ian Johnstone - Bill Lawson
Spud Date : 28-May-00	TD Date : 16/05/00	Surface Csg : 9 5/8" @ 185 m	Intermediate Csg : 7" @ 1102 m	Production Csg : P & A

Bit #	Size	Make	Type	Jets				Depth Out	Depth Drilled	Hours	Cumm Hours	WOB	RPM	GPM	Mud Wt	n	q_{300}	Annular Flow Properties: Drill Pipe	Q CRIT dp	Flow	Drill Collars	Q CRIT dc	Flow	Jet Vel	HHPb /sq"	Impact Force
1	12.25"	Varel	L114	18	18	18		187	187	14.5	14.5	2 - 4	120	290	8.8		24	4.5	1451	Laminar	8	962	Laminar	124	21	165
2	8.5"	Varel	L114	15	15	15		807	620	39	53.5	10 - 20	140	295	8.8		48	4.5	822	Laminar	6.5	474	Laminar	182	45	245
3RR	8.5"	Varel	L114	15	15	15		1042	235	22	75.5	15	110	210	9.6		33	4.5	653	Laminar	6.5	377	Laminar	130	18	136
4RR	8.5"	Reed	MH13G	Open				1104	62	9.5	85	17	110	210	9.7		40	4.5	715	Laminar	6.5	412	Laminar			
5	6.25"	Varel	L127	Open				1170	66	10	95	5 - 10	60-70	224	9.2		25	3.5	299	Laminar	4.5	210	Turbulent			

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DRILLING FLUID REPORT

Report #	1	Date :	28-May-2000
Rig No		Spud :	28-May-2000
Depth	to 61		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD	PEP 137
LOCATION	Onshore Gippsland Basin	STATE	Victoria

DRILLING ASSEMBLY			JET SIZE		
BIT SIZE	TYPE	18	18	18	
12.25	L114				
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 11 Mtrs			
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs			
DRILL COLLAR SIZE (")		Length			
6.00	8	32	18	Mtrs	

CASING		
SURFACE SET @	ft	
	M	
INT. SET @	ft	
	M	
PROD. or LNR Set @	ft	
	M	
MUD TYPE	Gel Spud Mud	

MUD VOLUME (BBL)	
HOLE	PITS
23	350
TOTAL CIRCULATING VOL.	373
IN STORAGE	

CIRCULATION DATA			
PUMP SIZE		CIRCULATION PRESS (PSI)	psi
5.5 X 12	Inches		
PUMP MODEL	ASSUMED EFF	BOTTOMS UP (min)	3 min
Emsco	95.0		
BBL/STK	STK / MIN	TOTAL CIRC. TIME (min)	72 min
0.1560	35		
BBL/MIN	GAL / MIN	ANN VEL. DP	39
5.19	218	(ft/min) DCs	47 62

MUD PROPERTIES

SAMPLE FROM			FL	FL	
TIME SAMPLE TAKEN			9:00	24:00	
DEPTH (ft) - (m)		Metres		61	
FLOWLINE TEMPERATURE	°C	°F			
WEIGHT	ppg / SG		8.45 1.014	9.20 1.104	
FUNNEL VISCOSITY (sec/qt) API @	°C		40	52	
PLASTIC VISCOSITY cP @	°C		6	12	
YIELD POINT (lb/100ft²)			12	12	
GEL STRENGTHS (lb/100ft²) 10 sec/10 min			8 10	10 17	
FILTRATE API (cc's/30 min)			38	25.0	
HPHT FILTRATE (cc's/30 min) @	°F				
CAKE THICKNESS API : HPHT (32nd in)			3	3	
SOLIDS CONTENT (% by Volume)			0.8	6.1	
LIQUID CONTENT (% by Volume) OIL/WATER			99.2	93.9	
SAND CONTENT (% by Vol.)					
METHYLENE BLUE CAPACITY (ppb equiv.)			25.0	27.5	
pH			9.2	9.0	
ALKALINITY MUD (Pm)					
ALKALINITY FILTRATE (Pf / Mf)			0.20 0.25	0.15 0.25	
CHLORIDE (mg/L)			600	600	
TOTAL HARDNESS AS CALCIUM (mg/L)			40	80	
SULPHITE (mg/L)					
K+ (mg/L)					
KCl (% by Wt.)					
PHPA ppb					

MUD PROPERTY SPECIFICATIONS

Mud Weight	Minimum	API Filtrate	N/C	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl		PHPA		Sulphites	N/A

OBSERVATIONS

Prepared 400 bbls of 25 ppb Gel Caustic Spud Mud into a shortened surface system utilising the suction pit only.

After yielding the Gel the viscosity was extended to 50 sec/qt with small lime additions

Make up water sourced from a local bore, was tested on location and found:

Chlorides : 400mg/l. Hardness : 40mg/l, pH : 7.1, Pf/Mf : 0.0/0.15

Loosing volume to Surficial sand formation. Built 75 bbl new volume.

Maintaining Hi Viscosity for wellbore stability through sands.

Rheology: 600: 300: 200: 100: 6: 3:

OPERATIONS SUMMARY

Rig up over North Seaspray # 3.

Mix Spud Mud

Spud Well at 17:00hrs

Drill Ahead through loose clean sands to 61m

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	475	Desander		INITIAL VOLUME	
Premix (recirc from sump)		Desilter			
ill Water		Downhole	102	+ FLUID RECEIVED	475
Direct Recirc Sump		Dumped		-FLUID LOST	102
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED	475	TOTAL LOST	102	FINAL VOLUME	373

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	7
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost
Aquagel	$ 12.38	229		185	44	$ 2,290.30
Caustic Soda	$ 41.53	10		1	9	$ 41.53
Lime	$ 7.27	4		1	3	$ 7.27

SOLIDS ANALYSIS

	PPB	%
High Grav solids		
Total LGS	3.0	
Bentonite	27.5	
Drilled Solids	3.1	
Salt		
n @ 24:00 Hrs	0.58	
K @ 24:00 Hrs	0.63	

BIT HYD. PRESS.DATA

Jet Velocity	94
Impact force	97
HHP	9
HSI	0.1
Bit Press Loss	72
CSG Seat Frac Press	
Equiv. Mud Wt.	
ECD	
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$2,339.10	$2,339.10

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903900 069

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	2	Date :	29-May-2000
Rig No		Spud :	28-May-2000
Depth	61 to 187		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD	PEP 137
LOCATION	Onshore Gippsland Basin	STATE	Victoria

DRILLING ASSEMBLY		JET SIZE			CASING		MUD VOLUME (BBL)	
BIT SIZE	TYPE	18	18	18	SURFACE	ft	HOLE	PITS
12.25	L114				SET @	M	81	350
DRILL PIPE	TYPE	Length			INT.	ft	TOTAL CIRCULATING VOL.	
SIZE 3.5	13.3 #	137	Mtrs		SET @	M	431	
DRILL PIPE	TYPE	Length			PROD. or	ft	IN STORAGE	
SIZE 4.5	HW		Mtrs		LNR Set @	M		
DRILL COLLAR SIZE (")		Length			MUD TYPE			
6.00	8	32	18	Mtrs	Gel Spud Mud			

CIRCULATION DATA							
PUMP SIZE			CIRCULATION PRESS (PSI)				psi
5.5 X 12	Inches						
PUMP MODEL	ASSUMED EFF		BOTTOMS UP (min)			14	min
Emsco	95.0						
BBL/STK	STK / MIN		TOTAL CIRC. TIME (min)			83	min
0.1560	35						
BBL/MIN	GAL / MIN		ANN VEL. (ft/min)	DP	39		
5.19	218			DCs	47	62	

MUD PROPERTIES			
SAMPLE FROM		FL	Pit
TIME SAMPLE TAKEN		10:30	22:00
DEPTH (ft) - (m)	Metres	187	187
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG	9.50 1.140	9.40 1.128
FUNNEL VISCOSITY (sec/qt) API @	°C	45	43
PLASTIC VISCOSITY cP @	°C	15	13
YIELD POINT (lb/100ft²)		12	11
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		10 18	10 17
FILTRATE API (cc's/30 min)		27	27.0
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)		4	3
SOLIDS CONTENT (% by Volume)		8.2	7.5
LIQUID CONTENT (% by Volume) OIL/WATER		91.8	92.5
SAND CONTENT (% by Vol.)		1.50	0.25
METHYLENE BLUE CAPACITY (ppb equiv.)		27.5	25.0
pH		9.0	8.8
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.15 0.25	0.10 0.25
CHLORIDE (mg/L)		700	650
TOTAL HARDNESS AS CALCIUM (mg/L)		120	120
SULPHITE (mg/L)			
K+ (mg/L)			
KCl (% by Wt.)			
PHPA ppb			

MUD PROPERTY SPECIFICATIONS					
Mud Weight	Minimum	API Filtrate	N/C	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl		PHPA		Sulphites	N/A

OBSERVATIONS

Losses to sands self healed once clays were encountered from 80m.

Drilled to casing TD while maintaining Viscosity between 42 - 50 sec/qt.

Rheology: 600: 300: 200: 100: 6: 3:

OPERATIONS SUMMARY

Drill ahead from 61m to casing depth @ 187m

Circulate hole clean. POH for wiper trip to collars.

RIH no fill recorded.

Circulate hole clean. POH to run casing.

RIH and circulate hole clean.

POH and lay down drill string.

Run 9 5/8" surface casing.

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	373
emix (recirc from sump)		Desilter			
Drill Water		Downhole	-58	+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	-58
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST	-58	FINAL VOLUME	431

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	17
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost

SOLIDS ANALYSIS

	PPB	%
High Grav solids		
Total LGS	2.7	
Bentonite	25.0	
Drilled Solids	4.7	
Salt		0.0
n @ 22:00 Hrs	0.62	
K @ 22:00 Hrs	0.49	

BIT HYD. PRESS.DATA

Jet Velocity	94
Impact force	99
HHP	9
HSI	0.1
Bit Press Loss	74
CSG Seat Frac Press	
Equiv. Mud Wt.	
ECD	
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
	$2,339.10

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903900 070

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	3	Date :	30-May-2000
Rig No		Spud :	28-May-2000
Depth	187 to 187		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD	PEP 137
LOCATION	Onshore Gippsland Basin	STATE	Victoria

DRILLING ASSEMBLY		JET SIZE			CASING		MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	18	18	18	SURFACE	ft	HOLE	PITS	PUMP SIZE		CIRCULATION PRESS (PSI)
12.25	L114				SET @	M	81	350	5.5 X 12 Inches		psi
DRILL PIPE	TYPE	Length			INT.	ft	TOTAL CIRCULATING VOL.		PUMP MODEL	ASSUMED EFF	BOTTOMS UP (min)
SIZE 3.5	13.3 #	137 Mtrs			SET @	M	431		Emsco	95.0	min
DRILL PIPE	TYPE	Length			PROD. or	ft	IN STORAGE		BBL/STK	STK / MIN	TOTAL CIRC. TIME (min)
SIZE 4.5	HW	Mtrs			LNR Set @	M			0.1560		min
DRILL COLLAR SIZE (")		Length			MUD TYPE				BBL/MIN	GAL / MIN	ANN VEL. (ft/min) DP DCs
6.00	8	32	18	Mtrs	Gel Spud Mud						

MUD PROPERTIES			
SAMPLE FROM		Pit	Pit
TIME SAMPLE TAKEN		10:00	
DEPTH (ft) - (m)	Metres	187	
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG	9.20 1.104	
FUNNEL VISCOSITY (sec/qt) API @	°C	39	
PLASTIC VISCOSITY cP @	°C	10	
YIELD POINT (lb/100ft²)		9	
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		5 9	
FILTRATE API (cc's/30 min)		35	
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)		4	
SOLIDS CONTENT (% by Volume)		6.1	
LIQUID CONTENT (% by Volume) OIL/WATER		93.9	
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)		20.0	
pH		8.8	
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.10 0.25	
CHLORIDE (mg/L)		600	
TOTAL HARDNESS AS CALCIUM (mg/L)		80	
SULPHITE (mg/L)			
K+ (mg/L)			
KCl (% by Wt.)			
PHPA ppb			

MUD PROPERTY SPECIFICATIONS					
Mud Weight	Minimum	API Filtrate	N/C	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl		PHPA		Sulphites	N/A

OBSERVATIONS

Reduced gel strengths with water addition prior to cementing.

Disposing of Spud mud and cleaning pits.

Rheology: 600: 300: 200: 100: 6: 3:

OPERATIONS SUMMARY

Continue RIH with 9 5/8" surface casing.

Circulate casing

Cement casing with cement returned to surface.

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	431
ıix (recirc from sump)		Desilter			
.ı Water		Downhole		+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST		FINAL VOLUME	431

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	2
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost

SOLIDS ANALYSIS

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

BIT HYD. PRESS.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
	$2,339.10

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903900 071

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	4	Date :	31-May-2000		
Rig No		Spud :	28-May-2000		
Depth	187	to	187	Metres	

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION / STATE	PEP 137 / Onshore Gippsland Basin / Victoria

DRILLING ASSEMBLY		JET SIZE			CASING		MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	18	18	18	SURFACE	ft	HOLE	PITS	PUMP SIZE		CIRCULATION PRESS (PSI)
12.25	L114				SET @	M	81		5.5 X 12	Inches	psi
DRILL PIPE	TYPE	Length			INT.	ft	TOTAL CIRCULATING VOL.		PUMP MODEL	ASSUMED EFF	BOTTOMS UP (min)
SIZE 3.5	13.3 #		137	Mtrs	SET @	M	81		Emsco	95.0	min
DRILL PIPE	TYPE	Length			PROD. or	ft	IN STORAGE		BBL/STK	STK / MIN	TOTAL CIRC. TIME (min)
SIZE 4.5	HW			Mtrs	LNR Set @	M			0.1560		min
DRILL COLLAR SIZE (")		Length			MUD TYPE				BBL/MIN	GAL / MIN	ANN VEL. (ft/min) DP / DCs
6.00	8	32	18	Mtrs	Gel Spud Mud						

MUD PROPERTIES			
SAMPLE FROM		Pit	Pit
TIME SAMPLE TAKEN			
DEPTH (ft) - (m)	Metres		
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG		
FUNNEL VISCOSITY (sec/qt) API @	°C		
PLASTIC VISCOSITY cP @	°C		
YIELD POINT (lb/100ft²)			
GEL STRENGTHS (lb/100ft²) 10 sec/10 min			
FILTRATE API (cc's/30 min)			
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)			
SOLIDS CONTENT (% by Volume)			
LIQUID CONTENT (% by Volume) OIL/WATER			
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH			
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)			
CHLORIDE (mg/L)			
TOTAL HARDNESS AS CALCIUM (mg/L)			
SULPHITE (mg/L)			
K+ (mg/L)			
KCl (% by Wt.)			
PHPA ppb			

MUD PROPERTY SPECIFICATIONS					
Mud Weight	Minimum	API Filtrate	N/C	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl		PHPA		Sulphites	N/A

OBSERVATIONS

Disposing of Spud mud and cleaning pits.

Rheology: 600: 300: 200: 100: 6: 3:

OPERATIONS SUMMARY

Wait on cement.

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	431
mix (recirc from sump)		Desilter			
il Water		Downhole		+ FLUID RECEIVED	
Direct Recirc Sump		Dumped	350	-FLUID LOST	350
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST	350	FINAL VOLUME	81

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost

SOLIDS ANALYSIS

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

BIT HYD. PRESS.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
	$2,339.10

RMN ENGINEER	Neil Kyberd	CITY	Adelaide Office	TELEPHONE	08 8338 7266

903900 072

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	5	Date :	1-Jun-2000
Rig No		Spud :	28-May-2000
Depth	187 to 187		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION / STATE	PEP 137 — Onshore Gippsland Basin — Victoria

DRILLING ASSEMBLY		JET SIZE			CASING		MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	15	15	15	SURFACE ft		HOLE	PITS	PUMP SIZE		CIRCULATION
8.50	L114				SET @ M		38		5.5 X 12 Inches		PRESS (PSI) psi
DRILL PIPE	TYPE	Length			INT. ft		TOTAL CIRCULATING VOL.		PUMP MODEL	ASSUMED EFF	BOTTOMS
SIZE 3.5	13.3 #	155 Mtrs			SET @ M		38		Emsco	95.0	UP (min) min
DRILL PIPE	TYPE	Length			PROD. or ft		IN STORAGE		BBL/STK	STK / MIN	TOTAL CIRC.
SIZE 4.5	HW	Mtrs			LNR Set @ M				0.1560		TIME (min) min
DRILL COLLAR SIZE (")		Length			MUD TYPE				BBL/MIN	GAL / MIN	ANN VEL. DP
6.00		32	Mtrs		Gel Spud Mud						(ft/min) DCs

MUD PROPERTIES			
SAMPLE FROM		Pit	Pit
TIME SAMPLE TAKEN			
DEPTH (ft) - (m)	Metres		
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG		
FUNNEL VISCOSITY (sec/qt) API @	°C		
PLASTIC VISCOSITY cP @	°C		
YIELD POINT (lb/100ft²)			
GEL STRENGTHS (lb/100ft²) 10 sec/10 min			
FILTRATE API (cc's/30 min)			
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)			
SOLIDS CONTENT (% by Volume)			
LIQUID CONTENT (% by Volume) OIL/WATER			
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH			
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)			
CHLORIDE (mg/L)			
TOTAL HARDNESS AS CALCIUM (mg/L)			
SULPHITE (mg/L)			
K+ (mg/L)			
KCl (% by Wt.)			
PHPA ppb			

MUD PROPERTY SPECIFICATIONS					
Mud Weight	Minimum	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl	3%	PHPA	.5 to 1.0	Sulphites	N/A

OBSERVATIONS

Disposing of Spud mud and cleaning pits.
Fill pits with water
Begin mixing 3% KCL PHPA Polymer system

Rheology: 600: 300: 200: 100: 6: 3:

OPERATIONS SUMMARY

Wait on cement , Load test derrick
Nipple up BOP's

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	81
Premix (recirc from sump)		Desilter			
Water		Downhole	0	+ FLUID RECEIVED	
Direct Recirc Sump		Dumped	43	-FLUID LOST	43
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST	43	FINAL VOLUME	38

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost

SOLIDS ANALYSIS

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

BIT HYD. PRESS.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
	$2,339.10

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903900 073

DRILLING FLUID REPORT

RMN Drilling Fluids

Report #	6	Date :	2-Jun-2000
Rig No		Spud :	28-May-2000
Depth	187 to 187		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD	PEP 137
LOCATION	Onshore Gippsland Basin	STATE	Victoria

DRILLING ASSEMBLY		JET SIZE			CASING			MUD VOLUME (BBL)	
BIT SIZE	TYPE	15	15	15	9 5/8 SURFACE	606	ft	HOLE	PITS
8.50	L114				SET @	184.7	M	42	800
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 155 Mtrs			INT. SET @		ft M	TOTAL CIRCULATING VOL. 842	
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs			PROD. or LNR Set @		ft M	IN STORAGE	
DRILL COLLAR SIZE (") 6.00		Length 32 Mtrs			MUD TYPE 3%KCL PHPA Polymer				

CIRCULATION DATA			
PUMP SIZE 5.5 X 12 Inches		CIRCULATION PRESS (PSI)	psi
PUMP MODEL Emsco	ASSUMED EFF 95.0	BOTTOMS UP (min)	min
BBL/STK 0.1560	STK / MIN	TOTAL CIRC. TIME (min)	min
BBL/MIN	GAL / MIN	ANN VEL. (ft/min) DP DCs	

MUD PROPERTIES			
SAMPLE FROM	Pit	FL	
TIME SAMPLE TAKEN		24:00	
DEPTH (ft) - (m) Metres		187	
FLOWLINE TEMPERATURE °C °F			
WEIGHT ppg / SG		8.40	1.008
FUNNEL VISCOSITY (sec/qt) API @ °C		43	
PLASTIC VISCOSITY cP @ °C		13	
YIELD POINT (lb/100ft²)		15	
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		2	3
FILTRATE API (cc's/30 min)		7.5	
HPHT FILTRATE (cc's/30 min) @ °F			
CAKE THICKNESS API : HPHT (32nd in)		1	
SOLIDS CONTENT (% by Volume)			
LIQUID CONTENT (% by Volume) OIL/WATER			100.5
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)		2.5	
pH		8.8	
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.15	0.30
CHLORIDE (mg/L)		15,000	
TOTAL HARDNESS AS CALCIUM (mg/L)		40	
SULPHITE (mg/L)			
K+ (mg/L)		16,212	
KCl (% by Wt.)		3.0	
PHPA ppb		0.50	

MUD PROPERTY SPECIFICATIONS					
Mud Weight	Minimum	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl	3%	PHPA	.5 to 1.0	Sulphites	N/A

OBSERVATIONS

Mixed 800 BBls of New 3% KCL PHPA Polymer system.
containing: 0.5 ppb PHPA, 10 ppb KCL, .8 ppb PAC-R, .25 ppb XCD Polymer.
Incorporated 38 bbls of old spud mud into new system while RIH.
Fitted S40 / S50 shaker screens.

OPERATIONS SUMMARY

Continue nipple up BOP's & pressure test.
RIH with 8.5" bit and tag cement at 140m
Circulate and shear new polymer mud through the bit and surface tanks
to aid polymer mixing through the pits.

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	800	Desander		INITIAL VOLUME	38
Premix (recirc from sump)		Desilter			
I Water		Downhole	-4	+ FLUID RECEIVED	800
Direct Recirc Sump		Dumped		-FLUID LOST	-4
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED	800	TOTAL LOST	-4	FINAL VOLUME	842

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost
Alcomer 110 PHPA	$ 84.63	42		7	35	$ 592.41
KCL tech	$ 14.50	360		140	220	$ 2,030.00
PAC-R	$ 151.62	40		10	30	$ 1,516.20
Soda Ash	$ 16.43	6		1	5	$ 16.43
XCD Polymer	$ 474.48	20		3	17	$ 1,423.44

SOLIDS ANALYSIS

	PPB	%
High Grav solids		
Total LGS	0.3	
Bentonite	2.5	
Drilled Solids		
Salt		0.9
n @ 24:00 Hrs	0.55	
K @ 24:00 Hrs	0.91	

BIT HYD. PRESS.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
$5,578.48	$7,917.58

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RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	7	Date :	3-Jun-2000
Rig No		Spud :	28-May-2000
Depth	187 to 434		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION / STATE	PEP 137 / Onshore Gippsland Basin / Victoria

DRILLING ASSEMBLY		JET SIZE			CASING		MUD VOLUME (BBL)	
BIT SIZE	TYPE	15	15	15	9 5/8 SURFACE	606 ft	HOLE	PITS
8.50	L114				SET @	184.7 M	90	770
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 334 Mtrs			INT. ft / SET @ M		TOTAL CIRCULATING VOL. 860	
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs			PROD. or LNR Set @ ft / M		IN STORAGE	
DRILL COLLAR SIZE (") 6.00		Length 100 Mtrs			MUD TYPE 3%KCL PHPA Polymer			

CIRCULATION DATA			
PUMP SIZE 5.5 X 12 Inches		CIRCULATION PRESS (PSI)	200 psi
PUMP MODEL Emsco	ASSUMED EFF 95.0	BOTTOMS UP (min)	14 min
BBL/STK 0.1560	STK / MIN 38	TOTAL CIRC. TIME (min)	153 min
BBL/MIN 5.63	GAL / MIN 237	ANN VEL. (ft/min) DP	97
		DCs	160

MUD PROPERTIES

		FL	FL
SAMPLE FROM		FL	FL
TIME SAMPLE TAKEN		12:00	24:00
DEPTH (ft) - (m)	Metres	320	434
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG	8.60 1.032	8.60 1.032
FUNNEL VISCOSITY (sec/qt) API @	°C	43	46
PLASTIC VISCOSITY cP @	°C	12	15
YIELD POINT (lb/100ft²)		15	17
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		1 2	2 3
FILTRATE API (cc's/30 min)		7	7.0
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)		1	1
SOLIDS CONTENT (% by Volume)		1.0	1.0
LIQUID CONTENT (% by Volume) OIL/WATER		99.0	99.0
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)		2.5	2.5
pH		8.8	8.5
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.10 0.30	0.10 0.25
CHLORIDE (mg/L)		15,000	15,000
TOTAL HARDNESS AS CALCIUM (mg/L)		80	220
SULPHITE (mg/L)			
K+ (mg/L)		16,212	16,212
KCl (% by Wt.)		3.0	3.0
PHPA ppb		0.60	0.60

MUD PROPERTY SPECIFICATIONS

Mud Weight	9.5	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl	3%	PHPA	.5 to 1.0	Sulphites	N/A

OBSERVATIONS

Mud Pit Problems.: Fluid under plastic lining - in-efficient mixing.
Maintaining PHPA and KCL concentrations
Building Viscosity to support Barytes addition for weight up.
Begin building mud weight from 440m (8.6ppg) with Baryte additions
Attempt to recover fluid from behind plastic pit lining.

Rheology: 600:47 300:32 200:23 100:17 6:5 3:3

OPERATIONS SUMMARY

Drill ahead from 187m to 434m.

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	30	Desander		INITIAL VOLUME	842
Premix (recirc from sump)		Desilter			
il Water		Downhole	12	+ FLUID RECEIVED	30
Direct Recirc Sump		Dumped		-FLUID LOST	12
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED	30	TOTAL LOST	12	FINAL VOLUME	860

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	24
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost
Alcomer 110 PHPA	$ 84.63	35		3	32	$ 253.89
KCL tech	$ 14.50	220		15	205	$ 217.50
PAC-R	$ 151.62	30		3	27	$ 454.86
Soda Ash	$ 16.43	5		1	4	$ 16.43

SOLIDS ANALYSIS

	PPB	%
High Grav solids		
Total LGS	0.3	
Bentonite	2.5	
Drilled Solids	0.7	
Salt		0.9
n @ 24:00 Hrs	0.55	
K @ 24:00 Hrs	1.01	

BIT HYD. PRESS.DATA

Jet Velocity	146
Impact force	154
HHP	23
HSI	0.4
Bit Press Loss	165
CSG Seat Frac Press	
Equiv. Mud Wt.	
ECD	
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$942.68	$8,860.26

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RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	8	Date :	4-Jun-2000
Rig No		Spud :	28-May-2000
Depth	434 to 559		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION / STATE	PEP 137 / Onshore Gippsland Basin / Victoria

DRILLING ASSEMBLY			JET SIZE			CASING			MUD VOLUME (BBL)		CIRCULATION DATA				
BIT SIZE	TYPE	15	15	15	9 5/8	SURFACE	606 ft	HOLE	PITS	PUMP SIZE		CIRCULATION			
8.50	L114					SET @	184.7 M	117	800	5.5 X 12	Inches	PRESS (PSI)	250	psi	
DRILL PIPE	TYPE	Length				INT.	ft	TOTAL CIRCULATING VOL.		PUMP MODEL	ASSUMED EFF	BOTTOMS			
SIZE 3.5	13.3 #	459	Mtrs			SET @	M	917		Emsco	95.0	UP (min)	18	min	
DRILL PIPE	TYPE	Length				PROD. or	ft	IN STORAGE		BBL/STK	STK / MIN	TOTAL CIRC.			
SIZE 4.5	HW		Mtrs			LNR Set @	M			0.1560	38	TIME (min)	163	min	
DRILL COLLAR SIZE (")		Length			MUD TYPE					BBL/MIN	GAL / MIN	ANN VEL.	DP	97	
6.00		100	Mtrs		3%KCL PHPA Polymer					5.63	237	(ft/min)	DCs	160	

MUD PROPERTIES			
SAMPLE FROM		FL	FL
TIME SAMPLE TAKEN		13:00	05:00
DEPTH (ft) - (m)	Metres	550	559
FLOWLINE TEMPERATURE	°C / °F		
WEIGHT	ppg / SG	8.85 1.062	9.50 1.140
FUNNEL VISCOSITY (sec/qt) API @	°C	41	47
PLASTIC VISCOSITY cP @	°C	13	15
YIELD POINT (lb/100ft²)		16	24
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		3 4	3 4
FILTRATE API (cc's/30 min)		7	8.2
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)		1	1
SOLIDS CONTENT (% by Volume)		2.7	3.1
LIQUID CONTENT (% by Volume) OIL/WATER		97.3	96.9
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)		5.0	7.5
pH		8.8	9.2
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.10 0.25	0.20 0.35
CHLORIDE (mg/L)		15,500	26,000
TOTAL HARDNESS AS CALCIUM (mg/L)		180	280
SULPHITE (mg/L)			
K+ (mg/L)		16,752	26,480
KCl (% by Wt.)		3.1	4.9
PHPA ppb		0.65	0.50

MUD PROPERTY SPECIFICATIONS					
Mud Weight	9.5	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl	3 - 5%	PHPA	.5 to 1.0	Sulphites	N/A

OBSERVATIONS

Maintaining PHPA and KCL concentrations
Continued building Mud Weight with Barytes.
Increased KCL content to 5% for weight purposes.
Treating rising Hardness with Soda Ash.
Further problems with pit liner (up to 50% volume behind plastic liner)
Cut Liner to release fluid (8.6 ppg) back to active system
Used 87 Damaged sacks of Barytes.

Rheology: 600:54 300:39 200:32 100:23 6:5 3:4

OPERATIONS SUMMARY

Drill Ahead from 434m to 570m
Circulate while weighting up system to 9.5ppg.

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	860
Premix (recirc from sump)		Desilter			
ll Water		Downhole	2	+ FLUID RECEIVED	59
Direct Recirc Sump		Dumped		-FLUID LOST	2
Other (eg Diesel)	59	Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED	59	TOTAL LOST	2	FINAL VOLUME	917

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	24
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost
Alcomer 110 PHPA	$ 84.63	32		1	31	$ 84.63
Barytes	$ 7.62	320	646	966		$ 7,360.92
KCL tech	$ 14.50	205		120	85	$ 1,740.00
PAC-R	$ 151.62	27		2	25	$ 303.24
Soda Ash	$ 16.43	4		1	3	$ 16.43

SOLIDS ANALYSIS	PPB	%
High Grav solids	60.0	
Total LGS	0.8	
Bentonite	7.5	
Drilled Solids		
Salt		1.6
n @ 05:00 Hrs	0.47	
K @ 05:00 Hrs	2.09	

BIT HYD. PRESS.DATA	
Jet Velocity	146
Impact force	170
HHP	25
HSI	0.4
Bit Press Loss	183
CSG Seat Frac Press	
Equiv. Mud Wt.	
ECD	
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$9,505.22	$18,365.48

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RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	9	Date :	5-Jun-2000
Rig No		Spud :	28-May-2000
Depth	559 to 770		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD	PEP 137
LOCATION	Onshore Gippsland Basin	STATE	Victoria

DRILLING ASSEMBLY		JET SIZE			CASING			MUD VOLUME (BBL)	
BIT SIZE	TYPE	15	15	15	9 5/8 SURFACE	606	ft	HOLE	PITS
8.50	L114				SET @	184.7	M	162	760
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 670 Mtrs			INT.		ft	TOTAL CIRCULATING VOL.	
					SET @		M	922	
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs			PROD. or		ft	IN STORAGE	
					LNR Set @		M		
DRILL COLLAR SIZE (")		Length			MUD TYPE				
6.00		100 Mtrs			3%KCL PHPA Polymer				

CIRCULATION DATA			
PUMP SIZE		CIRCULATION PRESS (PSI)	425 psi
5.5 X 12 Inches			
PUMP MODEL	ASSUMED EFF	BOTTOMS UP (min)	22 min
Emsco	95.0		
BBL/STK	STK / MIN	TOTAL CIRC. TIME (min)	138 min
0.1560	45		
BBL/MIN	GAL / MIN	ANN VEL. DP	114
6.67	280	(ft/min) DCs	189

MUD PROPERTIES				
SAMPLE FROM		FL	FL	
TIME SAMPLE TAKEN		13:00	24:00	
DEPTH (ft) - (m)	Metres	665	775	
FLOWLINE TEMPERATURE	°C °F			
WEIGHT	ppg / SG	9.55 1.146	9.60 1.152	
FUNNEL VISCOSITY (sec/qt) API @	°C	43	44	
PLASTIC VISCOSITY cP @	°C	14	16	
YIELD POINT (lb/100ft²)		18	32	
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		3 4	5 3	
FILTRATE API (cc's/30 min)		7.5	7.0	
HPHT FILTRATE (cc's/30 min) @	°F			
CAKE THICKNESS API : HPHT (32nd in)		1	1	
SOLIDS CONTENT (% by Volume)		3.4	4.1	
LIQUID CONTENT (% by Volume) OIL/WATER		96.6	95.9	
SAND CONTENT (% by Vol.)				
METHYLENE BLUE CAPACITY (ppb equiv.)		10.0	10.0	
pH		9.0	8.5	
ALKALINITY MUD (Pm)				
ALKALINITY FILTRATE (Pf / Mf)		0.20 0.35	0.10 0.25	
CHLORIDE (mg/L)		26,000	25,500	
TOTAL HARDNESS AS CALCIUM (mg/L)		220	200	
SULPHITE (mg/L)				
K+ (mg/L)		26,480	25,939	
KCl (% by Wt.)		4.9	4.8	
PHPA ppb		0.60	0.60	

MUD PROPERTY SPECIFICATIONS					
Mud Weight	9.5	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl	3 - 5%	PHPA	.5 to 1.0	Sulphites	N/A

OBSERVATIONS

Maintaining PHPA and KCL at 5%, Mud Weight above 9.5ppg
Using small diesel pumps & mud mixer gun line to agitate pits.
treating pH drop due to coals with Caustic Soda

Rheology: 600:54 300:38 200:31 100:22 6:5 3:3

OPERATIONS SUMMARY

Drill ahead with surveys through Latrobe Fm from 570m - 772m

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	917
Premix (recirc from sump)		Desilter			
.l Water		Downhole	-5	+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	-5
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST	-5	FINAL VOLUME	922

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	24
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost
Alcomer 110 PHPA	$ 84.63	31		2	29	$ 169.26
Caustic Soda	$ 41.53	9		1	8	$ 41.53
Soda Ash	$ 16.43	3	6	2	7	$ 32.86

SOLIDS ANALYSIS

	PPB	%
High Grav solids	55.0	
Total LGS	1.1	
Bentonite	10.0	
Drilled Solids	0.7	
Salt		1.5
n @ 24:00 Hrs	0.41	
K @ 24:00 Hrs	3.61	

BIT HYD. PRESS.DATA

Jet Velocity	173
Impact force	241
HHP	42
HSI	0.7
Bit Press Loss	259
CSG Seat Frac Press	
Equiv. Mud Wt.	
ECD	
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$243.65	$18,609.13

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RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	10	Date :	6-Jun-2000
Rig No		Spud :	28-May-2000
Depth	770 to 892		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION / STATE	PEP 137 / Onshore Gippsland Basin / Victoria

DRILLING ASSEMBLY		JET SIZE			CASING		MUD VOLUME (BBL)	
BIT SIZE	TYPE	15	15	15	9 5/8 SURFACE	606 ft	HOLE	PITS
8.50	L114				SET @	184.7 M	189	760
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 794 Mtrs			INT. ft / SET @ M		TOTAL CIRCULATING VOL. 949	
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs			PROD. or LNR Set @ ft / M		IN STORAGE	
DRILL COLLAR SIZE (") 6.00		Length 98 Mtrs			MUD TYPE 3%KCL PHPA Polymer			

CIRCULATION DATA					
PUMP SIZE 5.5 X 12 Inches		CIRCULATION PRESS (PSI)	325 psi		
PUMP MODEL Emsco	ASSUMED EFF 95.0	BOTTOMS UP (min)	35 min		
BBL/STK 0.1560	STK / MIN 32	TOTAL CIRC. TIME (min)	200 min		
BBL/MIN 4.74	GAL / MIN 199	ANN VEL. (ft/min)	DP	81	
			DCs	135	

MUD PROPERTIES			
SAMPLE FROM		FL	FL
TIME SAMPLE TAKEN		12:00	24:00
DEPTH (ft) - (m)	Metres		892
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG		9.60 1.152
FUNNEL VISCOSITY (sec/qt) API @	°C		52
PLASTIC VISCOSITY cP @	°C		14
YIELD POINT (lb/100ft²)			19
GEL STRENGTHS (lb/100ft²) 10 sec/10 min			4 6
FILTRATE API (cc's/30 min)			7.5
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)			1
SOLIDS CONTENT (% by Volume)			5.2
LIQUID CONTENT (% by Volume) OIL/WATER			94.8
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			7.5
pH			
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)			0.10 0.30
CHLORIDE (mg/L)			25,000
TOTAL HARDNESS AS CALCIUM (mg/L)			200
SULPHITE (mg/L)			
K+ (mg/L)			25,939
KCl (% by Wt.)			4.8
PHPA ppb			0.40

MUD PROPERTY SPECIFICATIONS					
Mud Weight	9.5	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl	3 - 5%	PHPA	.5 to 1.0	Sulphites	N/A

OBSERVATIONS

Built 45 bbls new volume maintaining properties.
Solids and Barytes settling in pits while tripping.
Using small diesel pumps & mud mixer gun line to agitate pits when back on bottom to re-suspend Barytes and maintain 9.5ppg minimum.
Adding Enerseal fine while drilling fractured coal to aid wellbore stability.

Rheology: 600:47 300:33 200:26 100:18 6:4 3:3

OPERATIONS SUMMARY

Drill ahead from 772m to 807m
Circulate hole clean.
POH for new bit.
Tight hole, work and circulate through tight hole from 720m - 710m
Continue POH,
RIH , Wash through tight hole at 710m.
Circulate hole clean, unloading coal cavings to 5 cm Diam.
Drill ahead to 892m. Cavings clearing after 1 Hr Circulation

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	45	Desander		INITIAL VOLUME	922
emix (recirc from sump)		Desilter			
rill Water		Downhole	19	+ FLUID RECEIVED	45
Direct Recirc Sump		Dumped		-FLUID LOST	19
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED	45	TOTAL LOST	19	FINAL VOLUME	949

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	13
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost
Alcomer 110 PHPA	$ 84.63	29		1	28	$ 84.63
Caustic Soda	$ 41.53	8		1	7	$ 41.53
PAC-R	$ 151.62	25		1	24	$ 151.62
Soda Ash	$ 16.43	7		1	6	$ 16.43

SOLIDS ANALYSIS

	PPB	%
High Grav solids	38.0	
Total LGS	0.8	
Bentonite	7.5	
Drilled Solids	1.8	
Salt		1.5
n @ 24:00 Hrs	0.51	
K @ 24:00 Hrs	1.37	

BIT HYD. PRESS.DATA

Jet Velocity	123
Impact force	122
HHP	15
HSI	0.3
Bit Press Loss	131
CSG Seat Frac Press	
Equiv. Mud Wt.	
ECD	
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$294.21	$18,903.34

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RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	11	Date :	7-Jun-2000
Rig No		Spud :	28-May-2000
Depth	892 to 1042		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION / STATE	PEP 137 / Onshore Gippsland Basin / Victoria

DRILLING ASSEMBLY		JET SIZE			CASING			MUD VOLUME (BBL)	
BIT SIZE 8.50	TYPE MTH13G	32	32	32	9 5/8 SURFACE SET @	606 ft / 184.7 M		HOLE 221	PITS 725
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 944 Mtrs			INT. SET @	ft / M		TOTAL CIRCULATING VOL. 946	
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs			PROD. or LNR Set @	ft / M		IN STORAGE	
DRILL COLLAR SIZE (") 6.00		Length 98 Mtrs			MUD TYPE 3%KCL PHPA Polymer				

CIRCULATION DATA				
PUMP SIZE 5.5 X 12 Inches		CIRCULATION PRESS (PSI)	325	psi
PUMP MODEL Emsco	ASSUMED EFF 95.0	BOTTOMS UP (min)	35	min
BBL/STK 0.1560	STK / MIN 38	TOTAL CIRC. TIME (min)	168	min
BBL/MIN 5.63	GAL / MIN 237	ANN VEL. (ft/min) DP	97	
		DCs	160	

MUD PROPERTIES			
SAMPLE FROM		FL	FL
TIME SAMPLE TAKEN		13:00	04:00
DEPTH (ft) - (m)	Metres	1,042	1,042
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG	9.65 1.158	9.60 1.152
FUNNEL VISCOSITY (sec/qt) API @	°C	52	50
PLASTIC VISCOSITY cP @	°C	14	14
YIELD POINT (lb/100ft²)		19	20
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		4 6	4 5
FILTRATE API (cc's/30 min)		7.8	7.8
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)		1	1
SOLIDS CONTENT (% by Volume)		5.6	5.2
LIQUID CONTENT (% by Volume) OIL/WATER		94.4	94.8
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)		10.0	10.0
pH			
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.05 0.25	0.05 0.25
CHLORIDE (mg/L)		25,000	25,000
TOTAL HARDNESS AS CALCIUM (mg/L)		200	200
SULPHITE (mg/L)			
K+ (mg/L)		25,939	25,939
KCl (% by Wt.)		4.8	4.8
PHPA ppb		0.40	0.40

MUD PROPERTY SPECIFICATIONS					
Mud Weight	9.5	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl	3 - 5%	PHPA	.5 to 1.0	Sulphites	N/A

OBSERVATIONS

Solids and Barytes settling in pits while tripping.
Using small diesel pumps & mud mixer gun line to agitate pits when back on bottom to re-suspend Barytes and maintain 9.5ppg minimum.
Treating falling pH with Caustic Soda

Rheology: 600: 300: 200: 100: 6: 3:

OPERATIONS SUMMARY

Drill ahead from 892m to 1042m
POH due to high torque.
RIH with new bit to 750m tight hole
wash & light ream 750m - 760m, RIH
Wash & light ream 790m - 850m, RIH

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	949
mix (recirc from sump)		Desilter			
Drill Water		Downhole	3	+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	3
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST	3	FINAL VOLUME	946

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	10
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost
Caustic Soda	$ 41.53	7		3	4	$ 124.59
Enerseal fine	$ 25.00	120		30	90	$ 750.00

SOLIDS ANALYSIS	PPB	%	BIT HYD. PRESS.DATA	
			Jet Velocity	32
High Grav solids	38.0		Impact force	38
Total LGS	1.1		HHP	1
Bentonite	10.0		HSI	0.0
Drilled Solids	1.5		Bit Press Loss	9
Salt		1.5	CSG Seat Frac Press	
n @ 04:00 Hrs	0.50		Equiv. Mud Wt.	
K @ 04:00 Hrs	1.53		ECD	
			Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$874.59	$19,777.93

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903900 079

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	12	Date :	8-Jun-2000
Rig No		Spud :	28-May-2000
Depth	1042 to 1104		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION / STATE	PEP 137 / Onshore Gippsland Basin / Victoria

DRILLING ASSEMBLY		JET SIZE			CASING			MUD VOLUME (BBL)	
BIT SIZE	TYPE	32	32	32	9 5/8 SURFACE	606	ft	HOLE	PITS
8.50	MTH13G				SET @	184.7	M	234	740
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 1006 Mtrs			INT.		ft	TOTAL CIRCULATING VOL.	
					SET @		M	974	
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs			PROD. or LNR Set @		ft	IN STORAGE	
							M		
DRILL COLLAR SIZE (")		Length			MUD TYPE				
6.00		98 Mtrs			3%KCL PHPA Polymer				

CIRCULATION DATA					
PUMP SIZE		CIRCULATION PRESS (PSI)	325	psi	
5.5 X 12	Inches				
PUMP MODEL	ASSUMED EFF	BOTTOMS UP (min)	37	min	
Emsco	95.0				
BBL/STK	STK / MIN	TOTAL CIRC. TIME (min)	173	min	
0.1560	38				
BBL/MIN	GAL / MIN	ANN VEL. (ft/min)	DP	97	
5.63	237		DCs	160	

MUD PROPERTIES			
SAMPLE FROM		FL	FL
TIME SAMPLE TAKEN		15:00	24:00
DEPTH (ft) - (m)	Metres	1,100	1,104
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG	9.70 1.164	9.70 1.164
FUNNEL VISCOSITY (sec/qt) API @	°C	52	51
PLASTIC VISCOSITY cP @	°C	18	18
YIELD POINT (lb/100ft²)		21	22
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		4 6	4 6
FILTRATE API (cc's/30 min)		8	8.2
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)		1	1
SOLIDS CONTENT (% by Volume)		6.1	6.0
LIQUID CONTENT (% by Volume) OIL/WATER		93.9	94.0
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)		10.0	10.0
pH			
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.05 0.20	0.05 0.20
CHLORIDE (mg/L)		24,000	25,000
TOTAL HARDNESS AS CALCIUM (mg/L)		200	200
SULPHITE (mg/L)			
K+ (mg/L)		24,858	25,399
KCl (% by Wt.)		4.6	4.7
PHPA ppb		0.40	0.40

MUD PROPERTY SPECIFICATIONS					
Mud Weight	9.5	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl	3 - 5%	PHPA	.5 to 1.0	Sulphites	N/A

OBSERVATIONS

Lost volume due to surging while RIH,
Built new volume.
Solids and Barytes settling in pits while tripping.
Using small diesel pumps & mud mixer gun line to agitate pits when back on bottom to re-suspend Barytes and maintain 9.5ppg minimum.

Rheology: 600:67 300:49 200:40 100:29 6:7 3:4

OPERATIONS SUMMARY

Continue RIH
Ream tight hole from 850m - 860, RIH to 900m
Wash / ream from 900m - 1042m
Drill ahead to casing point at 1104m
Circulate hole clean, POH wiper trip to 600m
RIH, circulate hole clean
POH to run 7" casing.

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	30	Desander		INITIAL VOLUME	946
mix (recirc from sump)		Desilter			
ill Water		Downhole	2	+ FLUID RECEIVED	30
Direct Recirc Sump		Dumped		-FLUID LOST	2
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED	30	TOTAL LOST	2	FINAL VOLUME	974

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	20
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost
Alcomer 110 PHPA	$ 84.63	28		2	26	$ 169.26
Caustic Soda	$ 41.53	4		2	2	$ 83.06
KCL tech	$ 14.50	321		5	316	$ 72.50

SOLIDS ANALYSIS

	PPB	%
High Grav solids	36.0	
Total LGS	1.1	
Bentonite	10.0	
Drilled Solids	2.5	
Salt		1.5
n @ 24:00 Hrs	0.54	
K @ 24:00 Hrs	1.42	

BIT HYD. PRESS.DATA

Jet Velocity	32
Impact force	38
HHP	1
HSI	0.0
Bit Press Loss	9
CSG Seat Frac Press	
Equiv. Mud Wt.	
ECD	
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$324.82	$20,102.75

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903900 080

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	13	Date :	9-Jun-2000
Rig No		Spud :	28-May-2000
Depth	1104 to 1104		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION	PEP 137 / Onshore Gippsland Basin
		STATE	Victoria

DRILLING ASSEMBLY		JET SIZE		
BIT SIZE 8.50	TYPE MTH13G	32	32	32
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 1006 Mtrs		
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs		
DRILL COLLAR SIZE (") 6.00		Length 98 Mtrs		

CASING			
9 5/8	SURFACE SET @	606 ft / 184.7 M	
	INT. SET @	ft / M	
	PROD. or LNR Set @	ft / M	
MUD TYPE	3%KCL PHPA Polymer		

MUD VOLUME (BBL)		
HOLE	PITS	
234	250	
TOTAL CIRCULATING VOL.	484	
IN STORAGE		

CIRCULATION DATA			
PUMP SIZE 5.5 X 12 Inches		CIRCULATION PRESS (PSI)	psi
PUMP MODEL Emsco	ASSUMED EFF 95.0	BOTTOMS UP (min)	min
BBL/STK 0.1560	STK / MIN	TOTAL CIRC. TIME (min)	min
BBL/MIN	GAL / MIN	ANN VEL. (ft/min) DP / DCs	

MUD PROPERTIES	FL	FL
SAMPLE FROM		
TIME SAMPLE TAKEN		
DEPTH (ft) - (m) Metres		
FLOWLINE TEMPERATURE °C °F		
WEIGHT ppg / SG		
FUNNEL VISCOSITY (sec/qt) API @ °C		
PLASTIC VISCOSITY cP @ °C		
YIELD POINT (lb/100ft²)		
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		
FILTRATE API (cc's/30 min)		
HPHT FILTRATE (cc's/30 min) @ °F		
CAKE THICKNESS API : HPHT (32nd in)		
SOLIDS CONTENT (% by Volume)		
LIQUID CONTENT (% by Volume) OIL/WATER		
SAND CONTENT (% by Vol.)		
METHYLENE BLUE CAPACITY (ppb equiv.)		
pH		
ALKALINITY MUD (Pm)		
ALKALINITY FILTRATE (Pf / Mf)		
CHLORIDE (mg/L)		
TOTAL HARDNESS AS CALCIUM (mg/L)		
SULPHITE (mg/L)		
K+ (mg/L)		
KCl (% by Wt.)		
PHPA ppb		

MUD PROPERTY SPECIFICATIONS					
Mud Weight	9.5	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl	3 - 5%	PHPA	.5 to 1.0	Sulphites	N/A

OBSERVATIONS

Mixed 30 bbls of 10 ppb Enerseal LCM slug to regain circulation.
Watered back system to maintain volume and reduce YP for cement job.
Dumped tanks to prepare for next hole section.

OPERATIONS SUMMARY

Run 7" casing
Loose returns from 600m
Circulate casing at 700m with no returns
mix and pump LCM slug. Regain returns
Run 7" casing to bottom and circulate hole clean
Cement casing. - Displaced with Water.

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	974
mix (recirc from sump)		Desilter			
Drill Water	120	Downhole	610	+ FLUID RECEIVED	120
Direct Recirc Sump		Dumped		-FLUID LOST	610
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED	120	TOTAL LOST	610	FINAL VOLUME	484

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	12
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost
Alcomer 110 PHPA	$ 84.63	26		2	24	$ 169.26
Enerseal fine	$ 25.00	90		6	84	$ 150.00

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

BIT HYD. PRESS.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
$319.26	$20,422.01

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903900 031

DRILLING FLUID REPORT

RMN Drilling Fluids

Report #	14	Date :	10-Jun-2000
Rig No		Spud :	28-May-2000
Depth	1104 to 1104		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Ian Johnstone	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION / STATE	PEP 137 — Onshore Gippsland Basin — Victoria

DRILLING ASSEMBLY		JET SIZE		
BIT SIZE 8.50	TYPE MTH13G	32	32	32
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 1006 Mtrs		
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs		
DRILL COLLAR SIZE (") 6.00		Length 98 Mtrs		

CASING			
9 5/8 SURFACE SET @	606	ft	
	184.7	M	
INT. SET @		ft	
		M	
PROD. or LNR Set @		ft	
		M	
MUD TYPE	Kill Mud		

MUD VOLUME (BBL)	
HOLE	PITS
234	
TOTAL CIRCULATING VOL.	234
IN STORAGE	

CIRCULATION DATA			
PUMP SIZE 5.5 x 12 Inches		CIRCULATION PRESS (PSI)	psi
PUMP MODEL Emsco	ASSUMED EFF 95.0	BOTTOMS UP (min)	min
BBL/STK 0.1560	STK / MIN	TOTAL CIRC. TIME (min)	min
BBL/MIN	GAL / MIN	ANN VEL. (ft/min) DP / DCs	

MUD PROPERTIES		
SAMPLE FROM	FL	FL
TIME SAMPLE TAKEN		
DEPTH (ft) - (m)	Metres	
FLOWLINE TEMPERATURE	°C °F	
WEIGHT	ppg / SG	
FUNNEL VISCOSITY (sec/qt) API @	°C	
PLASTIC VISCOSITY cP @	°C	
YIELD POINT (lb/100ft²)		
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		
FILTRATE API (cc's/30 min)		
HPHT FILTRATE (cc's/30 min) @	°F	
CAKE THICKNESS API : HPHT (32nd in)		
SOLIDS CONTENT (% by Volume)		
LIQUID CONTENT (% by Volume) OIL/WATER		
SAND CONTENT (% by Vol.)		
METHYLENE BLUE CAPACITY (ppb equiv.)		
pH		
ALKALINITY MUD (Pm)		
ALKALINITY FILTRATE (Pf / Mf)		
CHLORIDE (mg/L)		
TOTAL HARDNESS AS CALCIUM (mg/L)		
SULPHITE (mg/L)		
K+ (mg/L)		
KCl (% by Wt.)		
PHPA ppb		

MUD PROPERTY SPECIFICATIONS					
Mud Weight	9.5	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl	3 - 5%	PHPA	.5 to 1.0	Sulphites	N/A

OBSERVATIONS

Dump and clean pits to prepare for next hole section.

OPERATIONS SUMMARY

Wait on cement

Nipple up BOPs

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	484
mix (recirc from sump)		Desilter			
Drill Water	140	Downhole	0	+ FLUID RECEIVED	140
Direct Recirc Sump		Dumped	390	-FLUID LOST	390
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED	140	TOTAL LOST	390	FINAL VOLUME	234

Product	Price	Start	Received	Used	Close	Cost

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	
Degasser			Desilter			Shaker #2		

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

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

BIT HYD. PRESS.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
	$20,422.01

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903300 082

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	15	Date :	11-Jun-2000
Rig No		Spud :	28-May-2000
Depth	1104 to 1104		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Bill Lawson	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD	PEP 137
LOCATION	Onshore Gippsland Basin	STATE	Victoria

DRILLING ASSEMBLY		JET SIZE		
BIT SIZE	TYPE	32	32	32
8.50	MTH13G			
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 1006 Mtrs		
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs		
DRILL COLLAR SIZE (")		Length		
6.00		98 Mtrs		

CASING			
9 5/8 SURFACE SET @	606 ft	184.7 M	
INT. SET @	ft	M	
PROD. or LNR Set @	ft	M	
MUD TYPE	Kill Mud		

MUD VOLUME (BBL)	
HOLE	PITS
234	
TOTAL CIRCULATING VOL.	
234	
IN STORAGE	

CIRCULATION DATA			
PUMP SIZE		CIRCULATION PRESS (PSI)	psi
5.5 X 12 Inches			
PUMP MODEL	ASSUMED EFF	BOTTOMS UP (min)	min
Emsco	95.0		
BBL/STK	STK / MIN	TOTAL CIRC. TIME (min)	min
0.1560			
BBL/MIN	GAL / MIN	ANN VEL. (ft/min) DP / DCs	

MUD PROPERTIES

	FL	FL
SAMPLE FROM		
TIME SAMPLE TAKEN		
DEPTH (ft) - (m) Metres		
FLOWLINE TEMPERATURE °C °F		
WEIGHT ppg / SG		
FUNNEL VISCOSITY (sec/qt) API @ °C		
PLASTIC VISCOSITY cP @ °C		
YIELD POINT (lb/100ft²)		
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		
FILTRATE API (cc's/30 min)		
HPHT FILTRATE (cc's/30 min) @ °F		
CAKE THICKNESS API : HPHT (32nd in)		
SOLIDS CONTENT (% by Volume)		
LIQUID CONTENT (% by Volume) OIL/WATER		
SAND CONTENT (% by Vol.)		
METHYLENE BLUE CAPACITY (ppb equiv.)		
pH		
ALKALINITY MUD (Pm)		
ALKALINITY FILTRATE (Pf / Mf)		
CHLORIDE (mg/L)		
TOTAL HARDNESS AS CALCIUM (mg/L)		
SULPHITE (mg/L)		
K+ (mg/L)		
KCl (% by Wt.)		
PHPA ppb		

MUD PROPERTY SPECIFICATIONS

Mud Weight	9.5	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	12 - 15	pH	9 - 9.5
KCl	3 - 5%	PHPA	.5 to 1.0	Sulphites	N/A

OBSERVATIONS

Dump and clean pits to prepare for next hole section.

OPERATIONS SUMMARY

Wait on cement
Nipple up BOPs

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	
mix (recirc from sump)		Desilter			
.ll Water		Downhole	-234	+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	-234
Other (eg Diesel)		Centrifuge		- FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST	-234	FINAL VOLUME	234

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost

SOLIDS ANALYSIS

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

BIT HYD. PRESS.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
	$20,422.01

RMN ENGINEER Neil Kyberd CITY Adelaide Office TELEPHONE 08 8338 7266

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	16	Date :	12-Jun-2000
Rig No		Spud :	28-May-2000
Depth	1104 to 1104		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Bill Lawson	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD	PEP 137
		LOCATION	Onshore Gippsland Basin
		STATE	Victoria

DRILLING ASSEMBLY		JET SIZE		
BIT SIZE 6.25	TYPE	32	32	32
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 1104 Mtrs		
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs		
DRILL COLLAR SIZE (")		Length Mtrs		

CASING			
9 5/8	SURFACE SET @	606 ft / 184.7 M	
7	INT. SET @	3617 ft / 1102 M	
	PROD. or LNR Set @	ft / M	
MUD TYPE	Kill Mud		

MUD VOLUME (BBL)	
HOLE	PITS
144	420
TOTAL CIRCULATING VOL.	564
IN STORAGE	

CIRCULATION DATA			
PUMP SIZE 5.5 X 12 Inches		CIRCULATION PRESS (PSI)	psi
PUMP MODEL Emsco	ASSUMED EFF 95.0	BOTTOMS UP (min)	min
BBL/STK 0.1560	STK / MIN	TOTAL CIRC. TIME (min)	min
BBL/MIN	GAL / MIN	ANN VEL. (ft/min) DP / DCs	

MUD PROPERTIES

		Pit	Pit
SAMPLE FROM			
TIME SAMPLE TAKEN			18:00
DEPTH (ft) - (m)	Metres		1,104
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG		8.40 1.008
FUNNEL VISCOSITY (sec/qt) API @	°C		29
PLASTIC VISCOSITY cP @	°C		3
YIELD POINT (lb/100ft²)			3
GEL STRENGTHS (lb/100ft²) 10 sec/10 min			1 1
FILTRATE API (cc's/30 min)			8.5
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)			1
SOLIDS CONTENT (% by Volume)			
LIQUID CONTENT (% by Volume) OIL/WATER			100.1
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH			9.0
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)			0.10 0.20
CHLORIDE (mg/L)			9,500
TOTAL HARDNESS AS CALCIUM (mg/L)			40
SULPHITE (mg/L)			
K+ (mg/L)			9,727
KCl (% by Wt.)			1.8
PHPA ppb			

MUD PROPERTY SPECIFICATIONS

Mud Weight	8.4	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	6 - 10	pH	9 - 9.5
KCl	2%	PHPA	nil	Sulphites	N/A

OBSERVATIONS

Prepare 420 bbls of brine Kill mud. Containing 2% KCL, 2ppb Dextrid, Withheld mixing enerseal as without pit agitation LCM will eventually separate out and float.

OPERATIONS SUMMARY

Rig up Blooey Line and prepare for AIR drilling

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)	420	Desander		INITIAL VOLUME	234
Mix (recirc from sump)		Desilter			
Drill Water		Downhole	90	+ FLUID RECEIVED	420
Direct Recirc Sump		Dumped		-FLUID LOST	90
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED	420	TOTAL LOST	90	FINAL VOLUME	564

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost
Caustic Soda	$ 41.53	2		1	1	$ 41.53
Dextrid LT	$ 75.30	40		15	25	$ 1,129.50
Enerseal fine	$ 25.00	84		5	79	$ 125.00
KCL tech	$ 14.50	316		55	261	$ 797.50

SOLIDS ANALYSIS

	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids		
Salt		0.6
n @ 18:00 Hrs	0.58	
K @ 18:00 Hrs	0.16	

BIT HYD. PRESS.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
$2,093.53	$22,515.54

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903900 084

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	17	Date :	13-Jun-2000
Rig No		Spud :	28-May-2000
Depth	1104 to 1104		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Bill Lawson	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION / STATE	PEP 137 — Onshore Gippsland Basin — Victoria

DRILLING ASSEMBLY		JET SIZE			CASING			MUD VOLUME (BBL)	
BIT SIZE 6.25	TYPE	32	32	32	9 5/8 SURFACE SET @	606 ft / 184.7 M		HOLE 144	PITS 420
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 1104 Mtrs			7 INT. SET @	3617 ft / 1102 M		TOTAL CIRCULATING VOL. 564	
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs			PROD. or LNR Set @	ft / M		IN STORAGE	
DRILL COLLAR SIZE (")		Length Mtrs			MUD TYPE Kill Mud				

CIRCULATION DATA			
PUMP SIZE 5.5 X 12 Inches		CIRCULATION PRESS (PSI)	psi
PUMP MODEL Emsco	ASSUMED EFF 95.0	BOTTOMS UP (min)	min
BBL/STK 0.1560	STK / MIN	TOTAL CIRC. TIME (min)	min
BBL/MIN	GAL / MIN	ANN VEL. (ft/min) DP / DCs	

MUD PROPERTIES	Pit	Pit
SAMPLE FROM		
TIME SAMPLE TAKEN		20:00
DEPTH (ft) - (m) Metres		1,104
FLOWLINE TEMPERATURE °C °F		
WEIGHT ppg / SG		8.40 1.008
FUNNEL VISCOSITY (sec/qt) API @ °C		29
PLASTIC VISCOSITY cP @ °C		3
YIELD POINT (lb/100ft²)		3
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		1 1
FILTRATE API (cc's/30 min)		8.0
HPHT FILTRATE (cc's/30 min) @ °F		
CAKE THICKNESS API : HPHT (32nd in)		1
SOLIDS CONTENT (% by Volume)		
LIQUID CONTENT (% by Volume) OIL/WATER		100.1
SAND CONTENT (% by Vol.)		
METHYLENE BLUE CAPACITY (ppb equiv.)		
pH		8.8
ALKALINITY MUD (Pm)		
ALKALINITY FILTRATE (Pf / Mf)		0.20 0.30
CHLORIDE (mg/L)		9,700
TOTAL HARDNESS AS CALCIUM (mg/L)		40
SULPHITE (mg/L)		
K+ (mg/L)		9,727
KCl (% by Wt.)		1.8
PHPA ppb		

MUD PROPERTY SPECIFICATIONS					
Mud Weight	8.4	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	6 - 10	pH	9 - 9.5
KCl	2%	PHPA	nil	Sulphites	N/A

OBSERVATIONS

Maintaining stored kill fluid.

OPERATIONS SUMMARY

Wait on Air drilling BOP parts

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	564
Premix (recirc from sump)		Desilter			
Oil Water		Downhole		+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST		FINAL VOLUME	564

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost

SOLIDS ANALYSIS

	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids		
Salt		0.6
n @ 20:00 Hrs	0.58	
K @ 20:00 Hrs	0.16	

BIT HYD. PRESS.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
	$22,515.54

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903900 085

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	18	Date :	14-Jun-2000
Rig No		Spud :	28-May-2000
Depth	1104 to 1104		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Bill Lawson	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION / STATE	PEP 137 / Onshore Gippsland Basin / Victoria

DRILLING ASSEMBLY		JET SIZE			CASING			MUD VOLUME (BBL)	
BIT SIZE 6.25	TYPE	32	32	32	9 5/8 SURFACE SET @	606 ft / 184.7 M		HOLE 144	PITS 420
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 1104 Mtrs			7 INT. SET @	3617 ft / 1102 M		TOTAL CIRCULATING VOL. 564	
DRILL PIPE SIZE 4.5	TYPE HW	Length Mtrs			PROD. or LNR Set @	ft / M		IN STORAGE	
DRILL COLLAR SIZE (")		Length Mtrs			MUD TYPE Kill Mud				

CIRCULATION DATA			
PUMP SIZE 5.5 x 12 Inches		CIRCULATION PRESS (PSI)	psi
PUMP MODEL Emsco	ASSUMED EFF 95.0	BOTTOMS UP (min)	min
BBL/STK 0.1560	STK / MIN	TOTAL CIRC. TIME (min)	min
BBL/MIN	GAL / MIN	ANN VEL. (ft/min) DP / DCs	

MUD PROPERTIES		Pit	Pit
SAMPLE FROM			
TIME SAMPLE TAKEN			24:00
DEPTH (ft) - (m)	Metres		1,104
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG		8.40 1.008
FUNNEL VISCOSITY (sec/qt) API @	°C		29
PLASTIC VISCOSITY cP @	°C		3
YIELD POINT (lb/100ft²)			2
GEL STRENGTHS (lb/100ft²) 10 sec/10 min			1 1
FILTRATE API (cc's/30 min)			8.0
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)			1
SOLIDS CONTENT (% by Volume)			
LIQUID CONTENT (% by Volume) OIL/WATER			100.1
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH			8.5
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)			0.10 0.25
CHLORIDE (mg/L)			9,700
TOTAL HARDNESS AS CALCIUM (mg/L)			40
SULPHITE (mg/L)			
K+ (mg/L)			9,727
KCl (% by Wt.)			1.8
PHPA ppb			

MUD PROPERTY SPECIFICATIONS					
Mud Weight	8.4	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	6 - 10	pH	9 - 9.5
KCl	2%	PHPA	nil	Sulphites	N/A

OBSERVATIONS

Maintaining stored kill fluid.

OPERATIONS SUMMARY

Wait on Air drilling BOP parts

MUD ACCOUNTING (BBLS)				SUMMARY	
FLUID BUILT & RECEIVED		FLUID DISPOSED			
Premix (drill water)		Desander		INITIAL VOLUME	564
Premix (recirc from sump)		Desilter			
Fill Water		Downhole		+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST		FINAL VOLUME	564

SOLIDS CONTROL EQUIPMENT	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost

SOLIDS ANALYSIS	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids		
Salt		0.6
n @ 24:00 Hrs	0.68	
K @ 24:00 Hrs	0.07	

BIT HYD. PRESS.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
	$22,515.54

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903900 086

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	19	Date :	15-Jun-2000
Rig No		Spud :	28-May-2000
Depth	1104 to 1155		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Bill Lawson	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION / STATE	PEP 137 — Onshore Gippsland Basin — Victoria

DRILLING ASSEMBLY		JET SIZE		
BIT SIZE	TYPE	32	32	32
6.25	L127			
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 1048 Mtrs		
DRILL PIPE SIZE 4.5	TYPE HW	Length 107 Mtrs		
DRILL COLLAR SIZE (")		Length Mtrs		

CASING		
9 5/8 SURFACE	606	ft
SET @	184.7	M
7 INT.	3617	ft
SET @	1102	M
PROD. or LNR Set @		ft / M
MUD TYPE	Kill Mud	

MUD VOLUME (BBL)	
HOLE	PITS
147	420
TOTAL CIRCULATING VOL.	567
IN STORAGE	

CIRCULATION DATA		
PUMP SIZE		CIRCULATION PRESS (PSI) psi
5.5 X 12 Inches		
PUMP MODEL	ASSUMED EFF	BOTTOMS UP (min) min
Emsco	95.0	
BBL/STK	STK / MIN	TOTAL CIRC. TIME (min) min
0.1560		
BBL/MIN	GAL / MIN	ANN VEL. DP (ft/min) DCs

MUD PROPERTIES

		Pit	Pit
SAMPLE FROM			
TIME SAMPLE TAKEN		19:00	24:00
DEPTH (ft) - (m)	Metres	1,155	1,155
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG	8.40 1.008	8.65 1.038
FUNNEL VISCOSITY (sec/qt) API @	°C	28	28
PLASTIC VISCOSITY cP @	°C	3	3
YIELD POINT (lb/100ft²)		2	2
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		1 1	1 1
FILTRATE API (cc's/30 min)		7.8	7.8
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)		1	1
SOLIDS CONTENT (% by Volume)			0.1
LIQUID CONTENT (% by Volume) OIL/WATER		100.1	99.9
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH		8.5	8.2
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.05 0.25	0.05 0.25
CHLORIDE (mg/L)		9,700	34,000
TOTAL HARDNESS AS CALCIUM (mg/L)		40	80
SULPHITE (mg/L)			
K+ (mg/L)		9,727	31,343
KCl (% by Wt.)		1.8	5.8
PHPA ppb			

MUD PROPERTY SPECIFICATIONS

Mud Weight	8.4	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	6 - 10	pH	9 - 9.5
KCl	2%	PHPA	nil	Sulphites	N/A

OBSERVATIONS

Circulated stored 420 bbl kill mud in suction pit.
Weighted up Kill Mud system to 8.6ppg with KCL.

OPERATIONS SUMMARY

RIH with 6.25" bit
Blow hole and unload all water.
Drill shoe track with Air.
Drill new hole with Air to 1155m with tight connections and few cuttings to surface.
POH wiper trip to shoe , work tight hole at 1148m.
Flow well to flow prover.
POH wiper trip to collars, RIH.

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	564
mix (recirc from sump)		Desilter			
.ll Water		Downhole	-3	+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	-3
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST	-3	FINAL VOLUME	567

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost
KCL tech	$ 14.50	261		80	181	$ 1,160.00

SOLIDS ANALYSIS

	PPB	%
High Grav solids		
Total LGS		1.30
Bentonite		1.30
Drilled Solids	0.1	
Salt		2.1
n @ 24:00 Hrs	0.68	
K @ 24:00 Hrs	0.07	

BIT HYD. PRESS.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
$1,160.00	$23,675.54

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RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	20	Date :	16-Jun-2000
Rig No		Spud :	28-May-2000
Depth	1155 to 1170		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Bill Lawson	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD / LOCATION / STATE	PEP 137 — Onshore Gippsland Basin — Victoria

DRILLING ASSEMBLY			JET SIZE		
BIT SIZE 6.25	TYPE L127		32	32	32
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 1063 Mtrs			
DRILL PIPE SIZE 4.5	TYPE HW	Length 107 Mtrs			
DRILL COLLAR SIZE (")		Length Mtrs			

CASING			
9 5/8 SURFACE SET @	606	ft	
	184.7	M	
7 INT. SET @	3617	ft	
	1102	M	
PROD. or LNR Set @		ft	
		M	
MUD TYPE	Kill Mud		

MUD VOLUME (BBL)	
HOLE	PITS
149	271
TOTAL CIRCULATING VOL.	420
IN STORAGE	

CIRCULATION DATA			
PUMP SIZE 5.5 X 12 Inches		CIRCULATION PRESS (PSI)	350 psi
PUMP MODEL Emsco	ASSUMED EFF 95.0	BOTTOMS UP (min)	24 min
BBL/STK 0.1560	STK / MIN 36	TOTAL CIRC. TIME (min)	79 min
BBL/MIN 5.34	GAL / MIN 224	ANN VEL. (ft/min) DP	205
		DCs	

MUD PROPERTIES

		FL	FL
SAMPLE FROM			
TIME SAMPLE TAKEN		14:00	01:00
DEPTH (ft) - (m)	Metres	1,160	1,170
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG	9.20 1.104	9.20 1.104
FUNNEL VISCOSITY (sec/qt) API @	°C	32	35
PLASTIC VISCOSITY cP @	°C	6	10
YIELD POINT (lb/100ft²)		9	15
GEL STRENGTHS (lb/100ft²) 10 sec/10 min		2 4	2 4
FILTRATE API (cc's/30 min)		7.5	7.5
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)		1	1
SOLIDS CONTENT (% by Volume)		3.3	3.3
LIQUID CONTENT (% by Volume) OIL/WATER		96.7	96.7
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH		7.5	8.0
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)		0.05 0.25	0.05 0.25
CHLORIDE (mg/L)		48,000	46,500
TOTAL HARDNESS AS CALCIUM (mg/L)		360	360
SULPHITE (mg/L)			
K+ (mg/L)		47,555	44,853
KCl (% by Wt.)		8.8	8.3
PHPA ppb			

MUD PROPERTY SPECIFICATIONS

Mud Weight	8.4	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	6 - 10	pH	9 - 9.5
KCl	2%	PHPA	nil	Sulphites	N/A

OBSERVATIONS

Weighted up stored kill mud to 9.0 ppg with KCL.
Increased Viscosity / Yield Point of stored kill mud to enable drilling.
On displacement, mud weight jumped to 9.2 ppg due to fine air drilled solids from the wellbore, casing and drill pipe (initial returning mud weight 10.3 ppg)
Increased Yield Point with XCD Polymer and PAC-R
Built 25 bbl Hi-Vis Sweeps with Pac-R.
Diverted Blooey line to suction pit for circulation. (bypass shaker)

Rheology: 600:35 300:25 200:20 100:14 6:4 3:2

OPERATIONS SUMMARY

Cont RIH to shoe-blow hole, RIH , Hit bridge at 1107m.
ream 1107 - 1110m Attempt to RIH - no go. Re-ream 1107m-1110m
Displace hole to Kill mud. Wash & Ream 1107 to 1155m.
Circulate and unload cuttings.
Drill ahead to 1170m (T.D.) Circ hole clean.
POH wiper trip to shoe, work through tight hole.
RIH tight hole from 1115m, Ream to bottom.
Circulate hole and pump High Viscosity sweep, Unload abundant cavings to 1" diam.
Circulate hole clean, Spot 25bbl High Vis Pill on bottom.
POH to log. (no Drag recorded).

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	420
mix (recirc from sump)		Desilter			
il Water		Downhole	0	+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	0
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST	0	FINAL VOLUME	420

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost
Caustic Soda	$ 41.53	1		1		$ 41.53
KCL tech	$ 14.50	181		80	101	$ 1,160.00
PAC-R	$ 151.62	24		4	20	$ 606.48
XCD Polymer	$ 474.48	17		3	14	$ 1,423.44

SOLIDS ANALYSIS

	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids	3.3	
Salt		2.9
n @ 01:00 Hrs	0.49	
K @ 01:00 Hrs	1.21	

BIT HYD. PRESS.DATA

Jet Velocity	30
Impact force	33
HHP	1
HSI	0.0
Bit Press Loss	8
CSG Seat Frac Press	
Equiv. Mud Wt.	
ECD	
Max Pressure @ Shoe :	

DAILY COST	CUMULATIVE COST
$3,231.45	$26,906.99

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908900 088

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	21	Date :	17-Jun-2000
Rig No		Spud :	28-May-2000
Depth	1170 to 1170		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Bill Lawson	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD	PEP 137
LOCATION	Onshore Gippsland Basin	STATE	Victoria

DRILLING ASSEMBLY		JET SIZE		
BIT SIZE	TYPE	32	32	32
6.25	L127			
DRILL PIPE	TYPE	Length		
SIZE 3.5	13.3 #	1063 Mtrs		
DRILL PIPE	TYPE	Length		
SIZE 4.5	HW	107 Mtrs		
DRILL COLLAR SIZE (")		Length		
		Mtrs		

CASING			
9 5/8	SURFACE	606	ft
	SET @	184.7	M
7	INT.	3617	ft
	SET @	1102	M
	PROD. or LNR Set @		ft
			M
MUD TYPE	Kill Mud		

MUD VOLUME (BBL)	
HOLE	PITS
149	271
TOTAL CIRCULATING VOL.	420
IN STORAGE	

CIRCULATION DATA			
PUMP SIZE		CIRCULATION PRESS (PSI)	psi
5.5 X 12	Inches		
PUMP MODEL	ASSUMED EFF	BOTTOMS UP (min)	min
Emsco	95.0		
BBL/STK	STK / MIN	TOTAL CIRC. TIME (min)	min
0.1560			
BBL/MIN	GAL / MIN	ANN VEL. DP (ft/min)	
		DCs	

MUD PROPERTIES

		FL	FL
SAMPLE FROM			
TIME SAMPLE TAKEN			17:30
DEPTH (ft) - (m)	Metres		1,170
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG		9.20 1.104
FUNNEL VISCOSITY (sec/qt) API @	°C		35
PLASTIC VISCOSITY cP @	°C		9
YIELD POINT (lb/100ft²)			14
GEL STRENGTHS (lb/100ft²) 10 sec/10 min			2 4
FILTRATE API (cc's/30 min)			7.5
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)			1
SOLIDS CONTENT (% by Volume)			3.4
LIQUID CONTENT (% by Volume) OIL/WATER			96.6
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH			8.0
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)			0.05 0.25
CHLORIDE (mg/L)			46,000
TOTAL HARDNESS AS CALCIUM (mg/L)			360
SULPHITE (mg/L)			
K+ (mg/L)			44,853
KCl (% by Wt.)			8.3
PHPA ppb			

MUD PROPERTY SPECIFICATIONS

Mud Weight	8.4	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	6 - 10	pH	9 - 9.5
KCl	2%	PHPA	nil	Sulphites	N/A

OBSERVATIONS

Rheology: 600:32 300:23 200:19 100:13 6:4 3:2

OPERATIONS SUMMARY

Continue POH.
Rig up and run two Logging runs finding 4m fill.
RIH with bit, wash last 12m finding 3m light fill.
Circulate hole clean, Spot 25bbl High Vis Pill on bottom.
POH, make up test tools and RIH.

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	420
Premix (recirc from sump)		Desilter			
Drill Water		Downhole		+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST		FINAL VOLUME	420

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost

SOLIDS ANALYSIS

	PPB	%
High Grav solids		
Total LGS		
Bentonite		
Drilled Solids	3.4	
Salt		2.8
n @ 17:30 Hrs	0.48	
K @ 17:30 Hrs	1.18	

BIT HYD. PRESS.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
	$26,906.99

RMN ENGINEER Neil Kyberd CITY Adelaide Office TELEPHONE 08 8338 7266

903900 089

RMN Drilling Fluids

DRILLING FLUID REPORT

Report #	22	Date :	18-Jun-2000
Rig No		Spud :	28-May-2000
Depth	1170 to 1170		Metres

OPERATOR	Lakes Oil	CONTRACTOR	Sides Engineering
REPORT FOR	Bill Lawson	REPORT FOR	Brent Speechley
WELL NAME AND No	North Seaspray # 3	FIELD	PEP 137
LOCATION	Onshore Gippsland Basin	STATE	Victoria

DRILLING ASSEMBLY		JET SIZE			CASING			MUD VOLUME (BBL)	
BIT SIZE 6.25	TYPE L127	32	32	32	9 5/8 SURFACE SET @	606 ft 184.7 M		HOLE 149	PITS 271
DRILL PIPE SIZE 3.5	TYPE 13.3 #	Length 1063 Mtrs			7 INT. SET @	3617 ft 1102 M		TOTAL CIRCULATING VOL. 420	
DRILL PIPE SIZE 4.5	TYPE HW	Length 107 Mtrs			PROD. or LNR Set @	ft M		IN STORAGE	
DRILL COLLAR SIZE (")		Length Mtrs			MUD TYPE Kill Mud				

CIRCULATION DATA			
PUMP SIZE 5.5 X 12 Inches		CIRCULATION PRESS (PSI)	psi
PUMP MODEL Emsco	ASSUMED EFF 95.0	BOTTOMS UP (min)	min
BBL/STK 0.1560	STK / MIN	TOTAL CIRC. TIME (min)	min
BBL/MIN	GAL / MIN	ANN VEL. DP (ft/min) DCs	

MUD PROPERTIES		FL	FL
SAMPLE FROM			
TIME SAMPLE TAKEN			04:00
DEPTH (ft) - (m)	Metres		1,170
FLOWLINE TEMPERATURE	°C °F		
WEIGHT	ppg / SG		9.20 1.104
FUNNEL VISCOSITY (sec/qt) API @	°C		36
PLASTIC VISCOSITY cP @	°C		9
YIELD POINT (lb/100ft²)			14
GEL STRENGTHS (lb/100ft²) 10 sec/10 min			2 4
FILTRATE API (cc's/30 min)			7.5
HPHT FILTRATE (cc's/30 min) @	°F		
CAKE THICKNESS API : HPHT (32nd in)			1
SOLIDS CONTENT (% by Volume)			3.4
LIQUID CONTENT (% by Volume) OIL/WATER			96.6
SAND CONTENT (% by Vol.)			
METHYLENE BLUE CAPACITY (ppb equiv.)			
pH			8.0
ALKALINITY MUD (Pm)			
ALKALINITY FILTRATE (Pf / Mf)			0.05 0.25
CHLORIDE (mg/L)			46,000
TOTAL HARDNESS AS CALCIUM (mg/L)			380
SULPHITE (mg/L)			
K+ (mg/L)			44,853
KCl (% by Wt.)			8.3
PHPA ppb			

MUD PROPERTY SPECIFICATIONS					
Mud Weight	8.4	API Filtrate	< 10	HPHT Filtrate	N/C
Plastic Vis	ALAP	Yield Point	6 - 10	pH	9 - 9.5
KCl	2%	PHPA	nil	Sulphites	N/A

OBSERVATIONS

OPERATIONS SUMMARY

RIH with test tools
Perform DST # 1.
Pull free andPOH with test tools
RIH open ended to set cement plugs as per P & A program.

MUD ACCOUNTING (BBLS)

FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY	
Premix (drill water)		Desander		INITIAL VOLUME	420
mix (recirc from sump)		Desilter			
Drill Water		Downhole		+ FLUID RECEIVED	
Direct Recirc Sump		Dumped		-FLUID LOST	
Other (eg Diesel)		Centrifuge		+ FLUID IN STORAGE	
TOTAL RECEIVED		TOTAL LOST		FINAL VOLUME	420

SOLIDS CONTROL EQUIPMENT

	Type	Hrs		Cones	Hrs		Size	Hrs
Centrifuge			Desander			Shaker #1	S50/S60	
Degasser			Desilter			Shaker #2		

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

Product	Price	Start	Received	Used	Close	Cost

SOLIDS ANALYSIS

	PPB	%
High Grav solids		
Total LGS		30.75
Bentonite		30.75
Drilled Solids	3.4	
Salt		2.8
n @ 04:00 Hrs	0.48	
K @ 04:00 Hrs	1.18	

BIT HYD. PRESS.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
	$26,906.99

RMN ENGINEER Neil Kyberd CITY Adelaide Office TELEPHONE 08 8338 7266

APPENDIX 4

WELL LOCATION SURVEY

AUSTEC SURVEYING CONSULTANTS PTY LTD ACN 006 347 100
TITLE & ENGINEERING SURVEYORS :: LAND DEVELOPMENT CONSULTANTS

REF 026.C01
17/08/2000

Lakes Oil NL
PO Box 300, Collins St West
Melbourne, Vic, 8007

Att: Jack Mulready
Re: Survey of North Seaspray #3 Well

The well has been surveyed on 16/08/2000 with the following co-ordinates to the centre-line of the 40mm diameter galvanized iron post at ground level.

Australian Map Grid	Geographic
E 517 874.39	S 38° 17' 32.1000"
N 5 761 723.94	E 147° 12' 15.8397"
RL 22.45 (AHD)	

Survey Report

Datum's

Co-ordinate datum is Australian Map Grid ("AMG"), in zone 55 vide PM's 314, 325 & 339 Parish of Wulla Wullock.

Height datum is Australian Height Datum ("AHD") vide PM 19 Parish of Wulla Wullock.

Field Work

Spirit levelling was used for heights and confirmed using reciprocal trig observations.

Conventional traversing was used to provide co-ordinates. This was confirmed by handheld GPS (within 2m).

Yours Faithfully

Bruce Bowden
Licensed Surveyor

Principal: BRUCE BOWDEN B.APP.Sc.(SURV.). L.S., M.I.S.(AUST.)
Email: austec@b150.aone.net.au
Telephone (03) 5152 1197 Fax (03) 5152 2501
Mobile 018 516 685
Office: 7 RIVIERA PLAZA
P.O. BOX 947, BAIRNSDALE, 3875

APPENDIX 5

DRILL STEM TEST REPORTS

by

AUSTRALIAN DST

COMPANY NAME	Lakes Oil NL
WELL NAME	North Seaspray # 3
LOCATION	Gippsland Basin
TICKET # and DST #	37 One
TESTED INTERVAL	1099.72 to 1170.00 m (70.28 m)
FORMATION	Pre Latrobe
TEST TYPE	Conventional Bottom Hole
TEST DATE	18-Jun-00

DRILL STEM TEST ANALYSIS

FINAL REPORT

AUSTRALIAN DST (AUSTRALASIA) PTY LTD.

COMPANY NAME : Lakes Oil NL
WELL NAME North Seaspray # 3 Province: Victoria
LOCATION : Gippsland Basin Permit: PEP 137
TESTED INTERVAL : 1099.72 to 1170.00 m (70.28 m)

TICKET # : 37
DST # : One
FORMATION : Pre Latrobe
TEST DATE : 18-Jun-00

DST FINAL REPORT: OBSERVATIONS AND CONCLUSIONS

All Measurements are Metric except Pressures which are PSI.

The drillstem test run at the above location was mechanically successful. The pressures recorded are within the accuracy limits of the recorders used.

Run tool to test depth 1099.72 to 1170.00 feet. Open the tool for the preflow with a moderate to strong blow to bottom of bucket. Final pressure was 12 psi. There was no gas to surface. Close the tool for a 30 minute initial shutin. Open the tool for the second flow on a 3.18 mm (1/8 in.) choke. Gas to surface with a 1 metre orange flare increasing to 48 psi at the floor manifold the end of the flow period. Gas rate 20.9 mcf/day. Close the tool for a 120 minute final shutin then pull loose and out of the hole. The fluid recovery consisted of 212 metres of lightly gas cut rat hole mud.

The charts indicate deep damage within the interval tested.

If you have any queries with respect to this report please contact your Australian DST Representative at 076 222655.

FLUID RECORDER INTERPRETATION

The fluid chart indicates the following :	Recovery m	Average Rate m3/day
Fluid in pipe prior to test	0.0	
PreFlow	136.8	75.2
Second Flow	75.2	6.4
Third Flow		
Fluid into pipe after test		
Fluid remaining after test	212.0	

ANALYTICAL RESULTS for Fluid

BASIC HORNER INTERPRETATION

P* Initial Shutin	psig	Drawdown (ISI-FSI)/ISI*100	Nil
P* Second Shutin	psig	Initial Shutin Semilog Slope	psig
P* Final Shutin End Point	psig	Second Shutin Semilog Slope	psig
P* Final Shutin Radial Flow	psig	Final Shutin Semilog Slope (End Point)	psig
		Final Shutin Semilog Slope (Radial Flow)	psig

PLOT ANALYSIS

	STORAGE and SKIN	HORNER	
Transmissivity (kh/u)			md.ft/cp
Mobility (k/u)			md/cp
Flow Capacity (kh)			md.ft
Permeability (k)			md
Skin (s)			
Flow Efficiency			
Damage			
Radius of Investigation			feet

Predicted Capability for Acres

Stabilized Flow Rate (Calc Skin)	@	2100 psi	s =	=	bbls/day
Stabilized Flow rate (Skin Removed)	@	2100 psi	s =	0.00 =	bbls/day
Stabilized Flow Rate (Improved Skin)	@	2100 psi	s =	-4.00 =	bbls/day

AUSTRALIAN DST (AUSTRALASIA) PTY LTD.

COMPANY NAME : Lakes Oil NL — TICKET # : 37
WELL NAME North Seaspray # 3 — Province: Victoria — DST # : One
LOCATION : Gippsland Basin — Permit: PEP 137 — FORMATION : Pre Latrobe
TESTED INTERVAL : 1099.72 to 1170.00 m (70.28 m) — TEST DATE : 18-Jun-00

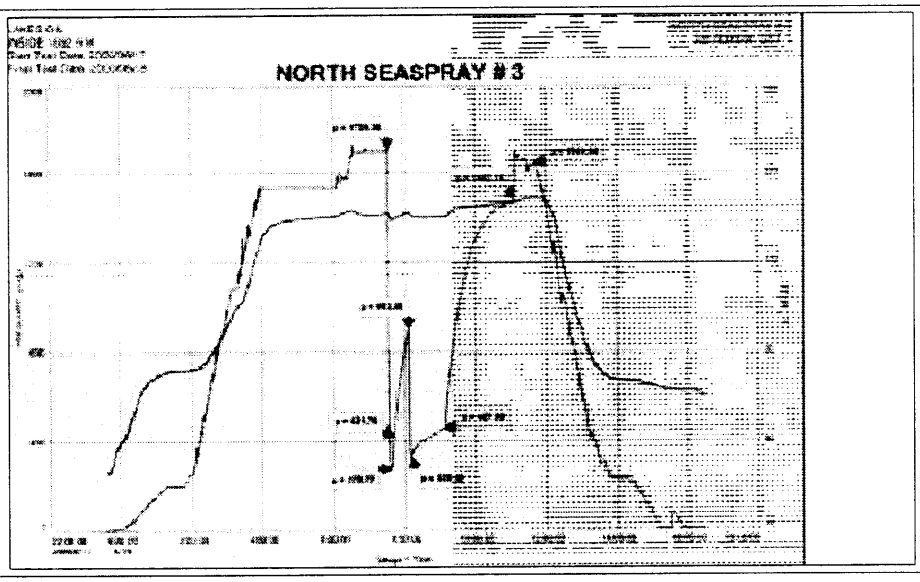
DST FINAL REPORT: FLUIDS, FLOWS AND PRESSURES

TEST PERIODS IN MINUTES

PreFlow	6	First Shutin	30
Second Flow	60	Second Shutin	120
Third Flow	0	Third Shutin	0

DOWNHOLE PRESSURE DATA

Recorder Number		080-522
Clock Type		EMP
Depth Metres		1095.90
Pressure Port		INSIDE
		psi
Initial Hydrostatic	(A)	1709.4
Start Preflow	(B)	270.8
End Preflow	(B1)	421.8
First Shutin	(C)	902.6
Second Flow	(D)	325.3
End Second Flow	(E)	458.0
Second Shutin	(F)	1482.2
Start Third Flow	(H)	
End Third Flow	(I)	
Third Shutin	(J)	
Final Hydrostatic	(G)	1649.5



BLOW DESCRIPTIONS

PREFLOW : Moderate to strong blow to bottom of bucket. 12 PSI at tool shutin. No gas to surface.

SECOND FLOW : Open through 3.18 mm (1/8 in.) choke. Gas to surface with 1 metre orange flare increasing to 48 psi at the manifold at the end of the flow.

TEST SUCCESSFUL

RECOVERY DURING TEST

Cushion Type: None — Amount:

LIQUID RECOVERY — API Gravity: — Salinity: — Reverse Circulated: No

Total: 212.00 m — 152.76 m in D.C. and 59.24 m in D.P.

212.00 m of Lightly gas cut rat hole mud

m of

m of Sampler: 500 ml of rat hole mud plus formation gas at 362 psi.

m of

m of

GAS RECOVERY — GAS RATES Measured With: Floor Manifold

TIME (Min)	Orifice (mm)	PRESSURE (psi)	RATE (Mcf/d)	REMARKS
60	3.18	48	20.9	

AUSTRALIAN DST (AUSTRALASIA) PTY LTD.

COMPANY NAME : Lakes Oil NL — TICKET # : 37
WELL NAME North Seaspray # 3 — Province: Victoria — DST # : One
LOCATION : Gippsland Basin — Permit: PEP 137 — FORMATION : Pre Latrobe
TESTED INTERVAL : 1099.72 to 1170.00 m (70.28 m) — TEST DATE : 18-Jun-00

DST FINAL REPORT: TOOLS AND GENERAL DATA - CONVENTIONAL BOTTOM HOLE

TOTAL TOOL TO BOTTOM OF TOP PACKER	14.45 Metres
TOOL IN INTERVAL	17.32 Metres
TOTAL TOOL	31.77 Metres
DRILL COLLAR IN INTERVAL	52.96 Metres
DRILL PIPE IN INTERVAL	0.00 Metres
TOTAL ASSEMBLY	84.73 Metres
DRILL COLLARS ABOVE TOOLS	152.76 Metres
DRILL PIPE ABOVE TOOLS	937.57 Metres
TOTAL DRILL COLLARS, DRILL PIPE AND TOOLS	1175.06 Metres
TOTAL DEPTH	1170.00 Metres
TOTAL STICKUP ABOVE KELLY BUSHING	5.06 Metres

DOWNHOLE PRESSURE RECORDERS

Rec #:	10349	6845	080-522				4517	
Range	2650	2650	5000				2650	
Type	EMP	24 Hr	24 Hr.	EMP	24 Hr	EMP	EMP	24 Hr	24 Hr
Depth:	1086.2	1092.60	1095.90				1108.20	
Position:	Fluid	Fluid	Inside	Inside	Inside	Outside	Outside	Outside	Below

ADDITIONAL WELL, TEST AND PIPE INFORMATION

EVENT TIMES

Time Started In	21:45 Hours
Time on Bottom	07:28 Hours
Time Tool Opened	07:30 Hours
Time Tool Pulled	11:06 Hours
Time Out of Hole	18:30 Hours

PIPE, WEIGHT and MUD DATA

Drill Collar I.D.	54.0 mm
Drill Pipe I.D.	70.2 mm
Drill Collar Length	152.76 m
Drill Pipe Length	937.57 m
Weight Set on Packer	30000 Lbs
Initial String Weight	50000 Lbs
Weight Pulled	50000 Lbs
Tool Weight	8000 Lbs
Unseated String Weight	Lbs
Packer Size	140 mm
Mud Type	KCL/POL
Mud Weight	1102 kg/m3
Mud Viscosity	35 S/L3
Water Loss	7.5 cm3
Filter Cake	1.5 mm
Mud Drop	No bbls
Tool Chased	No m

MISCELLANEOUS DATA

K.B. Elevation	26.00 m
Gr. Elevation	24.00 m
Total Depth	1170.00 m
Hole Size	156 mm
Bottom Choke	19.05 mm
Hole Condition	Good
Formation Temperature	46 C
Amount Fill	0 m
Reverse Circulate	No
Fluid Cushion	
Type	None
Amount	
Type	
Amount	

SAMPLES TAKEN

Bottom Hole Sampler #
Fluid Samples
Gas Samples

Sent to

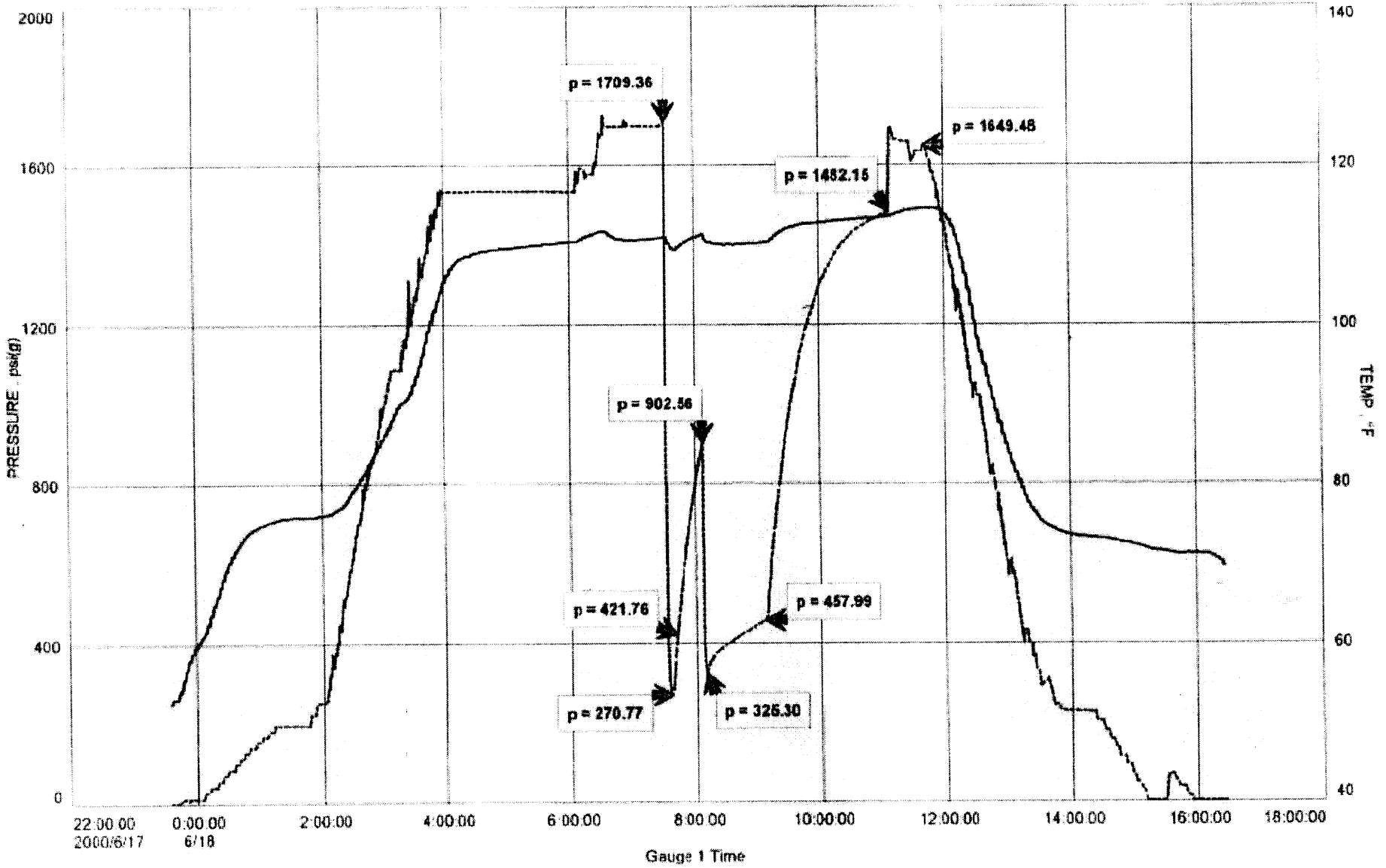
Tester Chad McGuinn
Company Rep. Bill Lawson

P.O. Sub			0.31
P.O. Sub			0.31
X.O. Sub			0.31
Rec		and	0.00
Rec	10349		1.52
Choke Sub			0.00
Shut in Tool			1.67
Hyd Tool and Sampler			2.73
Travel Sub			0.46
Tr Sub and Sampler			0.00
Tr Sub and Sampler			0.00
Squeeze Valve			0.00
Rec	6845	and	1.52
Rec	080-522	and	1.83
Rec			0.00
Jars			0.00
Safety Joint			0.66
Pump			0.00
Screen			0.00
Packer			2.02
Packer			1.11
Tool Above Interval			**14.45 m**
Depth			**1099.72 m**
Stub			0.91
Prod Sub or Port			7.60
Rec		and	0.00
Rec		and	0.00
Rec	4517		1.52
Perforations			6.08
X.O. Sub			0.00
D.Collar			0.00
D. Pipe			0.00
X.O. Sub			0.00
Receiver Sub			0.00
Stub			0.00
Comp. Blank.			0.00
Spacing2			0.00
X.O. Sub			0.31
D. Collar			52.96
D. Pipe			0.00
X.O. Sub			0.31
Perforations			0.00
Bullnose			0.59
Total Depth			**1170.00 m**
Total Interval			**70.28 m**
Total Tool			**31.77 m**

LAKES OIL
INSIDE 1092.6 M
Start Test Date: 2000/06/17
Final Test Date: 2000/06/18

NORTH SEASPRAY # 3
Job Number: DST 1

NORTH SEASPRAY # 3



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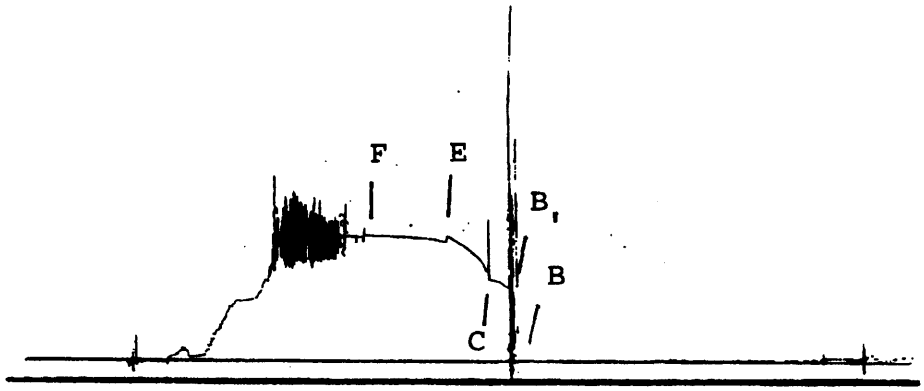
Well Name :Lakes North Seaspray # 3
Location :Gippsland Basin PEP 137

Ticket #:37
DST # :One

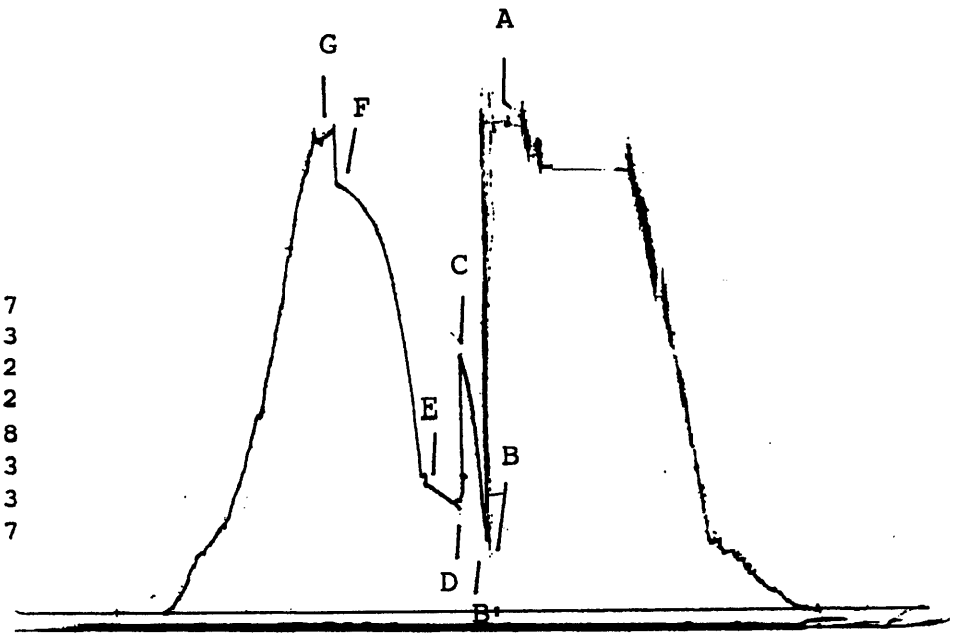
Recorder :10349
Depth :1086.20
Port :Above

A	IN Hydrostatic	:	
B	Preflow	:	0.0
B1	End Preflow	:	261.0
C	First Shutin	:	284.4
D	Second flow	:	
E	End 2nd flow	:	439.3
F	Second Shutin	:	440.6
G	FL Hydrostatic	:	
H	Third flow	:	
I	End third flow	:	
J	Third Shutin	:	



Recorder :6845
Depth :1092.60
Port :Inside

A	IN Hydrostatic	:	1700.7
B	Preflow	:	249.3
B1	End Preflow	:	303.2
C	First Shutin	:	897.2
D	Second flow	:	320.8
E	End 2nd flow	:	433.3
F	Second Shutin	:	1477.3
G	FL Hydrostatic	:	1647.7
H	Third flow	:	
I	End third flow	:	
J	Third Shutin	:	

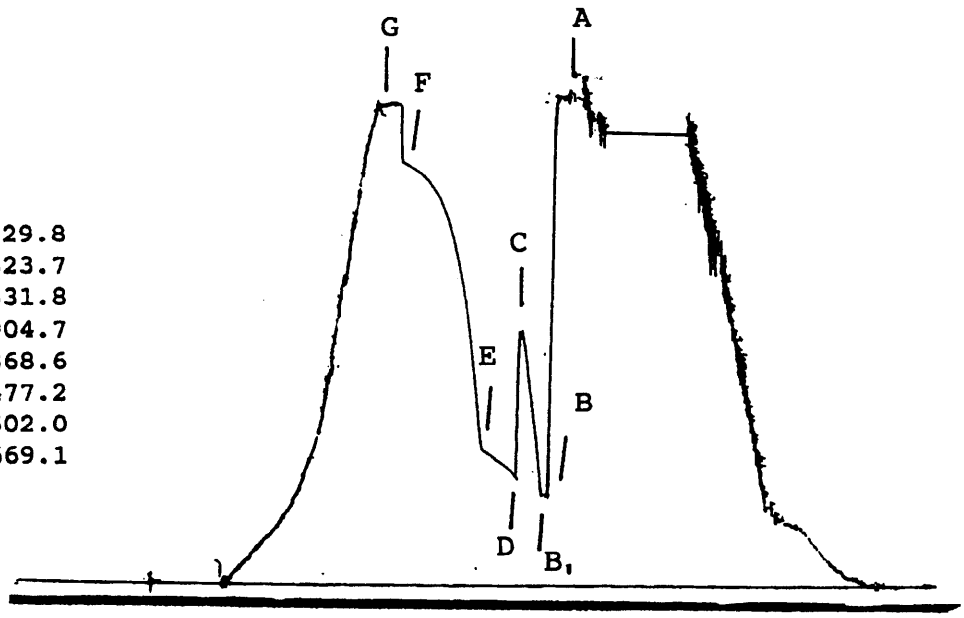


Well Name :Lakes North Seaspray # 3
Location :Gippsland Basin PEP 137

Ticket #:37
DST # :One

Recorder :4517
Depth :1108.20
Port :Outside

A	IN Hydrostatic	:	1729.8
B	Preflow	:	323.7
B1	End Preflow	:	331.8
C	First Shutin	:	904.7
D	Second flow	:	368.6
E	End 2nd flow	:	477.2
F	Second Shutin	:	1502.0
G	FL Hydrostatic	:	1669.1
H	Third flow	:	
I	End third flow	:	
J	Third Shutin	:	



APPENDIX 6

AMDEL GAS ANALYSIS

Method GL-01-01 ASTM D 1945-91 (

Client: LAKES OIL NL Report # LQ9148

Sample: NORTH SEASPRAY-3, FT-2
Gas Ex Flow Prover
35 kPag, @ 14°C
15/06/00, 1930 h, Cyl #476

GAS	MOL %
Nitrogen	0.79
Carbon Dioxide	0.01
Methane	96.82
Ethane	1.99
Propane	0.00
I-Butane	0.08
N-Butane	0.14
I-Pentane	0.02
N-Pentane	0.03
Hexanes	0.05
Heptanes	0.04
Octanes and higher h'cs	0.03
Total	100.00

(0.00 = less than 0.01%)

The above results are calculated on an air and water free basis assuming only the measured
The following parameters are calculated from the above composition at 15°C and 101.325

Average Molecular Weight	16.65
Lower Flammability limit	4.92
Upper Flammability limit	15.02
Ratio of upper to lower	3.05
Wobbe Index	50.67
Compressibility Factor	0.9980

APPENDIX 7

PALYNOLOGICAL ANALYSIS

By

DR A. PARTRIDGE

BIOSTRATA PTY LTD

Palynological analysis of three cuttings samples from North Seaspray-3, onshore Gippsland Basin.

by

Alan D. Partridge

Biostrata Pty Ltd
A.C.N. 053 800 945
A.B.N. 39 053 800 945

Biostrata Report 2000/17

25 September 2000

Palynological analysis of three cuttings samples from North Seaspray–3, onshore Gippsland Basin.

by Alan D. Partridge

INTERPRETATIVE DATA

Summary

Three cuttings were examined from the basal 120 metres in North Seaspray–3 to investigate the transition between the Latrobe and Strzelecki Groups. The shallowest two samples at 1053m and 1098m were overwhelmingly dominated by Middle to Late Eocene spore-pollen from the Lower and Middle *N. asperus* Zone that are interpreted to be caved.

However, the rare presence of the Paleocene zone index species *Lygistepollenites balmei* and *Proteacidites angulatus* in the shallowest sample at 1053m confirm penetration of the Lower *L. balmei* Zone and the *P. angulatus* Subzone. In contrast, the sample at 1098m lacks significant numbers of older species and is therefore interpreted as indeterminate. The presence of a single specimen of *Balmeisporites holodictyus* recorded from this sample may indicate penetration of the Early Cretaceous Strzelecki Group, but the possibility that this specimen is reworked into the Latrobe Group cannot be excluded.

The deepest sample at 1170m taken at the T.D. of the well contains a high diversity Albian age assemblage assigned to the *C. paradoxa* Zone based on the presence of the secondary index species *Perotrilites majus*.

A summary of the identified palynological zones, their ages, and the suggested stratigraphic nomenclature is provide below:

Table 1: Palynological Summary of North Seaspray–3 well.

AGE	STRATIGRAPHY	SPORE-POLLEN ZONES & (Subzones)	DEPTHS KB
PALEOCENE	LATROBE GROUP Barracouta Formation	Lower *L. balmei* (*P. angulatus*)	1053m
LATE ALBIAN	STRZELECKI GROUP	*C. paradoxa*	1170m

T.D. 1170m

Introduction

The study was initiated by Lakes Oil NL to investigate the age of the basal part of the Latrobe Group and to confirm whether the North Seaspray–3 well had penetrated the Strzelecki Group. Cuttings samples were collected and analysed from just below the basal coals in the Latrobe Group, about 10 metres below the lithological pick for the top of the Strzelecki Group, and at the T.D. of the well. Note that no reliable cuttings were available for palynological analysis over the interval 1103m to about 1150m where the hole was air-drilled.

The samples were collected on 28th July and sent to Laola Pty Ltd for palynological processing on the same day. The prepared palynological slides were returned on the 9th August, and a Provisional Report was issued on 10th August.

Details of zone assignments, confidence ratings and key comments are given in Table 2, with basic sample data provided in Table 3, and visual residues yields, preservation and recorded species diversity provided in Table 4. Occurrence and abundance of the spore-pollen and microplankton recorded in the samples are provided in Tables 5 and 6. Author citations for spore-pollen species are mostly sourced from Stover & Partridge (1973) and Dettmann (1963), and for the microplankton species from the indexes of Williams *et al.* (1998) and Fensome *et al.* (1990). Species names followed by "ms" are unpublished manuscript names.

Description of Assemblages

Cuttings at: 1053 metres
Lower *Lygistepollenites balmei* spore-pollen Zone
and *Proteacidites angulatus* Subzone.
Age: Paleocene

Rare, well preserved specimens of *Lygistepollenites balmei* and *Proteacidites angulatus* in the assemblage are interpreted to indicate that the cuttings at 1053m is no younger than the Lower *L. balmei* Zone or the *P. angulatus* Subzone, and this age assignment is supported by the occurrences of this same zone and subzone at similar depths in North Seaspray–1 and Burong–1 (Partridge, 2000).

Notwithstanding the Paleocene age assignment the bulk of the assemblage is overwhelmingly dominated by spores and pollen caved from the younger Eocene Lower and Middle *N. asperus* Zones. This is reflected in the high abundances of both *Nothofagidites* pollen (36%) and *Haloragacidites harrisii* (18%). The high abundance of *Phyllocladidites mawsonii* (18.5%) is also consistent with these younger zones even though this species can also be abundant throughout the *L. balmei* Zone. Principal index species diagnostic of the broad *N. asperus* Zone include *Nothofagidites falcatus*, *N. vansteenisii* and *Tricolpites simatus*. In addition

the presence of *Proteacidites asperopolus* and *P. adenanthoides* (diporate variety) indicate material caved from no younger than the Lower *N. asperus* Zone, while the presence of *Triorites magnificus* and the dinoflagellate *Gippslandica extensa* is clear evidence of material caved from the overlying Middle *N. asperus* Zone. Somewhat surprisingly no species diagnostic of the Oligocene to Miocene Upper *N. asperus* and *P. tuberculatus* Zones were recorded.

Cuttings at: 1098 metres
Caved palynomorphs from Lower *Nothofagidites asperus* Zones
Age: Caved Middle Eocene

The assemblage at 1098m is similar to the overlying cuttings, differing only in a lower concentration of spores and pollen in the organic residue. The assemblage is dominated by the angiosperm pollen *Nothofagidites* (40%) and *Haloragacidites harrisii* (20%), and the gymnosperm pollen *Phyllocladidites mawsonii* (17%). Index species are rare suggesting most of the assemblage is derived from the Lower rather than Middle subdivision of the *N. asperus* Zone.

The sample contains single specimens of the spores *Balmeisporites holodictyus* and *Cyathidites australis*. These two species could indicate that the Strzelecki Group has been penetrated but equally likely they could represent reworking into the basal Latrobe Group. Unfortunately, these older species are simply too rare to have any confidence in assigning an age to the sample.

Cuttings at: 1170 metres
***Coptospora paradoxa* spore-pollen Zone**
Age: Middle to Late Albian

The cuttings at 1170m from the T.D. of the well contains a highly diverse spore-pollen assemblage (43+ species) that is diagnostic of the Strzelecki Group. The assemblage is characterised by abundant bisaccate pollen assigned to *Podocarpidites* (22%) and laevigate spores of *Cyathidites minor* (19%), and also contains the common occurrence of *Microcachryidites antarcticus* (13%), *Ruffordiaspora australiensis* (10%), *Osmundacidites wellmanii* (10%), and *Stereisporites antiquisporites* (6%). Unfortunately, index species in the assemblage are absent or rare. The presence of frequent *Crybelosporites striatus* is diagnostic of the Albian *C. striatus* Zone, but assignment to the younger *C. paradoxa* Zone is preferred based on the presence of the secondary index species *Perotrilites majus*. The other key index species of this younger zone, such as the eponymous *Coptospora paradoxa*, and the distinctive *Pilosisporites grandis*, diagnostic of the Upper *C. paradoxa* Zone could not be found even after extensive searching.

Rare freshwater algal cyst in the sample are not age diagnostic, but are indicative of probably ephemeral lacustrine environments within the Albian succession.

References

DETTMANN, M.E., 1963. Upper Mesozoic microfloras from southeastern Australia. *Proceedings Royal Society of Victoria, vol.77*, pt.1, p.1–148, pls 1–27.

FENSOME, R.A., WILLIAMS, G.L., BARSS, M.S., FREEMAN, J.M. & HILL, J.M., 1990. Acritarchs and fossil Prasinophytes: An index to genera, species and infraspecific taxa. *AASP Contribution Series No. 25*, p.1–771.

PARTRIDGE, A.D., 2000. Palynological analysis of core and cuttings samples between 892.1 and 1499.6 metres in North Seaspray–1 well, onshore Gippsland Basin. *Biostrata Report 2000/10*, p.1–14.

STOVER, L.E. & PARTRIDGE, A.D., 1973. Tertiary and late Cretaceous spores and pollen from the Gippsland Basin, southeastern Australia. *Proceedings Royal Society of Victoria 85*, p.237–286.

WILLIAMS, G.L., LENTIN, J.K. & FENSOME, R.A., 1998. The Lentin and Williams index of fossil dinoflagellates 1998 edition. *American Association of Stratigraphic Palynologists, Contributions Series, no. 34*, p.1–817.

Table 2: Interpretative data from North Seaspray–3 well.

Sample Type	Depth	Spore-Pollen Zone or (Subzone) and AGE	CR*	Comments & Key Species Present
Cuttings	1053m	Lower *L. balmei* Zone (*P. angulatus* Subzone) MID PALEOCENE	D3	LADs of pollen *Lygistepollenites balmei*, *Proteacidites angulatus* and *Tetracolporites verrucosus* confirm zone and subzone in assemblage overwhelmingly dominated (>95%) by caved Middle and Late Eocene spore-pollen from *N. asperus* Zone.
Cuttings	1098m	Indeterminate assemblage		Age indeterminate as assemblage is overwhelmingly dominated (>99%) by caved Middle and Late Eocene spore-pollen from *N. asperus* Zone. Recovery of single specimen of megaspore *Balmeisporites holodictyus* suggests Albian sediments could be penetrated, but possibility of reworking cannot be excluded.
Cuttings	1170m	*C. paradoxa* ALBIAN	D4	FAD of spore *Perotrilites majus* is secondary indicator species in diverse ALBIAN spore-pollen assemblage. Rare algal cysts are indicative of lacustrine ephemeral environments in section.

Spore & Pollen % = abundance expressed as % of SP count only.
FAD & LAD = Last & First Appearance Datums.
*CR = Confidence Ratings

*Confidence Ratings used in STRATDAT database and applied to Table 2.

Alpha codes: Linked to sample		**Numeric codes:** Linked to fossil assemblage		
A	Core	**1**	**Excellent confidence:**	High diversity assemblage recorded with key zone species.
B	Sidewall core	**2**	**Good confidence:**	Moderately diverse assemblage recorded with key zone species.
C	Coal cuttings	**3**	**Fair confidence:**	Low diversity assemblage recorded with key zone species.
D	Ditch cuttings	**4**	**Poor confidence:**	Moderate to high diversity assemblage recorded without key zone species.
E	Junk basket	**5**	**Very low confidence:**	Low diversity assemblage recorded without key zone species.

BASIC DATA

Table 3: Basic sample data from North Seaspray–3 well.

Sample Type	Depth	Lithology	Wt (grams)	VOM (cc)	Org. Yield
Cuttings	1053m	Medium grey sandstone and dark grey shale.	10.0	2.5	0.250
Cuttings	1098m	Dark grey clumped and powder cuttings.	18.0	0.3	0.016
Cuttings	1170m	Medium grey greywacke.	17.3	0.7	0.040

Wt = Weight of sample processed in grams.
VOM = Volume of wet organic residues in cubic centimetres recovered from sample.
Org. Yield = VOM divided by Wt.

Table 4: Basic assemblage data from North Seaspray–3 well.

Sample Type	Depth metres	Visual Yield	Palynomorph Concentration	Preservation	No. SP Species	No. MP Species
Cuttings	1053m	High	High	Good	38+	1 (caved)
Cuttings	1098m	High	Low-moderate	Good	27+	NR
Cuttings	1170m	High	High	Poor-fair	43+	4+

Table 5: Species distribution list for North Seaspray-3 well.

	Sample Type: Depth:	Cuttings 1053m	Cuttings 1098m
SPORE-POLLEN			
Angiosperm Pollen undiff.		1.5%	
Araucariacites australis			X
Artipollis genialis ms		X	
Balmeisporites holodictyus			**0.7%**
Breaupreaidites trigonalis ms		X	
Breaupreaidites verrucosus		X	
Clavifera triplex		X	
Cyathidites australis		Reworked	**X**
Cyathidites splendens		X	
Cyathidites spp.		1.4%	
Dacrycarpites australiensis			X
Ericipites scabratus		X	X
Foveotriletes balteus		X	
Gleicheniidites circinidites		3%	0.7%
Haloragacidites harrisii		18%	20%
Haloragacidites trioratus		X	
Ilexpollenites sp.		X	
Laevigatosporites ovatus		X	
Latrobosporites marginatus		X	
Lygistepollenites balmei		**0.7%**	
Lygistepollenites florinii		3%	4.5%
Malvacipollis robustus ms			X
Malvacipollis subtilis		X	1.4%
Microalatidites paleogenicus			0.7%
Microcachryidites antarcticus		2%	0.7%
Nothofagidites spp. (total abundance)		36%	40%
N. asperus		X	
N. brachyspinulosus		X	
N. deminutus/vansteenisii		12.5%	3%
N. emarcidus/heterus		20%	35%
N. falcatus		X	X
N. flemingii		3%	0.7%
N. goniatus			0.7%
Periporopollenites demarcatus		0.7%	0.7%
Phyllocladidites mawsonii		18.5%	16.5%
Podocarpidites spp.		5%	7%
Proteacidites spp.		2%	1.4%
Proteacidites adenanthoides		X	
Proteacidites angulatus		**X**	
Proteacidites annularis		X	1.4%
Proteacidites asperopolus		0.7%	
Proteacidites crassus		X	
Proteacidites obscurus		X	0.7%
Proteacidites recavus		X	
Proteacidites reticulatus		X	

Table 5: Species distribution list for North Seaspray-3 well (cont.).

	Sample Type: Depth:	Cuttings 1053m	Cuttings 1098m
Santalumidites cainozoicus		X	
Tetracolporites verrucosus		X	
Trichotomosulcites subgranulatus		0.7%	2%
Tricolpites/Tricolporites spp.		3%	2%
Tricolpites simatus		0.7%	
Tricolporites adelaidensis		X	X
Tricolporites moultonii ms		X	
Triorites magnificus		Caved	
Triporopollenites scabratus		X	
MICROPLANKTON			
Gippslandica extensa		Caved	
OTHER PALYNOMORPHS			
Fungal spores/hyphae		4%	X

Table 6: Species distribution list for North Seaspray-3 well.

Sample Type: Depth:	Cuttings 1170m	Sample Type: Depth:	Cuttings 1170m
SPORE-POLLEN		*Microcachryidites antarcticus*	13%
Aequitriradites spinulosus	X	*Minerisporites marginatus*	X
Aequitriradites verrucosus	X	*Neoraistrickia truncata*	0.9%
Aequitriradites n.sp.	X	*Osmundacidites wellmanii*	10.2%
Alisporites grandis	X	*Perotrilites majus*	X
Antulisporites varigranulatus	X	*Podocarpidites* spp.	17.3%
Araucariacites australis	X	*Polycingulatisporites clavus*	X
Baculatisporites spp.	4.6%	*Retitriletes* spp.	1.9%
Camarozonosporites ramosa	X	*Retitriletes austroclavatidites*	X
Ceratosporites equalis	X	*Retitriletes circolumenus*	X
Cicatricosisporites spp.	10.2%	*Retitriletes eminulus*	X
Corollina torosa	0.9%	*Retitriletes facetus*	X
Crybelosporites striatus	X	*Ruffordiaspora australiensis*	X
Cupressacites sp.	1.9%	*Stereisporites antiquisporites*	5%
Cyathidites australis	X	*Trichotomosulcites subgranulatus*	7.4%
Cyathidites minor	19.4%	Triletes undiff.	0.9%
Dictyophyllidites harrisii.	X	*Triporoletes reticulatus*	X
Dictyophyllidites pectinataeformis	X	*Velosporites triquetrus*	X
Foraminisporis asymmetricus	X	**MICROPLANKTON**	
Foraminisporis wonthaggiensis	X	Indeterminate algal cyst	X
Foveotriletes parviretus	X	*Leiosphaera* sp.	X
Gleicheniidites circinidites	X	*Mehlisphaeridium* sp.	X
Laevigatosporites ovatus	X	*Sigmopollis carbonis*	X
Leptolepidites verrucosus	X	**OTHER PALYNOMORPHS**	
Marattisporites scabratus	X	Fungal spores/hyphae	1.8%

PE605523

This is an enclosure indicator page.
The enclosure PE605523 is enclosed within the container PE908900 at this location in this document.

The enclosure PE605523 has the following characteristics:

ITEM_BARCODE	PE605523
CONTAINER_BARCODE	PE908900
NAME	Encl.1 North Seaspray-3 Composite Log
BASIN	GIPPSLAND
ONSHORE?	Y
DATA_TYPE	WELL
DATA_SUB_TYPE	COMPOSITE_LOG
DESCRIPTION	Encl.1 North Seaspray-3 Composite Well Log, Scale 1:500, by Lakes Oil N.L., W1305, PEP137. Enclosure 1 contained within "North Seaspray Well Completion Report" [PE908900].
REMARKS	
DATE_WRITTEN	31-JUL-2000
DATE_PROCESSED	
DATE_RECEIVED	02-NOV-2001
RECEIVED_FROM	Lakes Oil NL
WELL_NAME	North Seaspray-3
CONTRACTOR	
AUTHOR	
ORIGINATOR	Lakes Oil NL
TOP_DEPTH	0
BOTTOM_DEPTH	1170
ROW_CREATED_BY	DN07_SW

(Inserted by DNRE - Vic Govt Mines Dept)

PE605524

This is an enclosure indicator page.
The enclosure PE605524 is enclosed within the container PE908900 at this location in this document.

The enclosure PE605524 has the following characteristics:

ITEM_BARCODE	PE605524
CONTAINER_BARCODE	PE908900
NAME	Encl.2 North Seaspray-3 Mud Log
BASIN	GIPPSLAND
ONSHORE?	Y
DATA_TYPE	WELL
DATA_SUB_TYPE	MUD_LOG
DESCRIPTION	Encl.2 North Seaspray-3 Formation Evaluation Mud Log, Scale 1:200, by Lakes Oil N.L., W1305, PEP137. Enclosure 2 contained within "North Seaspray-3 Well Completion Report" [PE908900].
REMARKS	
DATE_WRITTEN	
DATE_PROCESSED	
DATE_RECEIVED	02-NOV-2001
RECEIVED_FROM	Lakes Oil NL
WELL_NAME	North Seaspray-3
CONTRACTOR	Lakes Oil NL
AUTHOR	
ORIGINATOR	Lakes Oil NL
TOP_DEPTH	0
BOTTOM_DEPTH	1166.5
ROW_CREATED_BY	DN07_SW

(Inserted by DNRE - Vic Govt Mines Dept)