

LAKES OIL N.L.

(A.C.N. 004247214)

As Operator For

PETRO TECH PTY. LTD.

(Permit Holder; A.C.N. 009116429)

WOMBAT-4

APPRAISAL WELL

WELL COMPLETION REPORT

COMPANY VERSION

Author: James Martindale

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1. DOCUMENT CONTROL

Item	Name	Title	Date
Written	James Martindale	Petroleum Geologist	24 March 2010
Revised	James Martindale	Petroleum Geologist	27 April 2010
Approved	Ingrid Campbell	Chief Geologist	27 April 2010
Approved	Tim O'Brien	Operations Manager	27 April 2010

2. SUMMARY

The Wombat-4 well is located in Petroleum Retention Lease 2 (PRL2) in the onshore Gippsland Basin, which is situated in southeastern Victoria, Australia. The well is situated approximately 200 km southeast from the city of Melbourne and approximately 30 km south-southeast from the city of Sale. The well was drilled to assess the potential of the tight gas reservoirs in the Early Cretaceous Strzelecki Group, particularly at the top of the unit, to produce gas at commercially viable rates. This would also further delineate the Wombat Gas Field. Furthermore, a secondary purpose was to evaluate the hydrocarbon potential of the Latrobe Group.

The drilling of the well commenced on 17 October 2009 with the Hunt Energy Rig 2 and its total depth (TD) of 2500 mRT was reached on 11 November 2009, which comprises 26 days. A 311 mm (12-1/2 in) hole was initially drilled from 16 to 302 mRT with 244 mm (9-5/8 in) surface casing set and cemented in the hole. From 302 to 1376 mRT a 216 mm (8-1/2 in) hole was drilled and 178 mm (7 in) intermediate casing was set and cemented in the hole. Finally, from 1376 to 2500 mRT a 156 mm (6-1/8 in) hole was drilled with 114 mm (4-1/2 in) production casing set and cemented in the hole to 2479 mRT.

Logging suites 1 and 3 were run in the Latrobe Group whereas the remaining five were largely run in the Strzelecki Group. Suite 1 comprised the HALS-BHC-PEX combo (299-1354 mRT) whereas Suite 2 was the HRLA-PEX-HNGS combo (1375-2487 mRT). Suite 3 was the DCBL-VDL combo (793-1395 mRT), Suite 4 comprised the FMI-SS combo (1388-2469 mRT), and Suite 5 was the MSCT (1383-2460 mRT). Suite 6 comprised the CBL-VDL-GR combo (686-2451 mRT) and Suite 7 involved the VSP survey (26-2450 mRT). All logging was performed by Schlumberger Ltd.

A total of 8 DSTs were conducted in the Strzelecki Group, albeit only four were successful. The successful tests comprise DST-1 (1383-1478 mRT), DST-6 (1828-1838 mRT), DST-7 (1381-1407 mRT), and DST-8 (1451-1477 mRT). A total of 5 CHDSTs were conducted in the Latrobe Group, and include CHDST-1, CHDST-2, and CHDST-3 (all 1169-1176 mRT), as well as CHDST-4 (1121-1128 mRT) and CHDST-5 (1107-1114 mRT). The first two CHDSTs were plugged with sand and required a third test. All tests were performed by Farley Riggs Ltd.

The Strzelecki Group contained 10 intervals with gas shows. The uppermost 244 m of the group is generally gas saturated and the shows were divided into 4 intervals, which comprise 1376-1378 mRT (TG: 21 units), 1378-1478 mRT (TG: 10-121 units), 1478-1551 mRT (TG: 25-55 units), and 1551-1600 MRT (TG: 20-155 units). The other 6 intervals are associated with fractures or faults, or both, and include 1832-1835 mRT (TG: 379 units), 1943-1945 mRT (TG: 95 units), 1971-1972 mRT (120 units), 2199-2200 mRT (TG: 100 units), 2223-2224 mRT (TG: 81 units), and 2326-2327 mRT (80 units). The rig was released and the well secured with a 10,000 psi rated and 4-1/16 in Christmas tree on 1 December 2009. Wombat-4 is considered a tight gas discovery well.

3. WELL HISTORY

3.1 General Data

WELL ID:	Wombat-4
PERMIT:	PRL2
BASIN:	Onshore Gippsland Basin of Victoria, Australia
INTERESTS:	Petro Tech Pty. Ltd. (100%)
OPERATOR	Lakes Oil N.L.
LOCATION:	Latitude: -38° 22' 10.60" Longitude: 147° 7' 36.21" Easting: 511 070.00 m Northing: 5 753 167.03 m Datum: GDA94, MGA Zone 55
ELEVATION:	Ground Level: 26.75 AHD
DRILLING COMMENCED:	17 October 2009
DRILLING COMPLETED:	11 November 2009
DRILLRIG RELEASED:	1 December 2009
DRILLING DATUM:	Rotary Table (RT): 30.4 AHD
TOTAL DEPTH:	2500 mRT (driller) 2493.5 mRT (logger)
MAXIMUM DEVIATION:	37.5° (340° azimuth)
CASING DEPTH:	114 mm (4-1/2 in) to 2479 mRT
DRILLING CONTRACTOR:	Hunt Energy and Mineral Co. Australia Pty. Ltd.
DRILLRIG:	Hunt Rig 2
COMPANY MAN:	Lou DeVattimo
WELLSITE GEOLOGIST:	Dave Horner
OPERATIONS MANAGER:	Tim O'Brien
WELL OBJECTIVE:	The primary purpose of Wombat-4 was to evaluate the potential of tight gas sandstone reservoirs in the Early Cretaceous Strzelecki Group to produce gas at commercially viable rates.
STATUS:	Wombat-4 was completed with 114 mm (4-1/2 in) production casing set and cemented to 2479 mRT and a 10,000 psi rated and 4-1/16 in Christmas tree was installed. The well was then suspended pending a future fracture stimulation treatment.

3.2 Introduction

The Wombat-4 wellsite is located approximately 200 km southeast from the city of Melbourne and approximately 30 km south-southeast from the city of Sale in eastern Victoria, Australia. The well is the first to be drilled in the onshore Gippsland Basin based on a 3D seismic survey. Access to the wellsite is by farm tracks from Owens Lane, which in turn is located off Seaspray Road (Fig. 1). The well is situated in Petroleum Retention Lease 2 (PRL2), which was granted to Petro Tech Pty. Ltd. (Petro Tech) on 27 February 2007 for a period of ten years. The lease encompasses an area of 747 km². Petro Tech is a wholly owned subsidiary of Lakes Oil N.L.

3.3 Program Objective

The main objectives of the well were the following:

- 1) Test the updip gas potential (to at least 2000 mRT) of a Strzelecki Group paleotopographical high, which was identified from the Wombat 3D seismic survey, southwest of the Wombat-2 well
- 2) Evaluate the nature and distribution of tight gas sandstone reservoirs in the Strzelecki Group and test their potential to produce gas at commercially viable rates
- 3) Obtain high-quality logs, particularly FMI, of the Strzelecki Group to assess the nature and distribution of lithostratigraphy and fractures in the unit to assist in future fracture stimulation treatments
- 4) Obtain sidewall cores at regular intervals through the Strzelecki Group to further constrain its petrology, particularly its reservoir and seal characteristics, and its rock mechanics
- 5) Test the Latrobe Group, specifically a mapped intra-Latrobe closure, for hydrocarbons and evaluate its production capabilities



Figure 1. Location of the Wombat-4 well in the onshore Gippsland Basin of Victoria, Australia.

4. DRILLING

4.1 Drilling Summary

The Wombat-4 well was spudded on 17 October 2009 with a 311 mm (12-1/2 in) drillhole using the Hunt Rig 2. The hole was drilled from 16 to 302 mRT, and 244 mm (9-5/8 in) surface casing was then set and cemented in the hole. From 300 to 1376 mRT a 216 mm (8-1/2 in) hole was drilled and then logged between 299 and 1354 mRT with a HALS-BHC-PEX suite (GR to surface) before 178 mm (7 in) intermediate casing was set and cemented in the hole. From 1376 to 1478 mRT a 156 mm (6-1/8 in) hole was drilled and DST-1 was conducted between 1383 and 1478 mRT before the hole was drilled to its total depth (TD) of 2500 mRT. With the completion of drilling the openhole section was logged with both a HRLA-PEX-HNGS and FMI-SS suite (1375-2487 and 1388-2469 mRT, respectively) and the intermediate casing was logged with a DCBL-VDL suite (793-1395 mRT). A MSCT was then run and 33 cores were cut from the Strzelecki Group between 1383 and 2460 mRT. With the completion of openhole logging DSTs 2-8 (2-6: 1828-1838 mRT; 7: 1381-1407 mRT; and 8: 1451-1477 mRT) and CHDSTs 1-5 (1-3: 1169-1176 mRT; 4: 1121-1128 mRT; and 5: 1107-1114 mRT) were conducted, albeit DSTs 2-5 failed and CHDSTs 1-2 were plugged by sand. Afterwards, 114 mm (4-1/2 in) production casing was set and cemented in the hole to 2479 mRT and then logged between 686 and 2451 mRT with a CBL-VDL-GR suite. A VSP survey was then shot in the well with measurements from 2450 to 26 mRT. Finally, a 10,000 psi rated and 4-1/16 in Christmas tree was installed and the well suspended before the rig was released on 1 December 2009.

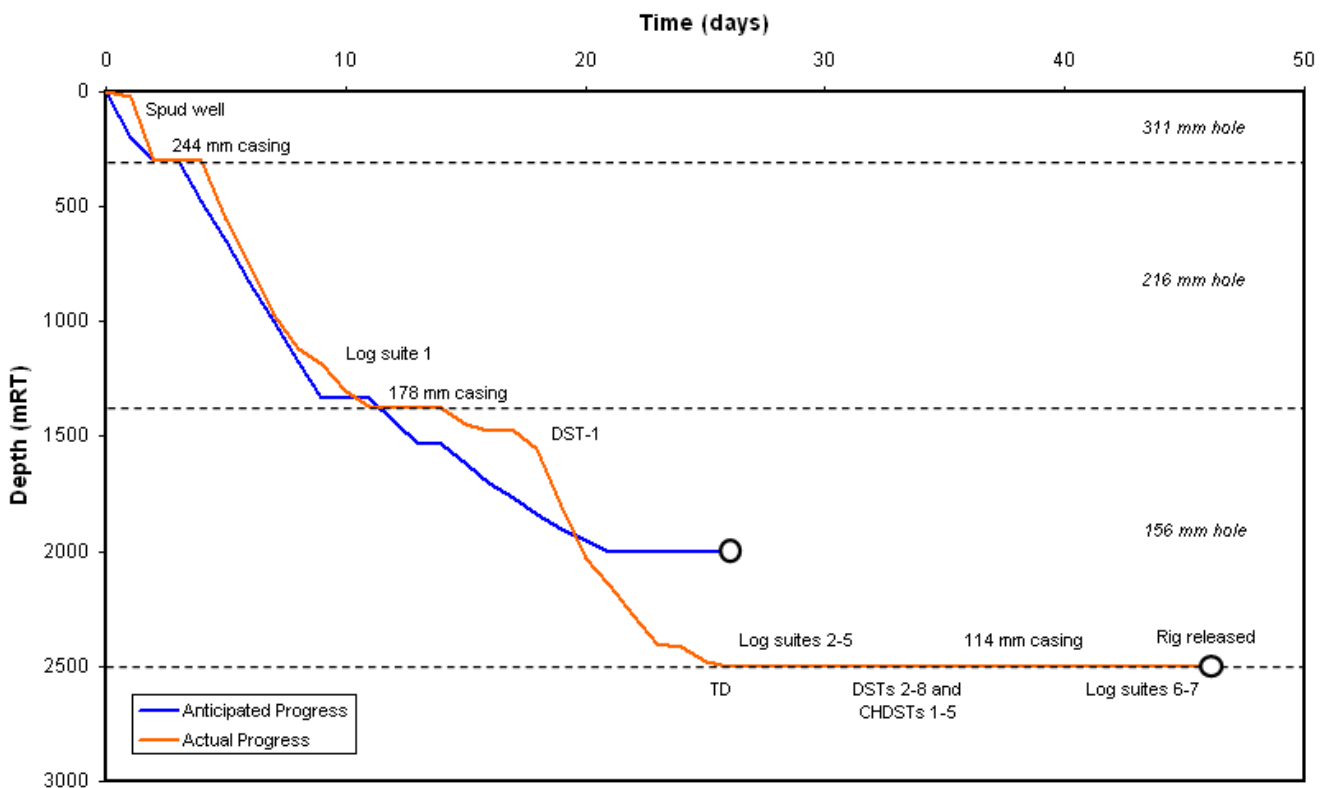


Figure 2. Time-depth graph.

4.2 Drillhole Data

The following tables (1 to 3) encompass the drillhole and casing specifications for Wombat-4.

Table 1. Drillhole diameters.

Hole Size (mm)	Hole Size (in)	Depth Interval (mRT)
500	19-11/16	GL-16
311	12-1/4	16-302
216	8-1/2	302-1376
156	6-1/8	1376-2500

Table 2. Casing data.

Type	Conductor	Casing	Casing	Casing
Size (mm)	340	244	178	114
Size (in)	13.4	9.6	7	4.5
Weight (ppf)	54.5	36	26	15.1 and 13.5
Grade	K55	K55	K55	P110
Connection	BTC	BTC	BTC	BTC
Joints	1	25	117	41 and 169
Shoe Depth (mRT)	12	299	1376	2474
Cement (bbl)	-	93	114	175
Class	Rapid Set	A	A	A
Weight (ppg)	-	15.6	13.5 and 15.6	13.5 and 15.6

Table 3. Deviation surveys.

Depth (mRT)	Deviation (°)	Azimuth (°)
96	0.5	-
239	1.0	-
295	1.5	-
458	2.0	25
687	2.0	86
917	3.0	50
1079	3.0	88
1354	1.5	60
1768	4.0	340
2090	12.0	340
2237	18.5	340

Note: The first three surveys did not measure azimuth whereas the remaining surveys measured azimuth with a magnetic single shot instrument.

4.3 Drilling Fluid

The drilling fluid program utilized three different mud systems over four intervals, which are summarized in Table 4. The main water supply for drilling was groundwater supplied by the landowner and extracted by water bores from the Giffard Aquifer under license. The drill mud properties at selected intervals are outlined in Table 5.

Table 4. Drilling mud systems.

Mud System	Depth Interval (mRT)
Freshwater gel / starch	0-302
KCl / PHPA	302-1378
Residril / KCl / PHPA	1378-1478
KCl / PHPA	1478-2500

Table 5. Drilling mud properties.

Depth (mRT)	Density (ppg)	Density (SG)	Funnel Viscosity (s)	Plastic Viscosity (cPa)	Yield Point (lbs/100ft ²)	PV / YP	Gel Strength (lbs/100ft ²)	Filtrate (cm ³ /30 min)
302	9.5	1.14	54	16	21	0.76	7 / 9	-
557	8.9	1.07	43	11	19	0.58	4 / 6	11.1
747	9.1	1.09	42	9	21	0.43	3 / 5	10.6
960	9.7	1.16	41	10	19	0.53	3 / 5	9.8
1120	10.1	1.21	47	16	23	0.70	4 / 6	8
1184	10.1	1.21	48	16	24	0.67	4 / 6	8
1303	10.4	1.24	54	20	34	0.59	7 / 10	7
1366	10.6	1.27	50	18	35	0.51	7 / 10	7
1378	10.6	1.27	54	20	38	0.53	8 / 11	7
1450	10.0	1.2	42	10	22	0.45	4 / 7	-
1478	9.8	1.18	44	15	25	0.60	4 / 6	-
1551	9.7	1.16	39	10	17	0.59	3 / 4	9
1805	9.9	1.19	44	14	21	0.67	2 / 4	8
2029	9.8	1.18	39	13	14	0.93	2 / 4	11.5
2144	9.4	1.13	34	7	14	0.50	3 / 7	25.6
2278	9.6	1.15	39	10	21	0.48	5 / 8	15.2
2400	9.6	1.15	36	8	17	0.47	4 / 7	22.8
2413	9.7	1.16	37	11	9	1.22	2 / 5	20.1
2477	9.7	1.16	36	8	11	0.73	3 / 6	27.6
2500	9.9	1.19	36	8	9	0.89	5 / 7	29.7

Note: 1) Gel Strength values are for 10 s and 10 min sitting times, 2) Filtrate is by API standard.

Table 5 (continued). Drilling mud properties.

Depth (mRT)	Cake Thickness (in)	Solids (vol. %)	Sand (vol. %)	pH	Methylene Blue Capacity (vol. %)	Total Hardness as Calcium (mg/L)	Chlorides (mg/L)	K+ (mg/L)	KCl (wt. %)
302	-	8.2	0.8	10.0	23	120	1100	-	-
557	1/32	3	tr	9.5	4	200	17000	11550	2.2
747	1/32	3.9	tr	9.5	5	360	19000	12075	2.3
960	1/32	6.9	0.25	9.0	10.5	600	21000	11550	2.2
1120	1/32	8.8	0.35	8.5	10.5	440	20000	11550	2.2
1184	1/32	8.3	0.3	8.5	10.5	460	20000	11550	2.2
1303	1/16	10	0.4	8.5	15	400	18000	11550	2.2
1366	1/16	11.4	0.7	8.3	15	400	18000	11550	2.2
1378	1/16	11.6	0.7	8.5	15	400	18000	11550	2.2
1450	1-3/8	9.5	0.4	9.5	11.5	400	9450	16800	1.8
1478	1-7/64	7.7	0.4	9.5	12	400	17800	10500	2
1551	1/32	7.3	0.4	9.5	11	260	12000	9450	1.8
1805	1/32	8.7	0.45	9.5	14	300	10000	8400	1.6
2029	1/32	8.3	0.45	8.5	17	280	10000	8400	1.6
2144	1/32	5.6	0.4	8.3	16	400	7000	6300	1.2
2278	1/16	7.2	0.4	8.0	15.5	400	6500	5250	1
2400	3/32	7.3	0.4	8.0	16	400	6200	5250	1
2413	1/8	7.4	0.4	8.0	17	400	20000	11550	2.2
2477	1/8	7.9	0.4	8.0	17.5	400	19000	11025	2.1
2500	1/8	9.3	0.64	8.0	18	760	17000	10500	2

Note: 1) Cake Thickness is by API standard, 2) tr = trace

5. SAMPLING

5.1 Cuttings

Cuttings were sampled from the mud shakers systematically throughout the entire drillhole section, and are summarized in Table 6. The cuttings samples were washed and dried and then split into three sets. Two of these sets comprise plastic bags which contain 100 g of sample, whereas the other set were Samplex trays which contain 50 g of sample. One set of the 100 g samples were supplied to the Department of Primary Industries whereas the other sets were retained by Petro Tech Pty. Ltd.

Table 6. Sample intervals.

Depth Interval (mRT)	Sample Interval (m)
16-1200	5
1200-2500	3

5.2 Coring

A total of 33 sidewall cores were cut from the Strzelecki Group between 1383 and 2460 mRT. The sampling was conducted by the Schlumberger Mechanical Sidewall Coring Tool (MSCT), and the corresponding depths are outlined in Table 7.

Table 7. Sidewall cores.

Core No.	Depth (mRT)	Length (mm)	Recovery (%)	Rock Type	Comments
1	1975	46	92	Sandstone	F-M grained
2	1946	46	92	Sandstone	F-M grained
3	1888	48	96	Claystone	
4	1849	48	96	Sandstone	F-M grained
5	1833	44	88	Sandstone	F-M grained, fractures w/ calcite and goethite
6	1804	49	98	Claystone	
7	1762	48	96	Sandstone	M-grained, fractures w/ calcite
8	1729	48	96	Claystone	Silt-rich
9	1636	43	86	Claystone	Silt-rich
10	1632	47	94	Sandstone	M-grained
11	1560	47	94	Sandstone	M-grained
12	1500	39	78	Claystone	
13	1467	16	32	Sandstone	M-grained, fractured
14	1467.7	49	98	Sandstone	F-grained
15	1436	50	100	Sandstone	F-M grained
16	1424	5	10	Sandstone	F-M grained, fractured
17	1426.8	45	90	Sandstone	F-M grained
18	1406	27	54	Sandstone	VF-F grained
19	1406.5	33	66	Sandstone	F-grained
20	1405.5	38	76	Sandstone	VF-grained, fractured
21	1383	20	40	Sandstone	M-grained, oil fluorescence (5%)
22	1384.9	45	90	Sandstone	M-grained
23	2460	45	90	Claystone	sand and silt-rich
24	2445	45	90	Sandstone	F-M grained
25	2371	45	90	Claystone	sand and silt-rich
26	2363	42	84	Sandstone	F-grained
27	2302	44	88	Sandstone	F-M grained, fractured
28	2227	33	66	Claystone	carbonaceous, fractures w/coal
29	2209	46	92	Sandstone	F-M grained, abundant deformed coal detritus
30	2190	45	90	Sandstone	F-M grained
31	2149	40	80	Claystone	carbonaceous, fractured
32	2075	47	94	Sandstone	F-grained
33	2040	46	92	Sandstone	F-grained

Note: The first two core runs were a surface check at 10.6 mRT and a motor check at 1006.3 mRT, respectively, and are not included here.

7. LOGGING AND TESTING

7.1 Wireline Logs

A total of 7 wireline log suites were run downhole by Schlumberger Ltd. Logging suites 1 and 3 were in the Latrobe Group whereas the remaining five were largely in the Strzelecki Group, and are summarized in Table 10.

Table 10. Wireline logs.

Suite No.	Tool String	Depth Interval (mRT)	Date	Comments
1	HALS-BHC-PEX	299-1354	28-Oct-09	Caliper, Gamma Ray, Spontaneous Potential, Resistivity, Neutron Porosity, Density
2	HRLA-PEX-HNGS	1375-2487	11-Nov-09	Caliper, Gamma Ray, Resistivity, Neutron Porosity, Density
3	DCBL-VDL	793-1395	11-Nov-09	Gamma Ray, Cement Bond Log
4	FMI-SS	1388-2469	11-Nov-09	Caliper, Gamma Ray, Formation Micro-Imager
5	MSCT	1383-2460	14-Nov-09	Mechanical Sidewall Coring Tool
6	CBL-VDL-GR	686-2451	30-Nov-09	Gamma Ray, Cement Bond Log
7	VSP	26-2450	01-Dec-09	Vertical Seismic Profile

7.2 Drill Stem Tests

A total of 8 DSTs and 5 CHDSTs were conducted in the Strzelecki Group and Latrobe Group, respectively, by Farley Riggs Ltd. All successful DSTs flowed gas to surface and all tests are outlined in Table 11. Gas was analyzed from DST-1 (C₁: 83.2%; C₂: 3.2%; C₃: 1.8%; C₄: 1.1%; C₅: 0.5%; and C₆₊: 1.3%), DST-6 (C₁: 93.2%; C₂: 2.5%; C₃: 0.6%; C₄: 0.2%; C₅: 0.1%; and C₆₊: 0.5%), and DST-8 (C₁: 81.3%; C₂: 2.6%; C₃: 1.1%; C₄: 0.8%; C₅: 0.5%; and C₆₊: 1.5%). Carbon dioxide was less than 1% in these samples, which indicates that the gas is 'clean'.

Table 11. Drill stem tests.

DST No.	Depth Interval (mRT)	Date	Comments
DST-1	1383-1478	01-Nov-09	
DST-2	1828-1838	15-Nov-09	Failed test
DST-3	1828-1838	16-Nov-09	Failed test
DST-4	1828-1838	16-Nov-09	Failed test
DST-5	1828-1838	17-Nov-09	Failed test
DST-6	1828-1838	18-Nov-09	
DST-7	1381-1407	20-Nov-09	
DST-8	1451-1477	20-Nov-09	
CHDST-1	1169-1176	21-Nov-09	Plugged with sand
CHDST-2	1169-1176	22-Nov-09	Plugged with sand
CHDST-3	1169-1176	23-Nov-09	
CHDST-4	1121-1128	23-Nov-09	
CHDST-5	1107-1114	24-Nov-09	

Note: DST-7 comprised two runs which included a failed first run and a successful second run.

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CUTTINGS DESCRIPTIONS

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