Lakes Oil N.L.

YORK-1

COMPOSITE WELL LOG 1:500

PERMIT:	PEP-158 VIC.	REGION:	YARRUM - VICTORIA	BASIN	GIPPSLAND

LOCATION:		TOTAL DEPTH:		DATUM:	
Latitude	38°34'57.40"S	Driller:	1200.0m	Permanent Datum:	MSL
Longitude	146°51'36.96"E	Logger (extrap):	1196.0m	Logs Datum:	K.B.
AMG Ref.:	487 829.35E	DATE:		Drilling Datum:	K.B.
	5 729 515.75N	Spudded:	01/03/2002	Elevation: K.B.	13.2m.
Seismic		Rig Released:	16/03/2002	G.L.	11.2m.
	VP 318	STATUS:	Plugged & Abandoned		
	Line LGY 00-04				

Drilling Co.:	Sides Engineering	Wireline Logs:	Schlumberger	Interpretation:	D.A. Short
Rig:	Cardwell HL-195	Mudlogging:	Geoservices	Geologist:	J.A. Mitchell
				Last Modified	June 2002

Legend: Sandstone, Siltstone, Claystone, Shale, Coal, Dolomite, Conglomerate, Sandy Limestone, Limestone, Tuff / volcanics, Metamorphics, Granite, Calcareous, Lithic, Carbonaceous, Pyrite, Glauconite, Fossils, Chert, Oolites, Fluorescence, Gas Show, Gas Recovery, Oil Show, Oil Recovery, SWC Recovered, SWC Not Recovered, Palynological Stage, Casing Shoe, RFT Point, Cement Plug, Drill Stem Test, Perforations, Core

0.00 GR 200.00 | 0.00 SP 200.00 | 15.00 HCAL 5.00 | 0 ROP 20
1 RXOZ 1k | 1 HLLS 1k | 1 HLLD 1k
140.00 DT 40.00 | 0 GAS 10
1.85 RHOZ 2.85 | 0.45 TNPH -0.15 | -0.50 HDRA 0.50

STRATIGRAPHY

ALLUVIUM (Recent) 2.0 +11.2

JEMMY'S POINT FM. (Pliocene) 10.0 +3.2

10.0 - 49.0m SANDSTONE w/ mn i/bed CLAYSTONE.
SANDSTONE, lt gy, cl, trans, milky & yellow to orange brn FeO stained grns, fine to predmed to v cse, occ gran grns, mod to p std, sub ang to pred sub rnd to rnd, loose, tr clay mtx ip, good to v good vis por.
CLAYSTONE, med to dk brn, soft to firm, amorphous, bky ip, tr carb specks, disp ip.

49.0 - 70.0m SANDSTONE w/ mn i/bed LIMESTONE & CLAYSTONE.
SANDSTONE, cl & trans, wh, occ FeO staining, fine to v cse, tr gran grns, sub ang to pred sub rnd to rnd, mod to p std, loose, mn w/ hard calcite cmt, abund foss frags – pred bivalve, occ gastropod & foram, occ lithics, tr mica, generally good vis por.
LIMESTONE, calcarenite, olive gy, com qtz inc, com foss frags, med hard to hard, poor vis por.
CLAYSTONE, as above – slightly calc, com qtz inc & Limestone frags.

70.0 - 130.0m SANDSTONE w/ mn i/bed CLAYSTONE & COAL.
SANDSTONE, lt gy, cl, trans & milky qtz, fine to v cse, occ gran grns, mod to p std, sub ang to pred sub rnd to rnd, occ frosted & polished grns, tr clay mtx ip, tr to rr shell frags (bivalve, gastropod, foram), occ to com dk gy to brn lithics, tr coaly frags (pyritic), tr pyrite & mica, loose, good to v good vis por.
CLAYSTONE, med gy brn, soft, amorphous, disp, slightly calc, occ qtz inc.
COAL, dk brn to blk, dull, lignitic, soft to firm, com pyrite.

130.0 - 184.0m SANDSTONE w/ mn i/bed CLAYSTONE & COAL.
SANDSTONE, lt gy to lt gy brn, cl, trans & milky qtz, med to v cse, becoming cse to v cse w/ depth, p std, sub rnd to rnd, occ frosted & polished grns, occ clay mtx (washing out of sample), tr to rr shell frags (bivalve, gastropod, foram), occ to com dk gy to brn lithics, tr coaly frags (pyritic), tr mica, loose, good to excellent vis por.
CLAYSTONE, med brn, soft, amorphous, disp, slightly calc, carb ip.
COAL, dk brn to blk, dull, earthy, soft to firm, sub bky, com pyrite to abund pyrite.

TAMBO RIVER FM. (Miocene) 184.0 -170.8

184.0 - 210.0m SANDSTONE w/ i/bed MARL & LIMESTONE.
SANDSTONE, lt gy to lt brn, cl, trans & milky qtz, cse to v cse, tr gran & pebble grns, mod std, sub rnd to rnd, tr coal frags, occ to abund foss frags bryozoa, bivalve, gastropod), tr to occ py loose, good vis por.
MARL, lt to med brn, soft to firm, sub bky, com shell frags, com coal inc, tr to occ qtz.
LIMESTONE, calcarenite, lt to med gy, mod hard, occ shell frags, grades to Marl ip.

GIPPSLAND LS. (Miocene / Oligocene) 210.0 -196.8

210.0 - 267.0m LIMESTONE w/ mn MARL.
LIMESTONE, calcarenite, lt brn to yellow brn, firm to mod hard, occ to locally abund shell frags (bryozoa, gastropod, crinoid, bivalve), med gy, tr to occ glauc & carb specks, mn clay mtx ip.
MARL, lt to med brn, soft to firm, disp ip, com Limestone inc.

267.0 - 380.0m LIMESTONE occ grading to & i/bed w/ MARL.
LIMESTONE, calcarenite to calcisiltite, lt to med brn, firm to mod hard, occ to com shell frags (bryozoa, foram, crinoid), occ glauc & carb specks, mn micro cryst frags, occ clay mtx ip & grades to Marl.
MARL, lt to med brn, soft to firm, amorphous, disp ip, mn Limestone & shell inc.

380.0 - 460.0m LIMESTONE i/bed w/ MARL.
LIMESTONE, calcarenite to calcisiltite, lt to med brn, firm to mod hard, tr to occ shell frags (bryozoa, crinoid), occ glauc, argillaceous ip & grades to Marl.
MARL, med gy to gy brn, soft, sticky, disp & washes out of sample, com Limestone frags.

460.0 - 468.5mLIMESTONE w/ mn i/bed MARL & SHALE.
LIMESTONE, calcarenite to calcisiltite, micritic ip, v lt gy to off wh, tr glauc, tr to occ shell frags, soft to firm.
MARL, (only observed between 460.0-461.0m)med to dk brn, mod hard, sub bky, commed to v cse multicoloured (clear, trans, milky, orange, lt green) rnded qtz inc, argillaceous & grades to calc Claystone.
SHALE, (only observed between 460.0-461.0m) v dk brn, hard to v hard, sub bky to sub fiss, brittle w/ conchoidal fracture ip. Shale has dull yellow fluorescence, no cut, no residue.

LAKES ENTRANCE FM. (Oligocene) 468.5 -455.3

468.5 - 508.0m MARL w/ occ i/bed LIMESTONE.
MARL, brn to gy brn, soft to firm, amorphous, grades to calc Claystone, tr glauc, tr pyrite below 498m, tr shell & Limestone frags.
LIMESTONE, lt gy to lt brn, micro cryst to micritic ip, calcarenite ip, firm to mod hard, tr glauc, tr shell frags (bryozoa, foram).

508.0 - 522.7m MARL w/ mn LIMESTONE.
MARL, green gy, soft to firm, amor, tr to occ Lst frags, tr to rr shell frags, tr cse glauc grns, tr to occ nod pyrite (inc w/ depth).
LIMESTONE, lt brn to cream, micro cryst, micritic ip, tr glauc, mod hard, tr shell frags.

522.7 - 529.9mMARL, Green gy to gy, soft to firm, grades to Calcisiltite ip, tr pyrite, occ to com glauc (increasing w/ depth), occ to locally com shell frags (bryozoa, bivalve, foram), tr pyrite, occ to com qtz inc.

529.9 - 532.0m glauc SANDSTONE, green, fine to med, occ cse grns, sub rnd to rnd, micritic calcite cmt, abund glauc (20%), com diss & nod py, firm, v poor vis por. Below 531.1m, Sandstone becomes dk gy to gy blk, only slightly calc & has com v py brn clay mtx.

LATROBE GROUP (E. Oligocene / Eocene) 532.0 -518.8

532.0 - 638.0m COAL w/ occ i/bed SANDSTONE & CLAYSTONE.
COAL, blk, v dk brn, dull earthy, lignitic, firm, sub bky to sub fiss.
SANDSTONE, lt gy to pale brn, cl & trans qtz, med to v cse, occ granule, sub ang to rnd, p std, tr wh & brn disp clay mtx, loose, v good vis por.
CLAYSTONE, med to dk brn, soft, disp, amorphous, comly carb.

638.0 – 682.5mSANDSTONE w/ tr i/bed COAL.
SANDSTONE, lt gy to pale brn, cl & trans qtz, fine to granule, occ pebbles, sub ang to sub rnd, occ ang grns, p std, tr lt brn & wh disp clay mtx, loose, excellent vis por.
COAL, as above.

682.5 - 705.0m i/bed SANDSTONE, COAL & tr CLAYSTONE.
SANDSTONE, lt gy to pale brn, cl & trans qtz, med to v cse, tr granule & pebbles, ang to sub rnd, p std, tr lt brn & wh disp clay mtx, tr pyrite, loose, v good vis por.
COAL, as above.
CLAYSTONE, brn, soft, disp, amorphous.

705.0 - 769.0m SANDSTONE w/ mn i/bed CLAYSTONE.
SANDSTONE, lt gy to pale brn, cl & trans qtz, fine to v cse, tr granule, ang to sub rnd, p std, tr lt brn & wh disp clay mtx, tr pyrite & mica, tr coal frags, tr lithics, loose, v good vis por.
CLAYSTONE, brn, soft, disp, amorphous.

769.0 - 843.0m SANDSTONE w/ occ i/bed CLAYSTONE.
SANDSTONE w/ mn i/bed CLAYSTONE.
SANDSTONE, lt gy to pale brn, cl & trans qtz, fine to v cse, tr granule, ang to sub rnd, p std, tr lt brn & wh disp clay mtx, tr pyrite & mica, tr coal frags, tr lithics, loose, v good vis por.
CLAYSTONE, brn, soft, disp, amorphous.

843.0 - 884.0m i/bed SANDSTONE & CLAYSTONE.
SANDSTONE, lt gy to lt gy brn, cl & trans qtz, fine to v cse, occ granule, ang to sub rnd, mod to p std, occ lt brn & wh disp clay mtx, occ lt to med gy v fine to fine grained mod hard aggregates as mtx, tr pyrite, tr lithics, occ qtz overgrowths, loose, generally good vis por.
CLAYSTONE, med to dk brn, mn wh, soft, disp, amorphous.

Un-named BASALT (Eocene) 884.0 -870.8

884.0 - 907.0m .CLAYSTONE w/ mn i/bed SANDSTONE (caved?)
CLAYSTONE, red brn, lt to med gy, gy red, oxidised, highly weathered Basalt, soft, amorphous, sticky.
SANDSTONE, as described above – fine to v cse.

907.0 – 964.5m BASALT highly weathered to CLAYSTONE ips.
BASALT, brn blk, green blk, dk gy green, aphanatic, com phenocrysts of green & mn yellow olivine, occ to locally com cryst calcite, mod hard. comly highly weathered to
CLAYSTONE, red brn to orange brn, pinkish to gy brn, soft, amorphous, disp. Possible multiple flows inferred from weathering profile – tops of flows possibly at 886.0m , 924.0m , 946.0m

STRZELECKI GROUP (Cretaceous) 964.5 -951.3

964.5 - 1004.0m .Interbedded CLAYSTONE, SANDSTONE & mn COAL.
CLAYSTONE, lt to med gy, lt gy brn, soft to firm, sub bky, tr carb specks, occ qtz inc.
SANDSTONE, off wh to lt gy, v fine to occ med, sub ang to sub rnd, mod sorted, firm calc cement ip, com to abund off wh clay mtx, mtx supported ip & grades to Claystone, com volc lithics (green, gy brn), tr coaly frags, occ calcite frags, firm, v poor vis por.
COAL, blk, dull w/ vitreous bands, mod hard, sub fiss, mn w/ sub conchoidal fracture.

1004.0 - 1095.0m .SANDSTONE w/ occ i/bed CLAYSTONE & mn SILTSTONE.
SANDSTONE, lt to med gy, lt green gy ip, v fine to med, sub ang to sub rnd, mod well sorted, firm calc cement, occ to locally abund lt gy argillaceous mtx, mtx supported ip & grades to Claystone, com to abund feldspar & green & gy lithics, tr calcite frags, tr Coal specks & frags, firm to mod hard, poor to v poor vis por.
CLAYSTONE, gy to gy brn, mn brn, soft to firm, sub bky. SILTSTONE, lt gy, firm, bky, v fine arenaceous, grades to Sandstone ip.

1095.0 - 1109.0m .CLAYSTONE w/ occ i/bed SANDSTONE & SILTSTONE.
CLAYSTONE, med gy, soft to firm, sub bky, occ v fine qtz, tr carb specks.
SANDSTONE, lt to med gy, v fine to fine, occ med grns, mod well sorted, firm calc cement, com to abund lt gy argillaceous mtx, com volc lithics, soft to firm, v poor to poor vis por.
SILTSTONE, lt gy, firm, soft, amorphous, com qtz inc & grades to Sandstone ip.

1109.0 – 1117.9m.Interbedded CLAYSTONE & SANDSTONE.
CLAYSTONE, as described above.
SANDSTONE, lt to med gy, v fine to med, sub ang to sub rnd, mod well sorted, firm calc cmt, tr to locally com lt gy argillaceous mtx, com volc lithics, tr carb specks, firm, v poor to poor vis por.

Core #2 = 1117.9 – 1132.2m. - See footer.

1132.2 - 1200.0m .SANDSTONE w/ i/bed CLAYSTONE. Samples contaminated w/ caved red brn Claystone / weathered Basalt – cavings becoming less w/ depth.
SANDSTONE, lt to med gy, green gy, v fine to med, pred v fine to fine grained, sub ang to sub rnd, mod well sorted, firm calc cmt ip, siliceous cmt ip, occ to locally abund lt gy & green gy mtx, com altered feldspar & lithics, tr carb specks, tr mica, occ to locally com cryst calcite frags (fracture fill), friable to firm, poor to v poor vis por.
CLAYSTONE, gy brn to gy, soft to occ firm, amorphous to sub bky, tr to occ carb specks & frags.

Total Depth (Logs) 1196.0
(TD driller = 1200m.) -1182.8

0.00 GR 200.00 | 0.00 SP 200.00 | 15.00 HCAL 5.00 | 0 ROP 20
1 RXOZ 1k | 1 HLLS 1k | 1 HLLD 1k
140.00 DT 40.00 | 0 GAS 10
1.85 RHOZ 2.85 | 0.45 TNPH -0.15 | -0.50 HDRA 0.50

FORMATION	K.B. (metres)	Sub-Sea (metres)	Thickness (metres)
Alluvium	2.0	11.2	8.0
Jemmy's Point Fm.	10.0	3.2	174.0
Tambo River Fm.	184.0	-170.8	26.0
Gippsland Limestone	210.0	-196.8	258.5
Lakes Entrance Fm.	468.5	-455.3	63.5
Latrobe Group	532.0	-518.8	352.0
Basalt	884.0	-870.8	80.5
Strzelecki Group	964.5	-951.3	235.5
Total Depth	1200.0	-1186.8	

CASING - 244mm. @ 433.0m.
178mm. @ 903.0m.

PLUGS - 1 927 - 860m. 54 sacks "A" Tagged at 863.0m.
2 40 - 5m. 20 sacks "A"

CORES - 1. 522.7 – 539.2m. Recovered 10.77m. (65.3 %).
(Latrobe Group coal packed off inner barrel and no Latrobe Group sands were recovered.)
2. 1117.9 – 1132.2m. Recovered 4.92m (34.4%).
(Highly fractured Sandstone.)

LOGS - 434.0- 883.5m HALS-MCFL-BHC-GR-SP (GR to Surface)
904.0-1191.0m HALS-MCFL-BHC-TLD-CNL-GR-SP

Core #1 – 522.7 – 539.2m. Recovered 10.77m (65.3%) (Latrobe Group coal packed off inner barrel and no Latrobe Group sands were recovered.)
522.7 - 529.9m MARL, Green grey to grey, soft to firm, grades to Calcisiltite in part, trace pyrite, occasional to common glauconite (increasing with depth), occasional to locally common shell fragments (bryozoa, bivalve, foram), trace pyrite, occasional to common quartz inclusions.
529.9 - 532.0m GLAUCONITIC SANDSTONE, green, fine to medium, occasional coarse grains, sub round to round, micritic calcite cement, abundant glauconite (20%), common disseminated and nodular pyrite, firm, very poor visual porosity. Below 531.1m, Sandstone becomes dark grey to grey black, only slightly calcareous and has common very pyritic brown clay matrix.
532.0 - 539.2m - No recovery.

Core #2 - 1117.9 – 1132.2m. Recovered 4.92m (34.4%)
1117.9 – 1122.8m, highly fractured Sandstone with white to clear crystalline calcite infilled fractures. Fractures dominantly near vertical (80o), some near horizontal. Bedding plane defined by slightly carbonaceous micro laminations near 1118.5m, these show bed dip to be 10o. The Sandstone was medium grey to dark green grey, very fine to fine, common medium grains, sub angular to sub round, moderately well sorted, moderately strong siliceous cement, calcareous cement in part, common greenish grey matrix (chloritic), abundant altered feldspar, common to abundant green and grey brown volcanic lithic grains, trace mica, trace carbonaceous specks, moderately hard, poor to very poor visual porosity.
1122.8 – 1132.2m. No core recovered, descriptions from samples collected while coring. Samples contaminated with caved red brown Claystone / weathered Basalt.
SANDSTONE, as for 1117.9-1122.8m.
COAL, black, sub vitreous, moderately hard, brittle in part, sub fissile to occasionally sub blocky, minor with sub conchoidal fracture.
CLAYSTONE, medium to dark grey, grey brown, firm, sub blocky to sub fissile, carbonaceous in part.