



## DAILY GEOLOGICAL REPORT

<b>Date:</b>	28 July 2009	<b>Rig:</b>	Ocean Patriot
<b>Report Number:</b>	5	<b>Bit Diameter:</b>	311 mm
<b>Report Period:</b>	00:00 - 24:00 Hours	<b>Last Casing:</b>	340 mm @ 1056.6 m MDRT
<b>Spud Date:</b>	22-Jul-2009 03:00 Hours	<b>Integrity Test:</b>	1.56 sg EMW at 1064 mMDRT
<b>Days From Spud:</b>	6.9	<b>Mud Weight:</b>	1.15 sg
<b>Depth @ 2400 Hrs:</b>	2918 m MDRT	<b>ECD:</b>	1.19 sg
	2474.9 m TVDRT	<b>Mud Type:</b>	KCl-KIaStop-Polymer
	2453.4 m TVDMSL	<b>Mud Chlorides:</b>	48,000 mg/L
<b>Lag Depth:</b>	2910 m MDRT	<b>Est. Pore Pressure:</b>	
<b>Last Depth:</b>	2262 m MDRT	<b>DXC:</b>	
<b>Progress:</b>	656 m	<b>Last Survey:</b>	2876.96 m MDRT
<b>Water Depth:</b>	154.2 m	<b>Deviation:</b>	Inc. 37.06°
<b>RT:</b>	21.5 m		Az. 144.65°

## OPERATIONS SUMMARY

**24 HOUR SUMMARY:** Drilled 311 mm (12 1/4") hole from 2262 to 2918 mMDRT.

**NEXT 24 HOURS:** Circulate hole clean, POOH and rack back BHA. Rig up and run 244 mm (9 5/8") casing.

**CURRENT OPERATION @ 06:00 HRS (29-Jul-2009):** Pulling out of hole at 1399 mMDRT.

## GEOLOGICAL SUMMARY

### LITHOLOGY

**INTERVAL:** 2260 to 2495 m MDRT (-1929.1 to -2115.8 m TVDMSL)  
**ROP (Range):** 50 to 156 m/hr  
**Av. ROP:** 90 m/hr

CALCAREOUS CLAYSTONE (100%) : light grey medium dark grey, medium bluish grey, occasional green grey, soft to moderately hard, sub-blocky to blocky, 30% calcareous clay, 10% calcareous silt, minor siliceous silt, trace to 5% very fine quartz, trace pyrite, trace glauconite, trace carbonaceous material, trace Foraminifera.

**INTERVAL:** 2495 to 2570 m MDRT (-2115.8 to -2175.6 m TVDMSL)  
**ROP (Range):** 41 to 144 m/hr  
**Av. ROP:** 97 m/hr

CALCAREOUS CLAYSTONE (20 to 95%) : light grey to medium dark grey, medium bluish grey, occasional green grey, soft to moderately hard, sub-blocky to blocky, 30% calcareous clay, 10% calcareous silt, minor siliceous silt, trace to 5% very fine quartz, trace pyrite, trace glauconite, trace carbonaceous material, trace Foraminifera.

SANDSTONE (5 to 40%): clear to translucent, occasional yellow grey, loose, very fine to fine, occasional medium, trace coarse and very coarse, moderately well sorted, sub-angular to sub-rounded, slightly elongated to slightly spherical, trace pyrite, trace to 1% glauconite, fair inferred porosity, no shows.

SILTSTONE (Nil to 40%) : medium yellow brown, light olive grey to olive black, soft to firm, blocky to sub-blocky, 10% siliceous clay, trace pyrite, trace coal, rare to 5% glauconite.



**INTERVAL:** 2570 to 2720 m MDRT (-2175.6 to -2295 m TVDMSL)  
**ROP (Range):** 3 to 161 m/hr  
**Av. ROP:** 100 m/hr

SANDSTONE (80 to 97%) : clear to translucent, occasional yellow grey, loose, very fine to very coarse, dominantly coarse, poor to moderately sorted, sub-angular to rounded, slightly elongated to spherical, trace pyrite, trace to 1% glauconite, good inferred porosity, no shows.

SILTSTONE (2 to 10%) : medium yellow brown, light olive grey to olive black, soft to firm, blocky to sub-blocky, 10% siliceous clay, trace pyrite, trace coal, rare to 5% glauconite.

CLAYSTONE (1 to 10%) : light grey to medium dark grey, medium bluish grey, occasional green grey, soft to moderately hard, sub-blocky to blocky, 10% calcareous clay, 5% calcareous silt, minor siliceous silt, trace pyrite, trace glauconite, trace carbonaceous material, very dispersive in part.

**INTERVAL:** 2720 to 2850 m MDRT (-2295 to -2399 m TVDMSL)  
**ROP (Range):** 3 to 63 m/hr  
**Av. ROP:** 30 m/hr

SILTSTONE (5 to 35%) : medium brown grey, light olive grey to olive black, soft to firm, blocky to sub-blocky, 10% siliceous clay, trace pyrite, trace coal, trace glauconite.

SANDSTONE (30 to 80%) : clear to translucent, medium dark grey to olive grey, loose, friable, very fine to very coarse, 10% very fine grained aggregates, moderately sorted, sub-angular to rounded, slightly elongated to spherical, trace pyrite, trace to 1% glauconite, nil visible porosity in aggregates, fair to good inferred porosity, no shows.

CLAYSTONE (5 to 35%) : medium dark grey, medium brown grey, white to very light grey, very soft to moderately hard, amorphous, sub-blocky to blocky, 5% calcareous clay, trace calcareous silt, minor siliceous silt, trace pyrite, trace glauconite, trace carbonaceous material, very dispersive in part.

**INTERVAL:** 2850 to 2910 m MDRT (-2399 to -2488.5 m TVDMSL)  
**ROP (Range):** 4 to 66 m/hr  
**Av. ROP:** 28 m/hr

SANDSTONE (35 to 75%) : translucent, transparent, white, light grey , trace orange, loose, sub-rounded to sub-angular, moderately to poorly sorted, slightly spherical to slightly elongated, 5% siliceous clay, 95% siliceous sand, 10% very fine grained, 20 to 30% fine grained, 40 to 50%% medium grained, 15 to 20% coarse grained, 5% very coarse grained, trace pyrite cement, trace pyrite, trace glauconite, up to 5 % rock flour.

SILTSTONE (25 to 65%) : medium dark grey ,brown grey, soft to moderately hard, amorphous to blocky, sub-angular, well sorted, slightly spherical, 10% calcareous clay, 60% siliceous clay, 25% siliceous silt, 5% siliceous sand, 5% pyrite, 2% coal/lignite, trace glauconite.

**GAS SUMMARY**

Background Gas							
INTERVAL (m MDRT)	Total Gas (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	iC4 (ppm)	nC4 (ppm)	C5 (ppm)
2260 - 2495	0.03	196	4	2	0	0	0
2495 - 2570	0.02	132	9	6	1	1	0
2570 - 2720	0.02	121	8	4	1	1	0
2720 - 2850	0.02	93	5	5	1	1	0
2850 - 2910	0.01	77	3	2	0	1	0



**SAMPLE QUALITY**

Generally good sample quantity and quality.

**MUDLOGGING EQUIPMENT / PERSONNEL**

2 Data Engineers, 2 Mudloggers, 2 Sample Catchers on board

**MWD**

2 Directional Drillers, 3 LWD Engineers on board.

Sensor distances behind the bit:

Resistivity 8.94 m  
 Gamma Ray 8.99 m  
 Direction 16.48 m

**PROVISIONAL FORMATION TOPS**

Formation Name	Prognosed Depths			Actual Depths			Diff. TVT (m)	Picks Based On
	MD (m)	TVDRT (m)	TVDMSL (m)	MD (m)	TVDRT (m)	TVDMSL (m)		
Gippsland Limestone	176.5	176.5	(155)	175.7	175.7	(154.2)	0.8 H	
Lakes Entrance Fm	2094.8	1816.4	(1794.9)	2100.0	1824.4	(1802.9)	8.0 L	Subtle change in lithology
Top Latrobe Group	2501.2	2143.9	(2122.4)	2495.0	2137.3	(2115.8)	6.6 H	Increase in GR & RES
K2 Sandstone Marker	2946.1	2502.5	(2481)				-	
Zone 0	3545.4	2985.4	(2963.9)				-	
Zone 2	3658.1	3076.3	(3054.8)				-	
Zone 6	3835.3	3219.1	(3197.6)				-	
Top Volcanics	3901	3272	(3250.5)				-	
Total Depth	3951	3312.3	(3290.8)					

**SURVEY DATA**

MD (m)	Inc (°)	Azi (°)	TVD (m)	TVDSS (m)	V.Sec (m)	Dogleg (°/30m)	E/W (m)	N/S (m)
2070.25	36.28	150.15	1800.65	1779.15	882.91	0.29	430.37	-770.91
2099.29	36.98	149.86	1823.95	1802.45	900.23	0.74	439.04	-785.92
2127.60	37.51	149.66	1846.49	1824.99	917.36	0.58	447.67	-800.72
2156.62	37.88	149.51	1869.45	1847.95	935.10	0.39	456.65	-816.02
2184.65	38.11	149.41	1891.54	1870.04	952.35	0.25	465.42	-830.88
2213.83	38.43	149.62	1914.45	1892.95	970.42	0.36	474.59	-846.46
2242.40	38.29	150.80	1936.85	1915.35	988.15	0.78	483.40	-861.85
2270.15	37.73	151.59	1958.71	1937.21	1005.24	0.80	491.63	-876.82
2299.33	37.92	152.77	1981.76	1960.26	1023.13	0.77	499.98	-892.64
2328.31	37.50	152.72	2004.69	1983.19	1040.84	0.44	508.10	-908.40
2356.86	37.14	152.63	2027.39	2005.89	1058.14	0.38	516.04	-923.78
2385.32	36.95	152.51	2050.11	2028.61	1075.28	0.21	523.94	-939.00
2414.74	37.37	152.25	2073.56	2052.06	1093.05	0.46	532.18	-954.74
2443.40	37.46	152.07	2096.32	2074.82	1110.46	0.15	540.31	-970.14
2472.38	37.14	152.42	2119.37	2097.87	1128.01	0.40	548.49	-985.68
2501.29	37.25	152.68	2142.40	2120.90	1145.48	0.20	556.55	-1001.19



2530.46	36.72	153.05	2165.70	2144.20	1163.02	0.59	564.55	-1016.81
2559.09	37.34	152.33	2188.56	2167.06	1180.25	0.79	572.46	-1032.13
2587.53	37.75	151.79	2211.11	2189.61	1197.58	0.55	580.58	-1047.44
2616.24	37.16	150.34	2233.90	2212.40	1215.04	1.11	589.03	-1062.72
2644.78	37.10	148.68	2256.65	2235.15	1232.26	1.06	597.77	-1077.56
2674.04	37.13	147.37	2279.99	2258.49	1249.89	0.81	607.12	-1092.54
2703.21	37.30	145.69	2303.22	2281.72	1267.48	1.06	616.85	-1107.25
2732.96	37.28	143.89	2326.89	2305.39	1285.40	1.10	627.24	-1121.98
2760.70	37.02	141.64	2349.00	2327.50	1301.99	1.50	637.37	-1135.32
2789.97	36.48	140.97	2372.45	2350.95	1319.26	0.69	648.32	-1148.98
2819.09	36.62	142.39	2395.84	2374.34	1336.38	0.88	659.07	-1162.59
2848.22	36.88	144.25	2419.19	2397.69	1353.65	1.18	669.48	-1176.57
2876.96	37.06	144.65	2442.15	2420.65	1370.83	0.31	679.53	-1190.63

**REMARKS**

Bottoms-up from circulation at 00:10 (29th July 2009).

**WELLSITE GEOLOGISTS**

Shane Robbie / Lucy Farmer