

Culverin-1

Date:	1-01-2006	Last Casing:	340 mm (13 3/8") @ 1511.14 mMDRT
Report Number:	13	Leak Off Test:	1.89 sg EMW @ 1528.0 mMDRT
Report Period:	24hrs to 24:00	Current hole size:	311 mm (12 1/4")
Depth @ 2400 Hrs:	3571.0 mMDRT	Mud Weight:	1.22 sg
Last Depth:	3473.0 mMDRT	ECD:	1.22 sg
Progress:	98 m	Mud Type:	KCl-NaCl-Polymer
TD Lithology:	Siltstone, Coal and Argillaceous Sandstone	Mud Chlorides:	84, 000 ppm
Water Depth:	585.0 m	Mud Fluid Loss:	3.6 cc
RT Elevation:	21.5 m	Bit Type:	PDC (Reed-Hycalog)

OPERATIONS SUMMARY

24 HOUR SUMMARY	Drilled ahead from 3473.0 mMDRT to 3571.0 mMDRT. POOH for suspected washout.
00:00 - 24:00:	
06:00 Update	Pull out of the hole from 85 mMDRT and inspect BHA for washouts.
NEXT 24 HOURS:	Inspect BHA for washouts. Down load LWD. RIH and drill ahead 311 mm (12 1/4") hole.

GEOLOGICAL SUMMARY

LITHOLOGIC DESCRIPTION:

Interval mMDRT	Description
3475 – 3510 ROP 5.2-76 m/hr Ave 20 m/hr	<p>Argillaceous Sandstone, Sandstone (only at 3530m sample), Siltstone and thin Coals in an interbedded sequence.</p> <p>ARGILLACEOUS SANDSTONE (40-80%): 60% white aggregates to 40% clear translucent loose grains, fine to coarse, dominantly fine to medium, moderately sorted, sub-angular to angular, moderate sphericity, 70% white argillaceous matrix in aggregates, fair to moderate inferred porosity, no fluorescence.</p> <p>(3505m) SANDSTONE (70%): 50% white aggregates 50% loose grains, dominantly fine to medium, occasionally coarse, moderately well sorted, sub angular to rounded, high sphericity, common white argillaceous matrix, trace pyrite nodules and cement, good inferred porosity, no fluorescence.</p> <p>SILTSTONE (15-60): light brownish grey, brownish grey, off white / light brownish grey, very soft to rarely friable, very argillaceous, carbonaceous specks and carbonaceous laminae in part, slightly pyritic in part. Sample from 3490.0 mMDRT contained hard siliceous and pyritic Siltstone.</p> <p>COAL (Trace-5%): black, dull black, sub vitreous, firm, blocky, silty in part.</p>
3510 – 3550 ROP 0.8-30 m/hr Ave 10 m/hr	<p>Argillaceous Sandstone, Siltstone and common Coal in an interbedded sequence. Trace Fluorescence present at 3515.0 mMDRT (see fluorescence summary below).</p> <p>ARGILLACEOUS SANDSTONE (10-80%): white to very light grey, soft</p>

	<p>aggregates, trace loose grains, very fine to fine, occasional medium grains, moderately well sorted, sub-angular to angular, white argillaceous matrix to 80% (possibly weathered feldspars?), poor inferred porosity, no fluorescence (except trace at 3515.0 mMDRT see fluorescence summary below).</p> <p>SILTSTONE (20-90%): light brownish grey, brownish grey, light grey, very soft, rarely sub-firm, amorphous to sub-blocky, rarely sub-fissile, trace carbonaceous specks and carbonaceous laminae, occasionally pyritic, occasionally very pyritic, trace very hard black & white finely banded siliceous fragments.</p> <p>COAL (Trace-5%): dull black, sub vitreous, firm, brittle in part, hackly fracture, very silty in part and gradational to carbonaceous siltstone.</p> <p>(Based on the LWD logs the thin coals probably make up 20% of the entire section but are under-represented in the cuttings samples).</p>
3550 – 3565 0.7 – 10.5 m/hr Ave 4.5 m/hr	<p>Dominantly Siltstone with minor Argillaceous Sandstone and thin Coals.</p> <p>SILTSTONE (80-90%): light brownish grey, brownish grey, occasionally white, very soft, amorphous to dispersive, very argillaceous, common carbonaceous specks and carbonaceous laminae, occasionally pyritic, trace very hard black & white finely banded siliceous fragments.</p> <p>ARGILLACEOUS SANDSTONE (10-20%): white to very light grey, loose grains, very fine to fine, occasional medium grains, well sorted, sub angular to angular, white argillaceous matrix to 80% (weathered feldspars?), poor inferred porosity, no fluorescence.</p> <p>COAL (Trace): dull black, sub vitreous, firm, brittle in part, hackly fracture, very silty in part and gradational to Carbonaceous Siltstone.</p>

▪ **HYDROCARBON FLUORESCENCE:**

INTERVAL (mMDRT)	FLUORESCENCE
3510-3515	Trace dull yellow, trace very slow cut, trace dull cream incomplete residue ring. Fluorescence occurred in white Argillaceous Sandstone.

▪ **GAS SUMMARY:**

INTERVAL (mMDKB)	Total GAS (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	IC4 (ppm)	NC4 (ppm)	C5 (ppm)
3475 – 3510	0.75	5572	483	153	36	46	12
3510-3565	1.32	10210	904	279	69	63	26
3484 PEAK	0.86	6237	655	199	35	56	54
3501 PEAK	1.68	14751	1070	289	53	48	60
3518 PEAK	2.10	16208	1318	377	79	64	41
3533 PEAK	3.01	22869	1491	351	117	68	36
3543.5 PEAK	3.72	15315	1223	589	136	98	28

▪ **SURVEYS**

MD	ANGLE	Azi		MD	ANGLE	Azi		
2743.83	3.80	42.10		3375.03	3.69	54.03		
2772.65	3.83	43.73		3404.40	3.54	54.90		
2801.66	3.84	42.76		3432.80	3.59	51.96		
2830.44	3.89	43.81		3461.32	3.48	51.53		
2859.14	3.95	44.31		3490.24	3.38	50.31		
2887.70	3.86	45.65		3519.26	3.32	50.11		
2916.43	3.87	45.26		3547.59	3.32	49.95		
2944.96	3.83	45.79						
2973.53	3.73	46.71						
3002.19	3.72	46.75						
3059.49	3.72	46.57						
3088.21	3.81	46.46						
3116.08	3.75	45.37						
3145.07	3.74	48.33						
3173.79	3.67	49.59						
3202.65	3.71	48.97						
3231.77	3.53	48.2						
3260.37	3.66	49.86						
3346.36	3.65	50.41						
3375.03	3.69	54.03						

▪ **WELLSITE GEOLOGISTS:**

Mike Woodmansee

Rob Blackmore

▪ **FORMATION TOPS**

WD = 585.0 m RTE = 21.5 m								
FORMATION	PROGNOSED DEPTHS (m)			ACTUAL DEPTHS (m)				
	MDKB	TVDSS	THICK	MDKB	TVDSS	HI/LO	THICK	DIFF
Sea Floor/ Gippsland Limestone	607	585	1975	606.5	585.0	0.0	1899.9	0.0
Lakes Entrance	2582.0	2560.0	325	2508.0	2484.9	75.1 H	315.1	-10.0
Latrobe	2907.0	2885.0	30	2824.0	2800.0	85.0 H	11.0	-19.0
Base TF Channel	2937.0	2915.0	10	2835.0	2811.0	104.0 H	1.0	-8.0
Top 67.5 Ma Sand	2947.0	2925.0	310	2836.0	2812.0	113.0 H	266.5	-43.5
Near 68.5 Ma Sand	3257.0	3235.0	226	3103.0	3078.5	156.5 H	374.3	-148.3
Near 70.3 Ma Sand	3482.5	3461.0		3478	3452.8	8.2 H		
Near 74 Ma Sand	Not prog							
TD	3612.0	3590.0						

▪ **COMMENTS:**

Sperry-Sun LWD sensor to bit distances: (same LWD toolstring run following bit trip)

Directional = 13.13 m

Gamma-Ray = 15.73 m

Resistivity = 18.04 m

Density = 25.66 m

Porosity = 30.97 m

ACAL = 29.93 m