Culverin-1

Date:	27-12-2005	**Last Casing:**	340 mm (13 3/8") @ 1511.14 mMDRT
Report Number:	8	**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:	3115.0 mMDRT	**Mud Weight:**	1.20 sg
Last Depth:	2641.0 mMDRT	**ECD:**	1.21 sg
Progress:	474 m	**Mud Type:**	KCl-NaCl-Polymer
TD Lithology:	70% Sandstone 30% Siltstone	**Mud Chlorides:**	65,000 ppm
Water Depth:	585.0 m	**Mud Fluid Loss:**	4.0 cc
RT Elevation:	21.5 m	**Bit Type:**	PDC (Reed-Hycalog)

OPERATIONS SUMMARY

24 HOUR SUMMARY 00:00 - 24:00:	Drilled ahead from 2641.0 mMDRT to 3115.0 mMDRT. Top of the Latrobe Formation picked from LWD logs and cuttings at 2824.0 mMDRT. Base Tuna Flounder Channel at 2835 mMDRT picked on LWD and confirmed with the cuttings. Top 67.5Ma Sand picked at 2836 mMDRT based on LWD and confirmed with the samples. Near 68.5Ma sand at 3103m picked on LWD and samples.
06:00 Update	Drilling ahead at 3195 mMDRT in the Latrobe Group.
NEXT 24 HOURS:	Drill ahead 311 mm (12 ¼") hole.

GEOLOGICAL SUMMARY

- **LITHOLOGIC DESCRIPTION:**

Interval mMDRT	Description
2640 – 2730 ROP 10 – 100m/hr Ave 51m/hr	**Calcareous Claystone with minor thin Calcilutite beds trace Dolomite and Sandstone at the base of the section** CALCAREOUS CLAYSTONE (50-90%): light grey, soft, sub blocky to blocky, trace very fine pyritic patches, rare carbonaceous specks, trace very fine glauconite, homogenous. CALCILUTITE (10-50%): olive grey, firm, brittle in part, blocky, cryptocrystalline, trace calcareous silt and rare to common very fine calcareous sand grains, rare dark lithic grains, trace disseminated glauconite, trace very fine pyrite, gradational to CALCARENITE. DOLOMITE (Trace): orange brown, firm, brittle, blocky, commonly angular and splintery, cryptocrystalline, slightly argillaceous in part. SANDSTONE (Trace): clear to white, loose to soft aggregates, medium to rarely coarse, well sorted, sub angular, high sphericity, minor white argillaceous matrix, trace glauconite, fair inferred porosity, no hydrocarbon shows.
2730-2824 ROP 3.4 – 83.8 m/hr	**Massive Argillaceous Calcilutite grading into Claystone** ARGILLACEOUS CALCILUTITE (Trace-100%): light olive grey, occasionally

Ave 17.4 m/hr	medium light grey, very soft – soft, sub blocky, homogenous, trace glauconite, trace very fine disseminated pyrite. CLAYSTONE (Trace-100%): light olive grey, occasionally medium light grey, very soft – soft, sub blocky, homogenous, trace calcareous silt and very fine sand in part, trace glauconite, trace very fine disseminated pyrite.
2824-2836 ROP 11.3 – 98.4 m/hr Ave 46.4 m/hr	**Massive Siltstone** SILTSTONE (100%): light brown to brownish-grey, soft to firm, occasionally very amorphous and reddish brown, generally massive to sub-blocky, common, glauconite grains, trace mica and black carbonaceous specks, trace pyrite, grading into fine sandstone.
2836-2844 ROP 25.9 – 91.2 m/hr Ave 50.0 m/hr	**Massive Sandstone** SANDSTONE (100%): clear to translucent, loose, very fine to very coarse, very poorly sorted, sub-angular to sub-rounded grains, trace glauconite, trace pyrite, trace argillaceous matrix, very good inferred porosity, no fluorescence.
2844-2930 ROP 8.7 – 108.9 m/hr Ave 33.0 m/hr	**Interbedded Sandstone and Argillaceous Siltstone and Siltstone with trace Claystone** SANDSTONE (10-90%): clear to translucent, loose, very fine to medium, mainly fine, very poorly sorted, sub-angular to rounded grains, very rare glauconite, common pyrite, common white amorphous argillaceous matrix inferred, poor to moderate inferred visual porosity, no fluorescence. ARGILLACEOUS SILTSTONE (0-80%): light grey to white, very soft to friable, occasionally firm, common loose grains of quartz, trace mica and black carbonaceous specks, common pyrite, grading into fine sandstone. SILTSTONE (10-40%): light grey to white, soft to friable, occasionally firm, common loose grains, trace mica and black carbonaceous specks, common argillaceous matrix, common pyrite, grading into fine sandstone. CLAYSTONE (trace): light grey, very soft to soft, trace mica and black carbonaceous specks, common pyrite, grading into fine siltstone.
2930-2960 ROP 10.6 – 116.6 m/hr Ave 29.1 m/hr	**Massive Claystone grading into Silty Claystone with depth** CLAYSTONE (100%): light grey, very soft to soft, amorphous to sub-blocky, trace mica and common black carbonaceous specks, non-calcareous, trace fine rounded-angular quartz silt, common pyrite, grading into silty claystone in part. SILTY CLAYSTONE (100%): light to medium grey, occasionally brown and firmer, very soft to firm in part, amorphous to dispersive, trace mica and common black carbonaceous specks, weakly-calcareous in parts (may be cavings?), common pyrite, trace green glauconite grains and greenish stain on some fragments.
2960-2975 ROP 10.1 – 115.8 m/hr Ave 37.5 m/hr	**Silty Claystone with trace Sandstone and very rare Carbonaceous Claystone** SILTY CLAYSTONE (90-100%): light to medium grey, very soft, amorphous to dispersive, trace mica and common black carbonaceous specks, common pyrite, calcareous in part, trace light brown calcite/dolomite-cemented fragments, trace pyrite, trace glauconite. SANDSTONE (0-10%): clear to translucent, occasionally yellow, loose, very fine

	to medium grained, mainly fine grained, poorly sorted, sub-angular to rounded grains, common pyrite, moderate inferred porosity, common argillaceous matrix no fluorescence. CARBONACEOUS CLAYSTONE (Trace): black to medium grey, firm to moderately hard, sub-blocky to blocky, laminated into dark and light coloured layers in part, grading into silty claystone. (Thin 0.5m thick layer noted on LWD logs at 2972.5 mMDRT associated with elevated torque during drilling).
2975-3078 ROP 12 – 141 m/hr Ave 56 m/hr	**Massive Sandstone with very minor Claystone interbeds** SANDSTONE (100%): clear to translucent, occasionally yellow and white, loose, very fine to very coarse grained, mainly medium grained, very poorly sorted, sub-angular to rounded grains, common pyrite, very good inferred porosity, trace argillaceous matrix inferred, no fluorescence. CLAYSTONE (Trace): light to medium grey, very soft to soft, amorphous to dispersive, trace mica and black carbonaceous specks.
3078 – 3103 ROP 9.7 – 75 m/hr Ave 37 m/hr	**Sandstone and Claystone** SANDSTONE (80%): clear to translucent, medium to very coarse, sub angular to well rounded, hi-sphericity, moderately sorted, trace pyrite cement and nodules, very good porosity, no fluorescence. CLAYSTONE (20%): light grey, brownish grey, very soft, sub blocky to dominantly amorphous, carbonaceous specks, very silty in part, pyritic in part, gradational to Argillaceous Siltstone.
3103 – 3115 ROP 12 – 55 m/hr Ave 34 m/hr	**Massive Sandstone with minor Claystone (probably cavings) at the top of the section.** SANDSTONE (90-100%): clear, rare yellow / brown grains, medium to very coarse, dominantly coarse, sub angular to well rounded, hi-sphericity, well sorted, trace pyrite cement, trace strong siliceous cement, very good inferred porosity, no fluorescence. CLAYSTONE (0-10%): light grey, brownish grey, very soft, sub blocky to dominantly amorphous, arenaceous in part, carbonaceous specks, very silty in part, pyritic in part, gradational to Argillaceous Siltstone.

- **HYDROCARBON FLUORESCENCE:**

INTERVAL (mMDRT)	FLUORESCENCE
	Nil.

- **GAS SUMMARY:**

INTERVAL (mMDKB)	Total GAS (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	IC4 (ppm)	NC4 (ppm)	C5 (ppm)
2640 - 2730	0.11	1234	15	20	30	23	-
2730 - 2824	0.15	1358	19	21	38	23	-
2824 - 2836	0.10	1013	45	27	12	5	-

2836 - 2844	0.13	1297	55	30	24	31	-
2844 - 2930	0.10	882	64	76	74	37	-
2930 - 2960	0.08	672	60	42	37	16	-
2960 -2975	0.06	543	47	32	41	42	-
2975 -3078	0.07	483	38	26	14	15	22
3078 -3103	0.08	465	49	28	14	14	21
3103-3115	0.06	451	40	28	17	26	21

- **SURVEYS**

MD	ANGLE	Azi		MD	ANGLE	Azi		
2285.35	4.14	37.21		2887.70	3.86	45.65		
2314.02	4.15	34.69		2916.43	3.87	45.26		
2342.60	4.24	35.48		2944.96	3.83	45.79		
2371.30	4.20	37.23		2973.53	3.73	46.71		
2399.91	4.28	37.06		3002.19	3.72	46.75		
2428.46	4.30	38.32		3059.49	3.72	46.57		
2457.14	4.30	37.54		3088.21	3.81	46.46		
2511.27	4.09	38.40		3116.08	3.75	45.37		
2543.24	4.05	40.48		3145.07	3.74	48.33		
2572.00	4.01	40.97						
2600.65	3.91	40.54						
2629.39	3.86	40.58						
2658.02	3.89	41.3						
2686.60	3.77	41.46						
2715.15	3.77	40.42						
2743.83	3.80	42.10						
2772.65	3.83	43.73						
2801.66	3.84	42.76						
2830.44	3.89	43.81						
2859.14	3.95	44.31						

- **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	-	606.5	585.0	0.0	1899.9	0.0
Lakes Entrance	2582.0	2560.0	325.0	2508.0	2484.9	75.1 H	315.1	-10.0
Latrobe	2907.0	2885.0	30.0	2824.0	2800.0	85.0 H	11.0	-19.0
Base TF Channel	2937.0	2915.0	10.0	2835.0	2811.0	104.0 H	1.0	-8.0
Top 67.5 Ma Sand	2947.0	2925.0	310.0	2836.0	2812.0	113.0 H	186.0	-124.0

Near 68.5 Ma Sand	3257.0	3235.0	285.0	3103	3078.5	156.5 H		
Near 70.3 Ma Sand	3542.0	3520.0	70.0					
TD	3612.0	3590.0						

- **COMMENTS:**

Sperry-Sun LWD sensor to bit distances:
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