

Trefoil-2

Date : 15 Nov 2009

Geology Report Number : 33

(associated DDR # 46)

Well Details

Depth MDBRT:	3153.0m	Rig:	Kan Tan IV	Date:	15 Nov 2009
Depth TVDBRT:	3153.0m	Progress:	132.0m	Report Start:	0000
Depth TVDSS:	3127.0m	RTE agl:		Report End:	2400
Hole Size:	8.500in	GLE amsl:	0 (m)	Days On Location:	45.38
Hole Size Carbide:		Last Csg Size:	9.625in	Days since Spud:	40.67
Water Depth (MSL)	69.0m	Last Csg Shoe:	2520.0m		
RT-ASL(MSL)	26.0m	F.I.T. / L.O.T.:	11.00ppg /		

Operations Summary

24hr Summary:	Drilled ahead in 216 mm (8-1/2") hole section to core point #2 at 3145 mMDRT. Pulled out of hole. Downloaded LWD tools. Picked up core barrel. Ran in hole. Commenced cutting core # 2.
Forward Plan:	Complete cutting Core #2, POOH, retrieve core, pick up 216 mm (8-1/2") LWD and drilling assembly, RIH.

General Comments

00:00 TO 24:00 Hrs ON 15 Nov 2009

Operational Comments	Geoservices: 2 Data engineers, 2 mudloggers, 2 sample catchers on board. Gas equipment calibrated 12 Nov 09. Sperry: 3 MWD engineers on board.
Operational Comments	FEWD sensor distances from bit from 3013 mMDRT: Vibration 0.00 m Gamma (DGR) 2.83 m Resistivity (EWR-P4) 5.17 m Directional (PCD) 10.07 m Density (ALD) 15.56 m Porosity (CTN) 19.43 m Sonic (BAT) 24.20 m Caliper (ACAL) 31.02 m
Operational Comments	Core Barrel Assembly: Outer barrel: OD x ID 7 1/4" x 5 5/8" Corehead: MCP572, 8 1/2" x 4" Inner tube type: Aluminium, OD x ID 5 x 4 1/2"

WBM Data

Mud Type: KCI POLYMER	Flowline Temp:	Cl: 40000mg/l	Low Gravity Solids:	Viscosity	64sec/qt
Sample From: 2	MWD Circ Temp:	Hard/Ca: 375mg/l	High Gravity Solids:	PV	14cp
Time: 22:00 hrs	Glycol CP Temp:	MBT: 11	Solids (corrected):	YP	27lb/100ft²
Weight: 9.50ppg	Glycol:	PM: 0.2	H2O: 93%	Gels 10s	9
ECD TD:	Nitrates:	PF: 0.2	Oil:	Gels 10m	12
ECD Shoe:	Sulphites:	MF: 2	Sand: .25 %	Fann 003	8
ECD Cuttings:	API FL: 5.0cc/30min	pH: 9	Barite:	Fann 006	10
KCI Equiv: 8%	API Cake: 1/32nd"	PHPA Excess:		Fann 100	27
				Fann 200	35
				Fann 300	41
				Fann 600	55

Shakers, Volumes and Losses Data

Engineer : Jay Wan / Fergus Spencer

Available	1706.0bbl	Losses	0.0bbl	Equip.	Descr.	Mesh Size	Hours
Active	650.0bbl	Downhole		Shaker 1	Brandt VSM 300	20 top/50 bottom	12
Mixing	0.0bbl	Surf+ Equip	0.0bbl	Shaker 2	Brandt VSM 300	20 top/50 bottom	12
Hole	689.0bbl	Dumped		Shaker 3	Brandt VSM 300	20 top/50 bottom	24
Slug		De-Gasser		Shaker 4	Brandt VSM 300	20 top/50 bottom	
Reserve	367.0bbl	De-Sander					
Kill		De-Silter					
		Centrifuge					

Comment

Formation Tops

Formation	Prognosed		Actual		Diff.	Thickness MD (m)	Pick Criteria
	MDBRT (m)	TVDSS (m)	MDBRT (m)	TVDSS (m)	+ / - TVD (m)		
Torquay Group	95.00	69.00	95.00	69.00	0.00	823.00	Sea floor
Lower Miocene	904.00	878.00	918.00	892.00	-14.00	244.00	GR increase
Seismic Marker							
Upper Angahook	1168.00	1142.00	1162.00	1136.00	6.00	169.00	GR decrease, res increase
Angahook Volcanics	1323.00	1297.00	1331.00	1305.00	-8.00	238.00	GR decrease, res increase
Equiv							
Lower Angahook	1564.00	1538.00	1569.00	1543.00	-5.00	281.00	GR decrease, res increase
Demons Bluff	1839.00	1813.00	1850.00	1824.00	-11.00	255.00	Res increase
Eastern View Coal	2092.00	2066.00	2105.00	2079.00	-13.00	596.50	Res decrease
Measures							
Eocene	2691.00	2665.00	2701.50	2675.10	-10.10	157.30	GR decrease
Unconformity							
2973 Seismic	2841.00	2815.00	2858.80	2832.40	-17.40	79.00	GR decrease, res decrease
Marker							
Base Low A1 Zone	2922.00	2896.00	2937.80	2911.40	-15.40	38.70	GR increase, res increase
TL40 Sand	2971.00	2945.00	2976.50	2950.10	-5.10	8.50	GR decrease
TL50 Sand	2981.00	2955.00	2985.00	2958.40	-3.40	9.50	GR decrease
TL60 Sand	2992.00	2966.00	2994.50	2967.90	-1.90	73.50	GR decrease
Cretaceous	3056.00	3030.00	3068.00	3041.70	-11.70	62.50	GR decrease
TF50 Sand	3123.00	3097.00	3130.50	3103.70	-6.70	0.00	GR decrease

Lithology Summary

Interval MDBRT (m) From To	ROP (m/hr)	Lithology
3145.00 - 3153.00	Min:3 Avg:14 Max:29	<p>From cuttings during core run 2:</p> <p>Interbedded SANDSTONE, ARGILLACEOUS SANDSTONE and SILTSTONE, with thin beds of CLAYSTONE</p> <p>SANDSTONE (15-60%): white to very light grey, medium dark grey, trace brownish grey, trace greenish grey, trace yellowish grey, clear, 20% very fine, 30% fine, 40% medium, 10% coarse grains, 10% clay, disaggregated clear quartz grains, soft to moderately hard, poorly to moderately sorted, subrounded to subangular, subspherical to spherical, trace carbonaceous material in part as laminae, trace coal pieces, trace lithic fragments, fair inferred visual porosity, no hydrocarbon fluorescence.</p> <p>ARGILLACEOUS SANDSTONE (15-70%): white to very light grey, medium dark grey to brownish grey, 50% very fine, 30% fine, 20% medium, 25% clay, trace disaggregated clear quartz grains, soft to firm, moderately sorted, subrounded to rounded, subspherical to spherical, trace carbonaceous material, trace coal pieces, trace lithic fragments, trace mica flakes, poor inferred visual porosity, no hydrocarbon fluorescence.</p> <p>SILTSTONE (20-60%): light grey to medium light grey, medium dark grey to brownish grey, soft to firm, subblocky to blocky, trace carbonaceous material.</p> <p>CLAYSTONE (0-10%): light brownish grey brownish grey, medium grey to olive grey, soft, subblocky to blocky, trace carbonaceous material.</p>

Gas Data

Depth Interval (m)	Gas Type	Total Gas (%)	C1 (%)	C2 (%)	C3 (%)	iC4 (%)	nC4 (%)	C5 (%)	CO2 (%)
3145.00 -	Trip	1.991	1.1022	0.0672	0.0170	0.0035	0.0028	0.0015	0.000
3145.00 - 3153.00	Drilled	1.633	0.9221	0.0590	0.0149	0.0032	0.0026	0.0017	0.000
3150.00 -	Peak	2.746	1.5692	0.0941	0.0223	0.0045	0.0038	0.0023	0.000
3151.00 -	Peak	2.699	1.5272	0.0892	0.0213	0.0044	0.0037	0.0022	0.000

Core Run

Core Number	2	Start Depth (MD)	3145.0 (m)	Amount Recovered	
Formation	Eastern View Coal Measures	End Depth (MD)	3175.0 (m)	Sleeve Type	Aluminium
Contractor	CorePro	Core Diameter	102.0 (mm)	Encapsulation Type	Nil
Equipment	5x6 m barrels	Barrel Length	30.0 (m)		
Shipping		Comments			

Core Detail

Core Chip Depth (m)	Description
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06:00 Hrs Update

Time:	06:00 Hrs on 16 Nov 2009
Depth:	3175 mMDRT/3174.2 mTVDR
Progress Since Midnight (m):	22
Status @ 0600hrs:	POOH with core barrel at controlled rate..
Formation:	Eastern View Coal Measures
Lithology:	Logged while coring: Interbedded SANDSTONE, ARGILLACEOUS SANDSTONE and SILTSTONE, with thin beds of CLAYSTONE
ROP:	Average ROP: 10.5 m/hr (3.7 - 27.2 m/hr)
Gas:	From 3153 - 3161 mMDRT: Average background gas - 1.6716%, C1: 1.0322%, C2: 0.0580%, C3: 0.0133%, iC4: 0.0029%, nC4: 0.0023%, C5: 0.0009%, CO2: 0.0000%.

Wellsite Geologist(s)

(Days) - Dennis Archer

(Nights) - Larissa Hansen