

Trefoil-2

Date : 16 Oct 2009

Geology Report Number : 10

(associated DDR # 16)

Well Details

Depth MDBRT:	1540.0m	Rig:	Kan Tan IV	Date:	16 Oct 2009
Depth TVDBRT:	1540.0m	Progress:	602.0m	Report Start:	0000
Depth TVDSS:	1514.0m	RTE agl:		Report End:	2400
Hole Size:	12.250in	GLE amsl:	0 (m)	Days On Location:	15.13
Hole Size Carbide:		Last Csg Size:	13.375in	Days since Spud:	10.67
Water Depth (MSL)	69.0m	Last Csg Shoe:	930.0m		
RT-ASL(MSL)	26.0m	F.I.T. / L.O.T.:	/ 15.15ppg		

Operations Summary

24hr Summary:	Drilled ahead in 311 mm (12-1/4") hole section.
Forward Plan:	Drill ahead in 311 mm (12-1/4") hole section.

General Comments

00:00 TO 24:00 Hrs ON 16 Oct 2009

Operational Comments	Geoservices: 2 Data engineers, 2 mudloggers, 2 sample catchers on board. Gas equipment calibrated 15 Oct 09. Sperry: 3 MWD engineers, 1 DD on board. Back up tool strings for 311 mm (12-1/4") hole section ready to go.
Operational Comments	FEWD sensor distances from bit: Vibration 0.00 m Gamma (DGR) 12.34 m Resistivity (EWR-P4) 14.81 m Directional (PCD) 19.76 m

WBM Data

Mud Type: KCI POLYMER	Flowline Temp:	Cl: 40000mg/l	Low Gravity Solids:	Viscosity	56sec/qt
Sample From: 4	MWD Circ Temp:	Hard/Ca: 240mg/l	High Gravity Solids:	PV	13cp
Time: 2020	Glycol CP Temp:	MBT: 5	Solids (corrected):	YP	22lb/100ft²
Weight: 9.00ppg	Glycol:	PM: 0.78	H2O: 95%	Gels 10s	11
ECD TD:	Nitrates:	PF: 0.7	Oil:	Gels 10m	14
ECD Shoe:	Sulphites:	MF: 1.5	Sand: %	Fann 003	10
ECD Cuttings:	API FL: 5.1cc/30min	pH: 9	Barite:	Fann 006	12
KCI Equiv: 9%	API Cake: 1/32nd"	PHPA Excess:		Fann 100	23
				Fann 200	30
				Fann 300	35
				Fann 600	48

Shakers, Volumes and Losses Data

Engineer : MikeLawrance / Kosta Georgiou

Available	4058.6bbl	Losses	131.0bbl	Equip.	Descr.	Mesh Size	Hours
Active	1200.0bbl	Downhole		Shaker 1	Brandt VSM 300	20 top/50bottom	24
Mixing	450.0bbl	Surf+ Equip	131.0bbl	Shaker 2	Brandt VSM 300	20 top/50bottom	8
Hole	722.6bbl	Dumped		Shaker 3	Brandt VSM 300	20 top/50bottom	24
Slug	53.0bbl	De-Gasser		Shaker 4	Brandt VSM 300	20 top/50bottom	24
Reserve	1633.0bbl	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 Seismic Marker	904.00	878.00	918.00	892.00	-14.00	244.00	GR increase
Upper Angahook	1168.00	1142.00	1162.00	1136.00	6.00	169.00	GR decrease, res increase
Angahook Vocanics Equiv	1323.00	1297.00	1331.00	1305.00	-8.00	238.00	GR decrease, res increase
Lower Angahook	1564.00	1538.00	1569.00	1543.00	-5.00	0.00	GR decrease, res increase

Lithology Summary

Interval MDBRT (m) From To	ROP (m/hr)	Lithology
938.00 - 1062.00	Min:38 Avg:71 Max:174	CALCAREOUS CLAYSTONE CALCAREOUS CLAYSTONE (100%): medium dark grey, soft to firm, angular to sub blocky, trace bryozoa, shell fragments, foraminifera and micromicas, 20-35% calcareous clay.
Interval MDBRT (m) From To	ROP (m/hr)	Lithology
1062.00 - 1162.00	Min:9 Avg:19 Max:155	CLAYSTONE CLAYSTONE (100%): medium dark grey, traces subfissile dark greenish grey at base of interval, soft to firm, subblocky to blocky, traces micromicas, shell fragments, corals, pyrite as fine grained aggregates, 10% calcareous clay.
Interval MDBRT (m) From To	ROP (m/hr)	Lithology
1162.00 - 1331.00	Min:16 Avg:65 Max:173	Interbedded CLAYSTONE and SILTSTONE, minor SANDSTONE beds. CLAYSTONE (0-100%): medium dark grey, olive grey, soft to firm, subblocky to blocky, traces micromicas and shell fragments, 5% calcareous clay. SILTSTONE (0-100%): medium grey, medium light grey, soft, subblocky, traces carbonaceous laminae, trace lithic fragments, trace calcareous clay. SANDSTONE (10-20%): light olive grey, medium grey, very soft to friable, very fine grained, subangular to subrounded, well sorted, spherical to subspherical, traces lithic fragments, 10% poor calcareous cement, good visual porosity, no hydrocarbon indications.
Interval MDBRT (m) From To	ROP (m/hr)	Lithology
1331.00 - 1540.00	Min:3 Avg:37 Max:341	SILTSTONE, minor CLAYSTONE and SANDSTONE beds SILTSTONE (80-100%): olive grey, medium dark grey, medium grey, soft to firm, subblocky to blocky, traces altered lithic fragments, traces carbonaceous specks, trace very fine disseminated pyrite, trace glauconite grains, 5% calcareous clay, 15% clay, grading locally to argillaceous siltstone. CLAYSTONE (0-20%): dark greenish grey, trace greenish grey, medium dark grey, soft to firm, subblocky, in part subfissile, micromicaceous, 5% calcareous clay. SANDSTONE (0-20%): medium dark grey, dark grey, very fine grained, subrounded, well sorted, sub spherical to spherical quartz grains with 10 to 15% lithic components, firm to moderately hard, angular to sub blocky, trace micro mica, shell fragments, dolomite, lithic fragments, 10% calcareous clay cement, poor visual porosity, no hydrocarbon indications.

Gas Data

Depth Interval (m)	Gas Type	Total Gas (%)	C1 (%)	C2 (%)	C3 (%)	iC4 (%)	nC4 (%)	C5 (%)	CO2 (%)
938.00 - 1062.00	Drilled	0.150	0.1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.000
1062.00 - 1162.00	Drilled	0.230	0.1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.000
1162.00 - 1331.00	Drilled	0.330	0.3200	0.0000	0.0000	0.0000	0.0000	0.0000	0.000
1331.00 - 1540.00	Drilled	0.360	0.3400	0.0000	0.0000	0.0000	0.0000	0.0000	0.000
1483.00 -	Peak	0.670	0.6500	0.0000	0.0000	0.0000	0.0000	0.0000	0.000

Survey								
MDBRT (m)	Incl. (deg)	Corr. Az (deg)	TVDBRT (m)	'V' Sect (deg)	Dogleg (deg/30m)	N/S (m)	E/W (m)	Tool Type
1010.20	0.8		1010.15	8.7	0.3	8.7	0.0	MWD
1067.21	0.9		1067.16	9.5	0.2	9.5	0.0	MWD
1095.87	0.8		1095.82	10.0	0.3	10.0	0.0	MWD
1153.51	1.1		1153.45	10.9	0.5	10.9	0.0	MWD
1182.36	1.3		1182.29	11.5	0.7	11.5	0.0	MWD
1211.30	1.0		1211.22	12.1	1.0	12.1	0.0	MWD
1240.32	1.0		1240.24	12.6	0.0	12.6	0.0	MWD
1269.44	1.0		1269.36	13.1	0.0	13.1	0.0	MWD
1298.71	1.1		1298.62	13.7	0.3	13.7	0.0	MWD
1327.95	1.3		1327.85	14.3	0.7	14.3	0.0	MWD
1357.12	1.3		1357.02	14.9	0.0	14.9	0.0	MWD
1385.95	1.4		1385.84	15.6	0.3	15.6	0.0	MWD
1414.80	1.3		1414.68	16.3	0.3	16.3	0.0	MWD
1443.26	1.4		1443.13	17.0	0.4	17.0	0.0	MWD
1471.76	1.4		1471.62	17.7	0.0	17.7	0.0	MWD
1500.56	1.4		1500.42	18.4	0.0	18.4	0.0	MWD
1529.74	1.0		1529.59	19.0	1.4	19.0	0.0	MWD
06:00 Hrs Update								
Time:		06:00 Hrs on 17 Oct 2009						
Depth:		1540 mMDRT/1540 mMDRT						
Progress Since Midnight (m):		156						
Status @ 0600hrs:		Drilling ahead with 12.25" Bit Depth at 06:00 hrs 1696m. RPM 100, WOB -10k, flow rate 1000 gpm, SPP						
Formation:		Lower Angahook Formation						
Lithology:		SILTSTONE, minor CLAYSTONE and SANDSTONE beds.						
ROP:		Ave 40.7 m/hr (7.3-140 m/hr)						
Gas:		Ave BG 0.52%, C1 0.49%						
Wellsite Geologist(s)								
(Days) - Dennis Archer				(Nights) - Brenton Richards				