

Trefoil-2

Date : 18 Oct 2009

Geology Report Number : 12

(associated DDR # 18)

Well Details

Depth MDBRT:	2244.0m	Rig:	Kan Tan IV	Date:	18 Oct 2009
Depth TVDBRT:	2244.0m	Progress:	0.0m	Report Start:	0000
Depth TVDSS:	2218.0m	RTE agl:		Report End:	2400
Hole Size:	12.250in	GLE amsl:	0 (m)	Days On Location:	17.38
Hole Size Carbide:		Last Csg Size:	13.375in	Days since Spud:	12.67
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 311mm (12 - 1/4") hole.
Forward Plan:	Drill ahead in 311mm (12 - 1/4") hole to section TD.

General Comments

00:00 TO 24:00 Hrs ON 18 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	52sec/qt
Sample From: 4	MWD Circ Temp:	Hard/Ca: 320mg/l	High Gravity Solids:	PV	14cp
Time: 2150	Glycol CP Temp:	MBT: 15	Solids (corrected):	YP	28lb/100ft ²
Weight: 9.10ppg	Glycol:	PM: 0.6	H2O: 94%	Gels 10s	10
ECD TD:	Nitrates:	PF: 0.4	Oil:	Gels 10m	13
ECD Shoe:	Sulphites:	MF: 1.4	Sand: %	Fann 003	9
ECD Cuttings:	API FL: 4.8cc/30min	pH: 9	Barite:	Fann 006	11
KCI Equiv: 8%	API Cake: 1/32nd"	PHPA Excess:		Fann 100	25
				Fann 200	34
				Fann 300	42
				Fann 600	56

Shakers, Volumes and Losses Data

Engineer : MikeLawrance / Kosta Georgiou

Available	2817.0bbl	Losses	173.0bbl	Equip.	Descr.	Mesh Size	Hours
Active	214.0bbl	Downhole		Shaker 1	Brandt VSM 300	20 top/50bottom	24
Mixing	200.0bbl	Surf+ Equip	148.0bbl	Shaker 2	Brandt VSM 300	20 top/50bottom	8
Hole	1053.0bbl	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	1297.0bbl	De-Sander					
Kill		De-Silter					
		Centrifuge	25.0bbl				

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 Volcanics 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	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 Measures	2092.00	2066.00	2105.00	2079.00	-13.00	0.00	Res decrease

Lithology Summary

Interval MDBRT (m) From To	ROP (m/hr)	Lithology
2004.00 - 2105.00	Min:12 Avg:30 Max:74	ARGILLACEOUS SILTSTONE, interbeds of CLAYSTONE and thin SANDSTONE ARGILLACEOUS SILTSTONE (0-100%): brownish black, olive black, soft to friable, subblocky, trace coral fragments, lithic fragments, 20% clay, 5% calcareous clay, 5% very fine quartz sand, grading locally to SANDY SILTSTONE: brownish black, olive black, soft to friable, subblocky, trace lithic fragments, 10% clay, 30% very fine quartz sand and SILTSTONE: olive black, greyish black, soft to firm, subblocky, traces lithic fragments, in part altered, traces micromicas, traces carbonaceous material, 10% dispersed very fine grained clear subrounded quartz grains, 20% clay at base of section. CLAYSTONE (0-30%): medium grey, medium light grey, light bluish grey, olive black, brownish black, very soft to moderately hard, amorphous to subblocky, trace glauconite, shell fragments, lithic fragments, 5-10% calcareous clay, 5% silt. SILTY SANDSTONE (0-30%): olive grey, light olive grey, subrounded, well sorted, subspherical quartz gains with 10% lithic component, firm to moderately hard, trace shell fragments, micromicas, lithic fragments, 10% calcareous cement, poor to no visual porosity, no hydrocarbon indications.
2105.00 - 2150.00	Min:6 Avg:17 Max:46	SILTSTONE, interbedded SANDSTONE and thin CLAYSTONES SILTSTONE (0-100%): brownish grey, olive grey, soft, subblocky, trace lithic fragments, skeletal fragments, carbonaceous material, 10% clay, 10% very fine clear quartz grains. SANDSTONE (0-100%): mottled dusky yellow green and light grey, very fine grained, 10% fine grained, very soft to firm, subrounded to subangular, moderate to well sorted, 10% glauconite as grains and clay, 10% calcareous clay, 10% clay, poor visual porosity, no hydrocarbon indications. CLAYSTONE (0-30%): greyish olive green, firm, subblocky, traces very fine pyrite, altered lithic fragments.
2150.00 - 2200.00	Min:7 Avg:19 Max:52	CLAYSTONE grading to SILTSTONE and SANDSTONE CLAYSTONE (0-70%): medium bluish grey, olive grey, medium grey, brownish black, soft - firm, subblocky, trace micromicas, calcite veining, finely disseminated pyrite, 5% calcareous clay. SILTSTONE (0-100%): olive grey, dark yellowish brown, soft to friable, subblocky, trace carbonaceous laminae, lithic fragments, 15% clay, 5% very fine quartz sand, 5% rock flour SANDY SILTSTONE (0-60%): brownish black, brownish grey, olive grey, soft to firm, subblocky, trace fine carbonaceous laminations, lithic fragments, 25% very fine clear quartz sand SILTY SANDSTONE (0-80%): brownish black, olive grey, subrounded, well sorted, subspherical, very fine, clear, polished quartz grains, soft to friable, trace lithic fragments, 10% calcareous cement, 5% rock flour, poor visual porosity, no hydrocarbon indications. SANDSTONE (0-80%): clear, opaque, polished, frosted, loose quartz grains, 20% medium, 40% coarse, 30% very coarse, 10% granular, angular (shattered) to rounded, very poor to poorly sorted, subelongate to spherical, trace white clay matrix adhering to grain surfaces, fair visual porosity inferred, no hydrocarbon indications.
2200.00 - 2244.00	Min:6 Avg:20 Max:54	SILTSTONE, interbedded SANDSTONE and thin CLAYSTONES SILTSTONE (0-80%): brownish black, brownish grey, olive grey, soft to firm, subblocky, trace fine carbonaceous laminations, lithic fragments, 5% very fine clear quartz sand. SANDSTONE (0-80%): very light grey, olive grey, clear subrounded to subangular (shattered), well sorted, subspherical, very fine grained clear quartz grains, friable, trace lithic fragment, 80% rock flour, no hydrocarbon indications. CLAYSTONE (0-70%): olive grey, medium grey, firm moderately hard, subblocky, trace lithic fragments, angular carbonaceous fragments, micromicas, shell fragments, calcite veining, 20% silt content.

Gas Data									
Depth Interval (m)	Gas Type	Total Gas (%)	C1 (%)	C2 (%)	C3 (%)	iC4 (%)	nC4 (%)	C5 (%)	CO2 (%)
2004.00 - 2105.00	Drilled	0.536	0.4642	0.0107	0.0060	0.0009	0.0013	0.0004	
2069.00 - 2069.00	Peak	0.575	0.4895	0.0125	0.0072	0.0040	0.0010	0.0014	
2093.00 - 2093.00	Peak	0.417	0.3456	0.0094	0.0065	0.0039	0.0016	0.0016	
2105.00 - 2105.00	Drilled	0.169	0.1124	0.0023	0.0020	0.0014	0.0008	0.0011	
2150.00 - 2200.00	Drilled	0.156	0.1104	0.0027	0.0020	0.0013	0.0008	0.0008	
2200.00 - 2244.00	Drilled	0.090	0.0406	0.0014	0.0014	0.0014	0.0007	0.0008	

Survey								
MDVRT (m)	Incl. (deg)	Corr. Az (deg)	TVDBRT (m)	'V' Sect (deg)	Dogleg (deg/30m)	N/S (m)	E/W (m)	Tool Type
2050.74	0.6		2050.50	28.3	0.0	28.3	0.0	MWD
2080.19	0.6		2079.95	28.6	0.0	28.6	0.0	MWD
2102.20	0.7		2101.96	28.9	0.5	28.9	0.0	MWD
2138.04	0.7		2137.80	29.3	0.0	29.3	0.0	MWD
2195.19	0.6		2194.94	30.0	0.2	30.0	0.0	MWD

06:00 Hrs Update	
Time:	06:00 Hrs on 19 Oct 2009
Depth:	2271 mMDRT/2271 mTVDBRT
Progress Since Midnight (m):	27
Status @ 0600hrs:	POOH for bit change. Depth at 06:00 hrs 2271m.
Formation:	Eastern View Coal Measures
Lithology:	Interbedded SILTSTONE, CLAYSTONE and SANDSTONE
ROP:	Ave. 12.4 m/hr (4.5 - 48.1 m/hr)
Gas:	Ave BG 0.0742%, C1 0.0352, C2 0.0011, C3 0.0009, iC4 0.0009, nC4 0.0004, C5 0.0007

Wellsite Geologist(s)	
(Days) - Dennis Archer	(Nights) - Brenton Richards