

Trefoil-2

Date : 17 Oct 2009

Geology Report Number : 11

(associated DDR # 17)

Well Details

Depth MDBRT:	2004.0m	Rig:	Kan Tan IV	Date:	17 Oct 2009
Depth TVDBRT:	2004.0m	Progress:	464.0m	Report Start:	0000
Depth TVDSS:	1978.0m	RTE agl:		Report End:	2400
Hole Size:	12.250in	GLE amsl:	0 (m)	Days On Location:	16.06
Hole Size Carbide:		Last Csg Size:	13.375in	Days since Spud:	11.58
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 to section TD.

General Comments

00:00 TO 24:00 Hrs ON 17 Oct 2009

Operational Comments	Geoservices: 2 Data engineers, 2 mudloggers, 2 sample catchers on board. Gas equipment calibrated 15 Oct 09. Carbide lag check - hole 4.2% overgauge. 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:	CI:	39000mg/l	Low Gravity Solids:	Viscosity	54sec/qt
Sample From:	4	MWD Circ Temp:	Hard/Ca:	380mg/l	High Gravity Solids:	PV	16cp
Time:	2115	Glycol CP Temp:	MBT:	10	Solids (corrected):	YP	29lb/100ft²
Weight:	9.00ppg	Glycol:	PM:	0.3	H2O:	Gels 10s	12
ECD TD:		Nitrates:	PF:	0.3	Oil:	Gels 10m	18
ECD Shoe:		Sulphites:	MF:	0.5	Sand:	Fann 003	10
ECD Cuttings:		API FL:	pH:	9	Barite:	Fann 006	12
KCI Equiv:	9%	API Cake:	PHPA Excess:			Fann 100	29
						Fann 200	36
						Fann 300	45
						Fann 600	61

Shakers, Volumes and Losses Data

Engineer : MikeLawrance / Kosta Georgiou

Available	2655.0bbl	Losses	326.3bbl	Equip.	Descr.	Mesh Size	Hours
Active	178.0bbl	Downhole		Shaker 1	Brandt VSM 300	20 top/50bottom	24
Mixing	350.0bbl	Surf+ Equip	309.3bbl	Shaker 2	Brandt VSM 300	20 top/50bottom	5
Hole	945.0bbl	Dumped		Shaker 3	Brandt VSM 300	20 top/50bottom	24
Slug	4.0bbl	De-Gasser		Shaker 4	Brandt VSM 300	20 top/50bottom	13
Reserve	1178.0bbl	De-Sander					
Kill		De-Silter					
		Centrifuge	17.0bbl				

Comment Centrifuge #2 down due to electrical fan motor failure. New motor orderd.

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 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	281.00	GR decrease, res increase
Demons Bluff	1839.00	1813.00	1850.00	1824.00	-11.00	0.00	Res increase

Lithology Summary

Interval MDBRT (m) From To	ROP (m/hr)	Lithology
1540.00 - 1569.00	Min:15 Avg:44 Max:86	SILTSTONE SILTSTONE (100%) : olive grey, medium grey, soft to firm, subblocky, trace very fine disseminated pyrite, trace glauconite, trace micro micas, 5% calcareous clay, 15% clay, 10% very fine quartz grains, grading locally to argillaceous siltstone.
Interval MDBRT (m) From To	ROP (m/hr)	Lithology
1569.00 - 1697.00	Min:9 Avg:45 Max:90	SILTSTONE grading in part to SANDY SILTSTONE, thin SANDSTONE at top of interval SILTSTONE (0-100%): olive grey, soft to firm, subblocky, trace carbonaceous specks, glauconite, lithic fragments, 5% calcareous clay, 10% clay, 5% very fine quartz sand. SANDY SILTSTONE (0-100%): olive grey, medium dark grey, soft to firm, angular to subblocky, trace carbonaceous specks, glauconite, lithic fragments, micro micas, shell fragments 5% calcareous clay, 10% clay, 20% very fine quartz sand. SANDSTONE (0-20%): medium bluish gray, medium grey, very fine grained, subrounded, well sorted to very well sorted, sub spherical quartz grains with 10% lithic components, moderately hard to hard, angular to sub blocky, trace micro mica, highly cemented, 10% calcareous cement, 10% clay component, no visual porosity, no hydrocarbon indications.
Interval MDBRT (m) From To	ROP (m/hr)	Lithology
1697.00 - 1850.00	Min:14 Avg:33 Max:88	ARGILLACEOUS SILTSTONE, interbeds of CLAYSTONE and DOLOMITE ARGILLACEOUS SILTSTONE (0-100%): olive grey, in part dark yellowish brown, olive black, soft to firm, subblocky, trace micromicas, trace glauconite, trace pyrite as burrow infill, trace carbonaceous specks, 5% calcareous clay, 25% clay. CLAYSTONE (0-60%): dusky brown, brownish grey, soft, subblocky to sticky, traces micromica, in part medium bluish grey, soft, subblocky, 10% calcareous clay. DOLOMITE (0-70%): pale yellowish brown, dark yellowish brown, soft to very hard, splintery to subconchoidal fracture, crystalline to earthy in part.
Interval MDBRT (m) From To	ROP (m/hr)	Lithology
1850.00 - 1955.00	Min:3 Avg:26 Max:85	ARGILLACEOUS SILTSTONE and CLAYSTONE interbeds, rare DOLOMITE BEDS ARGILLACEOUS SILTSTONE (0-100%): brownish black, soft to firm, occasionally friable, subblocky, traces micromicas, lithic fragments, glauconite grains, pyrite, 5% very fine quartz grains, 25% clay. CLAYSTONE (0-90%): olive black, olive grey, trace dark yellowish brown, soft to firm, subblocky to blocky, trace micromicas, lithic fragments, 10% silt sized fraction. DOLOMITE (0-5%): pale yellowish brown, dark yellowish brown, firm to hard, splintery fracture, crystalline to microcrystalline in places.
Interval MDBRT (m) From To	ROP (m/hr)	Lithology
1955.00 - 1980.00	Min:10 Avg:19 Max:57	ARGILLACEOUS SILTSTONE and CALCAREOUS CLAYSTONE interbeds ARGILLACEOUS SILTSTONE (0-100%): brownish black, soft to firm, occasionally friable, subblocky, traces micromicas, lithic fragments, glauconite grains, pyrite, 5% very fine quartz grains, 25% clay. CALCAREOUS CLAYSTONE (0-35%) medium grey, medium dark grey, light bluish grey, very soft to moderately hard, angular to subblocky, trace micromicas, shell fragments, calcite veining, 10% silt.
Interval MDBRT (m) From To	ROP (m/hr)	Lithology
1980.00 - 2004.00	Min:8 Avg:30 Max:54	Interbedded ARGILLACEOUS SILTSTONE grading in part to SILTY SANDSTONE and CLAYSTONE grading in part to SANDY CLAYSTONE ARGILLACEOUS SILTSTONE (0-90%): brownish black, olive black, soft to firm, subblocky, trace shell fragments, lithic fragments, glauconite, 20% clay, 5% very fine quartz sand. SILTY SANDSTONE (0-15%): brownish black, olive black, very fine grained, subrounded, well to very well sorted, subspherical quartz grains, soft to friable, subblocky, trace lithic fragments, 15% clay, 25% silt, poor visual porosity, no hydrocarbon indications. CLAYSTONE (0-20%): brownish black, olive black, medium grey, soft to firm, subblocky, trace shell fragments, lithic fragments, 5% very fine quartz sand. SANDY CLAYSTONE (0-25%): medium grey, medium dark grey, firm to moderately hard, subblocky, trace shell fragments, micromicas, 5% calcareous clay, 10% silt, 20% very fine quartz sand.

Gas Data									
Depth Interval (m)	Gas Type	Total Gas (%)	C1 (%)	C2 (%)	C3 (%)	iC4 (%)	nC4 (%)	C5 (%)	CO2 (%)
1540.00 - 1569.00	Drilled	0.417	0.3953	0.0021	0.0012	0.0006	0.0003	0.0006	
1569.00 - 1697.00	Drilled	0.517	0.4978	0.0027	0.0016	0.0007	0.0004	0.0008	
1697.00 - 1850.00	Drilled	0.453	0.4188	0.0040	0.0018	0.0007	0.0002	0.0006	
1780.00 - 1780.00	Peak	0.760	0.6924	0.0057	0.0028	0.0010	0.0004	0.0005	
1850.00 - 1955.00	Drilled	0.520	0.4474	0.0052	0.0026	0.0013	0.0003	0.0005	
1865.00 - 1865.00	Peak	0.880	0.7478	0.0088	0.0041	0.0018	0.0004	0.0005	
1955.00 - 1980.00	Drilled	0.490	0.4295	0.0074	0.0033	0.0019	0.0004	0.0006	
1977.00 - 1977.00	Peak	0.700	0.6368	0.0114	0.0050	0.0026	0.0005	0.0008	
1980.00 - 2004.00	Drilled	0.640	0.5645	0.0104	0.0046	0.0025	0.0005	0.0008	

Survey								
MDBRT (m)	Incl. (deg)	Corr. Az (deg)	TVDBRT (m)	'V' Sect (deg)	Dogleg (deg/30m)	N/S (m)	E/W (m)	Tool Type
1559.00	1.1		1558.84	19.5	0.3	19.5	0.0	MWD
1588.15	1.1		1587.99	20.1	0.0	20.1	0.0	MWD
1617.27	1.1		1617.10	20.6	0.0	20.6	0.0	MWD
1646.32	1.2		1646.15	21.2	0.3	21.2	0.0	MWD
1675.15	1.3		1674.97	21.8	0.3	21.8	0.0	MWD
1703.61	1.0		1703.43	22.4	1.1	22.4	0.0	MWD
1731.98	1.1		1731.79	22.9	0.4	22.9	0.0	MWD
1760.71	1.2		1760.52	23.5	0.3	23.5	0.0	MWD
1790.08	1.1		1789.88	24.1	0.3	24.1	0.0	MWD
1819.45	1.2		1819.24	24.7	0.3	24.7	0.0	MWD
1848.52	1.2		1848.31	25.3	0.0	25.3	0.0	MWD
1877.80	1.1		1877.58	25.9	0.3	25.9	0.0	MWD
1906.65	1.2		1906.43	26.5	0.3	26.5	0.0	MWD
1934.67	1.1		1934.44	27.0	0.4	27.0	0.0	MWD
1963.22	0.5		1962.99	27.4	2.1	27.4	0.0	MWD
1992.33	0.6		1992.10	27.7	0.3	27.7	0.0	MWD
2021.46	0.6		2021.22	28.0	0.0	28.0	0.0	MWD

06:00 Hrs Update	
Time:	06:00 Hrs on 18 Oct 2009
Depth:	2104 mMDRT/2104 mMDRT
Progress Since Midnight (m):	100
Status @ 0600hrs:	Drilling 12.25" hole. Depth at 06:00 hrs 2104m
Formation:	Demons Bluff Formation
Lithology:	Interbedded ARGILLACEOUS SILTSTONE and CLAYSTONE
ROP:	Ave 29.7 m/hr (12.1 - 73.5 m/hr)
Gas:	Ave BG 0.536%, C1 0.4642, C2 0.0107, C3 0.0060, iC4 0.0009, nC4 0.0013, C5 0.0004

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