

## DAILY GEOLOGICAL REPORT

<b>Date:</b>	05 December 2008	<b>Rig:</b>	Ocean Patriot
<b>Report Number:</b>	10	<b>Bit Diameter:</b>	311 mm
<b>Report Period:</b>	06:00 - 06:00 Hours	<b>Last Casing:</b>	340mm Casing @ 1546.3 mMDRT
<b>Spud Date:</b>	27-Nov-2008 13:00 Hours	<b>FIT:</b>	1.65 sg EMW @ 1546.3 mMDRT
<b>Days From Spud:</b>	7.7	<b>Mud Weight:</b>	1.15 sg
<b>Depth @ 0600 Hrs:</b>	3337.0 mMDRT	<b>ECD:</b>	N/A
	-3282.2 mTVDAHD	<b>Mud Type:</b>	KCL / Polymer
<b>Lag Depth:</b>	3337.0 mMDRT	<b>Mud Chlorides:</b>	63000.00 mg/L
<b>Last Depth:</b>	2706.0 mMDRT	<b>Est. Pore Pressure:</b>	1.04 sg
<b>Progress:</b>	631.0 m	<b>Last Survey:</b>	3321.40 mMDRT
<b>Water Depth:</b>	392.6 m	<b>Deviation:</b>	Inc. 30.35°
<b>RT:</b>	21.5 m		Az. 355.39°

### OPERATIONS SUMMARY

**24 HOUR SUMMARY:** Drilled ahead new 311 mm (12 1/4") directional hole to 3337.0 mMDRT.

**NEXT 24 HOURS:** Pull out of hole to surface. Lay out 311 mm BHA and LWD /MWD tools. Pick up 216 mm bit and directional BHA. Run in hole and drill ahead to TD.

**CURRENT OPERATION**  
**@ 06:00 HRS (05-Dec-2008):** Pulling out of hole.

### GEOLOGICAL SUMMARY

**LITHOLOGY**

**INTERVAL:** 2620.0 to 2824.0 mMDRT (-2598.4 to -2802.4 mTVDAHD)  
**ROP (Range):** 9.0 to 140.0 m/h  
**Av. ROP:** 80.0 m/h

**Massive CALCAREOUS CLAYSTONE**

CALCAREOUS CLAYSTONE 100%: Medium grey, common medium dark grey, nil to minor olive grey trace greenish grey to dark greenish grey, nil to 5% with mottled appearance and trace glauconite, very calcareous and grading to MARL decreasing with depth, trace silty in part, minor loose very fine to fine quartz grains, minor fossils and crystalline fragments, nil to trace ooids, trace nodular and disseminated pyrite, trace carbonaceous material, smooth texture in part, common dispersive, very soft to brittle, dominantly soft to firm, common brittle, sub-blocky to sub-fissile, dominantly sub-blocky, minor to abundant amorphous in part.

**INTERVAL:** 2824.0 to 2850.0 mMDRT (-2802.4 to -2828.4 mTVDAHD)  
**ROP (Range):** 39.0 to 122.0 m/h  
**Av. ROP:** 68.0 m/h

**Interbedded SANDSTONE and SILTSTONE with minor CALCAREOUS CLAYSTONE**

SANDSTONE (30 to 60%): Clear to translucent, olive grey, very fine to coarse, dominantly very fine to fine, common medium, nil to rare coarse, well sorted, sub-rounded to rounded, dominantly sub-rounded, abundant rounded, nil visible cement, abundant glauconite, trace pyrite, rare mica flakes, trace fossil, disaggregated, poor inferred porosity, no hydrocarbon fluorescence.

SILTSTONE (10 to 70%): Dominantly olive black, common greyish black to brownish black, arenaceous grading to argillaceous, minor to abundant very fine to coarse glauconite and grading to GLAUCONITIC SILTSTONE with depth, minor micromicaceous, trace very fine floating quartz grains, rare mica flakes, trace pyrite, soft to firm, sub-blocky.

CALCAREOUS CLAYSTONE (Trace to 30%): Medium light grey to medium dark grey, minor olive grey, trace greenish grey to dark greenish grey, very calcareous, minor silty in part, trace to minor glauconite, trace very fine to fine quartz grains, trace fossils and crystalline fragments, trace nodular and disseminated pyrite, trace carbonaceous material, soft to brittle, dominantly firm to brittle, common soft, sub-blocky to sub-

fissile, dominantly sub-blocky, minor amorphous.

**INTERVAL:** 2850.0 to 2870.0 mMDRT (-2828.4 to -2848.3 mTVDAHD)  
**ROP (Range):** 39.0 to 115.0 m/h  
**Av. ROP:** 72.0 m/h

**GLAUCONITIC SANDSTONE with SILTSTONE interbeds and basal CALCAREOUS CLAYSTONE stringers**

GLAUCONITIC SANDSTONE (60 to 95%): Clear to translucent, very fine to very coarse, dominantly fine to medium, trace to minor coarse, nil to rare very coarse with depth, well to moderately sorted, angular to sub-rounded, dominantly sub-angular to angular, abundant sub-rounded, nil visible cement, trace pyrite cement, trace dispersive argillaceous matrix, fine to coarse glauconite, rare pyrite, rare mica flakes, disaggregated, good inferred porosity, no hydrocarbon fluorescence.

SILTSTONE (5 to 35%): Dominantly olive black, common greyish black to brownish black, arenaceous grading to argillaceous, abundant very fine to coarse glauconite and grading to GLAUCONITIC SILTSTONE, minor micromicaceous, trace very fine floating quartz grains, rare mica flakes, trace pyrite, soft to firm, sub-blocky.

CALCAREOUS CLAYSTONE (Nil to 5%): Dark greenish grey, medium grey, light grey, very calcareous where light grey, minor silty in part, glauconite, trace disseminated pyrite, trace carbonaceous material, soft to firm, sub-blocky, minor amorphous.

**INTERVAL:** 2870.0 to 2920.0 mMDRT (-2848.3 to -2897.9 mTVDAHD)  
**ROP (Range):** 34.0 to 175.0 m/h  
**Av. ROP:** 83.0 m/h

**GLAUCONITIC SANDSTONE with interbedded GLAUCONITIC SILTSTONE and CLAYSTONE**

GLAUCONITIC SANDSTONE (70 to 80%): Clear to translucent, fine to very coarse, dominantly medium, common coarse to very coarse, moderately sorted, angular to rounded, dominantly sub-angular, abundant sub-rounded, common angular, minor rounded, trace moderately strong siliceous cement, rare strong pyrite cement, fine to coarse glauconite and grading to GREENSAND, minor quartz shards, rare pyrite, rare mica flakes, trace rose quartz, disaggregated, good inferred porosity, no hydrocarbon fluorescence.

GLAUCONITIC SILTSTONE (15 to 20%): Olive black to greyish black, common brownish black, arenaceous, very fine to coarse glauconite, minor micromicaceous, rare mica flakes, trace pyrite nodules, firm to moderately hard, sub-blocky.

CLAYSTONE (5 to 10%): Medium grey to medium dark grey, rare light grey, weakly to moderately calcareous, trace glauconite, minor micromicaceous, brittle to hard, dominantly brittle to moderately hard, common hard, sub-blocky.

**INTERVAL:** 2920.0 to 3289.0 mMDRT (-2897.9 to -3240.7 mTVDAHD)  
**ROP (Range):** 9.0 to 192.0 m/h  
**Av. ROP:** 76.0 m/h

**SANDSTONE with SILTSTONE interbeds and minor CLAYSTONE and COAL stingers in upper section**

SANDSTONE (60 to 90%): Clear to translucent, opaque, pale grey and off white in part with depth, very fine to very coarse, bi-modal in upper section with very fine to medium (20-50%) and coarse to very coarse (50-80%), very poorly sorted to well sorted, angular to rounded, trace moderately strong siliceous cement, rare strong pyrite cement, trace moderate calcareous cement, with depth minor to locally common off white matrix where very fine and commonly grading to an ARENACEOUS SILTSTONE in part, abundant fine to coarse glauconite in upper section and grading to GLAUCONITIC SANDSTONE where very fine to medium grained, nil glauconite with depth, minor quartz shards, trace to rare pyrite, trace rose quartz, trace carbonaceous material, trace chert, friable aggregates, moderately hard to hard where pyrite cement, dominantly disaggregated, good inferred porosity, no hydrocarbon fluorescence.

SILTSTONE (Nil to 30%): Medium dark grey in upper section grading to dark grey to olive black with depth, minor brownish black, off white to light grey and olive grey in lower section, dominantly very finely arenaceous and grading to a SILTY SANDSTONE in lower section, minor argillaceous, carbonaceous where brownish black, trace to minor carbonaceous material and laminations, abundant argillaceous matrix and grading to SILTY CLAYSTONE, trace very fine glauconite, trace micromicaceous, trace lithics, trace nodular and disseminated pyrite, firm to brittle, dominantly firm, minor brittle in upper, moderately hard to hard, minor brittle in lower section, sub-blocky.

CLAYSTONE (Nil to 10%): Medium grey to medium dark grey, silty and grading to SILTY CLAYSTONE

and ARGILLACEOUS SILTSTONE, trace to minor carbonaceous material, trace lithics, trace carbonaceous material, weakly calcareous, firm to brittle, dominantly firm, minor brittle, sub-blocky.  
 COAL (Nil to 5%): Black to greyish black, humic, lignitic, dull to earthy, brittle to hard, blocky to sub-blocky, hackly fracture, silty in part and grading to CARBONACEOUS SILTSTONE, trace disseminated pyrite.

**INTERVAL:** 3289.0 to 3337.0 mMDRT (-3240.7 to -3282.2 mTVDAHD)  
**ROP (Range):** 2.0 to 82.0 m/h  
**Av. ROP:** 43.0 m/h

**SANDSTONE with SILTSTONE interbeds**

SANDSTONE (75 to 90%): clear to translucent, off white to pale grey where very fine to fine aggregates, very fine to very coarse, poorly sorted, very well sorted aggregates, sub-rounded to angular where coarse to very coarse, sub-rounded where very fine to fine, common to abundant pale grey to off white silty matrix where very fine to fine grained aggregates and generally grading to an ARENACEOUS SILTSTONE, locally common moderately strong pyritic cement, minor nodular pyrite, generally loose fractured coarse grains, common medium grey chert grains, rare fine glauconite material, moderately hard very fine to fine grained aggregates, very poor visible porosity associated with aggregates, good inferred porosity, no hydrocarbon fluorescence.

SILTSTONE (10 to 25%): light grey, light grey to medium brown, occasionally olive black and medium brown, commonly arenaceous and grading to a SILTY SANDSTONE, argillaceous in part, common carbonaceous material and localised COAL laminations and fragments where brownish black, minor micromicaceous and lithics, occasional nodular pyrite, moderately hard to hard, sub-block to blocky.

**GAS SUMMARY**

Background Gas							
INTERVAL (mMDRT)	Total Gas (%)	C1 (ppm)	C2 (ppm)	C3 (ppm)	iC4 (ppm)	nC4 (ppm)	C5 (ppm)
2620.0 - 2824.0	0.05	0	0	0	0	0	0
2824.0 - 2850.0	0.01	0	0	0	0	0	0
2850.0 - 2890.0	0.02	0	0	0	0	0	0
2890.0 - 2920.0	0.02	0	0	0	0	0	0
2920.0 - 3289.0	0.03	0	0	0	0	0	0
3289.0 - 3337.0	0	0	0	0	0	0	0

**Note:** No chromatograph gas due to panel failure.

**SAMPLE QUALITY**

Good sample returns. Sample rate dictated by ROP.  
 Collected 10 m sample intervals from 2620.0 m to 2810.0 mMDRT.  
 Collected 5 m sample intervals from 2810.0 m to 2930.0 mMDRT.  
 Collected 10 m sample intervals from 2930.0 m to 3337.0 mMDRT.

**MUDLOGGING EQUIPMENT / PERSONNEL**

All drilling systems operational. Replacement chromatograph installed and calibrated.

**MWD**

Run #4, Bit Run #3: 311 mm LWD Tool offsets to bit:

Tool	Serial #	Distance to bit (m)
Pressure w/- Drilling	ARC 10.47	
Resistivity	ARC LWD	11.18
Gamma Ray	ARC LWD	11.23
Direction and Inclination	Telescope MWD	18.99
Sonic	Sonic Vision	28.01
Gamma Ray	GVR LWD	31.5
Ring Resistivity	GVR LWD	31.76

Sonic / Density Caliper	SADN LWD	38.17
Neutron Density	SADN LWD	38.43
Neutron Porosity	SADN LWD	40.17

Sonic tool failed from the outset of drilling. No sonic data. Unit UPS failed. Replacement to be dispatched.

Tool configuration does not allow real time data for the SADN (Density and Porosity) tool to be displayed as there are no extenders connecting them to the communications tool. No real time data from GVR-8 (GeoVision Resistivity) will be displayed. The recorded sonic data cannot be processed on the rig and will be sent back to town for processing.

**REMARKS**

Drilled ahead new 311 mm (12-1/4") open hole from 2706.0 m to 2788.0 mMDRT where the first kick off was initiated. Directionally drilled ahead to 3337.0 mMDRT where the bit was pulled due to poor ROP. Circulated hole clean and commenced pulling out of hole, backreaming and working tight hole, as necessary.

**WELLSITE GEOLOGISTS**

Greg Fawns / Adam Cruickshank