



## DAILY GEOLOGICAL REPORT

**WELL:** Shenandoah #1 **REPORT No.:** 32 **DAYS FROM SPUD:** 32 **DATE:** 01/09/07  
**PEL:** EP 98 **00:00 DEPTH:** 771mKB **LAST 24hr DEPTH:** 771mKB **24 hr Progress:** 0m  
**LOCATION:** Beetaloo Basin **RIG:** Century Rig 7 **KB: (Final Survey)** 232.55m **13 <sup>3</sup>/<sub>8</sub>" Csg:** 312m  
**GEOLOGIST:** J Hulse **GL: (Final Survey)** 226.75m **PTD:** 2,900m

**NEARBY WELLS:** Balmain #1 (Twin)

**06:00 Depth/Operation:** 798mKB / Drill ahead in lower Hayfield Mudstone.

**Operations 00:00 to 06:00:** RIH to bottom, drill ahead with aerated water

**Previous 24 Hours Operations:** Repair rotary, RIH, hung up at 594mKB, wash and ream through obstruction 604-623mKB

Formation Tops	Actual Depths (m)			Prognosed Depths (m)			Diff to Prog. H/L	Thickness (m)
	MDKB	TVD	TVDSS	MDKB	TVD	TVDSS		
Undifferentiated Tertiary	5.8	5.8	+227	5.8	5.8	+227	-	45.7
Jinduckin Formation	51.5	51.5	+181.3	54.8	54.8	+178	3.3H	32.7
Tindall Limestone	84.2	84.2	+148.6	83.8	83.8	+149	0.4L	178.8
Antrim Volcanics	263.0	263.0	-30.5	265.3	265.3	-32.5	2.0H	85.0
Bukalara Sandstone	348.0	348.0	-115.5	348.3	348.3	-115.5	0.0	58.0
Hayfield Mudstone	406.0	406.0	-173.5	406.3	406.3	-173.5	0.0	375.9
Hayfield Sand	782.5	782.3	-549.7	782.2	782.2	-549.4	0.3L	
Jamison Sandstone				856.3	856.3	-623.5		
Kyalla Formation				940.8	940.8	-708		
Moroak Sandstone				1551.8	1551.8	-1319		
Velkerri Formation				1641.8	1641.8	-1409		
Bessie Creek Sandstone				2481.8	2481.8	-2249		
Total Depth				2900.0	2900.0	-2667.2		

### 06:00 AM Summary

**Remarks:** The Hayfield Sandstone was intersected as prognosed at 782.5mKB. The amount of sand encountered was less than expected, peaking at 20% of the sample. This corresponded with the observed low gas levels and composition, poor fluorescence and lack of (under balanced) produced oil. The ROP curve was showed relatively few deflections normally associated with sandstone development. The combined observations indicate that, unlikely as it may be in such a short distance, the sand is not as well developed as Balmain-1. It is also noticed that much of the fluorescence in Balmain-1 core was noted as being associated with fractures, which would not necessarily be retained in cuttings. Also note the drop in gas corresponding with the best observed sand, potentially an indication of water saturation.

Interval (m) ROP (min/m)	Lithology Description	Gas/B'ground Breakdown C1/C2/C3/C4/C5
<b>Formation: HAYFIELD MUDSTONE</b>		
771-782mKB	<b>Mudstone (100%):</b> Pale green, minor brown grey, firm – moderately hard, common sub fissile, finely micromicaceous, trace argillaceous / micaceous laminae, trace biotite leaves.	Tg max 2 unit Bkg gas 0 unit 100% C1
<b>Fluorescence</b>	Nil	
<b>Gas Flaring</b>	Nil	
782-783mKB	<b>Mudstone (97%):</b> A/A <b>Sandstone (3%):</b> Translucent – white, fine, well sorted, sub angular, moderately - well consolidated, quartzose, abundant white clay cement, common siliceous matrix, nil visible porosity.	Tg max 1.5 unit Bkg gas <1 unit 100% C1



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<b>Fluorescence</b>	Nil	
<b>Gas Flaring</b>	Nil	
783-786mKB	<b>Mudstone (90%):</b> Pale green – grey green, red brown, massive, firm – moderately hard, minor micaceous laminae. <b>Sandstone (10%):</b> Translucent – white, fine, well sorted, sub angular, moderately - well consolidated, quartzose, abundant white clay cement, common siliceous matrix, nil visible porosity.	Tg max 1.7 unit Bkg gas <1 unit 100% C1
<b>Fluorescence</b>	Nil	
<b>Gas Flaring</b>	Nil	
786-789mKB	<b>Mudstone (80%):</b> A/A <b>Sandstone (20%):</b> White, fine – rarely medium, sub angular, moderately well sorted, massive, moderately well consolidated, abundant white non calcareous cement, minor argillaceous matrix with associated pyrite, minor matrix supported, nil – trace very poor visible porosity.	Tg max <1 unit Bkg gas <1 unit 100ppm C1
<b>Fluorescence</b>	Trace (~10 grains) dull green yellow fluorescence, no cut, no crush cut.	
<b>Gas Flaring</b>	Nil	
789-792mKB	<b>Mudstone (85%):</b> Pale green, grey brown – red brown (60/40), micromicaceous, firm – moderately hard, massive – weakly laminar. <b>Sandstone (15%):</b> White – off white, very fine – predominantly fine, moderately well sorted, sub angular – minor sub round, abundant white non calcareous cement, minor argillaceous matrix, trace pyrite matrix, rare fine micaceous laminae, nil – trace poor visible porosity.	Tg max 2 unit Bkg gas <1 unit 100% C1
<b>Fluorescence</b>	Trace (~5 grains) dull – moderately bright, patchy greenish yellow fluorescence, very slow diffuse pale yellowish white cut, diffuse yellowish white crush cut, thin film residue.	
<b>Gas Flaring</b>	Nil	
792-795mKB	<b>Mudstone (95%):</b> A/A Green / Brown (30/70) <b>Sandstone (5%):</b> A/A	Tg max 2.3 unit Bkg gas 1 unit 100% C1
<b>Fluorescence</b>	Nil	
<b>Gas Flaring</b>	Nil	
795-798mKB	<b>Mudstone (100%):</b> Predominantly grey brown, micromicaceous, common micaceous laminae, arenaceous in part grading to siltstone, firm – moderately hard, sub blocky – sub platy. Minor pale green mudstone. <b>Sandstone (Trace%):</b> A/A	Tg max 4 unit Bkg gas 1.5 unit 100% C1
<b>Fluorescence</b>	Nil	
<b>Gas Flaring</b>	Nil	