

4 Jikara Drive  
Glen Osmond SA 5064  
Phone : 61 8 83387266  
Fax : 61 8 83387277  
ABN : 13 211 314 811



# **DRILLING FLUID SUMMARY**

**FOR : CENTRAL PETROLEUM**

**WELL : CBM 107-002**

**PEDIRKA BASIN**

**NORTHERN TERRITORY**

Prepared by : Jacek Zbik  
Andre Skujins

Date : May 2010

Operator : Central Petroleum  
Well : CBM 107-002  
Rig : Wallis Delta 39  
Spud : 1<sup>st</sup> May 2010



## CONTENTS

1. Summary of Operations
2. Observations, Recommendations & Well Analysis
3. Fluid Properties Summary
4. Daily Mud Reports

Operator : Central Petroleum  
Well : CBM 107-002  
Rig : Wallis Delta 39  
Spud : 1<sup>st</sup> May 2010



## 1. SUMMARY OF OPERATIONS

CBM 107-002 was located some 300k east of Alice Springs in the south eastern corner of Northern Territory. The well was designed to test gas potential of the Purni Coal Measures of the Pedirka Basin by coring and testing the coals using injection and fall of equipment.

The drill water used was sourced from a nearby bore (NTGNR17966). The water was relatively fresh and had the following properties:

pH : 8.5  
Alkalinity : 0.0 / 0.23  
Chlorides : 2700 mg/L  
Hardness : 800 mg/L

**HOLE SIZE : 12¼"**  
**MUD TYPE : Aus Gel spud mud**  
**CASING : 10" set at 17.5 meters**

The drilling crew prepared the Spud mud prior to the arrival of the RMN engineer. 240 bbl of AUS GEL (11 ppb) – CR 650 (0.14 ppb) mud was prepared and stored in the Sump 1 and the Tanks.

The CBM 107 – 002 was spudded on the 1 May 2010 at 11:30 hrs. The spud mud was used to drill out 8.5" hole to 17.5m and then to widen it with a blade bit to 12.25". A PVC 10" casing was then ran in and cemented in place.

**HOLE SIZE : 8½"**  
**MUD TYPE : Gel / KCL / Polymer**  
**INTERVAL : 17.5 metres – 240.6 metres.**  
**CASING : 236.75 m**

While waiting on cement the volume of the mud was increased to fill the entire Sump 1. Simultaneously the mud was viscosified using PAC R to improve the rheology and filtration characteristics of the mud. The pH was maintained using Soda Ash.

An 8 ½ " bit and BHA was run into the hole and drilling resumed using the same fluid. KCl was added into the mud once clays were drilled. KCl premixes were used thereafter to maintain volume and PAC R was used for fluid loss control and building the Yield Point. CR 650 was also used intermittently to provide viscosity. Viscosity was maintained in the range of 30-36secs/quart for this section. KCl was maintained within a 2-3% range.

**Operator** : **Central Petroleum**  
**Well** : **CBM 107-002**  
**Rig** : **Wallis Delta 39**  
**Spud** : **1<sup>st</sup> May 2010**



As the hole deepened, the mud weight was allowed to rise to keep a stable hole in the Maccunda and Bulldog shale formations for running casing at the end of the interval. Yield Point remained low for an 8 ½" hole due to PAC R lack of shear thinning. The driller reported that the hole was cleaning well and calculations indicated a laminar flow throughout the bore hole. PAC was required for Filtration loss control as well as Yield Point building.

The hole was drilled to 240 m without any hole instability or cleaning problems usually associated with these formations. The hole was circulated clean and a wiper trip to surface pulled finding no fill on bottom. After pumping a high vis pill (PAC R), the hole was circulated clean and the pipe was pulled to run casing.

7" casing was run to the depth of 236.75 m and cemented with no cement returns to surface. The mud displaced from the hole has been retained in the sump. Remedial top up job was then successfully conducted.

**HOLE SIZE** : **6 1/8"**  
**MUD TYPE** : **Gel – KCl – Polymer**  
**INTERVAL** : **240.6 metres – 278.2 metres.**  
**CASING** : **278.2 m**

While waiting on cement the mud was conditioned for the use in the HQ cored section. To that end a second sump was brought into line. The weir connection between sumps allowed for better settling of the cuttings. This provided for a lower solid content in the mud and helped to control the mud weight. The total active volume was increased to 540 bbl as a result of utilising the longer system. The mud was viscosified using CR 650 as programmed, and the KCl level was brought to 4 %wt. A corrosion inhibitor was added to prevent damage to the rig equipment. The pH was controlled with Soda Ash.

The HQ drilling assembly was run in the hole. The shoe track and the cement had been cored out. At 243.9 m a leak off test has been conducted. The equivalent mud weight obtained was 10.4 ppg. The coring then continued until 249 m. At that depth the pipe became stuck in the loose sands of the Algebuckina Sandstone. The client decided to pull the HQ string, and the 4.5" VAM casing out of the hole and return to the 6.125" rotary drilling.

The mud designed for the coring operation was isolated in the sumps 2 and 3. Sump 1 was lined up with the tank 1 and new Gel based mud was mixed with AUS – GEL at 15 ppb. Further AUS – GEL was added while drilling bringing the theoretical concentration to 22 ppb.

The mud system relies on the portable Robin pumps for transferring mud between the well head, sumps, and the tanks. As those pumps wore out over time there was no means available to agitate the sump. The gel then begun to settle out.

**Operator** : **Central Petroleum**  
**Well** : **CBM 107-002**  
**Rig** : **Wallis Delta 39**  
**Spud** : **1<sup>st</sup> May 2010**



While drilling the bit became blocked and the driller unblocked it by moving the string rapidly up and down. This has swabbed the formation further lowering the viscosity. The string was pulled back into the casing and the water influx circulated out.

The mud was then reconditioned with polymers and salt bringing up the viscosity and mud weight. The 6.125" bit was then brought back to bottom and the rotary drilling continued to the depth of 278.2 m.

Following the addition of Xanthan Gum D the yield point dramatically improved. The lower Yield Point in the Gel mud was possibly to some KCl still retained in the system from the previous operations. This even though the AUS – GEL was mixed and hydrated in fresh water and then added to the system. In such a small diameter hole the cleaning was effective and the flow was laminar through out the hole.

The KCl was kept lower than programmed, just over 2%, so that AUS – GEL would not flocculate out. The swelling clays were already isolated behind the 7" casing and control of the loose sands became a priority.

A 10 bbl high viscosity AUS – GEL pill prepared and spotted on the bottom. The aim of it was to hold the loose sands in place while the tubulars were out of the hole. The 4.5" VAM casing was then run in hole without problems and cemented. The water spacer returned to surface and was directed into the flare pit. While pressure testing the casing parted 8 stands below the well head. The cement behind the parted section was immediately flushed out and the loose casing extracted out of the hole.

It was decided not to carry over the KCl/Polymer mud from the previous section due to concerns about PAC R affecting the injectivity testing of the coals. The Gel – KCl – Polymer mud was isolated in the Sump 1 and the mud in the tanks was dumped in the same. The sumps 2 and 3 were brought back into line and fresh KCl – Polymer (CR 650 only) mud was prepared in the tanks in anticipation of the coring operations.

**HOLE SIZE** : **3-7/8"**  
**MUD TYPE** : **KCL- Polymer**  
**INTERVAL** : **278 metres – TD**

The missing casing was reinserted into the hole and the coring assembly run in to the bottom. Geologist indicated that there may still be loose sands in the early coring stages. As a precaution the mud was kept viscous with CR 650 by maintaining the funnel viscosity over 35 s/qt. The old mud from the rotary section was also kept to be made available in case of any hole problems.

The Mud Engineer was released at this stage.

Operator : Central Petroleum  
Well : CBM 107-002  
Rig : Wallis Delta 39  
Spud : 1<sup>st</sup> May 2010



## 2. OBSERVATIONS, RECOMMENDATIONS AND WELL ANALYSIS

Lessons that could be carried over from this well include:

- The installing of the hopper by the crew has provided both quick and efficient way to mix polymers. Without it the mudding up was quite difficult.
- The Spud mud needs to have adequate viscosity from the Gel and polymer. The CR 650 spud mud prepared by the crew had too low Yield Point that could not be adequately remedied due to short drilling time and slow mixing time.
- The Gel only mud settles out in the sump without agitation. Therefore if agitation is not available the mud has to be polymer based.
- The pills supporting the well bore should be Gel based as the Bentonite provides the Gel strength that keeps the sands in place. Lack of agitation is then not an issue as only a limited batch is prepared at a time.
- Top hole Maccunda and bulldog shale formations behaved very stably due to the KCl concentration.
- The Algebuckina Sandstone can be troublesome and easily swabbed. A coring mud may not be able to support the loose sands. A thicker filter cake forming mud should be used in this section.
- With low original Gel concentration Xan – Bore would be a better chemical to provide higher Yield Point than PAC R.
- The Funnel Viscosities of about 36 s/qt provided good cleaning hole capacity with a laminar flow regime throughout the well bore.



## 5. FLUID PROPERTIES SUMMARY

Date	Mud Type	Temp	Depth	Weight	Vis	PV	YP	Gels		Filtrate		Solids				pH	Pf	Mf	Cl-	Ca++	K+	KCl
								10 sec	10 min	API	Cake	Solids	Water	Sand	MBT							
1-May-10	Gel - Polymer	24	18	8.40	36	2	1	1	1	29.0	1	0.3	99.7		2.0	8.5	0.08	0.25	3,100	560		
2-May-10	Gel - Polymer	30	87	8.65	37	6	1	1	1	16.0	1	1.3	98.7	1.0	8.8	9.0	0.06	0.12	14,000	1240	15,131.2	2.8
3-May-10	Gel - Polymer	32	241	8.80	34	7	1	1	1	16.0	2	2.4	97.6	0.2	16.3	8.5	0.06	0.12	14,000	1600	15,131.2	2.8
4-May-10	KCl - Polymer	-	241	8.65	33	3		1	1	19.0	1	0.9	99.1	0.0	6.3	8.7	0.11	0.27	20,000	800	22,156.4	4.1
5-May-10	KCl - Polymer	-	241	8.65	35	3	1	1	1	20.0	1	0.9	99.1	0.0	7.5	9.8	0.07	0.16	19,000	1040	21,075.6	3.9
6-May-10	KCl - Polymer	25	247	8.65	32	2	1	1	1	22.0	1	1.0	99.0	0.0	6.3	9.9	0.07	0.17	18,000	1160	19,994.8	3.7
7-May-10	Gel - Polymer	-	249	8.75	41	16	3	2	3	11.0	1	2.2	97.8	2.5	20.0	9.5	0.08	0.15	10,000	800	11,348.4	2.1
8-May-10	Gel - Polymer	25	278	8.75	42	12	7	3	4	11.5	1	1.8	98.2	1.0	12.5	9.0	0.08	0.18	16,000	880	17,833.2	3.3
9-May-10	Gel - Polymer		278	8.80	37	7	7	2	3	11.5	1	2.2	97.8	1.0	12.5	9.0	0.07	0.18	16,000	840	17,833.2	3.3
10-May-10	Gel - Polymer	24	288	8.55	35	3	1	1	1	16.5	1	0.4	99.6	Tr	2.5	9.5	0.04	0.32	16,000	1000	17,833.2	3.3



# DRILLING FLUID REPORT



Report #	1	Date :	1-May-2010
Rig No	D 39	Spud :	1-May-2010
Depth	to 17.5 Metres		

OPERATOR	Central Petroleum	CONTRACTOR	Wallis Drilling Contractors		
REPORT FOR	Guy Holmes	REPORT FOR			
WELL NAME AND No	CBM 107-002	FIELD	LOCATION	STATE	
		EP 107	Pedrika Basin	Northern Territory	

DRILLING ASSEMBLY		JET SIZE		CASING		MUD VOLUME (BBL)		CIRCULATION DATA			
BIT SIZE	TYPE			SURFACE SET @	ft	HOLE	PITS	PUMP SIZE		CIRCULATION PRESS (PSI)	
8.50	Rock				M	4	204	4 X 4.5	Inches		psi
DRILL PIPE SIZE	TYPE	Length		INTERMEDIATE SET @	ft	TOTAL CIRCULATING VOL.		PUMP MODEL	ASSUMED EFF	BOTTOMS UP (min)	
	#	18	Mtrs		M	243		FMC	97 %	#DIV/0! min	
DRILL PIPE SIZE	TYPE	Length		PRODUCTION. or LINER Set @	ft	IN STORAGE		BBL/STK	STK /MIN	TOTAL CIRC. TIME (min)	
	HW		Mtrs		M	35		0.0291		#DIV/0! min	
DRILL COLLAR SIZE (")		Length		MUD TYPE							
			Mtrs	Gel - Polymer							

SAMPLE FROM		MUD PROPERTIES		MUD PROPERTY SPECIFICATIONS			
TIME SAMPLE TAKEN		Pit		Mud Weight	API Filtrate	HPHT Filtrate	
DEPTH (ft) - (m)	Metres	22:00		Plastic Vis	Yield Point	pH	
DEPTH (ft) - (m)	18			KCl	PHPA	Sulphites	
FLOWLINE TEMPERATURE	<sup>0</sup> C / <sup>0</sup> F	24		<b>OBSERVATIONS</b> The spud mud was prepared by the rig crew and 8.5" hole was drilled prior to the mud engineer's arrival. The product usage is based on the crew record. Mud Engineer arrived on site at 15:00.  Make up water: pH = 8, Pf / Mf = 0 / 0.23, Chlorides = 2700 mg/L, Hardness = 800 mg/L Carbonates = 0, Bicarbonates = 280 mg/L			
WEIGHT	ppg / SG	8.40	1.008				
FUNNEL VISCOSITY (sec/qt) API @	<sup>0</sup> C	36					
PLASTIC VISCOSITY cP @	24 <sup>0</sup> C	2					
YIELD POINT (lb/100ft <sup>2</sup> )		1					
GEL STRENGTHS (lb/100ft <sup>2</sup> ) 10 sec/10 min		1	1				
RHEOLOGY $\theta$ 600 / $\theta$ 300		5	3				
RHEOLOGY $\theta$ 200 / $\theta$ 100		2	1				
RHEOLOGY $\theta$ 6 / $\theta$ 3		1	1				
FILTRATE API (cc's/30 min)		29.0					
HPHT FILTRATE (cc's/30 min) @	<sup>0</sup> F						
CAKE THICKNESS API : HPHT (32nd in)		1					
SOLIDS CONTENT (% by Volume)	#DIV/0!	0.3					
LIQUID CONTENT (% by Volume) OIL/WATER		99.7					
SAND CONTENT (% by Vol.)							
METHYLENE BLUE CAPACITY (ppb equiv.)		2.0					
pH		8.5					
ALKALINITY MUD (Pm)		0					
ALKALINITY FILTRATE (Pf / Mf)		0.08	0.25				
CHLORIDE (mg/L)		3,100					
TOTAL HARDNESS AS CALCIUM (mg/L)		560					
SULPHITE (mg/L)							
K+ (mg/L)							
KCl (% by Wt.)							
PHPA (ppb)							
ECD (ppg)							

Mud Accounting (bbls)				Solids Control Equipment							
FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY		Type	Hrs	Cones	Hrs	Size	Hrs
Premix (drill water)	248	Desander		INITIAL VOLUME	0	Centrifuge					Shaker #1
Premix (recirc from sump)		Desilter				Degasser					Shaker #2
Drill Water		Downhole	5	+ FLUID RECEIVED	248						
Direct Recirc Sump		Dumped		- FLUID LOST	5						
Other (eg Diesel)		Other		+ FLUID IN STORAGE	35						
TOTAL RECEIVED	248	TOTAL LOST	5	FINAL VOLUME	278			Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)	
						Desander			0		
						Desilter			0		

Product	Price	Start	Received	Used	Close	Cost	Solids Analysis		Bit Hydraulics & Pressure Data	
Aus-Gel (Aust)	\$ 16.50	50		49	1	\$ 808.50		%	PPB	Jet Velocity
CR 650	\$ 105.12	56		1	55	\$ 105.12	High Grav solids			Impact force
Soda Ash	\$ 22.72	22		2	20	\$ 45.44	Total LGS	0.3	2.5	HHP
							Bentonite	0.2	2.0	HSI
							Drilled Solids	0.1	0.5	Bit Press Loss
							Salt	0.2	1.8	CSG Seat Frac Press
							n @ 22:00 Hrs	0.74		Equiv. Mud Wt.
							K @ 22:00 Hrs	0.16		Max Pressure @ Shoe :
							DAILY COST		CUMULATIVE COST	
							\$959.06		\$959.06	

RMN ENGINEER Jacek Zbik CITY Adelaide Office TELEPHONE 08 8338 7266

Any opinion and/or recommendation, expressed orally or written herein, has been prepared carefully and may be used if the user so elects, however, no representation or warranty is made by ourselves or our agents as to its correctness or completeness, and no liability is assumed for any damages resulting from the use of same.







# DRILLING FLUID REPORT



Report #	4	Date :	4-May-2010
Rig No	D 39	Spud :	1-May-2010
Depth	240.6	to	240.6 Metres

OPERATOR	Central Petroleum	CONTRACTOR	Wallis Drilling Contractors		
REPORT FOR	Guy Holmes	REPORT FOR			
WELL NAME AND No	CBM 107-002	FIELD	EP 107	LOCATION	Pedrika Basin
				STATE	Northern Territory

DRILLING ASSEMBLY		JET SIZE		CASING		MUD VOLUME (BBL)		CIRCULATION DATA				
BIT SIZE	TYPE			10 SURFACE SET @	57 ft 17 M	HOLE 31	PITS 555	PUMP SIZE 4 X 4.5 Inches		CIRCULATION PRESS (PSI) psi		
DRILL PIPE SIZE 4.5	TYPE #	Length	Mtrs	7 INTERMEDIATE SET @	777 ft 237 M	TOTAL CIRCULATING VOL. 586		PUMP MODEL FMC	ASSUMED EFF 97 %	BOTTOMS UP (min) min		
DRILL PIPE SIZE	TYPE HW	Length	Mtrs	PRODUCTION, or LINER Set @	ft M	IN STORAGE		BBL/STK 0.0291	STK / MIN	TOTAL CIRC. TIME (min) min		
DRILL COLLAR SIZE (")		Length	Mtrs	MUD TYPE	KCl - Polymer			BBL/MIN	GAL / MIN	ANN VEL. (ft/min)	DP DCs	#####

SAMPLE FROM		MUD PROPERTIES		MUD PROPERTY SPECIFICATIONS			
TIME SAMPLE TAKEN		Pit	Pit	Mud Weight	API Filtrate	HPHT Filtrate	
DEPTH (ft) - (m)	Metres		18:30	Plastic Vis	Yield Point	pH	
FLOWLINE TEMPERATURE	<sup>0</sup> C / <sup>0</sup> F		241	KCl	PHPA	Sulphites	
WEIGHT	ppg / SG		8.65	<b>OBSERVATIONS</b> Displced mud from the hole has been retained in the sump. The second has been brought online and included in the active system. New mud was built up using CR 650 to viscosity to 33 s/qt and KCl. Biocide was added to prevent bacterial degradation and Corrosion inhibitor was added to protect the rig equipment. During making of the new mud the mud was circulated between the sumps through the weir and the suction tank using a Robin pump.			
FUNNEL VISCOSITY (sec/qt) API @	<sup>0</sup> C		33				
PLASTIC VISCOSITY cP @	25 <sup>0</sup> C		3				
YIELD POINT (lb/100ft <sup>2</sup> )							
GEL STRENGTHS (lb/100ft <sup>2</sup> ) 10 sec/10 min			1   1				
RHEOLOGY $\theta$ 600 / $\theta$ 300			6   3				
RHEOLOGY $\theta$ 200 / $\theta$ 100			2   1				
RHEOLOGY $\theta$ 6 / $\theta$ 3			1   1				
FILTRATE API (cc's/30 min)			19.0				
HPHT FILTRATE (cc's/30 min) @	<sup>0</sup> F						
CAKE THICKNESS API : HPHT (32nd in)			1				
SOLIDS CONTENT (% by Volume)			0.9				
LIQUID CONTENT (% by Volume) OIL/WATER			99.1				
SAND CONTENT (% by Vol.)			0.01				
METHYLENE BLUE CAPACITY (ppb equiv.)			6.3				
pH			8.7				
ALKALINITY MUD (Pm)			0				
ALKALINITY FILTRATE (Pf / Mf)			0.11   0.27				
CHLORIDE (mg/L)			20,000				
TOTAL HARDNESS AS CALCIUM (mg/L)			800				
SULPHITE (mg/L)							
K+ (mg/L)			21,525				
KCl (% by Wt.)			4.1				
PHPA (ppb)							
ECD (ppg)							

Mud Accounting (bbls)				Solids Control Equipment							
FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY		Type	Hrs	Cones	Hrs	Size	Hrs
Premix (drill water)	50	Desander		INITIAL VOLUME	311	Centrifuge				Shaker #1	
Premix (recirc from sump)		Desilter				Degasser				Shaker #2	
Drill Water	171	Downhole	0	+ FLUID RECEIVED	275						
Direct Recirc Sump		Dumped		- FLUID LOST	0						
Other (eg Diesel)	54	Other		+ FLUID IN STORAGE							
TOTAL RECEIVED	275	TOTAL LOST	0	FINAL VOLUME	586	Desander	Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)		
						Desilter		0			

Product	Price	Start	Received	Used	Close	Cost	Solids Analysis		Bit Hydraulics & Pressure Data	
AMC Biocide	\$ 156.05	12		1	11	\$ 156.05		%	PPB	Jet Velocity
Potassium Chloride	\$ 33.00	605		65	540	\$ 2,145.00	High Grav solids			Impact force
Wildcat 420	\$ 275.60	18		1	17	\$ 275.60	Total LGS	0.9	8.1	HHP
							Bentonite	0.7	6.1	HSI #DIV/0!
							Drilled Solids	0.2	1.7	Bit Press Loss
							Salt	1.2	11.6	CSG Seat Frac Press
							n @ 18:30 Hrs	1.00		Equiv. Mud Wt.
							K @ 18:30 Hrs	0.03		Max Pressure @ Shoe :
							DAILY COST		CUMULATIVE COST	
							\$2,576.65		\$6,239.57	

RMN ENGINEER Jacek Zbik CITY Adelaide Office TELEPHONE 08 8338 7266

Any opinion and/or recommendation, expressed orally or written herein, has been prepared carefully and may be used if the user so elects, however, no representation or warranty is made by ourselves or our agents as to its correctness or completeness, and no liability is assumed for any damages resulting from the use of same.



# DRILLING FLUID REPORT



Report #	5	Date :	5-May-2010
Rig No	D 39	Spud :	1-May-2010
Depth	240.6	to	240.6 Metres

OPERATOR	Central Petroleum	CONTRACTOR	Wallis Drilling Contractors		
REPORT FOR	Guy Holmes	REPORT FOR			
WELL NAME AND No	CBM 107-002	FIELD	LOCATION	STATE	
		EP 107	Pedrika Basin	Northern Territory	

DRILLING ASSEMBLY		JET SIZE		CASING		MUD VOLUME (BBL)		CIRCULATION DATA									
BIT SIZE	TYPE	11	11	11	10	SURFACE SET @	57	ft	HOLE	PITS	PUMP SIZE		CIRCULATION				
6.13	Tri cone					17	M		28	558	4	X	4.5	Inches	PRESS (PSI)	725	psi
DRILL PIPE SIZE	TYPE	Length		7		INTERMEDIATE SET @	777	ft	TOTAL CIRCULATING VOL.		PUMP MODEL		ASSUMED EFF		BOTTOMS		
3.5	#	187		Mtrs		237	M		586		FMC		97 %		UP (min)		
DRILL PIPE SIZE	TYPE	Length		PRODUCTION, or LINER Set @			ft	IN STORAGE		BBL/STK		STK / MIN		TOTAL CIRC.			
	HW			M						0.0291		88		TIME (min)			
DRILL COLLAR SIZE (")		Length		MUD TYPE						BBL/MIN		GAL / MIN		ANN VEL. (ft/min)		DP DCs	
4.50		54		KCl - Polymer						2.48		104		101		148	

SAMPLE FROM		MUD PROPERTIES		MUD PROPERTY SPECIFICATIONS			
TIME SAMPLE TAKEN		Pit	Pit	Mud Weight	API Filtrate	HPHT Filtrate	
DEPTH (ft) - (m)		Metres	241	Plastic Vis	Yield Point	pH	
FLOWLINE TEMPERATURE		<sup>0</sup> C	<sup>0</sup> F	KCl	PHPA	Sulphites	
WEIGHT		ppg / SG	8.65	<b>OBSERVATIONS</b> While drilling out the cement plug the circulation system was converted to a short system. The mud was treated with CR 650 for viscosity and the Citric Acid to maintain the pH level. Soda Ash was used to control the hardness.			
FUNNEL VISCOSITY (sec/qt) API @		<sup>0</sup> C	35				
PLASTIC VISCOSITY cP @		25 <sup>0</sup> C	3				
YIELD POINT (lb/100ft <sup>2</sup> )			1				
GEL STRENGTHS (lb/100ft <sup>2</sup> ) 10 sec/10 min			1   1				
RHEOLOGY Ø 600 / Ø 300			7   4				
RHEOLOGY Ø 200 / Ø 100			3   2				
RHEOLOGY Ø 6 / Ø 3			1   1				
FILTRATE API (cc's/30 min)			20.0				
HPHT FILTRATE (cc's/30 min) @		<sup>0</sup> F					
CAKE THICKNESS API : HPHT (32nd in)			1				
SOLIDS CONTENT (% by Volume)			0.9				
LIQUID CONTENT (% by Volume) OIL/WATER			99.1				
SAND CONTENT (% by Vol.)			0.01				
METHYLENE BLUE CAPACITY (ppb equiv.)			7.5				
pH			9.8				
ALKALINITY MUD (Pm)			0				
ALKALINITY FILTRATE (Pf / Mf)			0.07   0.16				
CHLORIDE (mg/L)			19,000				
TOTAL HARDNESS AS CALCIUM (mg/L)			1040				
SULPHITE (mg/L)							
K+ (mg/L)			20,475				
KCl (% by Wt.)			3.9				
PHPA (ppb)							
ECD (ppg)			8.66				

Mud Accounting (bbls)				Solids Control Equipment							
FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY		Type	Hrs	Cones	Hrs	Size	Hrs
Premix (drill water)		Desander		INITIAL VOLUME	586	Centrifuge					Shaker #1
Premix (recirc from sump)		Desilter		+ FLUID RECEIVED		Degasser					Shaker #2
Drill Water		Downhole	0								
Direct Recirc Sump		Dumped		- FLUID LOST	0						
Other (eg Diesel)		Other		+ FLUID IN STORAGE							
TOTAL RECEIVED		TOTAL LOST	0	FINAL VOLUME	586			Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)	
						Desander			0		
						Desilter			0		

Product	Price	Start	Received	Used	Close	Cost	Solids Analysis		Bit Hydraulics & Pressure Data		
Citric Acid	\$ 73.07	12		1	11	\$ 73.07	%	PPB	Jet Velocity	120	
Soda Ash	\$ 22.72	19		1	18	\$ 22.72	High Grav solids		Impact force	56	
							Total LGS	0.9	8.7	HHP	7
							Bentonite	0.8	7.5	HSI	0.2
							Drilled Solids	0.1	0.9	Bit Press Loss	112
							Salt	1.1	11.0	CSG Seat Frac Press	
							n @ 19:00 Hrs	0.81		Equiv. Mud Wt.	
							K @ 19:00 Hrs	0.13		Max Pressure @ Shoe :	
							DAILY COST		CUMULATIVE COST		
							\$95.79		\$6,335.36		

RMN ENGINEER Jacek Zbik CITY Adelaide Office TELEPHONE 08 8338 7266

Any opinion and/or recommendation, expressed orally or written herein, has been prepared carefully and may be used if the user so elects, however, no representation or warranty is made by ourselves or our agents as to its correctness or completeness, and no liability is assumed for any damages resulting from the use of same.







# DRILLING FLUID REPORT



Report #	8	Date :	8-May-2010
Rig No	D 39	Spud :	1-May-2010
Depth	250 to 278		Metres

OPERATOR	Central Petroleum	CONTRACTOR	Wallis Drilling Contractors		
REPORT FOR	Guy Holmes	REPORT FOR			
WELL NAME AND No	CBM 107-002	FIELD	LOCATION	STATE	
		EP 107	Pedrika Basin	Northern Territory	

DRILLING ASSEMBLY		JET SIZE		CASING		MUD VOLUME (BBL)		CIRCULATION DATA					
BIT SIZE	TYPE	11	11	11	10	SURFACE SET @	57 ft	HOLE	PITS	PUMP SIZE		CIRCULATION	
6.13	Tri Cone					17	M	32	368	4 X 4.5	Inches	PRESS (PSI)	730
DRILL PIPE SIZE	TYPE	Length			7	INTERMEDIATE SET @	777 ft	TOTAL CIRCULATING VOL.		PUMP MODEL	ASSUMED EFF	BOTTOMS	
3.5	#	224	Mtrs			237	M	637		FMC	97 %	UP (min)	
DRILL PIPE SIZE	TYPE	Length				PRODUCTION. or LINER Set @	ft	IN STORAGE		BBL/STK	STK /MIN	TOTAL CIRC.	
	HW						M	237		0.0291	80	TIME (min)	
DRILL COLLAR SIZE (")	Length					MUD TYPE			BBL/MIN	GAL /MIN	ANN VEL. (ft/min)	DP	
4.50	54	Mtrs				Gel - Polymer			2.26	95		DCs	92
													134
													Lam
													Lam

SAMPLE FROM		MUD PROPERTIES		MUD PROPERTY SPECIFICATIONS			
TIME SAMPLE TAKEN		Pit	Pit	Mud Weight	API Filtrate	HPHT Filtrate	
DEPTH (ft) - (m)	Metres		18:00	Plastic Vis	Yield Point	pH	
FLOWLINE TEMPERATURE	<sup>0</sup> C / <sup>0</sup> F		278	KCl	PHPA	Sulphites	
WEIGHT	ppg / SG		25	<b>OBSERVATIONS</b>			
FUNNEL VISCOSITY (sec/qt) API @	<sup>0</sup> C		8.75	The freshly prepared Gel settled significantly in the sump. No pump was made available to stir the mud as those that were working were needed to maintain fluid volume in the suction tanks. Once the water intake reached the sump the viscosity has dropped. The mud was reconditioned with polymers. This provided good binding of the loose sands of the Algebuckina Sandstone. Once the casing point was reached a pill from active mud was prepared by adding Aus Gel at 22 ppb. This pill was left at the bottom of the hole to hold loose sands in place and allow casing to be lowered. The use of Xanthan Gum was very beneficial to raising of the YP. The rig crew has installed effective hopper. For the first time chemicals can be mixed in an effective and timely manner.			
PLASTIC VISCOSITY cP @	23 <sup>0</sup> C		1.050				
YIELD POINT (lb/100ft <sup>2</sup> )			42				
GEL STRENGTHS (lb/100ft <sup>2</sup> ) 10 sec/10 min			12				
RHEOLOGY $\theta$ 600 / $\theta$ 300			7				
RHEOLOGY $\theta$ 200 / $\theta$ 100			3.4				
RHEOLOGY $\theta$ 6 / $\theta$ 3			31				
FILTRATE API (cc's/30 min)			19				
HPHT FILTRATE (cc's/30 min) @	<sup>0</sup> F		15				
CAKE THICKNESS API : HPHT (32nd in)			10				
SOLIDS CONTENT (% by Volume)			3				
LIQUID CONTENT (% by Volume) OIL/WATER			2				
SAND CONTENT (% by Vol.)			11.5				
METHYLENE BLUE CAPACITY (ppb equiv.)			0.08				
pH			0.18				
ALKALINITY MUD (Pm)			16,000				
ALKALINITY FILTRATE (Pf / Mf)			880				
CHLORIDE (mg/L)			17,325				
TOTAL HARDNESS AS CALCIUM (mg/L)			3.3				
SULPHITE (mg/L)							
K+ (mg/L)							
KCl (% by Wt.)							
PHPA (ppb)							
ECD (ppg)			8.80				

Mud Accounting (bbls)				Solids Control Equipment							
FLUID BUILT & RECEIVED		FLUID DISPOSED		SUMMARY		Type	Hrs	Cones	Hrs	Size	Hrs
Premix (drill water)		Desander		INITIAL VOLUME	638	Centrifuge		Desander		Shaker #1	
Premix (recirc from sump)		Desilter		+ FLUID RECEIVED		Degasser		Desilter		Shaker #2	
Drill Water		Downhole	1			- FLUID LOST	1				
Direct Recirc Sump		Dumped		+ FLUID IN STORAGE	237			Overflow (ppg)	Underflow (ppg)	Output (Gal/Min.)	
Other (eg Diesel)		Other				Desander			0		
TOTAL RECEIVED		TOTAL LOST	1	FINAL VOLUME	874	Desilter			0		

Product	Price	Start	Received	Used	Close	Cost	Solids Analysis		Bit Hydraulics & Pressure Data		
AMC Pac R	\$ 126.70	20		2	18	\$ 253.40		%	PPB	Jet Velocity	109
Aus-Gel (Aust)	\$ 16.50	54		16	38	\$ 264.00	High Grav solids			Impact force	47
CR 650	\$ 105.12	53		2	51	\$ 210.24	Total LGS	1.8	17.4	HHP	5
Potassium Chloride	\$ 33.00	540		24	516	\$ 792.00	Bentonite	1.3	12.1	HSI	0.2
Xan-Bore	\$ 232.30	3		2	1	\$ 464.60	Drilled Solids	0.5	4.6	Bit Press Loss	93
							Salt	1.0	9.3	CSG Seat Frac Press	
							n @ 18:00 Hrs	0.71		Equiv. Mud Wt.	
							K @ 18:00 Hrs	1.19		Max Pressure @ Shoe :	
							DAILY COST		CUMULATIVE COST		
							\$1,984.24		\$10,841.96		

RMN ENGINEER Jacek Zbik CITY Adelaide Office TELEPHONE 08 8338 7266

Any opinion and/or recommendation, expressed orally or written herein, has been prepared carefully and may be used if the user so elects, however, no representation or warranty is made by ourselves or our agents as to its correctness or completeness, and no liability is assumed for any damages resulting from the use of same.



